

# **Guiding Principles for Conducting Monitoring and Evaluation (M&E) for Medical Stability Operations (MSOs)**



**A product of**

**Navy Medicine's Humanitarian Assistance/Disaster  
Response (HA/DR) Working Group's Evaluation Committee**

## Acknowledgements

The “Guiding Principles for Conducting Monitoring and Evaluation for Medical Stability Operations” was prepared as a product of the Navy Medicine Humanitarian Assistance/Disaster Relief Response Working Group, chartered by the Deputy Surgeon General in April 2009. The report was written by Ms. Debra Schnelle of Trifecta Solutions in collaboration with members of the Working Group and Subject Matter Experts (SMEs).

A special thanks to CDR Bradley J. Hartgerink, MSC, USN and CDR Carlos Williams, MC, USN, for their outstanding leadership and steadfast coordination of this project over the last two years. Thanks to the many SMEs who helped in the development of the health/public health service-specific appendices and to the contributors who provided critical feedback on the final draft.

ADAM M. ROBINSON, Jr.  
Vice Admiral, Medical Corps  
Surgeon General of the Navy  
Bureau of Medicine and Surgery

DONALD R. GINTZIG  
Rear Admiral, Medical Service Corps  
Deputy Chief, Medical Operations and  
Future Plans  
Bureau of Medicine and Surgery

### HA/DR Working Group

Dr. Paula Konoske, NHRC  
Mr. Henry Kniskern, Navy War College  
Patrick Laraby, CAPT, MSC, USN  
Dr. Melinda Moore, RAND  
Ms. Linda Poteat, Interaction  
Dr. Clydette Powell, USAID  
Paul Seeman, CDR, MSC, USN  
Mr. Albert J. Shimkus, Jr., Navy War College  
'Rusty' Stiles, CAPT, MC, USN  
Marion Williams, CDR, MSC, USN  
Mr. John Zarkowsky, BUMED

### Subject Matter Experts

Nanette Brown, CDR, NC, USN  
Steven Cronquist, CDR, MC, USN  
Carolyn Currie, CDR, NC, USN  
Robert Dole, MAJ, VC, USA  
Timothy Donahue, CDR, MC, USN  
Todd Gleason, LCDR, MC, USN  
David Hartzell, CAPT, DC, USN  
Paul Hollier, MAJ, VC, USA  
Janice Manary, CAPT, NC, USN  
Michael Pattison, CAPT, MSC, USN  
Timothy Porea, CAPT, MC, USN  
Natalie Wells, LCDR, MC, USN  
Christopher Westerbrook, CDR, MC, USN

# Executive Summary

This document, "Guiding Principles for Conducting Monitoring and Evaluation (M&E) for Medical Stability Operations (MSOs)," provides mission planners, medical planners and force providers to Medical Stability Operations (MSOs) with the ability to rapidly define the outcomes, activities, measures of effectiveness (MOEs) and measures of performance (MOPs) for MSOs in support of Combatant Commander (CCDR) programs.

This document does *not* address the challenges of defining impacts or measures for theater objectives; it only addresses impacts and measures for health service support to these missions. This scope allows the Military Health System (MHS) to specifically focus on improving the quality of its support to stability operations.

This document also does *not* provide guidance on how to plan or execute an MSO; sufficient guidance already exists within the Navy and Joint arena on that topic. Instead, it presents the tools for incorporating effective measures within the existing MSO mission planning process. Chapters 2 and 3 of this document present background information on the historical context of MSOs and how these missions support the larger strategic objectives of building partnerships and capacity within Host Nations. An essential lesson from this review is that the Military Health System (MHS) must shift from providing available direct care services to delivering health/public health services in support of international health goals, in partnership with the Host Nation and other stakeholders, in a manner that builds the capacity to sustain those services within the Host Nation.

Chapter 4 presents the monitoring and evaluation framework used to define the outcomes, outputs and measures in the document. Chapter 5 defines the impact, or desired effects, for all MSOs and Chapter 6 presents the outcomes associated with defined adaptive force packages, which contribute to that impact. Chapter 7 presents the recommended measures of effectiveness for MSOs in the long-term. An MSO can claim that its activities generally led to an improvement in the desired outcomes if and only if those activities met the following requirements:

- The completed activities were in support of a defined global or national health program;
- The activities performed during the MSO were conducted in collaboration with the Host Nation and other relevant agencies (such as WHO, USAID, and NGOs) as appropriate;
- The activities served to improve the capacity of the Host Nation and can be sustained by the Host Nation or other stakeholder.

Chapter 8 defines outputs for MSOs and Chapter 9 discusses redefining MSO activities in terms of their effectiveness in building partnerships or improving Host Nation capacity. Chapter 10 discusses how measures of performance are developed for MSOs, with specific measures of performance for each capability addressed in the appendices to this document.

Addressed throughout this document is the goal of conducting MSOs focused on building partnerships and capacity with Host and Partner Nations.

Addressed throughout this document is the goal of conducting MSOs focused on building partnerships and capacity with Host and Partner Nations.

# Table of Contents

1	PURPOSE AND SCOPE .....	1
	1.1 Defining Medical Stability Operations .....	1
	1.2 Document Scope .....	2
	1.3 How to Use this Document .....	2
	1.4 Moving Toward Improved Measures.....	2
2	The Strategic Context .....	3
	2.1 US Policy .....	3
	2.2 DoD Guidance .....	3
	2.3 Navy Policy.....	5
	2.4 Theater Guidance .....	6
	2.5 Summary .....	6
3	From MEDCAP to MSO: Making the Case for Change .....	7
	3.1 The Growing Role of the Military in Humanitarian Assistance .....	7
	3.2 Lessons Learned from Vietnam .....	8
	3.3 Continuing Promise and Pacific Partnership .....	11
	3.4 Moving from Measures of <i>EFFORT</i> to Measures of <i>EFFECTIVENESS</i> .....	13
	3.5 Recognizing the HN Role .....	14
	3.6 Summary .....	15
4	Establishing the Monitoring & Evaluation Framework.....	16
	4.1 Many Monitoring and Evaluation Frameworks Exist.....	16
	4.2 The Results Framework for MSOs .....	17
	4.3 The Challenge of Measuring Global Health .....	19
	4.4 Objectives of Medical Stability Operations .....	21
5	Defining Outcomes for Medical Stability Operations .....	24
	5.1 Adaptive Force Packages.....	24
	5.2 Defining Outcomes .....	27
6	Defining Measures of Effectiveness for Medical Stability Operations .....	29
7	Defining Outputs for Medical Stability Operations.....	32
	7.1 Mission Readiness Outputs.....	32
	7.2 Summary .....	33
8	Redefining Activities for Medical Stability Operations .....	34
9	Defining Measures of Performance (MOPs) for MSOs .....	37
10	Incorporating Monitoring and Evaluation in Medical Stability Operations .....	38
	10.1 Monitoring and Evaluation .....	38
	10.2 COCOM and Mission Objectives .....	39
	10.3 Mission Planning: Selecting Outputs and Activities.....	41
	10.4 Mission Execution: Data Collection .....	45
	10.5 Mission Reporting.....	49

10.6	Mission Analysis.....	49
10.7	Dental Services Example: Outcomes, Activities, and Measures .....	49
10.8	Dental Service Activities .....	49
10.9	Dental Service Outputs and MOPs .....	50
10.10	General Planning Considerations.....	51
10.11	Summary of MSO Capabilities.....	54
11	Appendix A: References .....	67
12	Appendix B: Acronyms .....	75
13	Appendix C: Current MSO Mission Processes.....	77
13.1	Review of COCOM Program Objectives .....	77
13.2	Developing Mission Objectives.....	77
13.3	Planning Timeline for Missions Involving Hospital Ships .....	78
13.4	Pre-Deployment Site Surveys (PDSS).....	78
13.5	Advance Team (ADVON).....	78
13.6	Current MSO Data Collection Processes.....	79
13.7	Current MSO Mission Reporting.....	80
14	Appendix D: Sample Health Facility Assessment Form .....	82
15	Appendix E: Disaster Preparedness .....	86
15.1	Introduction.....	86
15.2	Disaster Preparedness Activities.....	92
15.3	Disaster Preparedness Outputs and MOPs.....	92
16	Appendix F: Dental Services .....	93
16.1	Introduction.....	93
16.2	Dental Service Outcomes and MOEs .....	93
16.3	Dental Service Activities .....	93
16.4	Dental Service Outputs and MOPs .....	94
16.5	Dental Service Planning Considerations.....	96
17	Appendix G: Surgical Services .....	98
17.1	Introduction.....	98
17.2	Surgical Outcomes and MOEs.....	98
17.3	Surgical Activities.....	98
17.4	Surgical Outputs and MOPs .....	99
17.5	Planning Considerations .....	100
18	Appendix H: Infectious Disease .....	101
18.1	Introduction.....	101
18.2	Infectious Disease Outcomes and MOEs.....	101
18.3	Infectious Disease Activities.....	102
18.4	Infectious Disease Outputs and MOPs .....	106
18.5	Infectious Disease Planning Considerations .....	107
19	Appendix I: Children's Health .....	108

	19.1	Introduction.....	108
	19.2	Children's Health Outcomes and MOEs .....	108
	19.3	Children's Health Outputs and MOPs .....	111
	19.4	Planning Considerations .....	111
20		Appendix J: Women's Health .....	112
	20.1	Introduction.....	112
	20.2	Women's Health Outcomes and MOEs.....	112
	20.3	Women's Health Activities .....	112
	20.4	Women's Health Outputs and MOPs .....	116
	20.5	Planning Considerations .....	117
21		Appendix K: Dermatology Services .....	119
	21.1	Introduction.....	119
	21.2	Dermatology Outcomes and MOEs .....	120
	21.3	Dermatology Activities.....	120
	21.4	Dermatology Outputs and MOPs.....	121
	21.5	Planning Considerations .....	121
22		Appendix L: Eye Care Services .....	122
	22.1	Introduction.....	122
	22.2	Eye Care Outcomes and MOEs .....	123
	22.3	Eye Care Activities .....	123
	22.4	Eye Care Outputs and MOPs .....	125
	22.5	Planning Consideration.....	125
23		Appendix M: Public Health Services.....	130
	23.1	Introduction.....	130
	23.2	Public Health Outcomes and MOEs .....	131
	23.3	Public Health Activities .....	132
	23.4	Public Health Outputs and MOPs.....	133
	23.5	Planning Considerations .....	134
24		Appendix N: Drinking Water.....	136
	24.1	Introduction, .....	136
	24.2	Drinking Water Activities.....	138
	24.3	Drinking Water Outputs and MOPs.....	139
	24.4	Planning Considerations .....	139
25		Appendix O: Sanitation.....	140
	25.1	Introduction.....	140
	25.2	Sanitation Activities.....	140
	25.3	Sanitation Outputs and MOPs.....	141
	25.4	Planning Considerations .....	141
26		Appendix P: Pest Management.....	142
	26.1	Introduction.....	142
	26.2	Pest Management Activities .....	143

	26.3	Pest Management Outputs and MOPs .....	144
	26.4	Planning Considerations .....	144
27		Appendix Q: Animal Health .....	145
	27.1	Introduction.....	145
	27.2	Animal Health Outcomes and MOEs .....	149
	27.3	Animal Health Activities .....	149
	27.4	Animal Health Outputs and MOPs .....	151
	27.5	Animal Health Outputs and MOPs .....	152
	27.6	Planning Considerations .....	154
28		Appendix R: Epidemiology and Public Health Surveillance.....	155
	28.1	Introduction, .....	155
	28.2	Epidemiological Activities.....	156
	28.3	Epidemiology Outputs and MOPs .....	157
	28.4	Planning Considerations .....	157
29		Appendix S: Food Security & Safety.....	158
	29.1	Introduction.....	158
	29.2	Food Security and Safety Activities .....	159
	29.3	Food Security and Safety Outputs and MOPs .....	160
	29.4	Planning Considerations .....	160
30		Appendix T: Infection Prevention Control .....	161
	30.1	Introduction, .....	161
	30.2	Infection Control Activities .....	161
	30.3	Infection Control Outputs and MOPs .....	161
	30.4	Planning Considerations .....	161
31		Appendix U: Environmental Health .....	162
	31.1	Introduction.....	162
	31.2	Environmental Health Activities.....	162
	31.3	Environmental Health Outputs and MOPs .....	162
	31.4	Planning Considerations .....	162

## List of Tables

Table 1: PP Engagements .....	12
Table 2: CP Engagements .....	12
Table 3: Aligning MSO Impact & Outcomes with Program & Mission Objectives .....	41
Table 4: Example of a Mission Planning Sheet: Mission History .....	42
Table 5: Example of a Mission Planning Sheet: Communication History .....	43
Table 6: Example of a Mission Planning Sheet: Selecting Outputs & Activities .....	44
Table 7: Standardized Terminology for MSO Mission Data Collection .....	46
Table 8: Data Sample from USS KEARSARGE, August 2008 .....	47
Table 9: Outputs and Measures of Performance for Dental Services .....	51
Table 10: Summary of Outcomes, Outputs and Measures .....	55
Table 11: Number of Animals Treated in a Typical VETCAP .....	81
Table 12: Infection Control Outputs and MOPs .....	92
Table 13: Outputs and Measures of Performance for Dental Services .....	95
Table 14: Surgical Outputs and Measures of Performance (MOPs) .....	100
Table 15: Infectious Disease Outputs and Measures of Performance (MOPs) .....	107
Table 16: Children's Health Outputs and MOPs .....	111
Table 17: Women's Health Outputs and MOPs .....	117
Table 18: Dermatology Outputs and MOPs .....	121
Table 19: Eye Care Outputs and MOPs .....	125
Table 20: Public Health Outputs and MOPs .....	133
Table 21: Drinking Water Outputs and MOPs .....	139
Table 22: Sanitation Outputs and MOPs .....	141
Table 23: Pest Management Outputs and MOPs .....	144
Table 24: Animal Health Outputs and MOPs .....	152
Table 25: Epidemiology & Public Health Surveillance Outputs and MOPs .....	157
Table 26: Food Security and Safety Outputs and MOPs .....	160
Table 27: Infection Control Outputs and MOPs .....	161
Table 28: Environmental Health Outputs and MOPs .....	162

## List of Figures

Figure 1: Continuing Promise 2008, Pacific Phase (USS BOXER) .....	13
Figure 2: Results Framework for Adaptive Force Packages .....	17
Figure 3: Menu of Health Services .....	25
Figure 4: Menu of Public Health Services .....	26
Figure 5: Incorporating Monitoring & Evaluation into a Mission Cycle .....	39
Figure 6: Dental Services Data Extract from USS BOXER Mission, 2008 .....	50
Figure 7: Excerpt of Preventive Medicine Data from El Salvador Portion of CP08 .....	80
Figure 8: Continuing Promise 2008, Pacific Phase (USS BOXER) .....	81
Figure 9: Dental Services Data Extract from USS BOXER Mission, 2008 .....	95
Figure 10: Original Depiction of Public Health Services .....	130
Figure 11: Preferred Organization of Public Health Services .....	131

# 1 PURPOSE AND SCOPE

2 This document, "Guiding Principles for Conducting Monitoring and Evaluation (M&E) for  
3 Medical Stability Operations (MSOs)," provides force providers, mission planners, and medical  
4 planners of Medical Stability Operations (MSOs) with the ability to rapidly define the outcomes,  
5 activities, measures of effectiveness (MOEs) and measures  
6 of performance (MOPs) for MSOs in support of  
7 Combatant Commander (CCDR) programs.

## 8 1.1 Defining Medical Stability Operations

9 The term 'Medical Stability Operation,' or MSO, is not  
10 yet clearly defined in doctrine; its current definition is  
11 expressed in the recent DoD Instruction 6000.16 and is  
12 defined as "military health support for stability  
13 operations," where stability operations are defined as an  
14 "overarching term for various military missions." There is  
15 no definitive agreement on the use of the term medical  
16 stability operations to refer to activities such as  
17 humanitarian assistance or disaster relief or for those  
18 activities often referred to as "medical diplomacy,"  
19 "building partner capacity," or "cooperative health  
20 engagements." None of these terms are exactly correct  
21 and some of them are open to misinterpretation. For  
22 example, "medical diplomacy" suggests the perception  
23 that a country may use medicine as a political/social  
24 means to an end solely based on self-interest. "Building  
25 partner capacity" can also be misinterpreted as the  
26 "egocentric U.S. government having all the answers – and  
27 nothing to learn."<sup>1</sup> "Medical Stability Operations"  
28 implies that the country may be in need of stabilization,  
29 which is often not the case, such as missions executed in  
30 Chile or Vietnam."<sup>2</sup>

31 The exact scope of the term 'Medical Stability Operations' is currently under discussion; for  
32 now, this document will use the term ***MSO(s) to refer to the broad set of cooperative health***  
33 ***engagement activities performed in support of building partnerships within a nation or region.***  
34 Within the U.S. Navy, the programs Pacific Partnership (PP) and Continuing Promise (CP) are  
35 examples of such cooperative health engagements and are the focus of this document, although  
36 its recommendations can also be applied to other types of medical stability operations.

*Stability Operations is "an overarching term encompassing various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power to maintain or re-establish a safe and secure environment, provide essential government services, emergency infrastructure reconstruction, and humanitarian relief.*

*Joint Publication 1-02, "DoD Dictionary of Military and Associated Terms," 12 April 2001 (As amended through April 2010)*

*Military health support for stability operations is hereafter referred to as medical stability operations (MSOs).*

*DoD Instruction 6000.16, "Military Health Support for Stability Operations," May 17, 2010*

<sup>1</sup> Murphy, Sean; Agner, Dale, "Cooperative Health Engagement in Stability Operations and Expanding Partner Capability and Capacity," Military Medicine, Aug 2009.

<sup>2</sup> Ibid.

## 1.2 Document Scope

This document is offered as a guide to aid planners, leadership personnel and assigned personnel in improving the quality of MSOs through the incorporation of effective measurement tools. The document focuses on the impact and measures for the *health service support* to these missions, allowing the Combatant Commands (COCOMs) to focus on assessing their theater and mission objectives. This allows Navy Medicine (or the Military Health System) to focus on improving the quality of its support to stability operations.

Both DoD and Navy leadership employ Adaptive Force Packaging (AFP) to ensure the right capability (e.g., trained personnel with appropriate equipment and supplies) is provided at the right time for a specific mission. For each adaptive force package typically deployed in support of an MSO, this document defines its associated outcomes, measures of effectiveness, activities, and measures of performance.

This document does *not* provide guidance on how to plan or execute an MSO; sufficient guidance already exists within the Navy and Joint arena on that topic (see Appendix A: References). *Instead, it presents tools for incorporating effective measures within the existing MSO mission planning process.* This document also does not define a mission assessment framework that requires comprehensive changes to existing mission objectives and/or planning processes; it presents a monitoring and evaluation framework that is congruent with existing MSO mission objectives and processes. As such, it is hoped that the principles and definitions in this document will allow medical and mission planners to immediately begin collecting meaningful data on the outcomes and performance of MSO missions, while working to develop more long-term objectives.

## 1.3 How to Use this Document

Naturally, the use of this document depends upon the user. Medical planners may apply the objectives and measures of effectiveness within this document to their on-going partnership programs, or as a reference for better understanding the efforts of specific mission areas.

Mission planners or health/public health service leads may focus only on the appendices relevant to their efforts and can use the suggested activities and measures within those appendices as useful guides in planning their own efforts.

This document is intended as a guide, and is not prescriptive in any manner; users are free to implement (or not), as they choose.

## 1.4 Moving Toward Improved Measures

Many ‘measures of effort’ are described within this document and have not been replaced by activities and measures consistent with more elaborate monitoring and evaluation frameworks. **This document is intended to be consistent with existing practices; sophisticated population health measures are simply not possible in a system that does not yet employ consistent terminology or processes in collecting data.** As mission activities and data collection efforts become more defined and standardized, more sophisticated measures will be possible and – at that time – will be recognized as valid. Section 4 describes some of the challenges in constructing and collecting data on global health indicators.

The goal for this Handbook is to *initiate* the process of developing those sound, consistent processes so that the effectiveness of missions, services, and even individual interventions can be monitored and assessed across multiple missions over time.

## 2 The Strategic Context

This section draws upon chapters 1 and 2 of the draft document, "Bureau of Medicine and Surgery: Foreign Humanitarian Assistance Concept of Employment" (1 December 2010) for its summary of the strategic context for MSOs.

### 2.1 US Policy

There are three key U.S. policy documents that provide strategic guidance for MSOs: the National Security Strategy (NSS), the Department of State (DoS)/USAID Strategic Plan, and the Global Health Initiative (GHI).

The National Security Strategy of 2010 emphasizes "comprehensive engagement"<sup>3</sup> with other nations around the world as a key element of its strategic approach. In addition, it stresses a "whole of government"<sup>4</sup> approach to this engagement, a seamless integration of military and civilian capabilities. Key to this strategy is the "investment in the capacity of strong and capable partners."<sup>5</sup>

The DoS/USAID Strategic Plan's strategic goals include two that are relevant to MSO missions: Strategic Goal #3, "Investing in People" and Strategic Goal #5, "Providing Humanitarian Assistance." "Investing in People" specifically endorses "improving global health, including child, maternal, and reproductive health; reduc[ing] disease, especially HIV/AIDS, malaria, tuberculosis, and polio; and increas[ing] access to improved drinking water and sanitation services."<sup>6</sup>

"Providing Humanitarian Assistance" notes DoD as a strategic partner in providing humanitarian assistance by "mobiliz[ing] large-scale logistical support in humanitarian emergencies; stabiliz[ing] countries affected by conflict, including providing security for the provision of humanitarian assistance; and provid[ing] humanitarian assistance in environments so insecure that civilian agencies are not able to operate."<sup>7</sup>

The U.S. government is pursuing a comprehensive whole of government approach to global health through the GHI. The GHI objectives are to achieve significant health improvements by "creating effective, efficient and country-led platform[s] for the sustainable delivery of essential health care and public health programs."<sup>8</sup>

### 2.2 DoD Guidance

The following guidance documents include DoD guidance for stability operations and the military health support to stability operations: the Quadrennial Defense Review (QDR), Joint Publications, such as the Joint Capability Areas, and DoD Instructions.

The 2010 QDR states that the U.S. military must be prepared to support the U.S. national goal of promoting stability in key regions by providing assistance to nations in need. One of the

---

<sup>3</sup> National Security Strategy, May 2010, pg 3.

<sup>4</sup> National Security Strategy, May 2010, pg 14

<sup>5</sup> National Security Strategy, May 2010, pg 26

<sup>6</sup> Department of State/USAID Strategic Plan FY 2007-2012, pg 22

<sup>7</sup> Department of State/USAID Strategic Plan FY 2007-2012, pg 33

<sup>8</sup> Implementation of the Global Health Initiative: Consultation Document, pg 3

1 recommendations of the QDR is to strengthen relationships with other Federal agencies, key  
2 allies and partners abroad.

3 The Joint Capability Areas (JCA) include the capability 'Building Partnerships,' defined as the  
4 "ability to set the conditions for interaction with partner, competitor or adversary leaders,  
5 military forces, or relevant populations by developing and presenting information and conducting  
6 activities to affect their perceptions, will, behavior, and capabilities."<sup>9</sup>

7 A variety of Joint Staff publications focus on differing elements of stability operations and  
8 MSOs:

- 9 • JP 3-07.3 Peace Operations provides doctrine for planning and executing peace operations;  
10 updates to this document clearly identify peace operations as one type of stability operation.
- 11 • JP 3-07.6, "Joint Tactics, Techniques and Procedures for Foreign Disaster Relief," defines the  
12 types of foreign humanitarian assistance operations and provides guidelines for the  
13 organization and coordination of these missions at the Joint Task Force level.
- 14 • JP 3-08 Interagency, Intergovernmental Organization, and Nongovernmental Organization  
15 Coordination During Joint Operations (Volumes I & II). Volume I discusses the interagency,  
16 intergovernmental organization (IGO) and nongovernmental organization (NGO)  
17 environment and provides fundamental principles and guidance to facilitate coordination  
18 between the DoD, and other U.S. Government agencies, IGOs, NGO"s, and regional  
19 organizations. Volume II describes key U.S. Government departments and agencies, IGOs  
20 and NGOs - their core competencies, basic organizational structures, and relationship (or  
21 potential relationship) with the U.S. military.<sup>10</sup>
- 22 • JP 3-29 Foreign Humanitarian Assistance (FHA) re-states the DoS and DoD relationship  
23 defined in the USAID Strategic Plan and identifies the three missions of medical forces  
24 during Foreign Humanitarian Assistance (FHA) missions: force health protection, care for  
25 disaster victims, and assisting in reestablishing indigenous public health resources and  
26 institutions affected by the disaster.<sup>11</sup>
- 27 • JP 3-57 Civil-Military Operations, provides joint doctrine for the planning and conduct of  
28 civil-military operations (CMO) by joint forces, the use of civil affairs forces, the conduct of  
29 civil affairs operations, and the coordination with other capabilities contributing to the  
30 execution of CMO to achieve unified action.<sup>12</sup>
- 31 • JP 4-02, Health Service Support, provides doctrine for the planning and execution of force  
32 health protection and health service support at the operational level, throughout the range of  
33 military operations<sup>13</sup>

34 Two DoD Instructions (DoDI) directly address stability operations and MSOs: DoDI 3000.05,  
35 *Stability Operations* (16 Sep 09), and DoDI 6000.16, *Military Health Support for Stability*  
36 *Operations* (17 May 10). DoDI 3000.05 states that "stability operations are a core U.S. military  
37 mission that the DoD shall be prepared to conduct with proficiency equivalent to combat  
38 operations....DoD shall have the capability and capacity to "establish civil security and civil

---

<sup>9</sup> *Joint Capability Management System*, <http://jcams.penbaymedia.com/>, accessed 28 Dec 10

• <sup>10</sup> JP 3-08 Interagency, Intergovernmental Organization, and Nongovernmental Organization  
Coordination During Joint Operations (Volumes I & II), 17 Mar 06

<sup>11</sup> JP 3-29, *Foreign Humanitarian Assistance*, 17 Mar 2009, pg I-1

<sup>12</sup> JP 3-57, *Civil-Military Operations*, 8 Jul 08

<sup>13</sup> JP 4-02, *Health Service Support*, 31 Oct 06

1 control; restore or provide essential services; repair critical infrastructure; and provide  
2 humanitarian assistance."<sup>14</sup>

3 DoDI 6000.16 states that "MSOs are a core U.S. military mission that the DoD Military Health  
4 System (MHS) shall be prepared to conduct throughout all phases of conflict and across the  
5 range of military operations, including in combat and non-combat environments."<sup>15</sup> Other  
6 relevant DoD Instructions or Directives include:

- 7 • DoDD 5100.46, "Foreign Disaster Relief," 4 Dec 75, assigns responsibilities for foreign  
8 disaster relief.
- 9 • DoDI 2205.02, "Humanitarian and Civic Assistance (HCA) Activities," 2 Dec 08. This  
10 instruction states that HCA missions may include "medical, surgical, dental, and veterinary  
11 care provided in areas of a country that are rural or are underserved by medical, surgical,  
12 dental and veterinary professionals, respectively, including education, training, and technical  
13 assistance related to the care provided. It also requires the Combatant Commander to monitor  
14 the effectiveness of these missions."<sup>16</sup>

15 In addition, the Joint Capability Area,  
16 'Building Partnerships,' defines building  
17 partnerships as "the ability to set the  
18 conditions for interaction with partner,  
19 competitor or adversary leaders, military  
20 forces, or relevant populations by  
21 developing and presenting information and  
22 conducting activities to affect their  
23 perceptions, will, behavior, and  
24 capabilities." Communicating and shaping  
25 are identified as key skills for building  
26 partnerships, defined as presenting  
27 information to domestic and foreign  
28 audiences and conducting activities that  
29 will affect the perceptions, will, behavior  
30 and capabilities to further U.S. national  
31 security or shared global security interests

### 32 **2.3 Navy Policy**

33 Corresponding Navy policy regarding  
34 MSOs has been expressed in several  
35 overarching documents:

- 36 • A Cooperative Strategy for 21st Century Seapower (CS21), released in 2007, describes six  
37 core capabilities that comprise U.S. maritime power and these capabilities include  
38 humanitarian assistance and disaster response;
- 39 • Navy Strategic Plan requires the Navy to conduct proactive humanitarian assistance; expand  
40 critical partner nations' capability and capacity to respond to disasters; and bolster the stability  
41 of these nations by providing humanitarian assistance;

*Pacific Command (PACOM)'s Theater Security Cooperation Plan (TSCP) includes a medical services annex, which provides guidelines for developing medical engagement activities. These guidelines can be linked back to objectives in the national security strategy guidance and emphasize the following:*

- Partnership enhancement
- Capacity building
- Interagency coordination and partnerships

*U.S. Pacific Command Annex Q to  
USPACOM Theater Campaign Plan 5000-  
11: Medical Services, May 2010*

<sup>14</sup> DoD Instruction 3000.05, Stability Operations, 16 Sep 09, pg 2

<sup>15</sup> DoD Instruction 6000.16, Military Health Support for Stability Operations, 17 May 10, pg 1

<sup>16</sup> DoD Instruction 2205.02, Humanitarian and Civic Assistance Activities, 2 Dec 08

- 1 • Naval Operations Concept 2010: Implementing the Maritime Strategy;<sup>17</sup>
  - 2 • Navy Medicine Strategic Plan recognizes humanitarian assistance capabilities as part of its
  - 3 Agile Forces strategic goal.
- 4 The Navy strategic plan, *A Cooperative Strategy for 21st Century Seapower*, adopts
- 5 humanitarian assistance and disaster relief as one of six core capabilities of U.S. maritime power
- 6 (document was signed by the Navy, Marine Corps and Coast Guard). The Naval Operations
- 7 Concept 2010 states that “globally-distributed and regionally concentrated naval forces are
- 8 ideally suited for humanitarian assistance and disaster response in the littorals where the
- 9 preponderance of the world’s population resides.” The concept goes on to state that “proactive
- 10 humanitarian assistance/disaster relief activities...enhance or restore critical host nation capacity,
- 11 provide an opportunity to engage with a broader...cross-section of the host nation’s population,
- 12 and build relationships that serve to increase trust.<sup>18</sup>
- 13 Similarly, the Navy Medicine Strategic Plan incorporates medical support of humanitarian
- 14 assistance and disaster relief into its vision statement. More specifically, its Tier 1 Goal, Agile
- 15 Forces, states: *The Naval Forces will have the right capabilities to deliver consistent,*
- 16 *appropriate, and timely health care services across the entire range of joint military*
- 17 *operations.*<sup>19</sup>

18 **2.4 Theater Guidance**

19 Theater guidance applies national guidance to specific regions and countries. Each Combatant

20 Commander (CCDR) develops a Theater Campaign Plan (TCP), which operationalizes strategic

21 guidance by linking activities to U.S. government policy and strategy. TCPs incorporate security

22 cooperation activities as an important means to achieve theater objectives and end states. The

23 growing importance of building partnerships with other nations and building the capacity of

24 these nations is reflected in the TCPs of the various combatant commands.

25 Navy component commanders apply the Navy’s strategy for 21<sup>st</sup> century seapower to the

26 geographic combatant commanders’ theater campaign plans in order to provide administrative

27 and operational direction to the fleet. This fleet guidance is promulgated as the Maritime

28 Security Cooperation Plan (MSCP) and is issued by each Navy component commander. This

29 plan contains the Navy’s theater, regional, and country-specific security cooperation objectives,

30 which guide tactical-level activities with foreign nations.<sup>20</sup>

31 **2.5 Summary**

32 Within the last few years, the U.S. government, DoD and the Navy have recognized

33 humanitarian assistance as an essential element in building partnerships and capacities within

34 other nations. Guidance from multiple levels directs that MSOs - which include humanitarian

35 assistance - be directed at the strategic objectives of building partnerships and HN capacity. In

36 addition, the guidance is clear that these MSOs must be able to assess their own effectiveness

37 and improve the quality of their activities.

---

<sup>17</sup> Chief of Naval Operations, “Naval Operations Concept: Implementing the Maritime Strategy,” 2010

<sup>18</sup> Chief of Naval Operations, “Naval Operations Concept: Implementing the Maritime Strategy,” 2010, p. 46-47

<sup>19</sup> Navy Medicine Strategic Plan, pp 15

<sup>20</sup> Navy Warfare Development Command, Tactical Commander’s Handbook for Theater Security Cooperation,” 2009, pg 1:3 – 1:4.

### 3 From MEDCAP to MSO: Making the Case for Change

This section will describe the DoD's growing role in humanitarian assistance and trace some of the mechanisms the DoD uses to provide health/public health services in an MSO. The significant weaknesses of existing practices will be identified and discussed, leading to an understanding of what is needed in developing a monitoring and evaluation framework for MSOs.

#### 3.1 The Growing Role of the Military in Humanitarian Assistance

In the civilian community, “humanitarian aid must be delivered to a crisis-affected population for the primary purpose of saving lives and alleviating suffering, and provided in accordance with the basic humanitarian principles.”<sup>21</sup> This humanitarian aid can take the form of direct assistance, indirect assistance (such as transportation) and infrastructure support.

Historically, much of the work of humanitarian assistance has been shouldered by civilian organizations, which are commonly categorized as follows:

- IGOs: international governmental organizations, such as the United Nations and the World Health Organization
- INGOs or NGOs: international non-governmental organizations, such as OXFAM
- PVOs: private voluntary organizations, such as Project HOPE
- U.S. governmental organizations, such as the U.S. Agency for International Development (USAID)

In the Department of Defense (DoD) – and in this document - the term ‘humanitarian assistance’ is used as an umbrella term that covers foreign humanitarian assistance, humanitarian and civic assistance programs, and disaster relief efforts. As stated in the USAID Strategic Plan, the DoD’s role in humanitarian assistance is to provide large-scale logistical support, stabilize countries affected by conflict, and provide humanitarian assistance in environments so insecure that civilian agencies are not able to operate (see Section 2.1).

*The [MEDCAP] program's objectives were to convince the people in the remote areas [of Vietnam] that the government was vitally interested in their welfare, encourage the Vietnamese public health agencies to cooperate with and include civic action in their rural health endeavors, and provide instruction to village health workers.*

*The first American MEDCAP teams arrived in Vietnam in January 1965. They arrived without adequate orientation on the environment, language, culture, and medical problems they would have to face. U.S. medical personnel were assigned to assist the Vietnamese medical personnel, and a 'bonus' side effect was the improvement of the image of the U.S. medical personnel.*

*Robert J. Wilensky, "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War" (pg 53-54)*

<sup>21</sup> CDHAM, “Guide to Nongovernmental Organizations for the Military,” edited by Dr. Lynn Lawry, Summer 2009, p. 18

1 Civilian humanitarian assistance (HA) organizations, whether governmental non-governmental,  
2 are often on site and actively executing missions prior to the military's arrival in a region.<sup>22</sup> The  
3 number has grown considerably since 1988, and the military's role in these activities has  
4 expanded as well. Operation Provide Comfort (Apr-Jul 1991) is one of the first examples of a  
5 U.S. *military*-led humanitarian assistance operation. In Operation Provide Comfort, the U.S.  
6 military led a coalition of nations in defending Kurds fleeing northern Iraq and provided  
7 humanitarian assistance to them, eventually transferring the latter function to the United Nations.  
8 Shortly after Operation Provide Comfort, the U.S. military participated in humanitarian  
9 assistance missions to Haiti, Somalia, Rwanda, and Bosnia.

### 10 **3.2 Lessons Learned from Vietnam**

11 Of course, the U.S. military has often provided healthcare to a host nation in a military context,  
12 such as through the Medical Civic Action Programs (MEDCAPs) conducted during the Vietnam  
13 War. MSOs around the world still use MEDCAPs and their analogues, DENCAPs and  
14 VETCAPs (for dental and veterinary  
15 civic action programs, respectively)  
16 to provide health care services to HN  
17 populations.<sup>23</sup>

18 However, this delivery mechanism  
19 has suffered from several significant  
20 weaknesses first identified during the  
21 Vietnam War: a mismatch between  
22 strategic objectives and the delivery  
23 mechanism, poor coordination across  
24 multiple missions, and the use of  
25 measures of effort instead of  
26 measures of effectiveness to evaluate  
27 the programs. In addition, far too  
28 often the U.S. efforts did *not* succeed  
29 in improving the perception of the  
30 local populace in the HN capabilities,  
31 as U.S. services far exceeded and  
32 overshadowed HN capabilities.

33 The MEDCAP program developed  
34 during the Vietnam War suffered  
35 from unclear direction and multiple  
36 strategic goals. The basic intent of  
37 the original MEDCAP (later known  
38 as MEDCAP I) was "to establish and  
39 maintain a continuing spirit of mutual  
40 respect and cooperation between the  
41 Republic of Vietnam Armed Forces

*The traditional medical civic action program is a classic example of impatience mixed with goodwill. The traditional MEDCAP might be counterproductive to the overall goal of creating confidence in the local government. It might foster a false impression about the local government's ability and desire to meet the population's needs by building expectations that cannot be met after the departure of U.S. personnel (pg 111).*

*The perverse reality is that the program with the most significant public relations value (MEDCAP) was the least effective in providing long-lasting medical benefit....For the vast majority of the population, medical benefits were minimal and fleeting. While the local populace appreciated these benefits, they did not identify these medical efforts with the government of the Republic of Vietnam. Therefore, these efforts did little to further U.S. foreign policy objectives (pg 120).*

*Robert J. Wilensky, "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War"*

<sup>22</sup> Joint Warfighting Center, Joint Task Force Commander's Handbook for Peace Operations, 16 Jun 97, pp 11-2.

<sup>23</sup> Center for Disaster and Humanitarian Assistance Medicine, "Measuring the Effectiveness of DoD Humanitarian Assistance," CDHAM Pub 02-03, pp 17.

1 and the civilian population."<sup>24</sup> The leadership rapidly realized that American medical personnel  
2 in uniform providing treatment to local populations could not achieve an improvement in the  
3 image of the South Vietnamese Army and this program was later transferred to the Vietnamese.  
4 With the large influx of American military into Vietnam in 1965, MEDCAP II was initiated  
5 because of the increased availability of American medical personnel. The intent of MEDCAP II  
6 was to "provide improved medical and surgical services, especially in the more remote areas of  
7 Vietnam, Laos, and Thailand."<sup>25</sup> However, the most frequent criticism of MEDCAP II was the  
8 negligible medical value of the program. One end-of-tour report noted, "MEDCAP is one of the  
9 [sic] outstanding goodwill pacification programs available. It is a poor medical program,"<sup>26</sup> and  
10 ultimately the MEDCAP program became  
11 hostage to the goal of improving the image of  
12 the American military.

13 Even the command structure was unclear  
14 about the actual goals of the MEDCAP  
15 program; a Military Assistance Advisory  
16 Group (MAAG) report noted that "confusion  
17 continued on the U.S. side concerning the  
18 ultimate objective of the program: the  
19 medical relief of suffering or the political  
20 winning of the civilian population. The two  
21 poles of thought supported different  
22 operational methods."<sup>27</sup>

23 The second problem in the execution of  
24 MEDCAPs during the Vietnam War was its  
25 poor management control. "No tight control  
26 of the MEDCAP programs ever existed.  
27 Direction from the command level was vague  
28 and intermittent. Efforts of the various  
29 services were poorly coordinated."<sup>28</sup>

30 Due to security concerns, return visits to a  
31 MEDCAP site could not be announced or  
32 scheduled in advance for fear of an ambush.  
33 Coordination with district or provincial  
34 advisors was poor, again due to security  
35 reasons. In one extreme example, a medical  
36 group arrived in a hamlet to find four other

#### *Examples of MEDCAP Reporting*

*"Medical civic action program continues to be highly effective with large numbers of civilians treated throughout the Hop Tac area"(pg 79).*

*July 1967: "...the regiment's emphasis on MEDCAP showed positive results as the number of patients treated increased fourfold. A total of 299,971 patients were treated"(pg 80).*

*1968: "A total of 15,510 patients were seen and treated in the formal MEDCAP plan of the battalion" (pg 83).*

*"...generally all MEDCAP projects were quite successful in that a great deal of medical aid and medical supplies were dispensed to the local populous [sic] who are always enthusiastic in their gratitude." (pg 84).*

*Robert J. Wilensky, "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War"*

<sup>24</sup> Wilensky, Robert J., "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War," Texas Tech University Press, Lubbock, Texas, 2004 pg 53.

<sup>25</sup> Wilensky, Robert J., "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War," Texas Tech University Press, Lubbock, Texas, 2004 pg 55.

<sup>26</sup> Wilensky, Robert J., "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War," Texas Tech University Press, Lubbock, Texas, 2004 pg 91.

<sup>27</sup> Wilensky, Robert J., "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War," Texas Tech University Press, Lubbock, Texas, 2004 pg 90.

<sup>28</sup> Wilensky, Robert J., "Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War," Texas Tech University Press, Lubbock, Texas, 2004 pg 130.

1 MEDCAP missions taking place at that time.<sup>29</sup>  
2 Finally, reports and evaluations of the program focused more on developing press material  
3 suitable for publication in hometown newspapers than on measures of program effectiveness.  
4 "Unit reports provided generalizations about the care rendered or the numbers of patients  
5 treated,"<sup>30</sup> and not about any long-term improvement in the stability of the South Vietnamese  
6 government. No attempt was made to evaluate the program in any meaningful manner and there  
7 is no substantiation for the generally positive conclusions reached in the various unit reports.<sup>31</sup>  
8 As the war progressed, it became clear to unit commanders that their performance rating  
9 depended upon improving on their 'numbers;' whether those numbers dealt with numbers of  
10 patients treated or enemies killed in action.<sup>32</sup>

### 11 **3.2.1 The MEDCAP Today**

12 The three weaknesses of the MEDCAP program discussed in the previous section are still  
13 relevant to current humanitarian assistance efforts. As discussed earlier (Section 1.1), the term  
14 MSO in this document refers to the broad set of cooperative health engagement activities  
15 performed in support of building partnerships and capacity within a nation or region. However,  
16 although the objectives of an MSO may focus on  
17 building partnerships or capacity, the direct  
18 patient care focus of the MEDCAP may not  
19 always be consistent with these goals. Today,  
20 individual MSO missions are planned and  
21 coordinated with the relevant agencies, but the  
22 outcomes and initiatives from one mission may  
23 not continue in the next mission; and there may  
24 be no integration with another mission in the  
25 same country sponsored by a different command.  
26 Finally, the measures used in today's missions are  
27 still 'measures of effort,' focusing on reporting the  
28 total numbers of patients treated instead of  
29 evaluating the outcomes of the mission.

30 Many experts in humanitarian assistance and  
31 humanitarian assistance participants have argued  
32 that DoD's priority in MSOs should shift from  
33 costly, short-term, direct patient care, towards  
34 projects that collaboratively build HN healthcare  
35 capacity and long-term capability,<sup>33</sup> with an emphasis on improving the public health capacity of  
36 the HN. In the last few years, combatant commands have been working to address these issues.

*Historically, DoD MSO projects have been "ad hoc, short-term, 1-time interventions, limited in their ability to show effectiveness."*

*Measures for impact assessment are rarely collected during DoD MSO, and when attempted, the measures are often limited to level of effort measures, such as the number of patients seen or the number of surgeries performed.*

*EJ Reaves, KW Schor, & FM Burkle, "Implementation of Evidence-Based Humanitarian Programs in Military-led Missions: Part I"*

<sup>29</sup> Wilensky, Robert J., *Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War*, Texas Tech University Press, Lubbock, Texas, 2004 pg 56.

<sup>30</sup> Wilensky, Robert J., *Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War*, Texas Tech University Press, Lubbock, Texas, 2004 pg 79.

<sup>31</sup> Wilensky, Robert J., *Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War*, Texas Tech University Press, Lubbock, Texas, 2004 pg 82.

<sup>32</sup> Wilensky, Robert J., *Military Medicine to Win Hearts and Minds: Aid to Civilians in the Vietnam War*, Texas Tech University Press, Lubbock, Texas, 2004 pg 130.

<sup>33</sup> Reaves EJ, Schor KW, Burkle, FM, "Implementation of Evidence-based Humanitarian Programs in Military-led Missions: Part I. Qualitative Gap Analysis of Current Military and International Aid Programs," *Disaster Medicine and Public Health Preparedness*, Vol 2, No. 4, pp 230.

1 Of particular relevance to Navy Medicine are the humanitarian and civic assistance missions  
2 sponsored by the Southern Command (SOUTHCOM) and Pacific Command (PACOM).

### 3 **3.3 Continuing Promise and Pacific Partnership**

4 The humanitarian and civic assistance programs, Continuing Promise and Pacific Partnership,  
5 provide recent examples of MSOs in which the mission objectives are clearly focused on  
6 building partnerships and HN capacity. Both programs are aligned with the Combatant  
7 Command Theater Security Cooperation strategic framework and the objectives of these  
8 missions reflect that alignment.

9 Continuing Promise (CP) has been a SOUTHCOM Humanitarian Assistance initiative since  
10 2007. Executed by Naval Southern Command (4<sup>th</sup> Fleet), CP missions have alternated between  
11 the USNS COMFORT and large deck amphibious ships such as the USS PELELIU or USS  
12 BOXER. The 2010 CP mission was executed on the USS IWO JIMA from July to October 2010  
13 and provided humanitarian assistance to eight locations throughout the Caribbean and South  
14 America. The objectives of this most recent mission were:<sup>34</sup>

- 15 • Ensure the forward defense of the U.S. by training U.S. personnel in a collaborative effort to  
16 provide humanitarian assistance;
- 17 • Encourage regional partnerships by fostering goodwill; enhancing the credibility of the U.S.;  
18 solidifying existing partnerships with key nations; and encouraging the establishment of new  
19 ones between/among nations, non-governmental (NGOs) and international organizations;
- 20 • Enhance regional stability and security by demonstrating U.S. commitment and support to  
21 Latin America and the Caribbean region by providing humanitarian assistance. Supporting  
22 partner nations' efforts to build capacity to provide humanitarian assistance.

23 Pacific Partnership (PP) has been a PACOM Humanitarian Assistance initiative since 2006.  
24 Executed by the U.S. Pacific Fleet (PACFLT), PP missions have alternated between the USNS  
25 MERCY and large deck amphibious assault ships. The 2010 PP mission was executed on the  
26 USNS MERCY from May to September 2010 and provided humanitarian assistance to six  
27 Western Pacific nations in the pacific region.

28 The objectives for the 2008 PP mission were to:

- 29 • Strengthen the relationships with host and partner nations;
- 30 • Build partner capacity to conduct peace, stability, and consequence management operations;
- 31 • Build awareness and detection capacity of key countries to counter public health threats.

32 Now that these humanitarian and civic assistance missions are conducted as part of an on-going  
33 program, long-term cooperative engagement with HNs is possible. This allows for the  
34 sustainment of specific initiatives in HNs, from one mission to the next. The tables below  
35 describe the continuity of visits to HNs in the last five years.

36

---

<sup>34</sup> Briefing, CAPT Jim Terbrush, 4th Fleet Surgeon, "Continuing Promise Concept of Operations," 13 Oct 09

1

**Table 1: PP Engagements**

Country Visited	2006	2007	2008	2009	2010	2011
Bangladesh	X					
Cambodia					X	
Indonesia	X				X	
Kiribati				X	X	
Marshall Islands		X		X		
Micronesia		X	X			X
New Caledonia				X		X
Palau					X	
Papua New Guinea		X	X		X	X
Philippines	X	X	X			
Samoa				X		
Solomon Islands		X		X		
Timor Leste	X		X		X	X
Tonga				X		X
Vanuatu						X
Vietnam		X	X		X	

2

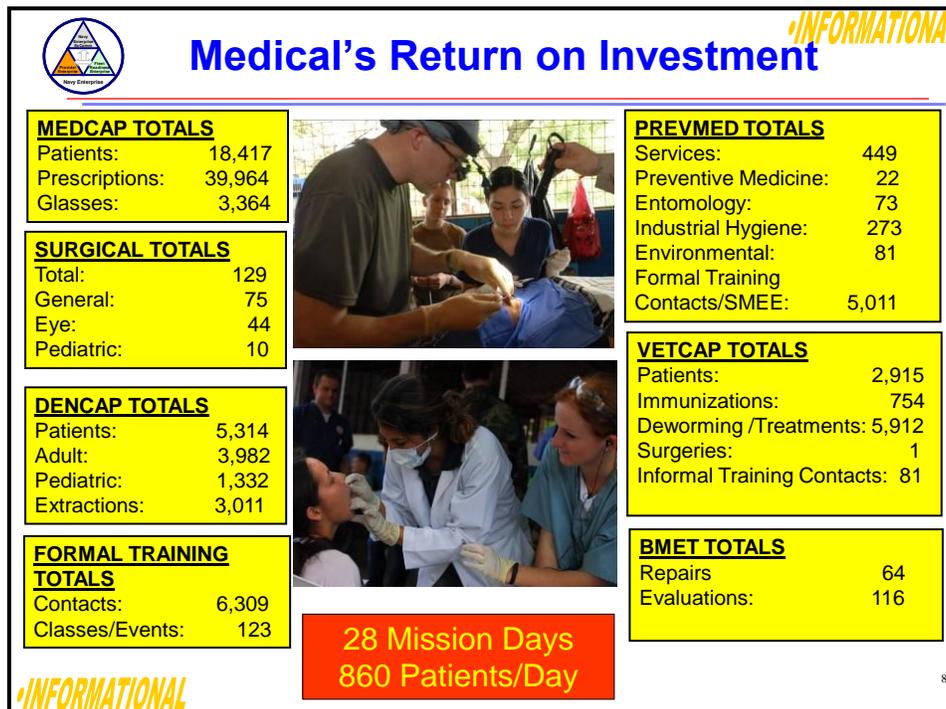
**Table 2: CP Engagements**

Country Visited	2006	2007	2008	2009	2010	2011
Barbados				X		
Belize		X				
Colombia		X	X	X	X	X
Costa Rica					X	X
Dominican Republic			X	X		
Ecuador		X				X
El Salvador		X	X	X		X
Guatemala		X	X		X	X
Guyana		X	X		X	
Haiti		X		X	X	X
Jamaica						X
Nicaragua		X	X	X	X	X
Panama		X	X	X	X	
Peru		X	X			X
Suriname		X			X	
Trinidad & Tobago		X	X			

1 These programs have made significant progress in moving from single shot, limited care events  
 2 to a more strategic effort to develop partnerships and build HN capacity, as illustrated by the  
 3 change in mission objectives over the years (See Section 14). However, the significant challenge  
 4 of defining appropriate measures of effectiveness still remains.

### 5 **3.4 Moving from Measures of *EFFORT* to Measures of *EFFECTIVENESS***

6 As with the MEDCAPs in Vietnam, current reporting mechanisms for MSOs consist of reporting  
 7 'measures of effort', such as the number of patients seen or the number of immunizations  
 8 provided. The goal is to provide a succinct summary of all of the services provided during a  
 9 mission - on a single briefing slide. The figure below illustrates the data reported during the  
 10 2008 Continuing Promise mission.



26 **Figure 1: Continuing Promise 2008, Pacific Phase (USS BOXER)**

27 There are several problems with reporting the results of MSO through these types of 'measures of  
 28 effort,' and the primary weakness is that this type of reporting doesn't support or encourage  
 29 building partnerships or capacity. Reporting only output data, such as the number of surgeries  
 30 performed, focuses attention on the short-term, low-impact activities that can be performed  
 31 during an MSO and omits any useful information on capacity-building activities, such as training  
 32 other surgeons on specific issues, or other more substantively qualitative metrics. Often, the  
 33 types of activities which produce this type of output data (easily summarized on a single briefing  
 34 slide) reflect relatively high-cost, low-impact activities – the exact opposite of the partnership  
 35 and capacity building activities indicated by the mission objectives.

36 Another significant issue with current MSO reporting is that the terminology used in these  
 37 reports is not standardized; one mission may report "29,317 services" performed and another  
 38 mission may report "80,000 visits" and the terms 'services' and 'visits' are not consistently  
 39 defined.

1 The level and methodology by which this data is reported also does not allow any comprehensive  
2 analysis or benchmarking to be performed, preventing any meaningful improvement in mission  
3 performance. Reporting these types of  
4 measures of effort provides information on  
5 the number of patients ‘seen,’ but provides  
6 little to no information on what services  
7 were provided to the patients that may  
8 have improved the quality of their health.  
9 Without any information on the exact  
10 nature of the intervention provided to the  
11 patient(s) or information to track the  
12 longitudinal outcome of the intervention(s)  
13 on the patient or patient population, there  
14 can be no analysis of the effectiveness and  
15 impact of those interventions or  
16 comparison with international data on cost  
17 effective interventions, such as that  
18 presented in the WHO products, “Priorities  
19 in Health” and the longer “Disease Control  
20 Priorities in Developing Countries.”

*A humanitarian assistance group showed up to teach hand hygiene to surgeons. A bit into the presentation, one of the surgeons stood up and said, “I was trained at Oxford, two of my colleagues did their residencies at Harvard, and one used to be on the staff at the Mayo Clinic. We do not need you to tell us about hand washing. What we need is a working generator so that we can sterilize our equipment.”*

*Anecdote from a Participant in MSO Missions*

21 A review of over a thousand reports from lessons learned and after action reviews (AARs) of  
22 humanitarian assistance/disaster relief missions from 1996 to 2007 revealed that the vast  
23 majority of these reports identified only measures of effort (or output data); suffered from a lack  
24 of a standardized data collection method; and focused on recording the scope of the mission  
25 effort instead of evaluating the effectiveness of the mission.<sup>35</sup> What is needed is a framework  
26 that will support the development of measures of effectiveness which align with the COCOM’s  
27 end-state goal and ongoing analysis of the activities performed during an MSO.

### 28 **3.5 Recognizing the HN Role**

29 Key to the strategic goal of building partnerships is recognizing the existing capabilities and  
30 capacity of the HN. As the anecdote in the text box illustrates, the HN professionals often have  
31 talent, expertise, and knowledge that can serve as resources to the MSO team. In fact, one of the  
32 more successful Subject Matter Expert Exchange (SMME) topics is to ask the HN to brief the  
33 MSO team on their ‘Public Health Successes.’ This exchange provides the U.S.-centric team a  
34 great deal of information on *how to be successful* in the HN environment, and makes a dialogue  
35 possible with the HN.

---

<sup>35</sup> Reaves, Erik J, Schor, Kenneth W., Burkle, Frederick M, Implementation of Evidence-based Humanitarian Programs in Military-led Missions: Part I. Qualitative Gap Analysis of Current Military and International Aid Programs,” Disaster Medicine and Public Health Preparedness, Vol 2, No 4, pp 234.

1 This Handbook recommends activities and  
2 measures that will help transition from  
3 providing short-term direct care to longer-  
4 term interventions which improve  
5 population health and/or the HN capacity.  
6 By providing a ‘menu of services’ to a HN  
7 for review as part of the planning process,  
8 the mission planning team can allow the HN  
9 to select those activities which *they* consider  
10 to be of greatest value for the MSO mission.

### 11 **3.6 Summary**

12 In the last 40 years, the scope of the Navy’s  
13 operational spectrum has expanded to  
14 include stability operations, which  
15 encompasses humanitarian assistance and  
16 disaster relief. The DOD's role in these  
17 missions has also grown and their  
18 significance in furthering DOD's strategic  
19 goals has also increased.

20 At present, proven techniques of providing  
21 health/public health services to a Host  
22 Nation population are used in support of  
23 stability operations, but these activities may  
24 not always adequately support the 'soft power' goals of building partnerships and capacity in  
25 other nations. The DOD needs to develop a monitoring and evaluation framework that presents  
26 measures of effectiveness that allow commands to assess the activities and capabilities executed  
27 in any given MSO.

28

*Counter to emerging international humanitarian assistance (HA) standards, measures for impact assessment are rarely collected during DoD HA operations, and when attempted, the measures are often incomplete and limited to outputs or achievement measures. The current DoD HA measures provide only 'count data,' such as number of medical and surgical patients seen, number of immunizations given, quantity of pharmaceuticals prescribed, number of Meals Ready to Eat (MREs) delivered, or number of health clinics built. This type of data lacks baseline measurements, an identifiable population denominator, and outcome goals for comparison of results.*

*Reaves, Schor and Burkle, "Implementation of Evidence-based Humanitarian Programs in Military-Led Missions: Part I."*

## 4 Establishing the Monitoring & Evaluation Framework

This section will present the monitoring and evaluation framework that will be used to define measures of effectiveness and performance for MSOs.

### 4.1 Many Monitoring and Evaluation Frameworks Exist

Developing operational assessments requires a monitoring and evaluation framework that links defined indicators, or measures, to defined outcomes and impacts. Multiple monitoring and assessment frameworks exist; a short list of those recommended for MSOs includes the following:

- "Developing a Prototype Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects," developed by RAND Corporation for the Office of the Assistant Secretary of Defense for Global Affairs (Partnership Strategy), July 2010.
- U.S. Navy TACMEMO 3-32.2-09, "Operational Assessment," July 2009
- "Implementation of Evidence-based Humanitarian Programs in Military-led Missions: Part II. The Impact Assessment Model," published in Disaster Medicine and Public Health Preparedness, Vol 2, No. 4, 2008
- Burkle, Frederick M., et al, "Complex Humanitarian Emergencies: III. Measures of Effectiveness," Prehospital and Disaster Medicine, Vol 10, No. 1, Jan-Mar 1995, p. 48-56.

In these and multiple other references, a monitoring and evaluation framework is proposed and the user is left with the significant task of then applying the framework to develop appropriate measures and indicators. For MSO missions with durations greater than a year, applying a framework and defining indicators specific to the mission is appropriate. However, the majority of MSOs executed by DoD are short term missions, often less than two weeks in duration, and this technique is onerous for such missions. The goal of this document is to apply a results framework and define objectives and indicators that can be meaningfully applied to such missions to promote consistent and meaningful reporting of mission outcomes and effectiveness. Of course, if the COCOM has defined measures and indicators for a specific mission, these medical indicators would need to be adjusted to be consistent with the command guidance. This document will apply a results framework, as outlined in the RAND reference and described in the next section, to develop measures of effectiveness (MOEs) and measures of performance (MOPs) for MSOs.

*The benefit of planning and executing humanitarian assistance projects within the logical framework is that the program defines the variables to be measured and their relationship to each other. The internal evaluation process links activities with effects. Organizations that have made a concerted effort to improve humanitarian performance, learn from past lessons, and embrace accountability have adopted the logical framework as central to their operations.*

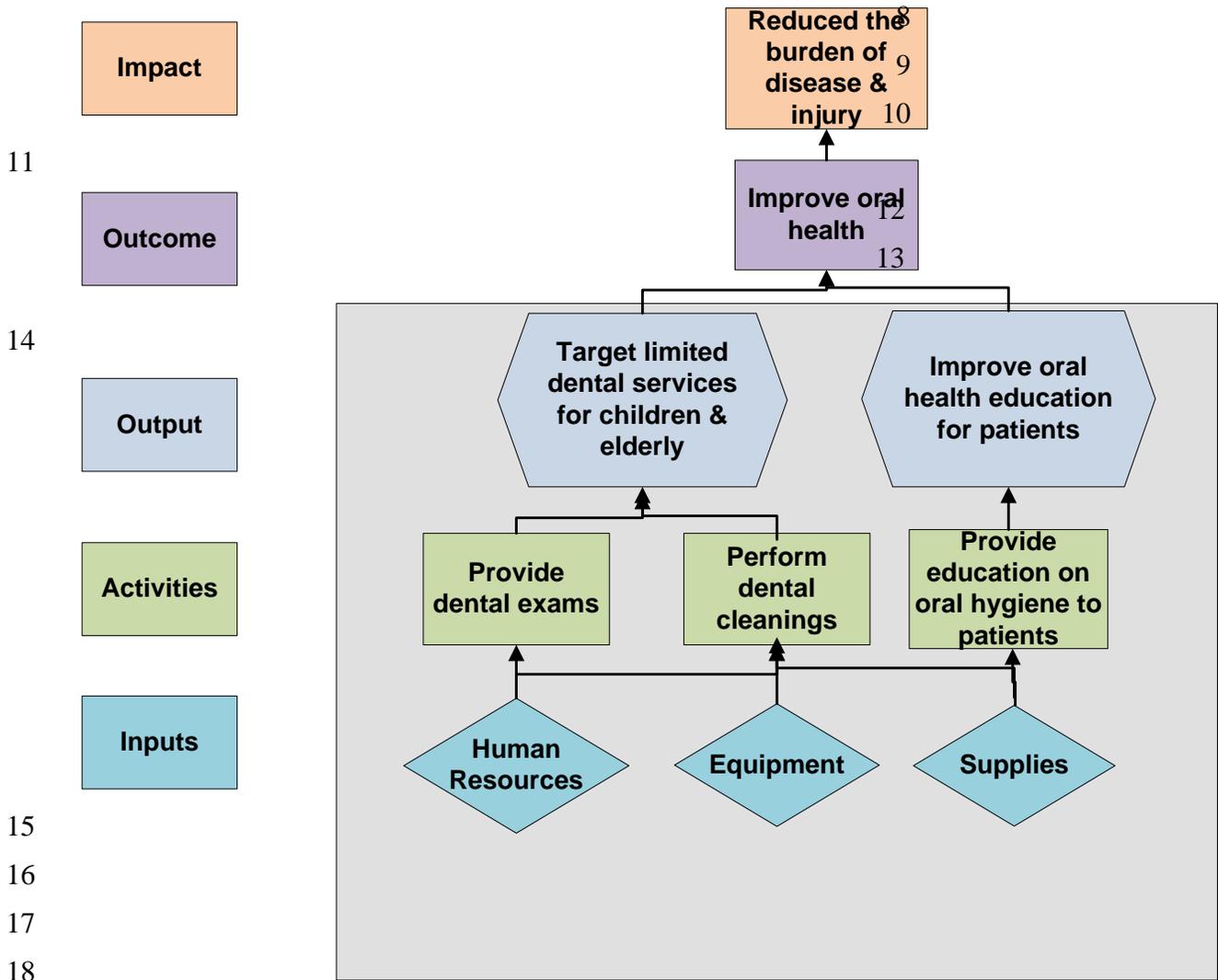
*The logical framework process requires planners to formally state goals, objectives, outputs, activities, and inputs...*

*LTC Jeff Drifmeyer and COL Craig Llewellyn, "Toward More Effective Humanitarian Assistance," Military Medicine, March 2004*

1 **4.2 The Results Framework for MSOs**

2 The results framework straightforwardly defines and relates the various concepts required for  
 3 monitoring and evaluation; Figure 2 introduces an inputs-activities-output-outcome-impact  
 4 relationship, based on a figure used in the RAND Handbook<sup>36</sup> that will be used as the overall  
 5 framework for monitoring and evaluating MSO missions. An example of dental services is used  
 6 to illustrate this framework.<sup>37</sup>

7



11

14

15

16

17

18

19

20

**Figure 2: Results Framework for Adaptive Force Packages**

<sup>36</sup> Haims MC, Moore M, Green H, Clapp-Wincek C. "Draft Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects," RAND Corporation, December 2008, pp 24.

<sup>37</sup> NOTE: this figure has been changed slightly from its original depiction; the term 'Activities' is used instead of 'Processes' and the color scheme has been modified slightly, in order to improve the clarity of the current discussion. In addition, a medical example is used (providing dental services) instead of the original 'building a well' example.

1 USAID defines the concepts presented in this framework as follows:

- 2 • Impact: a result or effect that is caused by or attributable to a project or program. Impact is  
3 often used to refer to higher-level effects of a program that occur in the medium or long term,  
4 and can be intended or unintended and positive or negative.<sup>38</sup>
- 5 • Outcome: a result or effect caused by or attributable to a project, program or policy. Outcome  
6 is often used to refer to more immediate and intended effects.<sup>39</sup>
- 7 • Output: the products, goods and services which result from an intervention<sup>40</sup>
- 8 • Activity: a specific action or process undertaken over a specific period of time by an  
9 organization to convert resources to products or services to achieve results.
- 10 • Input: resources provided for program implementation. Examples are money, staff, time,  
11 facilities, and equipment.<sup>41</sup>

12 In military terms, impact is often described as 'end states' or 'effects.' The desired impact of both  
13 Continuing Promise and Pacific Partnership is to strengthen the relationships with host and  
14 partner nations. The health service support to these programs focuses on strengthening these  
15 relationships through the provision of healthcare, either through providing direct care to a  
16 population or by working with host and partner nations in enhancing the health system  
17 infrastructure, so these are known as the *health service support impacts*. The health service  
18 support impact directly supports to COCOM strategic objectives.

19 Outcomes are more specific in nature than impacts; in this document, outcomes will be  
20 associated with adaptive force packages, so that there will be oral health outcomes, surgical care  
21 outcomes, and eye care outcomes.

22 Outputs will describe the capability-specific objectives for a single mission, and activities will be  
23 those actions or processes taken to achieve those outputs. For example, an output for a single  
24 mission might be to educate patients on oral hygiene; the activities in support of that output  
25 would include patient education sessions. Inputs will not be addressed in this document, as they  
26 are defined by the respective adaptive force packages. In this results framework, MOEs are  
27 indicators that measure outcomes and MOPs are indicators that measure outputs.

28 This document applies this results framework *only to the health service support impact,*  
29 *outcomes, and outputs*. The health service support impact is defined consistent with and in  
30 support of the combatant command strategic objectives recognizing that health is a means to  
31 support the combatant command's objectives. This approach will allow the Military Health  
32 System (MHS) to focus on improving health service support in support of stability operations  
33 across multiple commands, missions, and strategic environments. Again, this approach applies  
34 primarily MSOs of short duration; longer missions should develop indicators and measures  
35 specific to the mission.

36 In the following sections, the impact, outcomes, outputs and activities will be defined for MSOs.

---

<sup>38</sup> Haims MC, Moore M, Green H, Clapp-Wincek C. "Draft Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects," RAND Corporation, December 2008, pp 69.

<sup>39</sup> Haims MC, Moore M, Green H, Clapp-Wincek C. "Draft Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects," RAND Corporation, December 2008, pp 73.

<sup>40</sup> Haims MC, Moore M, Green H, Clapp-Wincek C. "Draft Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects," RAND Corporation, December 2008, pp 73.

<sup>41</sup> Haims MC, Moore M, Green H, Clapp-Wincek C. "Draft Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects," RAND Corporation, December 2008, pp 71.

## 4.3 The Challenge of Measuring Global Health

### 4.3.1 Measuring Global Health Indicators

[Much of the material in this section is abstracted from a paper on Global Health Indicators in the Canadian Medical Association Journal].<sup>42</sup>

The long-term goal for HCA mission and program monitoring and evaluation is to define and measure population health indicators that are relevant to mission and program performance. This section will provide a brief description of the key challenges for achieving this goal and explaining the approach for this document. Defining and measuring valid population health indicators requires an understanding of:

- The nature of global health indicators
- The spectrum of information management capabilities around the world
- Challenges in collecting data to measure global health indicators
- Selecting good indicators
- Ensuring valid measurements of the indicators

Global health indicators can be divided into those that directly measure health (e.g., diseases, deaths, use of services) and indirect measures (e.g., social development, education and poverty indicators). The global health indicators used in developing countries for the most part address morbidity, mortality, and important precursors of both. In contrast, in developed countries a large proportion of the key health indicators reflect lifestyles and individual behavior, such as physical exercise, smoking, diet, or substance and alcohol abuse. Because of cost constraints and limited logistic capacity, few developing countries are able to maintain death, birth or disease registries. Data generated by health care institutions are more readily available and more frequently used; but must be viewed with caution because they are not representative of the general population. In developing countries, a minority of the population (typically urban, wealthy and better educated) use modern medical services. Furthermore, for several presenting health problems, only patients exhibiting the most severe end of the spectrum ever reach a health care facility.

*Least Developed Countries are formally defined by the United Nations Economic and Social Council Committee for Development Policy as those countries with a “low per capital income”, a “low level of human resource development” and “a high degree of economic vulnerability.” There are no definitions for Developing or Developed countries, and countries are free to self-define themselves as either to the World Trade Organization.*

*In general, this document will use the following rough definitions to differentiate among the different types of countries frequented by HCA missions:*

- *Developed: capabilities on par with the U.S.*
- *Developing: HN has capabilities, but needs improvement*
- *Least Developed: Host nation lacks basic capabilities.*

*Least Developed Countries Group website, <http://www ldcgroups.org>*

<sup>42</sup> Larson, Charles; Mercer, Alan, “Global Health Indicators: An Overview,” Canadian Medical Association Journal, Nov. 9, 2004; 171(10)

1 Fortunately, alternative, technologically appropriate, affordable data collection methods have  
2 been adopted in many developing countries, including national demographic and health surveys,  
3 one-off ecologic or household surveys, multiple-indicator cluster surveys, verbal autopsies and  
4 demographic surveillance systems within selected populations. A combination of data from  
5 these sources is then used to assess the health status of the nation as a whole or regionally.  
6 Traditional evaluation mechanisms, which compare areas with and without a given health  
7 program, are no longer relevant now that many health programs are in effect in so many parts of  
8 the world.

9 What is needed is a focus on a few indicators that can be used to consistently evaluate HCA  
10 missions in least developed countries as well as in developing countries. Because of the severely  
11 restricted resources and capacities in these countries, there is a need to select a limited set of  
12 indicators that are clearly applicable to monitoring, decision-making and health policy, and to  
13 measure them well. Some examples of such indicators include: infant mortality rate, child  
14 mortality rate, maternal mortality rate, low birth weight, prevalence of anemia in women of  
15 childbearing age and health life expectancy (HALE).<sup>43</sup>

16 These indicators all meet the following desired criteria:

- 17 • Definition. The indicator must be well defined, and the definition must be uniformly applied  
18 internationally;
- 19 • Validity. The indicator must be valid (it must actually measure what it is supposed to  
20 measure), reliable (replicable and consistent between settings) and readily interpretable;
- 21 • Utility. The indicator should provide information that is useful to decision-makers and can be  
22 acted upon at various levels (local, national and international).

23 The validity of published health statistics from developing countries is variable and extremely  
24 difficult to assess. Validity can be threatened in several ways. First, it is adversely affected by  
25 variations between countries in definitions of health and illness states, by the choice of easy-to-  
26 reach but usually unrepresentative populations for surveys, and by the underestimation or  
27 overestimation of denominators. Second, denominators tend to be based on the most recent  
28 census and the application of crude death and birth estimates; such data are often out of date and  
29 are vulnerable to manipulation. Third, numerators, such as the occurrence of an illness or health  
30 behavior, are also subject to multiple sources of error. They depend on a respondent's capacity  
31 to understand the question and to recall an event or exposure, as well as a willingness to report  
32 what he or she recalls.

33 How can the validity and utility of global health indicators be improved? Countries and health  
34 care systems with restricted resources can consider several options, including:

- 35 • Measurement of a smaller number of indicators, specifically those with direct relevance to  
36 decision-making and high-priority health issues
- 37 • Use of more efficient sampling frames and procedures
- 38 • Continued refinement and validation of verbal autopsies
- 39 • Application of standard, internationally accepted definitions

---

<sup>43</sup> Larson, Charles; Mercer, Alan, "Global Health Indicators: An Overview," Canadian Medical Association Journal, Nov. 9, 2004; 171(10)

- Use of a district as the geographical unit of design, because this is the core administrative unit for government health and other programs in many countries<sup>44</sup>

### 4.3.2 Strategy for Valid and Reliable Measurement of Indicators

A single HCA mission may include visits to multiple Least Developed Countries, Developing Countries, and Developed Countries. Given this disparity of capabilities, identifying and measuring global health indicators consistently across multiple countries presents a significant challenge. All too often, the countries for which the data is most useful are precisely those countries for which the data is not easily available. In addition, the purpose of measuring indicators is to guide – and correct, as necessary – health activities to ensure the maximum impact for the lowest cost.

The initial strategy proposed in this document is to use the *WHO defined indicators and measurement data* to assess program effectiveness, using measures of effectiveness (MOEs). As the programs continue to evolve and build solid relationships with HNs that provide access to valid and reliable measurement data, the same indicators could be used, but the measurements may be more specific to the performance of program and mission activities.

For measures of performance (MOPs), this document *begins* with many measures currently in effect – some of which are little more than ‘measures of effort,’ and not true measures of performance. **But again, as the programs become more sophisticated in collecting valid data in partnership with the HN, these measures can continue to be refined to more accurately represent measures of health service performance during an individual mission.**

For example, at present one MOP of a train-the-trainer course might be the number of HN trainers taught during a given visit to the country. Effectiveness data on how many additional people *those* trainers then taught over the next year is not available to the mission staff who provided the train-the-trainer instruction. However, additional missions that visit that HN in the future might be able to acquire that data, and the MOP *for the first MSO mission* could be improved with the additional data.

## 4.4 Objectives of Medical Stability Operations

This section will define the impact desired from health service support to stability operations, and this defined impact will then be applicable to *all* MSOs - where the impact, outcomes and measures have not been specifically defined already for that mission. This impact does NOT address the impact of the stability operation itself - only the impact desired from the *medical portion of the mission*. The impact will be defined in a manner that will be generally consistent with existing guidance and can be easily recognized as supporting the existing national, DoD, and theater guidance.

MSOs will strive to work in partnership with the HN, Partner Nations, and other relevant organization to improve global health, where WHO defines health as ‘a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.’ The objectives for achieving this impact that are applicable to all MSOs (where the COCOM has not already presented specific and measurable MSO objectives) are:

- Support and strengthen the HN’s ability to reduce their burden of disease or injury
- Strengthen the HN's security forces/military and civilian health systems

---

<sup>44</sup> Victora, Cesar G; Black, Robert E, “Measuring Impact in the Millennium Development Goal Era and Beyond: A New Approach to Large-Scale Effectiveness Evaluations,” *The Lancet*, published online July 9, 2010 DOI:10.1016/S0140-6736(10)60810-0

1 • In times of disaster, reduce the pain and suffering of the population and begin the process of  
2 recovery

3 • Improve the operational readiness of deployed U.S. military medical personnel

4 These objectives are carefully crafted to meet multiple requirements. First, the above objectives  
5 are congruent with existing theater guidance of multiple combatant commands in that the  
6 objectives focus on building partnerships and capacity. The objectives focus the MSO on  
7 achieving long-term improvements in the health of the population and are possible only with an  
8 integrated, interagency approach.

9 The effectiveness of an MSO is measured against this defined impact; an effective MSO is only  
10 possible if the MSO selects activities which directly support the four objectives stated above,  
11 specifically: supporting existing international or national health programs in order to reduce the  
12 burden of disease and injury; conducting these activities in partnership with the HN (and other  
13 stakeholders); and in a manner that  
14 builds the capacity to sustain those  
15 activities within the HN.

16 Partnership means that MHS activities  
17 are conducted in partnership with the  
18 HN and the other relevant organizations  
19 operating in the area (NGOs, IOs, IGOs,  
20 and PVOs). Partnership requires  
21 establishing, expanding, and sustaining  
22 relationships with representatives from  
23 the HN and other organizations.

24 Strengthening the health system can  
25 only be done in partnership with the  
26 Host Nation and places the emphasis on  
27 capacity-building activities, instead of  
28 on those direct care activities which are  
29 limited in their value and effectiveness.  
30 An essential part of capacity building is  
31 building the human capital of a Host  
32 Nation by equipping health  
33 professionals with the understanding,  
34 skills, and access to information,  
35 knowledge, training, and strengthening  
36 of managerial systems that allow them  
37 to sustain and improve their health  
38 system.

39 The two objectives necessary to  
40 achieving the desired impact of improved health are 'Reducing the burden of disease and injury'  
41 and 'strengthening the HN's health system.' These objectives are also explicitly stated goals of  
42 the WHO and USAID and ensures the objectives of an MSO are consistent with national and  
43 international public health goals. Both of these goals require that MSO activities focus on  
44 supporting *existing* national or international health programs that can be sustained by the HN.  
45 This is especially important for missions of short durations, because such missions often "run the  
46 risk of manipulation by locals (the local elite gets to the front of the line) or incomplete

*Cooperative health engagement (CHE) needs to be an intentional effort that creates long-term conditions that assist local governments to build internal health capability and capacity. In this way, CHE helps establish the legitimacy and stability of the local government by establishing an acceptable level of healthcare for its populace and also helps sustain economic growth.*

*CHE is more than disaster relief, more than simple 2-week clinics delivering episodic care, more than surgical corrections of physical disfigurements, and more than the provision of technical equipment. It should be an ongoing partnership that combines interpersonal relationships with a cooperative educational process designed to promote trust between populaces and professionals. In the end, it builds health capability and capacity within a nation.*

*Sean Murphy & Dale Agner, "Cooperative Health Engagement in Stability Operations and Expanding Partner Capability and Capacity"*

1 coordination that increases the perceptions that the U.S. government is not listening to the needs  
2 of the local population.<sup>45</sup> The optimal strategy for MSOs is for the DoD to cooperate with  
3 USAID and the relevant NGOs in supporting existing health initiatives, thus contributing to a  
4 long-term, synchronized U.S. government strategy using multiple, short-term missions.  
5 Finally, one of the explicitly stated objectives of the humanitarian and civic assistance mission is  
6 to "improve the operational readiness of deployed medical personnel."<sup>46</sup> Naturally, a certain  
7 degree of competence and training is necessary *prior* to deployment, but many of these missions  
8 are also intended to *improve* the ability of military personnel to rapidly deploy and provide  
9 humanitarian assistance, when necessary.

10

---

<sup>45</sup> Murphy, Sean; Agner, Dale, "*Cooperative Health Engagement in Stability Operations and Expanding Partner Capability and Capacity*," *Military Medicine*, Aug 2009, accessed from [http://findarticles.com/p/articles/mi\\_qa3912/is\\_200908/ai\\_n35631111/?tag=content;coll](http://findarticles.com/p/articles/mi_qa3912/is_200908/ai_n35631111/?tag=content;coll) on 23 Dec 10

<sup>46</sup> Defense Security Cooperation Agency website, <http://www.dsca.osd.mil/programs/HA/HA.htm>, accessed 5 Jan 10.

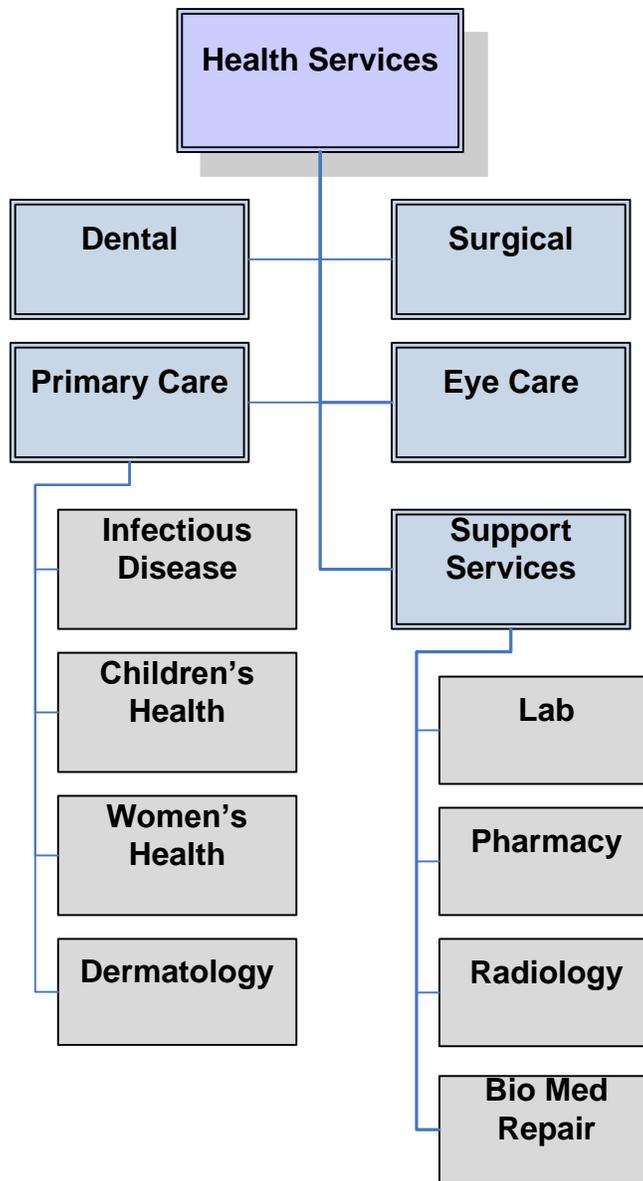
## 5 Defining Outcomes for Medical Stability Operations

This section will define a set of outcomes that can lead to the impact defined in the previous section; these outcomes are associated with the adaptive force packages, such as dental or eye care services. Associating the outcomes with defined adaptive force packages allows medical and mission planners to deploy a capability *with an associated set of outputs, activities and measures* for a given mission, ensuring a consistent set of processes for collecting and reporting of mission data.

### 5.1 Adaptive Force Packages

To achieve the impact defined in the previous section, a wide array of possible outcomes could be defined, each contributing to one or more of the objectives defined above. The outcomes proposed in this Handbook build upon Pacific Fleet's (PACFLT's) work in defining adaptive force packages in support of MSOs.

PACFLT first developed, and BUMED later refined, a “Menu of Health/Public Health Services” common to MSOs, depicted in the Figures 5 and 6. As these health/public health services become defined adaptive force packages, each force package will have a set of outcomes, activities and measures associated with the package. For example, when mission planning directs that a “surgical package” is needed, then the surgical package will be deployed with pre-defined staffing, equipment, supplies – and outcomes, activities and measures. This will allow for consistent and sustained planning, executing and evaluating of MSOs.



**Figure 3: Menu of Health Services**

The Menu of Health Services figure categorizes the types of activities encompassed by health services and differs slightly from the menu of health services developed by PACFLT in the following minor ways:

- It identifies the ancillary services of pharmacy, x-ray, lab and biomedical repair as support services subordinate to health services; the original menu of services identified these services as a separate, larger category;
- It moves optometry as a service equivalent to dental and surgical, due to its prominent value in MSO missions, and re-labels it as 'Eye Care';



**Figure 4: Menu of Public Health Services**

The Menu of Public Health Services in the above figure categorizes the types of activities encompassed by public health services and differs from the original public health services menu developed by PACFLT in the following ways:<sup>47</sup>

- Eliminated the two main categories under the Public Health Services, Veterinary and Preventive Medicine
- Veterinary was further delineated into different types of animal care; veterinary public health support is common in many aspects of Preventive Medicine, so the veterinary category was renamed as “Animal Health” to include that category of public health and to allow for the presence of veterinary public health personnel on the other teams.
- The Infectious Disease category was renamed as Epidemiology and Disease Surveillance
- The service “Food and Sanitation” was split into two different categories: “Sanitation” and “Food Safety and Security”
- Water Quality is now known as “Drinking Water”
- Environmental Engineering is now known as “Environmental Health”

<sup>47</sup> NOTE: As a result of conversations with BUMED Preventive Medicine and the DoD Veterinary Support Activity, March 2010.

- 1 • Pest/Vector Control is now known as “Pest Management”
  - 2 • Infection Control was added
- 3 Each category of service, such as dental or animal health, supports the health/public health  
4 service support objectives by defining a coordinated set of activities, directed at achieving the  
5 stated outcomes.

## 6 **5.2 Defining Outcomes**

7 The categorization of health and public health services explained in the previous section sets the  
8 stage for defining the outcomes that could support the MSO health service support objectives.  
9 Navy Medicine is re-tooling the traditional concepts of medical support to stability operations in  
10 order to achieve significant health improvements by supporting an effective, efficient, and HN-  
11 led platform for the sustainable delivery of essential health care and public health programs.  
12 These health service support outcomes are generally applicable to *all* MSO missions; the  
13 outcomes would be relevant and applicable whenever their associated adaptive force package is  
14 deployed.

### **Outcomes for MSOs**

- Improve oral health
- Reduce pain and suffering from injuries or emergent/existing conditions, especially in times of disaster through timely and appropriate surgical intervention
- Improve the treatment and management of infectious disease, focusing on TB, malaria, and HIV/AIDS
- Improve the health status of women
- Improve the health status of children
- Improve visual function and reduce preventable causes of blindness
- Optimize health by addressing the complex, interacting causes of poor human health: unsafe water, poor sanitation, food insecurity, and proximity between animals, humans, and the environment.
- Enhance HN Disaster Preparedness
- Develop the health infrastructure by improving HN capabilities to provide laboratory, imaging, pharmacy, and biomedical repair support.

15  
16 These outcomes, like the health service support objectives, are defined from a strategic  
17 perspective and are the desired results over an *extended period of time*. Improving the health  
18 outcomes of a population and strengthening the health system of a HN are objectives that require  
19 sustained and consistent attention over a period of 5, 10 or even 25 years. The outcomes would  
20 be selected at a program level (for example, by Pacific Partnership or Continuing Promise) and  
21 the appropriate adaptive force packages would be deployed in multiple missions to support these  
22 outcomes.

23 These are not outcomes that can be achieved in a single 2-week visit of a hospital ship or during  
24 a 10-day veterinary assistance visit; these outcomes require a sustained, focused effort over

1 multiple missions over a period of time with ongoing contact. Measures of performance,  
2 discussed later, will address the performance of individual missions.  
3 These outcomes were selected based upon current national and international global health  
4 initiatives sponsored by the U.S. Global Health Initiative, USAID, WHO and Millennium  
5 Challenge Corporation (MCC). These initiatives recognize that many of the diseases and health  
6 conditions that account for a large part of  
7 the disease burden in developing and  
8 less-developed countries are far less  
9 common in high-income countries.  
10 Currently, eight diseases and conditions  
11 account for 29 percent of all deaths in  
12 low- and middle-income countries: TB,  
13 HIV/AIDS, diarrheal diseases, vaccine-  
14 preventable diseases of childhood,  
15 malaria, respiratory infections, maternal  
16 conditions, and neonatal deaths.<sup>48</sup> As per  
17 current initiatives, the outcomes proposed  
18 for MSOs therefore focus on these  
19 specific issues.

20 As the quote to the right indicates, the  
21 challenge is to define health service  
22 support activities that provide long-  
23 lasting impact.

24

*Example of an Effective MSO*

*“The Brigade moved south to occupy the oil-rich city of Kirkuk. For the next 11 months, the 173d Bde participated in stability and support operations... Bde commanders ordered the medical element to deploy to host-nation clinics and provide health care to civilians. The 173d Medical Unit sought to achieve some measure of lasting improvement in community health and/or government.*

*For a variety of reasons, to include that measles vaccine coverage was below 50%, the Kirkuk Department of Health and the local NGOs identified a measles vaccination campaign as a logical, initial target of military-civic action.*

*It was important that the project be perceived as an inaugural event in a 'redefined' future. A significant goal was to prepare the DOH and the people of Kirkuk for the upcoming USAID and United Nations Children's Fund -sponsored 'National Vaccination Days' to be held on the 22d day of each month, beginning in June 2003”*

*Richard Malish, John Scott & Burhan Omer Rasheed, "Military-Civic Action: Lessons Learned from a Brigade-Level Aid Project in the 2003 War with Iraq," Prehospital and Disaster*

---

<sup>48</sup> The World Bank, “Priorities in Health,” The World Bank, 2006, p. 59.

## 6 Defining Measures of Effectiveness for Medical Stability Operations

Now that the MSO outcomes have been defined, the measures of those outcomes – measures of effectiveness or MOEs – can be defined.

The strategy for developing MOEs assumes that long-term, strategic measures of health outcomes should focus on the health status of the HNs, and that the assessment of that health status should be performed by internationally recognized agencies, such as WHO, USAID or UNICEF. This strategy is also emphasized by the NATO publication, *Allied Joint Civil Military Medical Interface Doctrine (AJMED P-6)*, which recommends that measures of effectiveness correspond with the Millennium Development Goals and measures.

Measures of population health are extremely complex and require a great deal of information, validated in a variety of ways. One of the challenges to developing meaningful measures for stability operations is that relevant and meaningful measures often require obtaining baseline measurements, an identifiable denominator (such as the size of the target population) and knowledge of the outcomes from the services provided. This type of information is hard to acquire and requires frequent follow-up assessments.

The strategy recommended in this Handbook is to leverage the existing information collected by WHO, USAID, and other international agencies to measure the effectiveness of MSOs over an extended period of time. Whenever possible, the WHO measures are used, so as to enable building partnerships in the international arena.

To be clear, this Handbook is NOT recommending that DoD get into the business of measuring health indicators, Disability Adjusted Life Years (DALYS), or any of the other internationally accepted measures of health. Instead, it is recommending that DoD use *existing* international measure, such as WHO measures or measures associated with the Millennium Development Goals (MDGs).

The benefits of this approach include the following:

- Aligning the efforts of MSOs with national and international global health initiatives;
- Supporting a long-term perspective of MSOs, more consistent with the strategic objectives of COCOM Theater Security Cooperation Plans (TSCP);

*Why should DoD measure the impact of humanitarian assistance (HA) programs?*

*- First, doing so can allow planners to make mid-course corrections on current projects, and it can provide them with information to improve the quality of future activities. By creating a feedback loop of lessons learned, the monitoring and evaluation (M&E) process in HA would improve efficiency and ensure that projects contribute to operational objectives.*

*- Second, collecting and sharing data would increase planners' ability to deconflict activities with other agencies and NGOs.*

*- Third, data analysis helps to showcase quantifiable results, thereby minimizing the chances of negative press surrounding HA activities.*

*Colonel Eugene V. Bonventre, "Monitoring and Evaluation of DoD Humanitarian Assistance Programs"*

- 1 • Sustaining a focus on capacity building, recognized as an essential element of both stability  
2 operations and MSOs;
- 3 • Encouraging coordination between and among multiple MSOs, in order to achieve a profound  
4 impact over a longer period of time;
- 5 • Ensuring more effective coordination with USAID efforts
- 6 • DoD or mission staff are NOT responsible for collecting data on population health outcomes  
7 and measuring changes in population health.

8 The obvious disadvantage of this approach is that it does not allow a direct “cause-and-effect”  
9 relationship from a single MSO mission and any improvement in an MOE. Determining the  
10 population health outcome from a mission of short-term duration would be very difficult, if not  
11 impossible. Measures of effectiveness will therefore focus on long-term impact of multiple  
12 missions, and the measures of performance will focus on the achievements of a single mission.  
13 An MSO can claim that its activities generally led to an improvement in the desired outcomes if  
14 and only if those activities met the following requirements:

- 15 • The completed activities were in support of a defined, global or national health program;
- 16 • The activities performed during the MSO were conducted in collaboration with the HN and  
17 other, relevant agencies (such as WHO, USAID, and NGOs), as appropriate;
- 18 • The activities served to improve the capacity of the HN and can be sustained by the HN or  
19 other stakeholder.

20 With this discussion in mind, the proposed MOEs are provided below.

### **MSO Measures of Effectiveness (MOEs)**

*The Decayed, Missing and Filled Teeth Index (DMFT) index for 12 year olds (WHO database)*

*Reduction in the Disability Adjusted Life Years (DALYs) for the following causes (WHO Global Burden of Disease database):*

- Injuries
- Maternal conditions (maternal hemorrhage and obstructed labor)
- Congenital abnormalities
- Cataracts

*Incidence, prevalence, and death rates associated with tuberculosis, specifically:*

- TB incidence rate per year per 100,000 population (MDG and WHO indicator)
- TB prevalence rate per 100,000 population (MDG and WHO indicator)
- TB death rate per year per 100,000 population (MDG indicator)

*Incidence and death rates due to malaria, specifically:*

- Malaria death rate per 100,000 population, all ages (MDG indicator)
- Notified cases of malaria per 100,000 population (MDG indicator)

*Incidence, prevalence, and death rates due to HIV/AIDS, specifically:*

- Percentage of people living with HIV/AIDS, 15-49 yrs old (MDG indicator)
- HIV prevalence rate, women 15-49 years old, in national based surveys (MDG indicator)
- Deaths due to HIV/AIDS per 100,000 population per year (WHO indicator)

*Health Life Expectancy (HALE) at birth, in years, specifically:*

- HALE at birth for females (WHO indicator)
- HALE at birth for males (WHO indicator)

*Maternal mortality ratio (per 100,000 live births) (WHO and MDG indicator)*

*Child mortality, specifically:*

- Children under 5 mortality rate per 1,000 live births (MDG and WHO indicator)
- Infant mortality rate (0-1 year) per 1,000 live births (MDG and WHO indicator)

*Water and Sanitation, specifically:*

- Percentage of deaths among children under 5 years of age due to diarrheal disease (WHO indicator)
- Proportion of the population using improved drinking water sources, rural (MDG and WHO indicator)
- Proportion of the population using improved sanitation facilities, rural (MDG and WHO indicator)

1

2

## 7 Defining Outputs for Medical Stability Operations

In previous sections, the discussion focused on *programmatic* concepts such as impact, outcome and measure of effectiveness. These terms refer to the objectives and measures associated with a theater or command level program that deploys multiple missions over an extended period of time, such as Pacific Partnership or Continuing Promise. This section, and the next two sections, will focus on the outputs, activities and measures of performance associated with a single, mission.

In this document, outputs will refer to the mission readiness objectives of a specific mission *or* to the objectives of a specific adaptive force package for a given MSO in support of the stated MSO mission objectives. Mission objectives are often broad statements of intent; outputs are much more specific and apply to each event conducted during the mission, such as an individual MEDCAP.

Once the mission objectives have been defined, the medical planners will select the appropriate, supporting outputs, which will then drive the selection of the appropriate adaptive force packages and their supporting resources. In addition, the data collection needs will be defined for each output, meaning that if an output is identified for a mission, then the data collection and reporting requirements will also be pre-determined. Several humanitarian and civic assistance missions have cited data collection and measures as a significant mission issue; pre-defining outputs and their measures should significantly improve this issue and enhance the overall planning for an MSO.

Outputs should be defined to be "specific, measurable, achievable, relevant, and time-bound."<sup>49</sup> An initial example of an output (outputs and measures for specific services are in the process of being developed) is to "optimize limited dental services (such as exams, extractions, etc) for two key target populations: youth and the elderly."

### 7.1 Mission Readiness Outputs

Mission readiness outputs, or those outputs specific to an individual mission that do not pertain to a specific health or public health service are in development at this time. Typically these would be outputs that could be generally applied to multiple missions that would support mission analysis and benchmarking of missions. Some examples of potential mission readiness outputs include:

- NGO Coordination: did the mission planners engage the appropriate NGOs in planning and developing the mission?
- NGO Performance: did the NGOs who agreed to support the mission provide the agreed upon staff and equipment for the mission?

#### *2008 Pacific Partnership Objectives*

- *Strengthen relationship with host and partner nations*
- *Build partner capacity to conduct peace, stability, and consequence management operations*
- *Build awareness and detection capacity of key countries to counter public health threats*

*Briefing, Carl Nishioka, USPACFLT, "Pacific Partnership Planning: From the Beginning"*

<sup>49</sup> Bonventre, Colonel Eugene V., "Monitoring and Evaluation of DoD Humanitarian Assistance Programs," Military Review, January-February 2008, pp 67.

- 1 • Mission Staffing: were all mission personnel identified and assigned to the mission in a  
2 timely manner?

3 **7.2 Summary**

4 Ideally, these mission readiness and health/public health outputs are identified and defined by  
5 subject matter experts (see the appendices of this document for the outputs, activities and  
6 measures defined to date); the medical planners will select the appropriate output after  
7 consultation with interagency partners and the HN. However, this does *not* preclude the  
8 definition of new outputs at any given time. Over time, each adaptive force package will include  
9 a set of defined outputs, supporting activities, measures of performance, and data collection and  
10 reporting processes that are pre-determined and available for any mission. This will support  
11 continual improvement processes across multiple missions and commands, enhancing the  
12 performance of the Military Health System (MHS) in its support of stability operations.

13

## 8 Redefining Activities for Medical Stability Operations

The previous sections present definitions for the impact, outcomes, outputs and MOEs to be used in the planning, execution, and reporting of future MSOs. This section focuses on the activities conducted during MSOs and how these activities need to be defined and evaluated with respect to their effectiveness in supporting the defined outputs and desired outcomes for MSOs. Now that a hierarchy of objectives has been defined, using the results framework, MSOs must employ those activities that are consistent with that framework and support the objectives. The challenge for MSO missions is to provide not just what services are *available*, but those services *that are needed* as defined by the HN and COCOM.

At present, most health service support activities in MSOs consist of direct patient care services, usually delivered through the vehicle of a MEDCAP, DENCAP or VETCAP. These direct patient care services are of value at the individual level, but may not assist the HN in performing and sustaining effective interventions that lead to long-term impact at the population level. In fact, by providing care at a level not sustainable by the HN, these programs can reduce the population's confidence in their own government and run the risk of decreasing HN stability by the uneven allocation of services and the perception of favoritism.

An *intervention* is an activity using human, physical, and financial resources in a deliberate attempt to improve health by reducing the risk, duration, or severity of a health problem. The emphasis on a deliberate, systemic effort means that an intervention is not simply anything that improves health; for example, although breastfeeding protects infants' health, it is not itself an intervention. In contrast, a program to encourage new mothers to breastfeed *is* an intervention. Similarly, providing vitamins to breastfeeding mothers is an activity that may improve the mother's and child's health, but it is not an intervention. A program that distributes vitamins at defined intervals to breastfeeding mothers *is* an intervention.

To allow MSOs to reach their full potential, the current activity focus (provide what services are available) must shift to an *intervention* focus (provide those services that are needed to improve the health of the HN population), and to do this, medical planning staffs need to communicate the value of these changes to the COCOM mission planning staffs. The international global health community has expended a great deal of effort in defining interventions and in studying what makes an intervention successful or cost-effective. This section will briefly review the nature of interventions.

Interventions can be directed against an injury or disease (such as trachoma, a bacterial infection of the eye), a condition associated with or deriving from a disease (such as blindness, which can result from trachoma), or a risk factor that makes the disease or condition more likely (such as

*While mass parasite control (providing de-worming medications to animals) is needed in the region and easy to accomplish, the effects are short-lived and not sustainable. Most animals are heavily parasitized (particularly sheep and cattle,) and a single dose may not reduce the parasite burden to the threshold where they are able to thrive or even slightly improve before re-infection. These types of programs are effective at gaining access to the animal population, but if the herders don't notice improvements in their herd's health, the initial gains will be lost.*

*Discussion from a Veterinary Assistance Visit After Action Review*

1 the lack of hygiene that leads to trachoma).<sup>50</sup> For example, the following interventions are  
2 known to be effective in reducing the burden of diarrheal disease in a local population:<sup>51</sup>

- 3 • Encourage more hygienic feeding practices, such as programs that promote exclusive  
4 breastfeeding during a child's first 6 months of life;
- 5 • Improve feeding practices such as promoting education on hygienic food storage and  
6 preparation and providing vitamin A and zinc supplements;
- 7 • Provide rotavirus immunizations, as part of a national immunization program;
- 8 • Provide water storage and transport containers with small openings and educate the  
9 population on the use of these containers. One of the main causes for the spread of diarrheal  
10 disease is the practice of 'dipping' a container into stored water; containers with small  
11 openings force people to pour the water out (and keep hands out of the water).
- 12 • Improving diarrheal case management through education programs on the use of Oral  
13 Rehydration Treatments (ORTs).

14 Interventions can be categorized by their type, as follows:<sup>52</sup>

- 15 • Product-intensive interventions involve the simple transfer of standardized technology to an  
16 individual or to an entire population (e.g., mass drug administration, immunizations, and  
17 mineral fortification);
- 18 • Service-intensive interventions include diagnostic and therapeutic health services usually  
19 provided not only in the clinic setting, but also in the home or at school. Examples range  
20 from primary care services, to surgical procedures, to treatment of communicable and non-  
21 communicable diseases;
- 22 • Behavioral change interventions are designed to induce or encourage an individual behavior  
23 change or habit modification to achieve specific health goals (e.g., the use of oral rehydration  
24 therapy to treat childhood diarrhea)
- 25 • Environmental control interventions target risks associated with the physical environment that  
26 are largely beyond the individual's control. These interventions are focused on prevention  
27 and are used in conjunction with other treatments or alone when effective vaccines or other  
28 prophylaxes are unavailable.

29 For the most part, health service interventions form a web of services that work best when they  
30 are coordinated. Screening provides no benefits without subsequent treatment, referrals are no  
31 help without access to the required care, and treatment centers will be overwhelmed if essential  
32 preventive care is neglected.<sup>53</sup>

33 Delivering coordinated health interventions requires participating with and contributing to the  
34 *existing* health system. Activities that support or augment existing national interventions are  
35 much more likely to improve the capacity of the HN and the health of the population over time.  
36 Health system development is a phased process, beginning with the use of institutions, resources,

---

<sup>50</sup> The World Bank, "Disease Control Priorities in Developing Countries," 2d edition, Oxford University Press and The World Bank, 2006, p. 273.

<sup>51</sup> The World Bank, "Priorities in Health," The World Bank, 2006, p. 82.

<sup>52</sup> The World Bank, "Disease Control Priorities in Developing Countries," 2d edition, Oxford University Press and The World Bank, 2006, pp. 171-177.

<sup>53</sup> The World Bank, "Priorities in Health," The World Bank, 2006, p. 129.

1 and staffing currently available to establish a platform for health care delivery. Over time,  
2 partnership with the HN allows for the expansion and augmentation of these interventions.<sup>54</sup>  
3 All interventions are activities, but not all activities are interventions. In this document, the term  
4 *activity* is initially used because existing practices within MSOs do not yet employ interventions  
5 as a common practice; it will take time to shift from an *activity* focus to an *intervention* focus.  
6 Interventions are activities that can be implemented on a larger scale with the potential for  
7 national impact. Universal acceptance of this re-definition of health activities from short-term  
8 direct care to comprehensive impact on health and public health interventions through education,  
9 training, and development programs is a requirement for a successful MSO which supports the  
10 COCOM's end-state goals.

11 The activities recommended in this document (see appendices for recommendations on the  
12 activities for individual services) have been recognized as effective by the WHO (or other  
13 relevant international aid agencies) or from experience with humanitarian assistance missions.  
14 Another important source for effective interventions is the 'Sphere Project,' which "establishes  
15 standards of performance for several functions of humanitarian assistance, including health  
16 care."<sup>55</sup> To the greatest extent possible, the activities within an MSO should be defined at the  
17 intervention level to allow benchmarking against other international assistance programs and to  
18 support evaluation of the activities.

19

---

<sup>54</sup> The World Bank, "Priorities in Health," The World Bank, 2006, p. 129.

<sup>55</sup> Drifmeyer, Jeff; Llewellyn, Craig, "Toward More Effective Humanitarian Assistance," *Military Medicine*, Vol. 169, March 2004, pp 167.

## 9 Defining Measures of Performance (MOPs) for MSOs

Measures of performance assess the extent or the manner in which a mission/program completed the desired set of activities. Although MOEs are strategic in nature and are not directly linked to the outcomes of a specific mission, MOPs are defined with respect to the activities of a specific mission.

For some services, the outputs and activities are still being defined, and MOPs are in development (see appendices for recommendations on MOPs for individual services). Ideally, the outputs would express mission/event and service-specific objectives, and the measures would then evaluate the degree to which those objectives were met during the mission/event. The measures can be at any of the relevant levels, from assessing the effectiveness of a single intervention to assessing the performance of the service or mission as a whole.

A particular challenge is articulating measures for capacity building activities, since the best measures for these types of activities often require access to data that may not be immediately available to mission personnel. For example, a good measure for a 'train-the-trainer' activity would include information on how many individuals were trained by the new trainers, but this information is, obviously, not immediately available and requires information to be collected from the relevant HN agencies weeks, or even months later.

For this reason, some of the MOPs discussed in this document are essentially 'measures of *effort*.' As collaboration across multiple missions becomes more common, allowing for more access on the effects of previous missions, more sophisticated measures will be possible.

Some examples of proposed MOPs are the following:

- Percentage of the MEDCAP population who received some form of oral health care
- Support the HN oral hygiene programs, such as school-based oral hygiene
- Support HN in improving hygienic feeding practices and providing oral rehydration treatments and education
- Support HN in developing a national protocol for cervical cancer prevention
- Support HN by providing training on pregnancy planning and spacing
- Support HN by providing training to midwives using the Life Saving Skills course
- Support HN by providing the "Helping Babies Breathe" course to birth attendants
- Work with HN to provide screening eye exams and provide HN with data on incidence of refractive errors
- Support the HN plan for national rabies vaccination program

It is critical to define MOPs that encompass existing MSO activities, such as providing direct care services, as well as MSO interventions, to include interventions focused on capacity building. Allowing the definition of MOPs to include some of the existing level-of-effort measures will provide a *transition* between existing reporting formats (see the section on MSO Reporting) and future MSO reports.

## 10 Incorporating Monitoring and Evaluation in Medical Stability Operations

Previous sections presented the monitoring and evaluation framework for MSO missions; this section will focus on how to apply that framework in monitoring and evaluating programs and/or missions.

### 10.1 Monitoring and Evaluation

Generally speaking, 'monitoring and evaluation' activities are conducted to enhance an existing project or to improve the performance of future projects. In this document, measures of effectiveness are used to assess a *program* (and thus do not refer to any specific mission) and measures of performance are used to assess the activities of an on-going mission.

In a *mature* monitoring and evaluation program, various activities will have been studied sufficiently to support 'benchmarking' and the monitoring and evaluation processes will allow mission planners to correct, or improve activities during a mission. This is not possible at present, because the current data collection processes do not include defined outputs that would allow a current activity to be compared to a desired standard or benchmark.

For example, during current missions, data is collected on how many patients are seen by a DENCAP, but since no standard or benchmark has been defined for dental services, monitoring of this data does not allow for any *evaluation* of dental activities. This document recommends (Dental Service Appendix) that one output for dental services be to "provide some form of dental service to all patients presenting to a MEDCAP/DENCAP site." Data collected from the USS BOXER mission to El Salvador as a part of Continuing Promise 2008 indicates that dental services were performed for only 17.9% of the total patient census. Comparing the data collected during a mission (a monitoring activity) to a defined output would allow for evaluation of that activity and improvement in the performance of the activity.

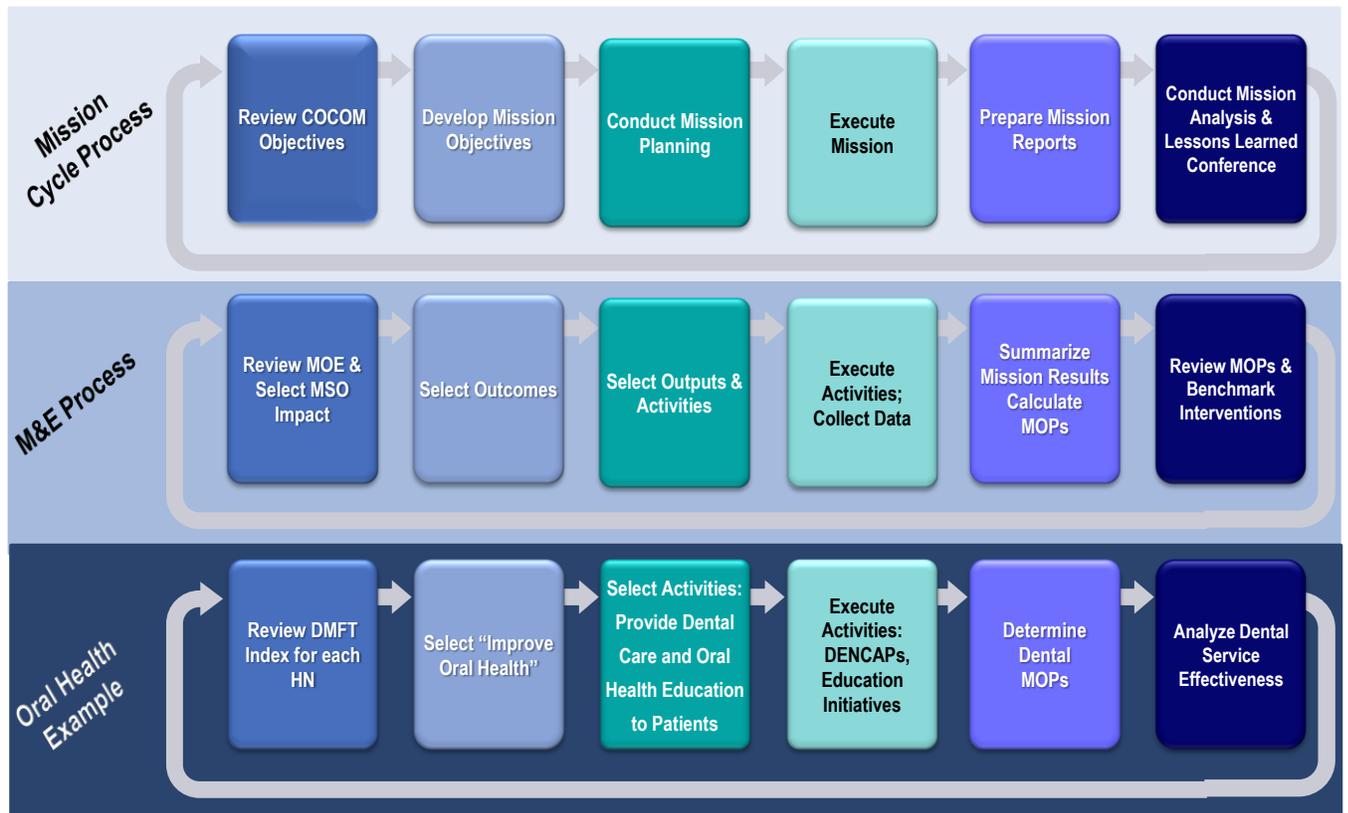
When monitoring and evaluation is incorporated into the cycle of planning, executing, and analyzing a mission, it supports a continual improvement process that can lead to increased mission and program effectiveness. The figure below illustrates this cycle of improvement, explicitly depicting the monitoring and evaluation activities that should be included in each phase of a mission and providing explicit examples of those activities.

*USAID defines monitoring as "the collection and analysis of routine measurements to detect changes in status. Monitoring is used to inform managers about the progress of an ongoing intervention or program, and to detect problems that may be able to be addressed through corrective actions"*

*Similarly, USAID defines evaluation as "a systematic and objective assessment of an on-going or completed project, program or policy. Evaluations are undertaken to (a) improve the performance of existing interventions or policies, (b) assess their effects and impacts, and (c) inform decisions about future programming. Evaluations are formal analytical endeavors involving systematic collection and analysis of qualitative and quantitative information"*

*Developing a Prototype Handbook for Monitoring and Evaluating DoD Humanitarian Assistance Projects (RAND)*

# Medical Stability Operations Mission Cycle



1  
2 **Figure 5: Incorporating Monitoring & Evaluation into a Mission Cycle**

3 Each of the following subsections will describe how monitoring and evaluation activities are  
4 included in each phase of the mission cycle.

## 5 **10.2 COCOM and Mission Objectives**

6 Generally the COCOM will determine the impact and outcomes for an MSO at the program  
7 level, assuming that the mission is occurring within the context of a long-term focus on building  
8 partnerships and capacity within a region as part of the COCOM's Theater Security Cooperation  
9 Plan (TSCP). Both Pacific Partnership and Continuing Promise are examples of this type of  
10 mission, as are the Afghan reconstruction efforts.

11 The impacts and outcomes presented in this document were deliberately chosen to be consistent  
12 with and supportive of the strategic objectives of these programs, which have included  
13 cooperative health engagements as part of their strategies. However, it is possible that a program  
14 might not include health engagement activities or might include only a limited degree of health  
15 engagement as part of its strategy. In any case, the *theater* planners will initially determine the  
16 scope and nature of the health service support to the stability operation.

17 Determining these outcomes could be based on a review of the existing MOEs for HNs; the  
18 medical planners could use the WHO Statistical Information System (WHOSIS) to find the

1 values for these measures for the year *prior* to the first known mission to that country and for  
2 previous mission years.

3 Then, for any single mission within that program, the program planners will select the desired  
4 health outcomes for that mission; perhaps the mission will include only a veterinary assistance  
5 team to focus on animal health, or an eye care team. Once the specific outcomes have been  
6 selected, the appropriate required capability (adaptive force package) is determined, which then  
7 informs the Request for Forces (RFF) process.

8 The table below illustrates how the MSO outcomes might be determined, given an existing set of  
9 program objectives. Note that the MSO impact and outcomes are consistent with, and in support  
10 of program and mission objectives.

11

1 **Table 3: Aligning MSO Impact & Outcomes with Program & Mission Objectives**

<p><b>Program Objectives</b></p>	<ul style="list-style-type: none"> <li>• Partner capability for delivering essential services to its people is improved</li> <li>• Partner Nation capacity to provide human services to its population is improved</li> <li>• Partners have the capacity to conduct effective peace, stability, and consequence management operations</li> <li>• Target population support for local government is improved</li> <li>• Target population views government ability to respond to disaster as positive</li> <li>• Relationships with Partner Nations are enhanced</li> </ul>
<p><b>MSO Objectives</b></p>	<p>Work in partnership with the HN, Partner Nations, and other relevant organizations to:</p> <ul style="list-style-type: none"> <li>• Support and strengthen the HN’s ability to reduce their burden of disease or injury</li> <li>• Strengthen the HN's security forces/military and civilian health systems</li> <li>• In times of disaster, reduce the pain and suffering of the population and begin the process of recovery</li> <li>• Improve the operational readiness of deployed U.S. military medical personnel</li> </ul>
<p><b>Mission Objectives</b></p>	<ul style="list-style-type: none"> <li>• Strengthen relationship with Host and Partner Nations</li> <li>• Build partner capacity to conduct peace, stability, and consequence management operations</li> <li>• Build awareness and detection capacity of key countries to counter public health threats</li> </ul>
<p><b>MSO Outcomes</b></p>	<ul style="list-style-type: none"> <li>• Dental: improve oral health</li> <li>• Surgical: reduce pain and suffering from injuries or emergent/existing conditions</li> <li>• Public health: optimize health by addressing the complex, interacting causes of poor human health such as unsafe water, lack of sanitation, food insecurity, and proximity between animals, humans, and the environment</li> </ul>

2

3 **10.3 Mission Planning: Selecting Outputs and Activities**

4 During the planning sessions for the missions, the medical planners and mission planners

5 (meaning the subject matter experts who will lead in providing specific services) will coordinate

6 with the HNs and other relevant agencies in finalizing the list of desired outputs for the mission.

7 Any given service may have a dozen or more outputs that are possible; the goal would be to

8 select those outputs that would most enhance the partnership with the HN and build the capacity

9 within the HN.

1 The outputs determine the scope of activities that will be performed during the mission, and  
 2 therefore the logistical support requirements. Each output is associated with a measure of  
 3 performance, which drives the data collection and reporting requirements for that output.  
 4 Ideally, a ‘menu of services’ (a term first used by PACFLT) will be offered to the HN for  
 5 consideration, and the HN will then select the desired outputs from this ‘menu of services.’ This  
 6 will provide the HN with tactical control of the MSO mission activities in their country, while  
 7 still providing the COCOM and mission personnel with strategic control. The planning sheets  
 8 illustrated in the tables below capture the following information:

- 9 • Mission History: a summary of recent missions or U.S. government activities in each HN
- 10 • Communication History: a summary of key planning discussions with key HN stakeholders
- 11 • Selected Outputs & Activities: a list of the selected outputs and activities for each HN, and  
 12 the point of contact in the HN who participated in the selection process

13 These mission planning sheets could be maintained in notebooks, spreadsheets, or in databases,  
 14 as appropriate. In Table 4, a quick summation of recent missions is described and could include  
 15 on-going activities sponsored by the WHO or USAID. This promotes information sharing  
 16 among diverse missions and initiatives.

17 **Table 4: Example of a Mission Planning Sheet: Mission History**

Country	Country X	Country Y
<b>History</b>	<ul style="list-style-type: none"> <li>• USAF Humanitarian Assistance Rapid Response Team (HARRT) set up a mobile field hospital at WWW from 7 -14 Oct 09</li> <li>• A MEDCAP/DENCAP were conducted in ZZZ from 13-19 May 06</li> </ul>	<ul style="list-style-type: none"> <li>• A Veterinary Assistance Visit (VETAV) was conducted in XXX from 17-19 Jun 07 and in YYY from 24-29 Jun 07</li> </ul>

18  
 19 The next table illustrates how planning communications could be captured; ideally, these  
 20 summaries would also include the contact information of key individuals which would support  
 21 the strategic goal of sustaining and enhancing relationships with HN stakeholders.  
 22

1

**Table 5: Example of a Mission Planning Sheet: Communication History**

Country	Country X			
<b>Communication History</b>	Date	Stakeholder Contact	Mission Contact	Summary
	17 Mar 10	Ms Jean Smith USAID	LTC James Jones COCOM	Reviewed on-going initiatives
	20 Jun 10	Mr Yacuba Jones OIE	CPT John Doe 96 <sup>th</sup> Civil Affairs BN	Reviewed potential services
	7 Jul 10	LTC James Jones, Combatant Command	LTC James Jones COCOM	Identified desired outputs & services

2

3 Finally, the last table illustrates a mechanism for reviewing outputs and activities with each HN,  
 4 and identifying the outputs and activities the HN would prefer for the mission. A table similar to  
 5 this could actually be used in discussions with the HN in identifying the desired services for the  
 6 mission.

7

8

**Table 6: Example of a Mission Planning Sheet: Selecting Outputs & Activities**

Country X			
Outcomes	Potential Outputs	Potential Activities	HN Contact
Dental	<input type="checkbox"/> Support national fluoridation program	<input type="checkbox"/> Support development of a national fluoridation strategy <input type="checkbox"/> Assist in implementation of national fluoridation effort <input type="checkbox"/> Evaluate on-going fluoridation efforts <input type="checkbox"/> Provide training support for fluoridation efforts	Dr Joe Wiley Dental School Dean
	<input type="checkbox"/> Provide as many dental services as possible at designated locations <input type="checkbox"/> Target limited services to youth & elderly <input type="checkbox"/> Provide sealants to all children presenting at a DENCAP	<input type="checkbox"/> Perform extractions (limited) <input type="checkbox"/> Perform restorations (limited) <input type="checkbox"/> Provide fluoride treatments <input type="checkbox"/> Provide varnishes <input type="checkbox"/> Perform screening exams <input type="checkbox"/> Perform oral cancer screening exams <input type="checkbox"/> Perform DENCAPs @ locations XXX & YYY	
	<input type="checkbox"/> Provide oral health education to patients	<input type="checkbox"/> Support development of school and patient focused oral health education materials <input type="checkbox"/> Provide oral health education materials (supplies & marketing materials) <input type="checkbox"/> Teach oral health education to patients presenting at DENCAP	
	<input type="checkbox"/> Provide training to HN professionals	<input type="checkbox"/> Demonstration of new digital crown system <input type="checkbox"/> Management of dental emergencies & infections <input type="checkbox"/> Laser dentistry <input type="checkbox"/> Digital radiography	
	<input type="checkbox"/> SME Exchanges	<input type="checkbox"/> Symposium on current oral health successes in HN <input type="checkbox"/> Symposium on latest dental education techniques	

## 10.4 Mission Execution: Data Collection

This phase of the mission cycle refers to the actual execution of mission activities; the primary monitoring and evaluation activity during this phase is collecting the data necessary to determine the measures of performance associated with the mission outputs. The appendices of this document specify the outputs, activities and measures of performance for each service.

For the output of providing as many dental services as possible to the inhabitants of a remote village, the measure of performance would be the percentage of the population who received a dental service. For the output of providing limited dental services to the youth and elderly sub-populations, the measure of performance would be the percentage of youths and elderly who received a limited dental service (e.g., exam or extraction), given the numbers of youth and elderly who presented for care.

For each of the training outputs, the following information needs to be collected:

- Date and location of class
- Class topic
- Class audience or participants: type of professional
- Number of attendees
- Expected results of the training (will the attendees train others, provide additional services to patients ,etc.)

At present, only the total number of attendees for all classes is collected within any given service; this does not support assessing the effectiveness of any given training session. At this time, MOPs are determined based on the assumption that only data available during the mission will be used to calculate the MOPs; as missions become more integrated, and the data collected during one mission becomes available to mission staff on a follow-on mission, then MOPs can be determined using data collected during additional missions.

For example, if a train-the-trainer class is provided to a HN during one mission, the effectiveness of that class is currently assessed by the number of attendees of the class. The mission staff is very unlikely to have access to future information such as the additional number of classes taught by these attendees, now providing the training to other individuals. However, future missions to that same country may be able to collect that information – if mission data and information were collected and shared across multiple missions. This document encourages the collection and sharing of such information and sees these activities as vital to developing more sophisticated measures of performance.

### 10.4.1 Standardizing Data Collection and Reporting

Data regarding the total number of patients seen and procedures performed will still need to be collected for some time, since the various commands still expect this data. It will take some time to transition to a system which reports valid measures of effectiveness and performance; a significant challenge to this transition is the simple fact that such data can rarely be condensed to a single briefing slide.

However, this document recommends that the data collected be standardized with respect to terminology and how the data is collected. The table below proposes definitions for key terms used in reporting previous mission efforts.

1

**Table 7: Standardized Terminology for MSO Mission Data Collection**

<b>Patient Census</b>	The actual number of individual patients' seen, or total number of patients. A patient may experience multiple encounters or services
<b>Visit</b>	A face to face contact between a patient and a provider who has primary responsibility for assessing and treating the patient at a given contact, and involving exercising independent judgment. Provider must be a clinician or a direct care professional.
<b>Service</b>	A specific identifiable act or service involved in the medical care of a patient that does not require the assessment of the patient's condition nor the exercising of independent judgment as to the patient's care, such as a technician drawing blood, taking an x-ray, administering an immunization, issuance of medical supplies and equipment; i.e., colostomy bags, hearing aid batteries, wheel chairs or hemodialysis supplies, applying or removing a cast and issuing orthotics. Pharmacy, pathology, radiology, and special procedures services are also occasions of service and not counted as visits.
<b>Encounters</b>	The sum of the number of visits and the number of occasions of service.
<b>Procedure</b>	Healthcare provided during an encounter than can be separately defined and is provided in support of a diagnosis. For example: an extraction is a dental procedure provided during a dental exam.

2

3

1 As an example in applying these definitions, consider the following data provided by the USS  
2 KEARSARGE in CP 2008:

3 **Table 8: Data Sample from USS KEARSARGE, August 2008**

<b>Category: Dental Care</b>	<b>Deployment Total (To Date)</b>
Total Patients Seen	1679
Adults	1135
Pediatric Patients	544
Exams	359
Extractions	628
Sealants	1
Varnishes	334
Fluoride Treatments	2336

4  
5 The patient census was 1,679 indicating the total number of individual patients seen to date by  
6 the dental element of the HCA mission. The data sample further specifies this census in terms of  
7 adult and pediatric patients.

8 The total number of visits for this category would be 359, since a dental exam constitutes a visit.

9 Extractions are a procedure conducted during a visit, so the total number of procedures is 628.

10 The total number of services provided by the dental element would be the sum of the totals for  
11 sealants, varnishes, and fluoride treatments, or 2,671, since these are typically conducted by  
12 dental hygienists.

13 The total number of encounters would be 3,030, obtained by summing the totals for the number  
14 of visits, 359, and the number of services, 2,671.

15 It is recommended that the total scope of the medical mission activities be reported as follows:

- 16 • Patient census: total number of patients seen
- 17 • Number of Patient Visits: total number of visits or exams, broken down by medical, surgical  
18 (referring to a surgical screening visit) and dental
- 19 • Total Number of Surgeries
- 20 • Scope of Ancillary Services: broken down by number of radiological tests, number of  
21 prescriptions filled, and number of lab procedures performed.

## 22 **10.4.2 Automating Data Collection**

### 23 **10.4.2.1 Past Mechanisms for the Collection of Medical Information**

24 In the past five years, the programs Continuing Promise and Pacific Partnership have used a  
25 variety of mechanisms to collect, track, and report medical data required by the mission  
26 command and staff. The most common method uses a single piece of paper to summarize

1 multiple aspects of the patient encounter information for each patient, and patient totals are then  
2 entered into a spreadsheet or database. These multi-purpose patient encounter forms capture  
3 patient information, medical, dental, optometric, and diagnostic information for each patient. At  
4 the end of each treatment day, the forms are sorted by provider and reviewed by the treatment  
5 team to identify any diagnostic anomalies and to ensure consistency of medical treatment. Since  
6 the medications prescribed by the providers are also included on the patient encounter form, a  
7 pharmacy review of all the forms allows them to prepare the mission supplies for the next day of  
8 treatment.

9 Copies of these patient encounter forms are then provided to the HN Ministry of Health (or  
10 equivalent), who is responsible for creating medical records, filing the forms, and flagging  
11 records that require follow-on care in the HN medical system.

#### 12 **10.4.2.2 Experiments with Automated Data Collection Tools**

13 In 2009, Continuing Promise fielded an automated data collection tool on the USNS COMFORT  
14 for a single country mission. The automated data collection tool was the Rapid Data  
15 Management System (RDMS) developed by Global Relief Technologies (GRT). The GRT  
16 technology has two primary components: a field  
17 surveying PDA and the virtual network operations  
18 center (VNOC). The field surveying PDA uses RDMS  
19 to support custom survey forms with pre-programmed  
20 questions and responses and free text data entry. The  
21 Broadband Global Area Network (BGAN) is a small,  
22 lightweight satellite terminal which allows users to  
23 upload data to the VNOC via satellite phone, or to a  
24 local area network established for the site.

25 Continuing Promise also tested the Disaster  
26 Management Information System (DMIS) in its 2010  
27 mission and the system was used actively during  
28 Operation Unified Response, the disaster relief effort to  
29 Haiti in 2010.

30 Pacific Partnership tested the U.S. Army Corps of  
31 Engineers system, Geospatial Assessment Tool for  
32 Engineering Reachback (GATER) in the Pre-  
33 Deployment Site Surveys for its 2010 missions. The  
34 GATER is a suite of applications allowing for a three  
35 tier business process: field data collection, a desktop  
36 application that serves as a conduit to synchronize data  
37 from the field to the desktop and then to the data  
38 repository, and an online data visualization capability  
39 (online GIS mapping). Once field data is collected and  
40 uploaded at the desktop level, the user can extract  
41 shapefiles and generate reports that depict their data  
42 collection(s).

43 In 2010, GRT partnered with the Marine Experimentation Center to field the RDMS for the  
44 2010 Pacific Partnership mission. The Operational Effectiveness report for this assessment  
45 concluded that “lessons learned through the Pacific Partnership 2010 operation and user  
46 feedback will enhance the capability to electronically collect civil and humanitarian data in

*Overall RDMS is an improvement compared to the current paper system used in Foreign Humanitarian Assistance & Disaster Relief. The majority of users thought the RDMS Collect was easy to use and an adequate substitution for paper forms. Most users indicated that the majority of processes, such as providing patient care or discharging patients, were better using the RDMS than using the current system. Tracking clinical diagnoses and services, writing prescriptions, and filling and dispensing medications were vastly improved, while triaging patients was the same as the current system. **Civil and Humanitarian Information Management – Expeditionary, Operational Effectiveness Report for RDMS on Pacific Partnership 2010***

1 expeditionary environments and greatly assist in guiding development of the RDMS for  
2 employment in future operations.”<sup>56</sup>

### 3 **10.5 Mission Reporting**

4 This phase of the mission cycle refers to preparing the final mission summary reports and  
5 briefings. During this phase, the data is analyzed to determine measures of performance, which  
6 are then presented in a summary manner to support strategic communication products. In the  
7 near term, mission reports will probably closely resemble existing mission reports, as described  
8 in the appendix, “Current MSO Processes for Planning, Data Collection and Data Reporting.”

### 9 **10.6 Mission Analysis**

10 During this phase, the data collected during the mission is analyzed and used to determine MOPs  
11 and compared against service and intervention benchmarks. The mission Lessons Learned  
12 Conference is held, during which these measures are reviewed

13 The *health-related* data collected during a mission should be shared with key stakeholders,  
14 including Navy Medicine, Center for Disasters and Humanitarian Assistance Medicine  
15 (CDHAM), and USAID. This supports analysis of mission and service effectiveness across  
16 multiple missions and will assist the specialty leads in improving the effectiveness of individual  
17 interventions. Eventually, the data collected will support *benchmarking* for  
18 MEDCAPS/DENCAPS and even at the individual intervention level, which will - in turn - lead  
19 to improved definition of the outputs and activities, allowing for continual improvement.

20 In addition to the value of the data collected for purposes of improving mission capabilities, the  
21 data can also be of great value to the HN. For example, collecting information on the refractive  
22 errors present within a portion of the population is of great value to the HN in understanding the  
23 incidence and extent of refractive error in the nation. Whenever possible, mission planners  
24 should coordinate with the HN to provide them with the data collected during the mission.

### 25 **10.7 Dental Services Example: Outcomes, Activities, and Measures**

26 The outcome for the dental service is to improve oral health.  
27 The measure of effectiveness for the outcome “Improve oral health” is the DMFT (Decayed,  
28 Missing, Filled Teeth) index for 12 year olds.

### 29 **10.8 Dental Service Activities**

30 The defined activities for improving oral health are the following:

- 31 • Perform dental cleanings
- 32 • Perform extractions
- 33 • Perform restorations
- 34 • Provide fluoride applications
- 35 • Provide sealants
- 36 • Provide varnishes
- 37 • Perform oral cancer screening exams

---

<sup>56</sup> Marine Experimentation Center, MARFORPAC, Civil and Humanitarian Information Management – Expeditionary, “Operational Effectiveness Report of RDMS on Pacific Partnership 2010,” Summer 2010.

- Provide patient education classes on oral hygiene
  - Provide consultation to the HN on national fluoridation programs
- Recall that in order to be able to state that these direct care activities contribute to an improvement in the DMFT (the MOE for Dental Services), even direct care activities need to be conducted in partnership with the HN, be performed in a manner that can be sustained by the HN, and include training sessions that serve to enhance the capacity of the HN.
- The WHO priority action areas for oral health suggests that capacity building efforts be directed toward assisting nations in the effective use of fluoride and supporting school-based programs on oral hygiene instruction.

## 10.9 Dental Service Outputs and MOPs

Generally speaking, the HN is looking for an impact on the population, and not just for individuals. This indicates a strategy of providing *some* form of dental service to as many patients as possible, as opposed to providing complete dental care to a (relatively) few individual patients. This suggests that a viable performance goal is to provide some form of oral health to every patient admitted into the MEDCAP/DENCAP.

The case study data from the USS BOXER mission to El Salvador as part of Continuing Promise 2008 (shown in Figure 12) suggests that the DENCAP is reaching only about 20% of the patients presented to a MEDCAP, using the following data:

- An average of 184 dental patients seen each day
- An average of 1,032 patients triaged each day (patient census for MEDCAP)
- The DENCAP reached approximately 17.9 percent of the total patient census, on average

The WHO also recommends improving the oral health of two populations: children and the elderly.

OPERATIONS ASHORE (DENCAP)	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	Totals
Adult Dental Visits	44	105	99	123	88	34	159	85	67	118	104	0	1,026
Pediatric Dental Visits	205	65	105	88	84	45	122	67	71	85	67	0	1,004
Dental Examinations	121	106	108	138	125	49	170	124	119	173	122	0	1,355
Dental Extractions	46	89	83	145	113	57	78	95	100	115	118	0	1,039
Sealants	240	227	415	158	284	89	0	226	116	253	78	0	2,086
Fillings	0	0	0	0	0	0	0	0	0	0	0	0	-
Varnishes	18	20	40	64	76	9	124	70	52	46	65	0	584
Cleanings/Scalings	33	65	55	42	70	30	62	53	59	96	45	0	610
Flouride Treatment	126	170	190	195	229	107	278	259	203	119	214	0	2,090
Other Dental Procedures	0	0	0	0	0	0	0	0	0	0	0	0	-
Total Primary Care Dental Patients Seen	249	170	204	211	172	79	281	152	138	203	171	0	2,030
Total Patients Triaged (Actual Census)	782	784	978	1114	1184	572	872	1267	1341	1232	1222	0	11,348
Total Patient Encounters (ex. 1 person goes to Medical,	936	882	996	1087	1198	586	983	1303	1352	1276	1218	0	11,817
Total Patient Service	2613	2189	2846	2870	3084	1597	2609	3190	3295	3455	3254	0	31,002

**Figure 6: Dental Services Data Extract from USS BOXER Mission, 2008**

1 The outputs and measures of performance (MOPs) for Dental Services are presented in the table  
 2 below.

3 **Table 9: Outputs and Measures of Performance for Dental Services**

Dental Service Outputs	Dental Service MOPs
Provide some form of dental service to all patients presenting to a MEDCAP/DENCAP site	Percentage of patients triaged at a MEDCAP/DENCAP site who received one or more dental services
Target limited dental services (such as exams & extractions) to children and the elderly	Percentage of the pediatric and elderly patients who received one or more of the following: dental examination; extractions, cleanings, and restoration (optimizes scarce dental resources for the target groups)
Provide sealants to all children presenting to a DENCAP/MEDCAP	Percentage of the pediatric patients who received a sealant (optimizes a key preventive measure for a target group most likely to benefit)
Provide oral health education to as many patients as possible	Percent of patients who receive an oral health education class; specify the class topic and total number of trainers
Provide training to HN dental professionals	Description of each dental training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
Support national/local fluoridation efforts	Description of support provided to national/local fluoridation efforts to include HN contact, support provided, scope of support, and recommended follow-on actions

4 **10.10 General Planning Considerations**

5 Planning considerations for individual health/public health services are provided in the  
 6 appendices; this section will describe those planning considerations that are generally applicable  
 7 to all of the health/public health services.

8 **10.10.1.1 Building Relationships**

9 It is critical for mission planners and staff to understand the necessity for developing and  
 10 sustaining relationships at all levels of the command, from the individual provider level up to the  
 11 command level. It is this network of relationships – if sustained and enhanced over time – that  
 12 truly serve to build partnership with another nation.

13 **10.10.2 Cultural Competence<sup>57</sup>**

14 Cultural competence is an essential element of quality health care and can help improve health  
 15 outcomes, increase clinic efficiency, and produce greater patient satisfaction. Although there is

---

<sup>57</sup> CDC, “Promoting Cultural Sensitivity: A Practical Guide for Tuberculosis Programs that Provide Services to Hmong Persons from Laos,” 2008.

1 no universally accepted definition of cultural competence, it may generally be understood to be a  
2 set of attitudes, skills, behaviors, and policies that enable organizations and staff to work  
3 effectively in cross-cultural situations. Furthermore, it reflects the ability to acquire and use  
4 knowledge of the health-related beliefs, attitudes, practices, and communication patterns of  
5 patients and their families in order to improve services, strengthen programs, increase  
6 community participation, and close the gaps in health status among diverse population.

7 To move towards cultural competence, health care providers and other program staff should  
8 understand the ethnic and cultural needs of the populations they serve. Providing effective care  
9 involves taking the time and effort to learn from patients what is important to them in the  
10 experience of illness and treatment. According to medical anthropologist Arthur Kleinman,  
11 finding out “what is at stake” for the individual will provide crucial information to use in  
12 communication and in tailoring a treatment plan. Culture does matter in the clinic, and providers  
13 must remember that they too bring a cultural perspective to the patient-provider relationship.  
14 Increasing mission personnel knowledge of the cultural and ethnic backgrounds of populations  
15 served is an important component of mission readiness.

#### 16 **10.10.2.1 Coordinate with the Maritime Civil Affairs Group**

17 In 2007, the Navy Expeditionary Combat Command (NECC) officially established its newest  
18 command, Military Civil Affairs Group (MCAG); the MCAG mission is to assess, plan and  
19 execute civil affairs (CA) activities in the maritime operational environment. Their expertise  
20 includes the traditional CA functional areas such as public education and public health, but they  
21 also focus on three maritime specific functions: commercial port operations, harbor and channel  
22 construction and maintenance, and marine and fisheries resources. MCAG forces also serve as  
23 first responders for disaster relief operations throughout the world.

24 It is essential that mission planners coordinate with MCAG in planning and executing MSO  
25 missions.

#### 26 **10.10.3 Tiered and Tailored Approach**

27 In general, capacity-building activities must be matched to the HN's level of development and  
28 needs. Mission specialty leads should assess countries as falling into one of three categories:

- 29 • Developed: capabilities on par with the U.S.
- 30 • Developing: HN has capabilities, but needs improvement
- 31 • Least Developed: Host nation lacks basic capabilities.

32 Frequently, programs such as Continuing Promise and Pacific Partnership include visits to HNs  
33 from all three categories in a single mission, so mission planners need to include a spectrum of  
34 activities appropriate for each type of country. There is very little point in providing  
35 sophisticated instruction on fetal monitoring techniques in a country that does not use fetal  
36 monitoring equipment, or even have reliable power sources for such equipment. For these Least  
37 Developed countries, a simple class on handwashing and management of pre-eclampsia may be  
38 much more effective and useful to its healthcare providers.

39 When providing instruction courses to the HN personnel, consider the following aspects of the  
40 instruction:

- 41 • Do the course materials for the attendees require the attendees to be literate? Recommend the  
42 use of pictorial-based instructional materials. Many course materials provided by the WHO  
43 are pictorially based

- 1 • If the course materials require literacy, are they written in the language of the attendees, or do  
2 they require the attendees to be able to read and write English? The WHO, and other  
3 international organizations, often provide course materials in many different languages; using  
4 standardized course materials also improves the standardization of instruction across multiple  
5 missions
- 6 • Are the course materials culturally and gender appropriate and relevant? For that matter, is  
7 the instruction itself culturally and gender appropriate? Classes on contraception and family  
8 planning may not always be appropriate for all audiences, for example.
- 9 • Is the course length appropriate for the duration of the mission? A life saving skills course  
10 which takes three days to complete may not be viable for a mission that stays in a single  
11 country for only 4 or 5 days (without careful advance planning)
- 12 • Does the course use or demonstrate equipment that is not available to the HN?

### 13 **10.10.3.1 Provide Sustainable Care**

14 It is tempting in humanitarian assistance missions to provide the latest and most effective care to  
15 the patient, but it is critical to accept that this care is ineffective – and possibly harmful – if it  
16 can't be adequately sustained by the HN. This is a major reason why a requirement for effective  
17 MSO missions is to provide support within the context of an *existing national or global health*  
18 *program*: to ensure that any care provided is effective and sustainable.

### 19 **10.10.3.2 Health and Public Health Training**

20 One effective and simple method of assessing the quality of health training is to conduct an oral  
21 assessment of the material taught during the class; answers can be quickly assessed by counting  
22 raised hands or other, similar mechanisms. This would allow the mission staff to rapidly  
23 evaluate the quality of the instruction and identify areas for improvement.

24 Furthermore, lessons plans and visual aids from previous missions should be saved and available  
25 to each mission team.

26 Training materials should be obtained from WHO or other international sources, as they are  
27 often available in storyboard form (does not require literacy) and may also be translated into a  
28 variety of languages. Advance detail about the target audience is critical to the development of  
29 effective training modules; the minimum knowledge necessary includes: age range, occupation,  
30 and some information on the audience's current knowledge or expertise on the subject.

### 31 **10.10.3.3 Subject Matter Expert Exchanges**

32 An important part of building a partnership with a HN is being willing to learn from the HN, in  
33 addition to teaching. Listening to HN professionals is often a more challenging task for U.S.  
34 personnel, but it is a vital task, none the less. One effective mechanism is the Subject Matter  
35 Expert Exchanges, which are based on the assumption of professional equality, and allow for  
36 subject matter experts to exchange their experiences and knowledge freely.

37 A useful technique for such exchanges is to ask the HN to share a recent success in their area;  
38 not only does this provide a forum for them to speak, but very often it provides a great deal of  
39 useful information and insights to the mission personnel.

### 40 **10.10.3.4 Translators**

41 Many After Action Reviews have noted the importance – and difficulty – of obtaining good  
42 translators. Ideally, the translators used during the mission are medical personnel familiar with  
43 the types of activities being conducted during the mission and are working with mission  
44 personnel to provide those services. Even in these best of circumstances, mission personnel will

1 need to condense their instructions to the simplest form and learn to speak concisely, clearly, and  
2 slowly – and to be prepared to repeat themselves, as necessary.

3 Translation software might be useful for modifying presentations for specific audiences.

#### 4 **10.10.3.5 Mission Reference Library**

5 Mission participants could contribute to building, over time, a mission reference library of useful  
6 reference materials that would be available to all future missions (for HCA missions, the  
7 reference library could be maintained on the hospital ship). Simple references such as texts or  
8 electronic documents describing simple latrine construction as performed around the world  
9 would be of enormous value.

#### 10 **10.10.3.6 Health Facility Assessment**

11 One important element of a mission is conducting health facility assessments, which can provide  
12 vital data to mission staff, HN personnel and future missions. See Appendix S for a sample  
13 assessment form that can be used.

### 14 **10.11 Summary of MSO Capabilities**

15 The following table provides a summary of the outcomes, measures of effectiveness, outputs,  
16 and measures of performance for each of the adaptive force packages defined to date.

**Table 10: Summary of Outcomes, Outputs and Measures**

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Dental</b>	Improve oral health	The DMFT (Decayed, Missing, Filled Teeth) Index for 12 yr olds	Provide some form of dental service to all patients presenting at a MEDCAP site	Percentage of patients triaged at a MEDCAP site who received one or more dental services
			Target limited dental services (such as exams & extractions) to children & elderly	Percentage of pediatric and elderly patients who received on or more the following: dental exams; extractions; cleanings; and restorations
			Provide sealants to all children presenting to a DENCAP	Percent of pediatric patients who receive a sealant
			Provide oral health training to as many patients as possible	Percent of patients who receive an oral health training class; specify the class, topic & number of trainers
			Provide training to HN dental professionals	Describe each training initiative: target audience, number of audience, topic, and HN teaching participants
			Support national/local fluoridation efforts	Describe support provided to include HN contact, scope of support, and recommended F/U actions

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Surgery</b>	Reduce pain and suffering from injuries or emergent/existing conditions, especially in times of disaster through timely and appropriate surgical intervention.	WHO Disability Adjusted Life Year (DALY) for: <ul style="list-style-type: none"> <li>• Injuries</li> <li>• Maternal Conditions</li> <li>• Congenital Anomalies</li> </ul>	Provide surgical care to injury victims	Number of surgeries provided to injury victims (in disaster responses, this can be further broken down by types of surgeries, i.e., orthopedic, thoracic, etc.)
			Improve the management of obstetrical complications	<ul style="list-style-type: none"> <li>• Number of surgeries</li> <li>• Number of surgical training sessions (include type of training, description of target audience and size of target audience)</li> </ul>
			Improve the surgical management of abdominal and extra-abdominal emergent conditions	Number of surgeries provided
			Provide elective care of simple conditions	Number of surgeries provided, broken down by type of surgery (e.g., clubfoot, cataracts, LF hydroceles)
			Provide training to HN surgical professionals	Number of patients treated (if conducted in conjunction with a surgery) Number of HN surgeons involved Number of Training Sessions: number of attendees, topic, and profession of audience defined

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Infectious Disease</b>	Improve the treatment and management of infectious disease, focusing on TB, malaria, and HIV/AIDS	Incidence, prevalence, and death rates associated with tuberculosis, specifically: <ul style="list-style-type: none"> <li>• TB incidence rate per year per 100,000 population (MDG and WHO indicator)</li> <li>• TB prevalence rate per 100,000 population (MDG and WHO indicator)</li> <li>• TB death rate per year per 100,000 population (MDG indicator)</li> </ul>	Support HN in its management and treatment of TB	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
			Support HN in its management and treatment of HIV/AIDS	
	Improve the treatment and management of infectious disease, focusing on TB, malaria, and HIV/AIDS	Incidence, prevalence, and death rates due to HIV/AIDS, specifically: <ul style="list-style-type: none"> <li>• Percentage of people living with HIV/AIDS, 15-49 yrs old (MDG indicator)</li> <li>• HIV prevalence rate, women 15-49 years old, in national based surveys (MDG indicator)</li> <li>• Deaths due to HIV/AIDS per 100,000 population per year (WHO indicator)</li> </ul>	Co-locate primary care services with HIV screening services	
			Train Voluntary Testing and Counseling (VTC) counselors for a given region (coordinate with NHRC)	

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Infectious Disease</b>	Improve the treatment and management of infectious disease, focusing on TB, malaria, and HIV/AIDS	Incidence and death rates due to malaria, specifically: <ul style="list-style-type: none"> <li>• Malaria death rate per 100,000 population, all ages (MDG indicator)</li> <li>• Notified cases of malaria per 100,000 population (MDG indicator)</li> </ul>	Support HN in its management and treatment of malaria	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
		None	Support HN in the assessment and management of country-specific infections such as lymphatic filariasis and onchocerciasis	
<b>Children's Health</b>	Improve the health status of children	<ul style="list-style-type: none"> <li>• Children under five mortality rate per 1,000 live births (MDG and WHO indicator)</li> <li>• Infant mortality rate (0-1 year) per 1,000 live births (MDG and WHO indicator) Children's Health Activities</li> </ul>	Support HN in improving hygienic feeding practices	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
			Improve diarrheal case management	
			Improve child mortality by providing vitamin A and zinc supplements	The number of children who received vitamin A and zinc supplements
			Provide training to birth attendants on "Helping Babies Breathe"	Describe the number of training sessions performed, profession and number of attendees.

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Children's Health</b>	Improve the health status of children	<ul style="list-style-type: none"> <li>• Children under five mortality rate per 1,000 live births (MDG and WHO indicator)</li> <li>• Infant mortality rate (0-1 year) per 1,000 live births (MDG and WHO indicator) Children's Health Activities</li> </ul>	Provide PALS courses to pediatric care professionals	Describe the number of training sessions performed, profession and number of attendees.
<b>Women's Health</b>	Improve the health status of women	The MOE is the maternal mortality rate (per 100,000 live births).	Provide Advanced Life Support in Obstetrics (ALSO) training	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
			Provide training sessions and support in developing a sexual safety action plan for women and children	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Women's Health</b>	Improve the health status of women	The MOE is the maternal mortality rate (per 100,000 live births).	<ul style="list-style-type: none"> <li>• Provide training on the JHPIEGO cervical screening method</li> <li>• Support HN in developing a national protocol for cervical cancer prevention</li> </ul>	<ul style="list-style-type: none"> <li>• Number of women seen/treated</li> <li>• Progress toward development of a national cervical cancer protocol</li> <li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li> </ul>
			<ul style="list-style-type: none"> <li>• Provide training on pregnancy planning and spacing</li> <li>• Supporting HN in improving access to contraception services</li> </ul>	<ul style="list-style-type: none"> <li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li> <li>• Number of cycle beads distributed</li> </ul>
			<ul style="list-style-type: none"> <li>• Provide training to midwives using the Life Saving Skills course</li> </ul>	<ul style="list-style-type: none"> <li>• Number of midwives trained</li> </ul>
			<ul style="list-style-type: none"> <li>• Provide training to birth attendants, using the "Helping Babies Breathe" course</li> </ul>	<ul style="list-style-type: none"> <li>• Number of birth attendants trained</li> </ul>

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
Dermatology	None	None	Provide training on the management and treatment of preventable skin diseases	<ul style="list-style-type: none"> <li>• Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.</li> <li>• Number of consultations conducted; specify the professional status of the consulting partner (e.g., physician, dermatologist, medical technician)</li> <li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li> </ul>
			Provide training on skin cancer prevention and treatment	<ul style="list-style-type: none"> <li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li> </ul>

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Eye Care</b>	Improve visual function and reduce preventable causes of blindness.	None	Provide screening examinations to as many patients as possible	<ul style="list-style-type: none"> <li>• Provide number of screening examinations, as percentage of the population presenting to the MEDCAP</li> <li>• Note age and gender of individuals screened</li> </ul>
			Issue corrective lens	<ul style="list-style-type: none"> <li>• Provide number of corrective lenses issued, as percentage of the population who received a screening exam</li> <li>• Note the refractive power of each set of issued corrective lenses</li> </ul>
			Issue reading glasses	Provide number of reading glasses issued, as percentage of the population who received a screening exam
			Perform cataract or pterygium surgeries	Provide number of surgeries performed, as a percentage of the population that presented to the MSO diagnosed with the condition
			Provide training on the eye care treatment and management	Number of training sessions, specifying topic, number of attendees and number of instructors

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Public Health</b>	Optimize health by addressing the multiple and interacting causes of poor human health: unsafe water, poor sanitation, food insecurity, and proximity between animals and humans, and the environment.	<ul style="list-style-type: none"> <li>• Percentage of deaths among children under 5 years of age due to diarrheal disease (WHO indicator)</li> <li>• Proportion of the population using improved drinking water sources, rural (MDG and WHO indicator)</li> <li>• Proportion of the population using improved sanitation facilities, rural (MDG and WHO indicator)</li> </ul>	Provide training on: <ul style="list-style-type: none"> <li>• Hygienic feeding practices</li> <li>• Hygienic food storage</li> <li>• Use of Oral Rehydration Treatments in diarrheal case management</li> <li>• Protection of drinking water and water purification at point of use</li> <li>• Use of vector control equipment</li> <li>• Food safety</li> <li>• Food services capability</li> </ul>	Number of training sessions, specifying topic, number of attendees and number of instructors
			Support HN public health initiatives	Describe extent and scope of support
			Support HN in completing community needs assessments	Type and scope of assessment and initial results
			Conduct Subject Matter Expert Exchanges on topics of mutual interest with HN Public Health professionals	Identify the number of training sessions performed, topics and number of attendees.
<b>Drinking Water</b>	None	None	Training sessions on safe use and storage of water	Number of training sessions, specifying topic, number of attendees and number of instructors

<b>Health/Public Health Service</b>	<b>Outcome</b>	<b>MOE(s)</b>	<b>Output(s)</b>	<b>MOPs</b>
<b>Drinking Water</b>	None	None	Provide safe drinking water	<ul style="list-style-type: none"> <li>• Number of sand filtration units installed</li> <li>• Number of wells repaired</li> <li>•</li> </ul>
<b>Sanitation</b>	None	None	TBD	TBD
<b>Pest Management</b>	None	None	TBD	TBD
<b>Animal Health</b>	None	None	Improved animal health practices	
			Higher production yields in animal agriculture	
			Trained and equipped local veterinary personnel	<ul style="list-style-type: none"> <li>• Provide list of equipment and supplies provided to HN personnel</li> <li>• Describe training provided to HN personnel to include: training topic; professional status of attendees; number of attendees and duration of training. Specify the expected outcome of the training (e.g., was it train-the-trainer)</li> </ul>
<b>Epidemiology &amp; Public Health Surveillance</b>	None	None	TBD	TBD

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Food Security/Safety</b>	None	None	Provide training and train-the-trainer courses on food safety based upon the WHO initiative, "Five Keys to Safer Food"	Description of each food safety training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
<b>Infection Control</b>	None	None	Improve knowledge and use of hand hygiene for the population and healthcare professionals	Description of each hygiene training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
<b>Environmental Health</b>	None	None	Provide HN with support and assistance in managing medical, infectious, and pharmaceutical waste	Description of each training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)

Health/Public Health Service	Outcome	MOE(s)	Output(s)	MOPs
<b>Environmental Health</b>	None	None	Provide HN with support and assistance in limiting indoor and outdoor air pollution	Description of each training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
			Provide HN with support and assistance in managing storage tanks	
			Provide HN with support and assistance in managing hazardous materials	

## 11 Appendix A: References

- 1  
2 2nd Battalion, 13th Artillery “*Army Medical Service Activities Report*” (5 February 1968), NA,  
3 RG 112, Box 78, Folder: USARV-2nd Battalion, 13th Artillery.
- 4 2nd Battalion, 22nd Infantry “*Army Medical Service Activities Report*” (1 February 1968), NA  
5 RG 112, Box 78, Folder: USARV-2nd Battlaion, 22nd Infantry, 1960-1969.
- 6 Atwood, J. Brian, “*Elevating Development Assistance*,” PRISM 1, No. 3 (June 2010).
- 7 Baldwin, Katherine; “Afghanistan needs radical change of strategy - aid agencies,”  
8 (26 January 2010).
- 9 Baltussen, Rob; Nausa, Jeroen; Limburg, Hans; Science Direct, “Cost-effectiveness of screening  
10 and correcting refractive errors in school children in Africa, Asia, America and Europe,”  
11 Health Policy (2008).
- 12 Bekedam , Dr. Henk; WHO, “Health Systems for Better Outcomes and the Importance of Health  
13 Planning,” (September 2008).
- 14 Bekedam , Dr. Henk; WHO, “Health Systems in the Western Pacific Region: Challenges &  
15 Opportunities,” (19 November 2008).
- 16 Bell, Lauren; Davis, Jenna; Azar, Ramzy; Jurgielewicz Leavitt, Lynne; Rebhan, Erin; CNA,  
17 “*Future Strategies: Analysis of Navy Medicine Humanitarian Assistance*,” CNA (Oct 2008).
- 18 Bell, Lauren; Davis, Jenna; Azar, Ramzy; Jurgielewicz Leavitt, Lynne; Rebhan, Erin; CNA,  
19 “*Future Strategies: Analysis of Navy Medicine Humanitarian Assistance*,” CNA (Dec 2008).
- 20 Bhalla, Nita; “Military aid puts Afghans' lives at risk – report,” (27 Jan 2010).
- 21 Bitterman, Cdr Jeffrey W. MC, USN; “*Pacific Partnership 2009 – Health Services Post  
22 Deployment Brief*,” Amphibious Squadron One, USNS Richard E. Byrd T-AKE 4  
23 (15 March 2010).
- 24 Bonventre, Colonel Eugene V., USAF. “Monitoring and Evaluation of Department of Defense  
25 Humanitarian Assistance Programs,” Military Review (Jan-Feb 2008).
- 26 Bonventre , Eugene V.; Peake , James B.; Morehouse, Elizabeth; CSIS Global Health Policy  
27 Center, “*From Conflict to Pandemics*,” Three Papers from the CSIS Global Health and  
28 Security Working Group (May 2010).
- 29 Bourdeaux, Margaret Ellis MD; Lawry, Lynn MD, MSPH, MSc; Bonventre, Eugene V. MD;  
30 Burkle Jr, Frederick M. MD, MPH, DTM; “Involvement of the US Department of Defense in  
31 Civilian Assistance, Part I: A Quantitative Description of the Projects Funded by the Overseas  
32 Humanitarian, Disaster, and Civic Aid Program,” Disaster Medicine and Public Health  
33 Preparedness, Vol. 4/No. 1, American Medical Association (2010).
- 34 Burkle Jr, Frederick M., MD, MPH, DTM; McGrady, Katherine A.W., MS, PhD; Newett,  
35 Sandra L., MS; Nelson, John J., BS, MA; Dworken, Jonathan T., BSFS, MA; Lyerly, William  
36 H. Jr., MA, MPH; Natsios, Andrew S., MPA, CDR; Lillibridge, Scott R., USPHS; “*Complex  
37 Humanitarian Emergencies: III. Measures of Effectiveness*,” Prehospital and Disaster  
38 Medicine, Special Report, Vol. 10, No. 1, (Jan-Mar 1995).

- 1 Burkle, Jr., Frederick M. MD, MPH, FAAP, FACEP; “*Measures of Effectiveness in Large-scale*  
2 *Bioterrorism Events*,” Prehospital and Disaster Medicine Special Report, Vol.18, No. 3  
3 (July – September 2003).
- 4 Burkle Jr, Frederick M.; Greenough, P. Gregg; “*Measures of Effectiveness in Disaster*  
5 *Management*,” Chapter 52 (2005).
- 6 CDC; “*Guideline for Hand Hygiene in Health-Care Settings*,” Morbidity and Mortality Weekly  
7 Report, Vol. 51, No. RR-16 (25 October 2002)
- 8 CDC, “Promoting Cultural Sensitivity: A Practical Guide for Tuberculosis Programs that  
9 Provide Services to Hmong Persons from Laos,” 2008.
- 10 CDHAM, “Guide to Nongovernmental Organizations for the Military,” edited by Dr. Lynn  
11 Lawry, Summer 2009
- 12 Chief of Naval Operations, “Naval Operations Concept: Implementing the Maritime Strategy,”  
13 2010
- 14 Clasen, Thomas F., JD, PhD; London School of Hygiene & Tropical Medicine, “Scaling Up  
15 Household Water Treatment Among Low-Income Populations,” WHO, Public Health and  
16 Environment Water, Sanitation, Hygiene and Health, Geneva (2009).
- 17 Combined Joint Task Force–82, Information Paper, “*Cooperative Medical Assistance (CMA)*  
18 *Planning Considerations in Afghanistan*,” Bagram, Afghanistan (March 2007).
- 19 Combined Support Force – 536, “*OUA Hotwash*” (11 February 2005).
- 20 Cosivi, Grange; Daborn, et al; “Zoonotic Tuberculosis due to *Mycobacterium bovis* in  
21 Developing Countries, *Emerging Infectious Diseases*,” Vol. 4, No. 1, (Jan-Mar 98).
- 22 Damstra, CDR D.J.; “Mission Continuing Promise, Medical Post Deployment Brief” (2008).
- 23 Davis, Lois M.; Hosek, Susan D.; Tate, Michael G.; Perry, Mark; Hepler, Gerard; Steinberg,  
24 Paul S.; “*Army Medical Support for Peace Operations and Humanitarian Assistance*,”  
25 RAND Corporation (1996).
- 26 Defense Security Cooperation Agency, “Humanitarian and Civic Assistance and Humanitarian  
27 Mine Action Programs, Fiscal Year 2007” (February 2008).
- 28 Department of the Navy, “Navy Tactics, Techniques and Procedures, Hospital Ships” (July  
29 2008).
- 30 Department of the Navy, “Navy Tactics, Techniques and Procedures, Navy Humanitarian and  
31 Civic Assistance (HCA) Operations” (Draft 28 October 2009).
- 32 Department of the Navy – Office of the Chief of Naval Operations, “Humanitarian Assistance  
33 and Disaster Relief (HA/DR) Operations: Requirements-Based Planning” (February 2006).
- 34 DoD Instruction 2205.02, “Humanitarian and Civic Assistance Activities” (2 December 2008).
- 35 DoD Instruction 2205.03, “Implementing Procedures for the Humanitarian and Civic Assistance  
36 (HCA) Program” (27 January 1995).
- 37 DoD Instruction 3000.05, “*Stability Operations*” (16 September 2009).
- 38 DoD Instruction 6000.16, “Military Health Support for Stability Operations” (17 May 2010).

1 DoD, "Policy Guidance for DoD Overseas Humanitarian Assistance Program (HAP)"  
2 (18 Nov 2009).

3 DoD, "Report to Congress On the Integration of Interagency Capabilities into Department of  
4 Defense Planning for Stability Operations," (May 2009).

5 Drifmeyer, Jeff; Llewellyn, Craig; "*Humanitarian Assistance Bibliography: with some*  
6 *Annotations, After Action Reports, and Web Sites of Interest,*" Center for Disaster and  
7 Humanitarian Assistance Medicine, Measures of Effectiveness (February 2009).

8 Drifmeyer, Jeff; "Information Management for More Effective Military Humanitarian Assistance  
9 Projects and Programs," Center for Disaster and Humanitarian Assistance Medicine (2006).

10 Drifmeyer, Jeff; Llewellyn, Craig; "*Measuring the Effectiveness of DoD Humanitarian*  
11 *Assistance,*" Center for Disaster and Humanitarian Assistance Medicine (1999).

12 Drifmeyer, Jeff; Llewellyn, Craig; "*Measuring the Effectiveness of DoD Humanitarian*  
13 *Assistance,*" Center for Disaster and Humanitarian Assistance Medicine (2003).

14 Drifmeyer, Jeff; Llewellyn, Craig; "*Measuring the Effectiveness of Humanitarian Assistance*  
15 *other than Department of Defense Providers,*" Center for Disaster and Humanitarian  
16 Assistance Medicine (2007).

17 Edejer, T. Tan-Torres; Baltussen, R.; Adam, T.; Hutubessy, R.; Acharya, A.; Evans, D.B.;  
18 Murray, C.J.L.; WHO, "*Making Choices in Health: WHO Guide to Cost-Effectiveness*  
19 *Analysis*" (2003).

20 European Commission: Health & Consumer Protection Directorate-General, Scientific  
21 Committee on Animal Health and Animal Welfare, "*Brucellosis in Sheep and Goats*"  
22 (12 Jul 01).

23 FAO Animal Production and Health Proceedings, No 10, "*Brucella melitensis in Eurasia and*  
24 *the Middle East.*" FAO technical meeting in collaboration with WHO and OIE, Rome  
25 (May 2009).

26 FAO, Veterinary Public Health and Control of Zoonoses in Developing Countries (2003).

27 Fewtrell, Lorna; Prüss-Üstün, Annette; Bos, Robert; Gore, Fiona; Bartram, Jamie; "Water,  
28 Sanitation and Hygiene – Quantifying the health impact at national and local levels in  
29 countries with incomplete water supply and sanitation coverage," WHO, Environmental  
30 Burden of Disease Series, No. 15, Geneva (2007).

31 Flinn, Capt. Scott, Naval Surface Forces; "*Peleliu Pacific Partnership – 07,*" Asia Pacific  
32 Medical Conference (14 April 2008).

33 Fischer, Julie E.; Lief, Eric; Seegobin, Vidal; Kates, Jen; "*US Global Health Policy – Mapping*  
34 *the United States Government Engagement in Global Public Health,*" Stimson Center and  
35 Kaiser Family Foundation (August 2009).

36 Geller, Col. Schuyler, Command Surgeon; "United States Africa Command Brief on Measures  
37 of Effectiveness" (10 Feb 2009).

38 Global Health Initiative (GHI), "The Future of Global Health: Ingredients for a Bold & Effective  
39 U.S. Initiative"  
40 (October 2009).

- 1 Global Health Initiative, (USAID), “Implementation of the Global Health Initiative: Consultation  
2 Document,” (2009).
- 3 Hailey, John; James, Rick; “*NGO Capacity Building: The Challenge of Impact Assessment,*”  
4 IDPM University of Manchester, INTRAC. Oxford (November 2003).
- 5 Haims, Marla C.; Moore, Melinda; Green Jr., Harold D.; Clapp-Wincek, Cynthia; RAND  
6 Corporation, “Developing a Prototype Handbook for Monitoring and Evaluating Department  
7 of Defense Humanitarian Assistance Projects – A User’s Guide for Project Assessment and a  
8 Primer on Monitoring and Evaluation” (July 2010).
- 9 Haims, Marla C.; Moore, Melinda; Green Jr., Harold D.; Clapp-Wincek, Cynthia; RAND  
10 Corporation, “*Draft Handbook for Monitoring and Evaluating Department of Defense  
11 Humanitarian Assistance Project,*” (December 2008).
- 12 Hicks, Kathleen H.; Okutani, Stacy M, “*US National Security and Global Health,*” CSIS Center  
13 for Global Health Policy (30 Jan 2009).
- 14 Hinson, Maj. David R., United States Air Force Air Command and Staff College – Research  
15 Report, “*US Military Interaction with Humanitarian Assistance Organizations During Small-  
16 Scale Contingencies*” (April 1998).
- 17 Hoekstra, Robert and Tucker, Jr., Charles E., “*Adjusting to Stabilization and Reconstruction  
18 Operations,*” PRISM 1, No. 2 Features. Hollon, Capt Justin R. USAF MC; Hickey, Maj  
19 Patrick W. MC USA; “*Select Clinical Recommendations for Military Medical Practitioners  
20 Conducting Humanitarian and Civic Assistance Activities,*” Military Medicine, Vol. 175  
21 (2010).
- 22 IASC Sub-Working Group, “Inter-Agency Contingency Planning Guidelines for Humanitarian  
23 Assistance” (5 November 2007).
- 24 Islam, Mursaleena; “*Health Systems Assessment Approach: A How-To Manual,*” Rational  
25 Pharmaceutical Management Plus Center for Pharmaceutical Management and Management  
26 Sciences for Health (February 2007).
- 27 Jamison, Dean T., et al., “*Priorities in Health,*” The World Bank, Washington DC (2006).
- 28 Joint Center for Operational Analysis – US Joint Forces Command, “Joint Lessons Learned:  
29 Keys to Successful International Humanitarian Assistance and Disaster Relief Operations  
30 2004 to 2006” (15 March 2008).
- 31 Jones, Seth G.; Hilborne, Lee H.; Anthony, C. Ross; Davis, Lois M.; Girosi, Federico; Benard,  
32 Cheryl; Swanger, Rachel M.; Garten, Anita Data; Timilsina, Anga; “*Securing Health:  
33 Lessons from Nation-Building Missions,*” RAND Center for Domestic and International  
34 Health Policy (2006).
- 35 Kleinman, Michael; Bradbury, Mark; “*Local perceptions of US ‘hearts and minds’ activities in  
36 Kenya,*” Humanitarian Exchange Magazine, Issue 47 (June 2010).
- 37 Larson, Charles; Mercer, Alan, “Global Health Indicators: An Overview,” Canadian Medical  
38 Association Journal, Nov. 9, 2004; 171(10)
- 39 Lawlor, Alison; Kwast, Hayden; Kraus, Amanda; “NGO Participation in Navy-Led Health-  
40 Related HCA Missions: A Suggested Planning Framework,” CNA (April 2008).

- 1 Lawlor, Alison; Kraus, Amanda; Kwast, Hayden; “*Navy–NGO Coordination for Health-Related*  
2 *HCA Missions: A Suggested Planning Framework*,” CNA, CRM D0018127.A4/1REV  
3 (November 2008).
- 4 Lawry, Lynn, MD, MSPH, MSc; “*Haiti Earthquake: ‘Fó Pase Lwa-s Yo’*,” USNS Comfort,  
5 International Health Division (2010).
- 6 Lopez, Alan D.; Mathers, Colin D.; Ezzati, Majid; Jamison, Dean T.; Murray, Christopher J. L.;  
7 “*Global Burden of Disease and Risk Factors*,” Oxford University Press and The World Bank  
8 (2006).
- 9 Lougee, Doug; “Can We Build a Better Medical Civic Assistance Program? Making the Most of  
10 Medical Humanitarian Civic Assistance Funding,” *The DISAM Journal* (February 2007).
- 11 Malish, Maj Richard, MC, USA; Scott, John S., 1 LTC, MC, USA; Rasheed, Burhan Omer, MB,  
12 ChB; “*Military-Civic Action: Lessons Learned from a Brigade-Level Aid Project in the 2003*  
13 *War with Iraq*,” 4<sup>th</sup> Geneva Convention Special Report, Prehospital and Disaster Medicine,  
14 (May – June 2006).
- 15 Malsby, Robert Franklin III; “Into Which End Does the Thermometer Go? Application of  
16 Military Medicine in Counterinsurgency: Does Direct Patient Care by American Service  
17 Members Work?” Thesis presented to the Faculty of the U.S. Army Command and General  
18 Staff College in partial fulfillment of the requirements for the degree Master of Military Art  
19 and Science, Ft Leavenworth, Kansas (2008).
- 20 Marine Experimentation Center, MARFORPAC, Civil and Humanitarian Information  
21 Management – Expeditionary, “Operational Effectiveness Report of RDMS on Pacific  
22 Partnership 2010,” Summer 2010.
- 23 Mathers, C.D.; Vos, T.; Lopez, A.D.; Salomon, J.; Ezzati, M.; “National Burden of Disease  
24 Studies: A Practical Guide. Edition 2.0. Global Program on Evidence for Health Policy,”  
25 Geneva: World Health Organization. (October 2001).
- 26 McCord, C.; Chowdhury, Q.; “A cost effective small hospital in Bangladesh: What it can mean  
27 for emergency obstetric care,” *International Journal of Gynecology and Obstetrics* (2003).
- 28 Morel, Chantal M.; Lauer, Jeremy A.; Evans, David B.; “Achieving the millennium development  
29 goals for health. Cost effectiveness analysis of strategies to combat malaria in developing  
30 countries,” *BMJ, Papers* (November 2005).
- 31 Moroney, Jennifer D. P.; Hogler, Joe; Marquis, Jefferson P.; Paul, Christopher; Peters, John E.;  
32 Grill, Beth; “*Developing an Assessment Framework for U.S. Air Force Building Partnerships*  
33 *Programs*,” RAND Corporation Project Air Force (2010).
- 34 Morris, Kelly; “UK aid – security, scrutiny, and the challenge of Afghanistan,” *World Report*,  
35 Vol. 376 (4 December 2010).
- 36 National Institute of Cholera and Enteric Diseases, Kolkata, “*Estimation of the burden of*  
37 *diarrhoeal diseases in India*,” NCMH Background Papers - Burden of Disease in India.
- 38 Naval Operational Medical Lessons Learned Center, “*A Compilation of Training and Education*  
39 *Lessons and Observations for Health-Related HCA Missions*,” Humanitarian & Civic  
40 Assistance Operations (June 2009).
- 41 Navy Warfare Development Command, Tactical Commander’s Handbook for Theater Security  
42 Cooperation,” 2009

- 1 Navy Medicine, Bureau of Medicine and Surgery, “*Foreign Humanitarian Assistance Concept*  
2 *of Employment*,” (1 December 2010).
- 3 Negus, Tracy, MS; Brown, Carrie, MA; Konoske, Paula J., PhD; Naval Health Research Center,  
4 “*Determining Hospital Ship (T-AH) Staffing Requirements for Humanitarian Assistance*  
5 *Missions*” (2007).
- 6 Nishioka, Carl H.; “*Pacific Partnership Planning: from the beginning*,” COMPACFLT N55  
7 (24 October 2008).
- 8 Office of the President of the United States, “*National Security Strategy*,” (May 2010).
- 9 Ogiogio, Gene; “Measuring Performance of Interventions in Capacity Building: Some  
10 Fundamentals,” African Capacity Building Fund Working Paper (February 2004).
- 11 Perl, Raphael, Congressional Research Service, “*Combating Terrorism: The Challenge of*  
12 *Measuring Effectiveness*,” (updated 12 Mar 07).
- 13 Perrin, Edward B. and Koshel, Jeffrey J.; “*Assessment of Performance Measures for Public*  
14 *Health, Substance Abuse, and Mental Health*,” Panel on Performance Measures and Data for  
15 Public Health Performance Partnership Grants, National Research Council (1997).
- 16 Prüss, Annette; Havelaar, Arie; “The Global Burden of Disease study and applications in water,  
17 sanitation and hygiene” WHO (2001).
- 18 Rao, Ramesh R.; Eisenberg, Jon; Schmitt, Ted; “Improving Disaster Management: The Role of  
19 IT in Mitigation, Preparedness, Response, and Recovery,” National Research Council (2007).
- 20 Reaves, Erik J.; Schor, Kenneth W.; Burkle, Frederick M.; “Implementation of Evidence-based  
21 Humanitarian Programs in Military-led Missions: Part I. Qualitative Gap Analysis of Current  
22 Military and International Aid Programs,” Disaster Medicine and Public Health Preparedness,  
23 Vol. 2, No. 4, pp 230-236 (2008).
- 24 Reaves, Erik J., DO, MTM&H; Schor, Kenneth W., DO, MPH; Burkle Jr, Frederick M., MD,  
25 MPH, DTM; “*Implementation of Evidence-based Humanitarian Programs in Military-led*  
26 *Missions: Part II. The Impact Assessment Model*,” Disaster Medicine and Public Health  
27 Preparedness, Vol. 2, No. 4.
- 28 Rice, Capt James P.; USNS Mercy, Pacific Partnership 2008, “*US Pacific Fleet and Marine*  
29 *Corps Forces Pacific – Health Services Conference*” (22-24 October 2008).
- 30 Rimsky Vernon, Alison, “Do Naval Engagement Missions Have an Impact in HNs and Why?”  
31 CNA (June 2008).
- 32 Ringer, Cheryl C., Ph.D., LCDR, MSC, USN; Pacific Partnership, “*Medical Metrics*” (2008).
- 33 Robinson, Jr., Adam M., Vice Admiral, Medical Corps U.S. Navy; “*U.S. Navy Medicine*  
34 *Strategic Plan*,” Department of the Navy Bureau of Medicine and Surgery (2010).
- 35 Rushby, JA; Hanson, K; “*Calculating and presenting disability adjusted life years (DALYs) in*  
36 *cost-effectiveness analysis*,” Health Policy and Planning; Oxford University Press, (2001),  
37 16(3): 326-331.
- 38 Stockton, Tony J.; John Jr., Joseph S.; “*Medical Planning for Military Operations Other Than*  
39 *War: Is A Paradigm Shift Required?*” Naval Postgraduate School – Thesis (March 2002).

1 Stone, Blake; “Blind Ambition – Lessons Learned and Not Learned in an Embedded PRT,”  
2 PRISM 1, No. 4.

3 Terbush, Capt. Jim, MC, USN; “*Continuing Promise 2010 – Concept of Operations*,” USS  
4 WASP (LHD 1) Deployment (13 October 2009).

5 The SPHERE Project, *Humanitarian Charter and Minimum Standards in Disaster Response*  
6 (Geneva: The SPHERE Project, 2004), [www.sphereproject.org](http://www.sphereproject.org) (30 July 07).

7 “The U.S. President’s Emergency Plan for AIDS Relief Five-Year Strategy – Annex: PEPFAR  
8 and Prevention, Care, and Treatment.”

9 The World Bank, “*Disease Control Priorities in Developing Countries*,” 2nd Edition, Oxford  
10 University Press and The World Bank (2006).

11 The World Bank, “*Priorities in Health*,” (2006).

12 Thorpe, Dianne L.; Lasley-Hunter, Brooke; Bell, Lauren; Kingsley, Maria; Brown, Alan; “A  
13 Systematic Approach to Assessing the Impact of Phase Zero Activities Using the Africa  
14 Partnership Station as a Case Study,” CNA (August 2009).

15 US Air Force Global Partnership Strategy, “*Building Partnerships for the 21st Century*,”  
16 (18 December 2008).

17 US Department of State and US Agency for International Development, “*Strategic Plan Fiscal*  
18 *Years 2007-2012 – Transformational Diplomacy*,” (7 May 2007).

19 US Fleet Forces Command, “Foreign Humanitarian Assistance (FHA) Concept of Operations  
20 (CONOPS),” (7 March 2008).

21 US General Accounting Office – National Security and International Affairs Division, “*United*  
22 *Nations – Limitations in Leading Missions Requiring Force to Restore Peace*,” Report to  
23 Congressional Committees (March 1997).

24 US Navy’s Military Sealift Command, “*USNS Comfort Hospital Ship Fact Sheet*” (2010).

25 US Nimitz (CVN 68), Health Services Department, “*WESTPAC End of Deployment Report*,”  
26 (June 2008).

27 USNS Comfort, “*Medical Mission Overview – Lessons Learned*,” Humanitarian Assistance  
28 Deployment (June – October 2007).

29 USNS Comfort, “Hospital Ship Brief, USN Theater Hospitalization (Level III)” (2010).

30 USNS Mercy, “Fact Sheet – Operation Unified Assistance I & II and Theater Security  
31 Cooperation Program I&II” (8 June 2005).

32 USNS Mercy, “Humanitarian Assistance Deployment – Part I & II” (2006).

33 Victora, Cesar G; Black, Robert E, “Measuring Impact in the Millennium Development Goal Era  
34 and Beyond: A New Approach to Large-Scale Effectiveness Evaluations,” *The Lancet*,  
35 published online July 9, 2010 DOI:10.1016/S0140-6736(10)60810-0

36 WHO, “Field Manual for Capacity Assessment of Health Facilities in Responding to  
37 Emergencies.”

38 WHO, “Global Initiative for the Elimination of Avoidable Blindness: Action Plan 2006-2011,”  
39 Vision 20/20, The Right to Sight (2007).

1 WHO, "Global Strategic Framework for Integrated Vector Management," Geneva, 2004.

2 WHO, "Managing WHO Humanitarian Response in the Field," Field Handbook Draft (27 June  
3 2008).

4 WHO, "Quantification of the disease burden attributable to environmental risk factors."

5 WHO, "Strategic Plan for Strengthening Health Systems in the WHO Western Pacific Region,"  
6 Manila (2008).

7 WHO, "*The Control of Neglected Zoonotic Diseases, A route to poverty alleviation,*" Report of  
8 a Joint WHO/DFID-AHP Meeting with the participation of FAO and OIE, Geneva, (2006).

9 WHO, "The Global Burden of Disease 2004 Update," (2008).

10 WHO, "The World Health Report 2008: Primary Health Care Now More Than Ever" (2008).

11 WHO, "World Health Statistics 2008" (2008).

12 WHO, "*World Health Statistics: Indicator Compendium,*" (2009), accessed from the website,  
13 [www.who.int/whosis/indicators/WHS09\\_IndicatorCompendium\\_20090701.pdf](http://www.who.int/whosis/indicators/WHS09_IndicatorCompendium_20090701.pdf), (21 Apr 10).

14 WHO Technical Report Series, "*Future Trends in Veterinary Public Health,*" Geneva (2002).

15 WHO and UNICEF, "Immunization Summary: The 2007 Edition – A statistical reference  
16 containing data through 2005," (February 2007).

17 WHO and UNICEF, "Progress on Drinking Water and Sanitation – Special Focus On Sanitation"  
18 (2008).

19 WHO Collaborating Centre, Faculty of Odontology, "*How to Calculate the Significant Caries  
20 Index (SiC Index),*" University of Malmo, Sweden (6 Mar 01).

21 WHO Technical Report Series 907, "*Future Trends in Veterinary Public Health,*" Geneva,  
22 (2002).

23 Wilensky, Robert J., "Military Medicine to Win Hearts and Minds: Aid to Civilians in the  
24 Vietnam War," Texas Tech University Press, Lubbock, Texas (2004).

25 Williams, LCDR Carlos D. MC, USN; "*Military Medical Stability Operations – Informational  
26 Brief*" Navy Medicine, CDHAM (10 November 2009).

27 Zimmermann, Dr. Roy; "Digital Data Collection Demonstration White Paper – A Comparison of  
28 Two Methodologies: Digital and Paper-based," American Institutes for Research (November  
29 2008).

30  
31  
32  
33  
34  
35  
36

1  
2

## 12 Appendix B: Acronyms

AFP	Adaptive Force Package
AMDD	Averting Maternal Death and Disability
BGAN	Broadband Global Area Network
CCDR	Combatant Commander
CDHAM	Center for Disaster and Humanitarian Assistance Medicine
CP	Continuing Promise
DENCAP	Dental Civic Action Program
DMIS	Disaster Management Information System
DoD	Department of Defense
DoS	Department of State
GATER	Geospatial Assessment Tool for Engineering Reachback
GBD	Global Burden of Disease
GHI	Global Health Initiative
GRT	Global Relief Technologies
HALE	Healthy Life Expectancy at Birth
HN	Host Nation
IGO	International Governmental Organization
INGO	International Non-Governmental Organization
JP	Joint Publication
MDG	Millennium Development Goals
MEDCAP	Medical Civic Action Program
MHS	Military Health System
MOE	Measure of Effectiveness
MOP	Measure of Performance
MSO	Medical Stability Operations
NECC	Navy Expeditionary Combat Command
NGO	Non-Governmental Organization
NSS	National Security Strategy
PACFLT	Pacific Fleet
PACOM	Pacific Command
PDA	Personal Digital Assistant
PP	Pacific Partnership
PVO	Private Voluntary Organization
QDR	Quadrennial Defense Review
RDMS	Rapid Data Management System
TSCP	Theater Security Cooperation Program

USAID	United States Agency for International Development
VETCAP	Veterinary Civic Action Program
VNOC	Virtual Network Operations Center
WHO	World Health Organization
WHOSIS	WHO Statistical Information System

1

2

## 13 Appendix C: Current MSO Mission Processes

### 13.1 Review of COCOM Program Objectives

Mission planning for a MSO begins with consideration of the COCOM objectives for the supported program or from the Global Engagement of Strategic Forces. For example, the Pacific Command (PACOM) describes the desired effects from its Pacific Partnership Program as:

- Partner capability for delivering essential services to its people is increased
- Partner Nation capacity to provide human services to its population is increased
- Partners have capacity to conduct peace, stability, and consequence management operations
- Target population support for local government is increased
- Target population views government ability to respond to disaster as positive
- Relationships with Partner Nations are enhanced

Mission objectives need to contribute to these desired effects, and selected activities need to support the mission objectives.

### 13.2 Developing Mission Objectives

The mission objectives are established very early in the planning cycle, when the mission is first conceived, and are generally developed by command staff. Some mission objectives from recent missions are presented below.

Pacific Partnership 2006 (USNS MERCY):

- Demonstrate compassion, support and commitment to the Southeast Asia region
- Leverage and continue the goodwill developed during Operation UNIFIED ASSISTANCE (tsunami assistance in 2005)
- Provide medical services to underserved populations

Pacific Partnership 2007 (USS PELELIU):

- Deliver medical, dental, veterinary, and engineering services to underserved populations
- Successfully embed humanitarian organizations in operations from a U.S. Navy gray hull
- Provide a mutually beneficial experience for partner nation participants

Pacific Partnership 2008 (USNS MERCY):

- Strengthen relationship with host and partner nations
- Build partner capacity to conduct peace, stability, and consequence management operations
- Build awareness and detection capacity of key countries to counter public health threats

Continuing Promise 2008 (USNS COMFORT):

Train U.S. personnel

Provide much needed and direct medical and engineering services to underserved areas in the Southern Command area of operations

Continuing Promise 2010 (USNS COMFORT):

- Ensure the Forward Defense of the United States by training U.S. personnel in a collaborative effort to provide humanitarian assistance.

- 1 • Encourage regional partnerships
    - 2 • Foster goodwill and enhance the credibility of the U.S.
    - 3 • Solidify existing partnerships with key nations and encourage the establishment of
    - 4 new ones between/among nations, non-governmental (NGOs) and international
    - 5 organizations.
  - 6 • Enhance regional stability and security
    - 7 • Demonstrate U.S. commitment and support to Latin America and the Caribbean
    - 8 region by providing humanitarian assistance.
    - 9 • Support partner nations' efforts to build capacity to provide humanitarian
    - 10 assistance.
- 11 After the command develops the initial plans for the mission, HNs formally invite the ship to
- 12 their country, and a tentative timeframe is established for the mission.

### 13 **13.3 Planning Timeline for Missions Involving Hospital Ships**

14 Generally speaking, the *minimum* amount of time required to plan a mission involving a hospital

15 ship is six months (many experts recommend at least 12 months). The six month planning

16 timeline includes the following activities:<sup>58</sup>

- 17 • 6 months prior: ship for mission selected and countries that will be visited identified
- 18 • 6 months prior: initial planning conference where guidelines are developed regarding Pre-
- 19 Deployment Site Survey (PDSS) itineraries, deployment and country team expectations
- 20 • 5 months prior: guidance message for mission released
- 21 • 4 months prior: mid-planning conference; PDSS teams are chosen
- 22 • 2 months prior: PDSS visits completed and all materials ordered
- 23 • 1 month prior: final planning conference; finishing touches on training, logistics and
- 24 operations
- 25 • 14 days prior to ship arrival at HN port: Advanced Echelon (ADVON) team arrives in
- 26 country

### 27 **13.4 Pre-Deployment Site Surveys (PDSS)**

28 The PDSS teams visit the HNs approximately 6 months prior to the mission in order to meet with

29 representatives from the HN and the U.S. Embassy and discuss the mission, objectives,

30 resources, needs, logistics, and other planning details. The PDSS team has a general list of

31 capabilities that the military can provide, such as dental care services, and it seeks input on the

32 medical needs from the local officials. The PDSS team may also meet with NGOs or other

33 international organizations (IOs) located in the country and identify potential opportunities for

34 collaboration. The PDSS team then reports the needs assessment to the mission commander and

35 planners.<sup>59</sup>

### 36 **13.5 Advance Team (ADVON)**

---

<sup>58</sup> Bell, L; Davis, J; Azar, R; Leavitt, L.J.; Rebhan, E. "Future Strategies: Analysis of Navy Medicine Humanitarian Assistance," CNA, October 2008, p 49.

<sup>59</sup> Lawlor, A; Kraus, A; Kwast, H. "Navy-NGO Coordination for Health-Related Humanitarian and Civic Assistance Missions: A Suggested Planning Framework," CNA, November 2008, p. 34.

1 The Advance Teams (ADVON) are deployed a few weeks to a month before the ship's arrival in  
2 the HN and they remain in the HN until ship arrival. The purpose of the ADVON is to  
3 coordinate all remaining details of the ship's mission in the HN prior to and during the ship's  
4 presence in the HN.

### 5 **13.6 Current MSO Data Collection Processes**

6 MSOs use a variety of mechanisms to collect, track, and report the medical data required by the  
7 mission command and staff.

8 In recent hospital ship MSOs, the medical operations staff uses patient information collection  
9 forms, Officer-In-Charge (OIC) summary forms, and a medical tracking spreadsheet.

10 The patient encounter forms document the patient care and are the source for the information  
11 entered into the various medical data tracking systems. The USS BOXER and USS  
12 KEARSARGE (Continuing Promise 2008) used multi-purpose patient encounter forms that  
13 captured patient information, medical, dental, optometric, and diagnostic information for each  
14 patient. At the end of each treatment day, the providers sorted the forms, which were then  
15 reviewed by the treatment team to identify any diagnostic anomalies and to ensure consistency of  
16 medical treatment.

17 Since the medications prescribed by the providers are also included on the patient encounter  
18 form, the pharmacy team then reviews all of the forms as a means of preparing the mission  
19 supplies for the next day of treatment.

20 Copies of these patient encounter forms were then provided to the HN Ministry of Health (or  
21 equivalent), who is responsible for creating medical records, filing the forms, and flagging  
22 records that require follow-on care in the HN medical system.

23 The USNS MERCY used a series of spreadsheets to capture and report its medical workload in  
24 2006, and the USS BOXER and USS KEARSARGE expanded upon that spreadsheet to track its  
25 medical data in 2008. In the USNS MERCY mission of 2008, the Medical Operations staff used  
26 data collection sheets and a metrics master spreadsheet to automate interconnected data fields to  
27 populate a cumulative master spreadsheet. This enabled the USNS MERCY to report data to  
28 higher-level commands with a significant decrease in manual effort.<sup>60</sup>

29 The figure below is an excerpt from the El Salvador portion of the USS BOXER mission).

---

<sup>60</sup> Briefing, LCDR Cheryl Ringer, "Medical Metrics"

OPERATIONS ASHORE (El Salvador)				Totals
	19-May	20-May	21-May	
<b>Preventive Medicine</b>				
Preventive Medicine Assessments	0	0	1	14
Entomology Assesments	0	0	8	43
Environmental Health Assessments	0	0	14	43
Industrial Hygiene Assessments	0	0	26	122
<b>TOTAL PM SERVICES</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>222</b>
Sites Visited	0	2	5	44
Animals Seen	0	368	277	1943
Immunizations	0	0	0	0
Deworming Doses Given	0	368	277	2108
Vitamin Injections	0	368	277	2108
Surgeries	0	0	0	0
<b>TOTAL VETERINARY SERVICES</b>	<b>0</b>	<b>736</b>	<b>554</b>	<b>4216</b>

**Figure 7: Excerpt of Preventive Medicine Data from El Salvador Portion of CP08**

The challenge is to collect meaningful data that will support continual improvement in the public health support to humanitarian missions and demonstrate value to the HNs. In one HN, the mission team generated a patient tracking and referral spreadsheet for following care at the health agent, local district hospital, capitol city large hospital, and future U.S. MEDCAP/ MEDRETE levels. The HN Ministry of Health found this patient tracking system to be of enormous value and used it in a following MSO mission.

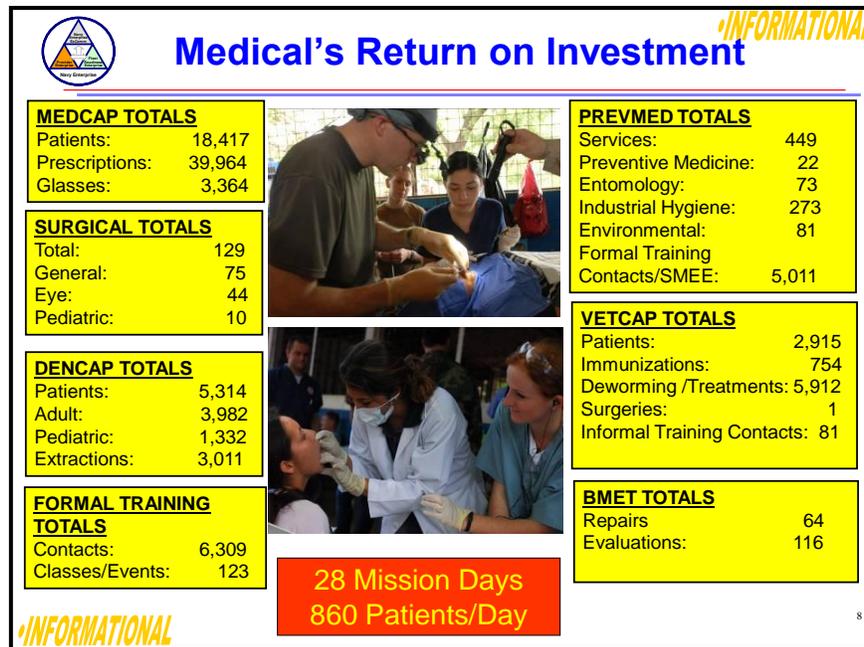
Identified weaknesses of the current data collection processes include:

- Data collection terms are not standardized;
- Data collection focuses only on measures of effort and does not support collection of information about the actual services provided (e.g., what types of immunizations) or capacity-building activities;
- Data collection is not commonly available after a mission; usually only the mission briefings are widely disseminated.

Future data collection processes should use standardized terminology in reporting data at the activity/intervention level that is widely available for other mission planners.

### 13.7 Current MSO Mission Reporting

The figure below illustrates the current mechanism for reporting mission data from HCA missions. This is a single slide from a command briefing, reflecting the value or impact of the medical services performed during the mission.



**Figure 8: Continuing Promise 2008, Pacific Phase (USS BOXER)**

For smaller civil affairs missions, the lead specialist will prepare a trip report that summarizes the observations and recommendations from the mission and presents information on the number of patients (or animals) treated during the mission. Table 2 is abstracted from the report of a VETCAP in Mali in 2008.

**Table 11: Number of Animals Treated in a Typical VETCAP**

Day	Goats	Sheep	Total
17 Nov 08 (Soufroulaye)	509	396	905
18 Nov 08 (Samadougou)	524	326	850
19 Nov 08 (Sofara)	323	536	859
20 Nov 08 (Ouo)	154	61	215
Total	1510	1319	2829

Identified weaknesses of the current MSO reporting mechanism include:

- Reduces reporting of medical activities to only measures of effort
- Does not allow or support the reporting of capacity-building activities
- Does not allow or support the reporting of activities at an intervention level (for example, reports that "150 people were seen" and does not actually specify what services - if any - were performed for those individuals)
- Medical reporting is not generally linked to available staffing or resources
- Inconsistent use of terminology

1 **14 Appendix D: Sample Health Facility Assessment Form**

2 The following form is used in conducting health facility assessments as part of the Continuing  
 3 Promise missions.

CAPABILITIES REPORT COMPLETED BY:		DATE:		
<b>HOSPITAL INFORMATION</b>				
TYPE OF FACILITY: (circle one)				
MILITARY	HN GOV	HN PRIVATE	NGO	OTHER
Main Contact:				
GPS Coordinates:				
Address:				
City/State:				
Phone number:				
Number of Beds:				
DESCRIPTION				
Distinguishing Features:				
Coordinates, Size and Security of nearest HLZ:				
Physical Security provided? Who and How Many?				
Loading Dock:				
Storage Facility:				
Other Area Medical Facilities:				

ACCESSABILITY OF MEDICAL SERVICES	REFERRAL INFORMATION	EMERGENCY SERVICES
Private Pay: YES NO	Percent Population with Health Insurance Coverage:	Emergency Number:
Health Insurance is Available: YES NO	Medical Provider List: YES NO Referenced how?	Method of Payment:
Aide from HN government: YES NO	Provider Contact Information:	Emergency Department Office Number:
Other Medical Missions at location:  Nationalities?  Reciprocity with U.S.?	English Speaking Staff?	Emergency Physician Contact:
Procedure and Waiting Time for Elective Surgery:	Limitations on healthcare accessibility:	Average Wait for Emergency Surgery

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20

<b>MEDICAL SERVICES</b>	<b>YES</b>	<b>NO</b>	<b># COMMENT</b>	<b>CATEGORY</b>	<b>YES</b>	<b>NO</b>	<b>#/COMMENT</b>
<b>GENERAL MEDICINE</b>				<b>Services</b>			
Number of Physicians				CT			
Number of Nurses				MRI			
Number of Medical Assistants				Angiography			
Foreign Physicians				Dengue Testing			
Other				Malaria Testing			
Medication Availability:				TB Testing			
Antibiotics Require Prescriptions?				AIDS Testing			
Funding Assistance for Medication				Nutritional Feeding Programs Location:			
Referral Locations: Contact: Address: Phone Number: E-Mail:				Youth Programs Family Health Centers  Location: Health Centers and Health Posts and district Hospitals			
Medical Provider Credentialing Required?				Medical Equipment Certification			
Credentialing Body?				Medical Equipment Maintenance?			

1

<b>MEDICAL POSTURE AND SUPPLIES</b>							
<b>Medical Specialties/Services</b>	<b>YES</b>	<b>N O</b>	<b>COMMEN TS</b>	<b>Supplies</b>	<b>YES</b>	<b>NO</b>	<b>COMMENT S</b>
Blood Bank				Power Supply : AC, : DC			
Cancer				Generator			
Cardiac				Medical Gas, O2 and N2O			
Dental				Medical Gas Storage			
Dermatology				Medical Gas Production			
General Health				<b>OB Care</b>			
Maternity				Routine OB care			
Medical Center				OB call			
Orthopedic				Ante partum 4–6 visits			
Pediatrics				Ante partum 7 or more visits			
Psychology/Psychiatry				<b>OB Care</b>			
Teaching							
Trauma Center							
Women's Health							
OTHER SERVICES:							
Oncology							
Retina Specialists (f/u for cataract)							
Obstetrics and Gynecology							
Obstetrics							
Internal Medicine							

2

3 Civil Affairs Considerations

4 Family:

5 Religion:

6

7

## 15 Appendix E: Disaster Preparedness

### 15.1 Introduction<sup>61</sup>

This section has been abstracted from the WHO document, “Disease Control Priorities in Developing Countries,” as a valuable succinct statement of the preparation for timely and effective disaster response activities.

Sudden-onset natural and technological disasters impose a substantial health burden, either directly on the population or indirectly on the capacity of the health services to address primary health care needs..

Disaster has multiple and changing definitions. The essential common element of those definitions is that disasters are unusual public health events that overwhelm the coping capacity of the affected community. This concept precludes the universal adoption of a threshold number of casualties or victims. What would be a minor incident in a large country may constitute a major disaster in a small isolated island state. Not only are quantitative definitions of disasters unworkably simplistic, but when based on the economic toll or the number of deaths, they are also misleading with regard to the immediate health needs of the survivors or their long-term impact on the affected country.

Disasters can be classified as natural disasters, technological disasters, or complex emergencies. The latter include civil wars and conflicts. These classifications are arbitrary and refer to the immediate trigger—a natural phenomenon or hazard (biological, geological, or climatic); a technologically originated problem; or a conflict. In reality, all disasters are complex events stemming from the interaction of external phenomena and the vulnerability of man and society.

#### 15.1.1 Short-Term Health Burden

Losses fall under three categories, which may have both direct and indirect components:

- Lives and injuries leading to disabilities (both direct damage and an indirect consequence)
- Direct losses in infrastructure and supplies (direct impact)
- Loss or disruption in the delivery of health care, both curative and preventive (indirect impact).

The immediate health burden is directly dependent on the nature of the hazard. National health budgets of developing countries are, in normal times, insufficient to meet the basic health needs of the population. In the aftermath of a major disaster, authorities need to meet extraordinary rehabilitation demands with resources that often have been drained by the emergency response (as distinct from the resources destroyed by the event). Beyond the immediate response, decision making in the allocation of resources among sectors is mostly influenced by the magnitude of the economic losses rather than by the health statistics or social costs.

##### 15.1.1.1 Earthquakes.

In the past five centuries, earthquakes caused more than 5 million deaths—20 times the number caused by volcanic eruptions. In a matter of seconds or minutes, a large number of injuries (most

---

<sup>61</sup> The World Bank, “Disease Control Priorities in Developing Countries,” 2d edition, Oxford University Press and The World Bank, 2006, p. 1147-1161.

1 of which are not life-threatening) require immediate medical care from health facilities, which  
2 are often unprepared, damaged, or totally destroyed, as was the case in the earthquake in Bam,  
3 Iran, in 2003. In the aftermath of that earthquake, which resulted in 26,271 deaths, the entire  
4 health infrastructure of the city was destroyed. All traumas were evacuated by air to the 13  
5 Iranian provinces long before the arrival of the first foreign mobile hospitals.

6 After a few weeks, national political solidarity and external assistance wane, and the local  
7 budgetary resources are drained. At the same time, health authorities face the overwhelming task  
8 of providing services to a displaced population, rehabilitating health facilities, restoring normal  
9 services, strengthening communicable disease surveillance and control, and attending to the  
10 long-term consequences, such as permanent disabilities, mental health problems, and possibly  
11 long-term increases in rates of heart disease and chronic disease morbidity.

#### 12 **15.1.1.2 Tsunamis.**

13 Earthquakes on the ocean floor may cause catastrophic tidal waves (*tsunamis*) on faraway shores.  
14 Waves caused by the seismic event crest at less than a meter in open seas, but they travel several  
15 hundred kilometers per hour, so when they reach shallow waters, they can be 10 meters high.  
16 Damage on the coast can be extensive. Usually, the number of survivors presenting severe  
17 injuries is small in proportion to the number of deaths.

#### 18 **15.1.1.3 Volcanic Eruptions.**

19 Volcanoes persist as a serious public health concern, though they are often overlooked by  
20 authorities and communities lulled by long periods of inactivity. Eruptions are preceded by a  
21 period of volcanic activity, which provides an opportunity for scientific monitoring, warning,  
22 and timely evacuation. Some issues, such as ash fall, lethal gases, lava flow, and projectiles,  
23 although of concern to the public, are of minimal health significance:

- 24 • Ash fall causes a significant burden on medical services but is unlikely to result in excess  
25 mortality or significant permanent problems. However, ash fall affects transportation,  
26 communications, water sources, treatment plants, and reservoirs.
- 27 • Concentrations of volcanic gases are rapidly diluted to nonlethal levels, which lead to  
28 inconvenience but negligible morbidity for the general public.
- 29 • Lava flows present little health risk because of their very slow speed of progression.
- 30 • Mortality caused by ballistic projectiles from a volcanic eruption is minimal.

31 Attention to these public concerns may distract the authorities from preparing for the greatest  
32 factors of mortality: the pyroclastic flows (Mount Pelé in Martinique, in 1902, with 29,000  
33 deaths) and lahars. Lahars are mud flows or mud and ash flows caused by the rapid melting of a  
34 volcano's snowcap, as in Colombia in 1985 (23,000 deaths), or caused by heavy rains on  
35 unstable accumulations of ash, as in the Philippines in 1991. Historically, pyroclastic explosions  
36 or lahars have caused about 90 percent of the casualties from volcanic eruptions. Potential  
37 contamination of water supplies by minerals from ash; displacement of large populations for an  
38 undetermined period of time (over five years in Montserrat, a small island in the Caribbean);  
39 accompanying sanitation problems; and mental health needs are of great public health  
40 significance.

#### 41 **15.1.1.4 Climatic Disasters.**

42 Many communities and health services have learned to live with seasonal floods of moderate  
43 intensity. Periodically, the magnitude of the phenomenon exceeds the local coping capacity and  
44 overwhelms the resources of the health systems. The health burden associated with seasonal

1 floods is well known locally: increased incidence of diarrheal diseases, respiratory infections,  
2 dermatitis, and snake bites.

3 Prolonged flooding endangers local agriculture and occasionally requires food assistance on a  
4 large scale. The primary factors of morbidity remain overcrowded living conditions and poor  
5 water and sanitation in temporary settlements and other areas where water and sanitation services  
6 have deteriorated or are suspended. Mortality and morbidity caused by tropical storms  
7 (hurricanes in the Atlantic Ocean and typhoons in the Pacific Ocean) result from, in increasing  
8 order of importance, high winds, heavy rainfall, and storm surge.

9 When Hurricanes Mitch and George hit the Caribbean in 1998, traumatic injuries (lacerations or  
10 electrocution) caused by high winds of up to 150 miles per hour were relatively few; deaths from  
11 extensive rainfall (leading to flash floods and landslides) constituted the bulk of the more than  
12 13,000 fatalities (PAHO 1999). In the Bangladesh delta, storm surges up to 6 meters traveled  
13 unimpeded over hundreds of kilometers and claimed between 250,000 and 500,000 lives in 1970  
14 and up to 140,000 lives during five cyclones in the 1990s—primarily during one storm in 1991.

### 15 **15.1.2 Interventions: From Response to Prevention**

16 The immediate lifesaving response time is much shorter than humanitarian organizations  
17 recognize. In a matter of weeks, if not days, the concerns of both the population and authorities  
18 shift from search and rescue and trauma care to the rehabilitation of infrastructure (temporary  
19 restoration of basic services and reconstruction). In Banda Aceh, Indonesia, after the December  
20 2004 tsunami, victims were eager to return to normalcy while external medical relief workers  
21 were still arriving in large numbers.

#### 22 **15.1.2.1 Response and Rehabilitation**

23 Immediate emergency response is provided under a highly political and emotional climate. The  
24 public demands visible, albeit perhaps unnecessary, measures at the expense of proven low-key  
25 approaches. The international community, eager to demonstrate its solidarity or to exercise its  
26 “right of humanitarian intervention,” undertakes its own relief effort on the basis of the belief  
27 that local health services are unwilling or unable to respond. Donations of useless medical  
28 supplies and medicines and the belated arrival of medical or fact-finding teams add to the stress  
29 of local staff members who may be personally affected by the disaster. The cultural disregard of  
30 the humanitarian community to cost-effective approaches in times of disaster and the tendency to  
31 base decisions on perceptions and myths rather than on facts and lessons learned in past disasters  
32 contribute to making disaster relief one of the least cost-effective health activities.

#### 33 **15.1.2.2 Assessment of the Health Situation**

34 A country’s ministry of health is expected to assess the health situation. To influence the course  
35 of humanitarian response, this assessment must be rapid and, therefore, simple; transparent in  
36 collaboration with the main actors—non-governmental organizations (NGOs) and donors; and  
37 technically credible. The input of WHO, as the lead agency in health matters, is most valuable.  
38 Confusion should be avoided between assessing emergency needs and inventorying or valuating  
39 the damage. In the first hours or days, relief actors base their decision making on the ministry of  
40 health’s assessment of what is required and, more importantly, what is not required for  
41 emergency response. Later, the international community will request detailed data, such as the  
42 number of persons affected, buildings damaged, and monetary valuation.

#### 43 **15.1.2.3 Mass Casualties Treatment**

44 Following natural disasters, hospital capacity may be considerably reduced by actual damage to  
45 the facility or, in the case of a seismic event, an often unnecessary—but hard to reverse—

1 evacuation. Triage of patients is required in order to first treat those likely to benefit most, rather  
2 than the terminally injured or those whose care can be delayed. Lifesaving primary care takes  
3 place in the first six hours (the golden rule of emergency medicine), making most of the foreign  
4 field hospitals irrelevant for intensive acute care of traumas. Effectiveness of immediate care will  
5 depend on local preparedness before the disaster, not on faraway resources.

#### 6 **15.1.2.4 Strengthened Surveillance, Prevention, and Control of Communicable Diseases**

7 Because the surveillance, prevention, and control of communicable diseases are strengthened,  
8 the anticipated massive outbreaks generally do not actually occur. Traditional surveillance  
9 systems that are based on periodic notification of diseases by the health services are inadequate  
10 in a crisis situation. Early warning requires flexible and simple syndrome-based monitoring in  
11 temporary settlements and health centers, with information collected not only by the official  
12 health services but also by the medical humanitarian organizations. Systems that do not include  
13 consultation with NGOs are unlikely to succeed.

14 Disease control programs in place before the disaster are the fruit of local experience and  
15 external technical advice. In a disaster situation, there is generally no need to resort to new and  
16 expensive control measures. The key is to quickly resume, strengthen, and better monitor the  
17 routine control programs. No public health concerns justify the hurried disposal of corpses  
18 through mass burial or unceremonious incineration. This practice is socially and culturally  
19 damaging. In addition, improvised mass immunization campaigns, especially by external relief  
20 groups, should be discouraged in favor of opportunistically strengthening national routine  
21 immunization coverage, especially in temporary settlements.

#### 22 **15.1.2.5 Environmental Health**

23 Typical interventions in the aftermath of disasters include strengthening the monitoring and  
24 surveillance of water quality, vector control, excreta disposal, solid waste management, health  
25 education, and food safety. A first priority is water supply. It is often preferable to have a large  
26 quantity of reasonably potable water than a smaller amount of high-quality water. Massive  
27 distribution of water purification disinfectants can be effective if the public is already familiar  
28 with their use and not confused by the availability of many different brands and concentrations  
29 of donated chemicals. Health education and hygiene promotion efforts target populations in  
30 shelters, temporary camps, collective kitchens, or prepared food distribution centers. The cost-  
31 effectiveness of the external relief effort could often be increased by shifting resources from the  
32 over attended medical response to the improvement of environmental health in temporary  
33 settlements.

#### 34 **15.1.2.6 Transparent Management of Donations and Supplies**

35 If donations and supplies are managed transparently during the emergency, the flow of assistance  
36 to the intended beneficiaries will be improved. Unsolicited and often inappropriate medical  
37 donations compete with valuable relief supplies for scarce logistical resources. Good governance  
38 is critical, and effective logistics cannot be improvised following a disaster.

##### 39 **Coordination of the Humanitarian Health Effort**

40 Coordination of the humanitarian health effort is essential to maximize the benefit of the  
41 response effort and ensure its compatibility with the public health development priorities of the  
42 affected country. Effective coordination in the health sector must do the following:

- 43 • Be comprehensive and include all external health actors.
- 44 • Be based on mutual respect rather than regulatory authority alone. Dialogue and consultation  
45 are more effective than enforcement.

- 1 • Benefit all parties, starting with the victims. It should aim to support and facilitate the  
2 activities of other partners.
- 3 • Be evidence-based and transparent. Information is made to be shared and used, not jealously  
4 guarded. Coordination cannot be improvised in the aftermath of a disaster. Preparedness  
5 before the occurrence of the hazard is essential.

### 6 **15.1.2.7 Emergency Preparedness of the Health Sector**

7 Effective response by national health authorities cannot be impromptu. Ministries of health that  
8 neglected to invest in capacity building before emergencies have generally experienced serious  
9 difficulties in exercising their technical and political leadership in the immediate aftermath of a  
10 disaster. Disaster preparedness is primarily a matter of building institutional capacity and human  
11 resources, not one of investing heavily in advanced technology and equipment. Building local  
12 coping capacity is one of the most cost effective ways to improve the quality of the national  
13 response and the external interventions.

14 Disaster preparedness is not merely having a disaster plan written by experts. It must involve the  
15 following:

- 16 • Identifying vulnerability to natural or other hazards. The health sector should seek  
17 information and collaborate with other sectors and institutions (civil protection, meteorology,  
18 environment, geology) that have the primary responsibility for collecting and analyzing this  
19 information.
- 20 • Building simple and realistic health scenario s of a possible and probable occurrence. It is  
21 challenging enough to prepare for a moderate-size disaster; building and sustaining a culture  
22 of fear based on unrealistic worst-case scenarios may serve the corporate interests of the  
23 disaster community but not the interests of the public at large.
- 24 • Initiating a participative process among the main actors to develop a basic plan that outlines  
25 the responsibilities of each actor in the health sector (key departments of the ministry of  
26 health, medical corps of the armed forces, private sector, NGOs, UN agencies, and  
27 donors).What matters is the process of identifying possible overlaps or gaps and building a  
28 consensus—not the paper plan itself. Disasters often present problems that are unforeseen in  
29 the most detailed plans.
- 30 • Maintaining a close collaboration with these main actors. A good coordinator is one who  
31 appreciates and adapts to the strengths and weaknesses of other institutions. Stability is  
32 essential. Changes of key emergency staff members during a disaster situation or when a new  
33 administration or minister take over have occasionally complicated the tasks.
- 34 • Sensitizing and training the first health responders and managers to face the special challenges  
35 of responding to disasters. Participation of external actors (UN agencies, donors, or NGOs) in  
36 designing and implementing the training is critical. The incorporation of disaster management  
37 in the academic curriculum of medical, nursing, and public health schools should complement  
38 the on-the-job training programs of the ministry of health, UN agencies, and NGOs. Well-  
39 designed disaster management training programs will improve the management of daily  
40 medical emergencies and accidents as well.

### 41 **15.1.3 Cost-Effectiveness of Selected Humanitarian Interventions**

42 Emergency health interventions are more costly and less effective than time-tested health  
43 activities. Improvisation and rush inevitably come with a high price. The preferential use of  
44 expatriate health professionals; the emergency procurement and airlifting of food, water, and

1 supplies that often are available locally or that remain in storage for long periods of time; and the  
2 tendency to adopt dramatic measures contribute to making disaster relief one of the least cost-  
3 effective health activities.

#### 4 **15.1.3.1 Search and Rescue**

5 Few developing countries have established the technical capacity to search for and attend to  
6 victims trapped in confined spaces in the event of the collapse of multistory buildings. Industrial  
7 nations routinely dispatch search and rescue (SAR) teams. Costs are high and effectiveness is  
8 reduced by delayed arrival and quickly diminishing returns. Following the 1988 earthquake in  
9 Armenia, in the former Soviet Union, the U.S. SAR team extracted only two living victims at a  
10 cost of over US\$500,000. In Turkey in 1999, 98 percent of the 50,000 people pulled alive from  
11 the rubble were salvaged by relatives and neighbors. In Bam in 2003, the absence of high-rise  
12 and reinforced concrete buildings ruled out the need for specialized teams. Nevertheless,  
13 according to UN statistics, at least US\$2.8 million was spent on SAR teams. An alternative  
14 solution consists of investing these resources in building the capacity of local or regional SAR  
15 teams—the only ones able to be effective within hours—and training local hospitals to dispatch  
16 their emergency medical services to the disaster site.

#### 17 **15.1.3.2 Field Hospitals**

18 The limited lifesaving usefulness of foreign field hospitals has been discussed. Again, the  
19 lessons learned from the Bam earthquake are clear. The international community spent an  
20 estimated US\$10.5 million to dispatch approximately 10 mobile hospitals,<sup>3</sup> which arrived from  
21 two to five days after the impact, long after the last casualty had been evacuated to other Iranian  
22 provinces. This delay alone, hard to reduce further, rules out any significant contribution to  
23 immediate trauma care and led the hospitals to compete for routine outpatient care with the  
24 teams of Iranian volunteers from across the country. A few of the mobile hospitals, better  
25 prepared to meet non-trauma needs and to stay much longer than the usual two to three weeks,  
26 have been invaluable. No data are available on the number of lives actually saved by mobile  
27 hospitals (that is, lives that would not have been saved by local means). Less understood are the  
28 negative effects of such hospitals on local health services, which are often marginalized and  
29 discredited for their lack of technology and sophistication but which must cope once the external  
30 facility leaves. The cost of mobilizing a mobile hospital for a few weeks often exceeds US\$1  
31 million, funds that would be more productive in the construction and equipping of a simple but  
32 sturdy temporary facility. Such an approach was adopted by the U.S. Army Southern Command  
33 in Wiwili, Nicaragua, in the aftermath of Hurricane Mitch. In the case of Bam, Iran, the cost of  
34 rebuilding the entire primary and secondary health care facilities and teaching institutions was  
35 estimated by the government of Iran to be US\$10.75 million, an amount very similar to that  
36 expended for the dispatch of field hospitals from the international community.

#### 37 **15.1.3.3 In-Kind Donations**

38 Unsolicited donations of inappropriate medical supplies not only are of limited use, but often  
39 cause serious logistic, economic, and political problems in the recipient country. Warehousing  
40 those supplies and, in many instances, building facilities (incinerators, for example) for the safe  
41 disposal of pharmaceutical donations diverts humanitarian funds from more effective uses.  
42 Recipient countries collectively share part of the responsibility by not clearly indicating what  
43 they do not want to receive and by not speaking out once inappropriate items arrived.

#### 44 **15.1.3.4 Disease Prevention and Control**

1 Post disaster interventions in surveillance and control of communicable diseases should focus on  
 2 strengthening existing programs. Benefits will outlive the crisis. Improvised mass immunizations  
 3 (instead of improved sanitation and public awareness) and vector control by aerial spraying or  
 4 fogging (instead of breeding-site reduction or waste disposal) are just two examples of wasteful  
 5 managerial decisions.

6 **15.1.3.5 Shelters**

7 Tent cities should be a last resort. Family-size tents may be expensive and do not last long.  
 8 Establishing large settlements is easy, but such settlements are difficult to sustain and nearly  
 9 impossible to terminate. They come with their own sanitation problems and social shortcomings  
 10 (lack of privacy, loss of family identity, and loss of empowerment). Distributing construction  
 11 material (or, preferably, cash subsidies) is more cost-effective and tailored to the needs and  
 12 priorities of end users.

13 **15.1.3.6 Cash Assistance**

14 Developed societies long ago abandoned the distribution of in-kind relief goods and services to  
 15 their nationals in favor of direct financial assistance in the form of subsidies, grants, or tax relief.  
 16 The individual is free to determine actual priorities and to seek the most cost-effective source of  
 17 services (shelter, medical, food, or other). It is therefore surprising that external assistance from  
 18 these same countries remains focused on the costly delivery of predetermined services or  
 19 commodities. The most immediate lifesaving needs can be addressed only locally with existing  
 20 resources and capacity. No cash contribution will meet those immediate needs. Beyond the acute  
 21 phase, in many countries with market economies, most other services and goods are easily  
 22 procured by those with financial means, suggesting that income availability is often the single  
 23 limiting factor in rehabilitation. Undoubtedly, this approach would affect considerably the type  
 24 (and number) of humanitarian actors by transferring power and decision making to the local  
 25 beneficiaries and relying on local economic forces for delivery to the end user. It may also bring  
 26 its own set of problems (and abuses), though perhaps that is a small cost, considering the  
 27 economic and social benefits of the most interested party—the victim—being in charge.

28 **15.2 Disaster Preparedness Activities**

29 The primary activities in supporting HNs in their disaster preparedness efforts are training and  
 30 consultation services.

31 **15.3 Disaster Preparedness Outputs and MOPs**

32 The outputs and MOPs for disaster preparedness assistance are summarized in the table below.

33 **Table 12: Infection Control Outputs and MOPs**

Disaster Preparedness Outputs	Disaster Preparedness MOPs
Support HN disaster preparedness programs	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting training sessions, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.

34

35

## 16 Appendix F: Dental Services

### 16.1 Introduction

Oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity. Risk factors for oral diseases include unhealthy diet, tobacco use, harmful alcohol use, and poor oral hygiene.

A variety of diseases involve the oral cavity; the two main oral diseases present worldwide and leading to tooth destruction or tooth loss are:

- Dental caries, the disease that leads to cavities in the teeth
- Periodontal disease, which leads to loosening of teeth

The DMFT/DMFS index describes the prevalence of caries in permanent teeth for a specified age group. DMFT/DMFS indicates the number of decayed (D), missing (M), and filled teeth (FT) or surfaces (FS) in an individual. A common international health indicator is the DMFT for 12 year old children.

The ideal capacity building effort supports an initiative that provides a systemic improvement in oral health, while enhancing the national capacity to promote oral health. The WHO World Health Organization global policy for improvement of oral health, agreed upon by the World Health Assembly in 2007 identifies the following priority action areas for improving oral health:

- Effective use of fluoride
- Healthy diet and nutrition
- Tobacco control
- Oral health of children and youth through Health Promoting Schools
- Oral health improvement amongst the elderly
- Oral health, general health, and quality of life
- Oral health systems
- HIV/AIDS and oral health
- Oral health information systems, evidence for oral health policy, and formulation of goals
- Research for oral health

*In Jamaica, a formal agreement between the Ministry of Health and the country's only salt producer introduced salt fluoridation in 1987 to prevent caries. By 1995, the prevalence of caries in children between the ages of 6 and 12 had fallen by more than 80 percent. (WHO, "Priorities in Health," p 26)*  
*WHO, "Priorities in Health," pg 26*

### 16.2 Dental Service Outcomes and MOEs

The outcome for the dental service is to improve oral health.

The measure of effectiveness for the outcome "Improve oral health" is the DMFT (Decayed, Missing, Filled Teeth) index for 12 year olds.

### 16.3 Dental Service Activities

The defined activities for improving oral health are the following:

- Perform dental cleanings

- 1 • Perform extractions
- 2 • Perform restorations
- 3 • Provide fluoride applications
- 4 • Provide sealants
- 5 • Provide varnishes
- 6 • Perform oral cancer screening exams
- 7 • Provide patient education classes on oral hygiene
- 8 • Provide consultation to the HN on national fluoridation programs

9 Recall that in order to be able to state that these direct care activities contribute to an  
10 improvement in the DMFT (the MOE for Dental Services), even direct care activities need to be  
11 conducted in partnership with the HN, be performed in a manner that can be sustained by the  
12 HN, and include training sessions that serve to enhance the capacity of the HN.

13 The WHO priority action areas for oral health suggests that capacity building efforts be directed  
14 toward assisting nations in the effective use of fluoride and supporting school-based programs on  
15 oral hygiene instruction.

#### 16 **16.4 Dental Service Outputs and MOPs**

17 Generally speaking, the HN is looking for an impact on the population, and not just for  
18 individuals. This indicates a strategy of providing *some* form of dental service to as many  
19 patients as possible, as opposed to providing complete dental care to a (relatively) few individual  
20 patients. This suggests that a viable performance goal is to provide some form of oral health to  
21 every patient admitted into the MEDCAP/DENCAP.

22 The case study data from the USS BOXER mission to El Salvador as part of Continuing Promise  
23 2008 (shown in Figure 12) suggests that the DENCAP is reaching only about 20% of the patients  
24 presented to a MEDCAP, using the following data:

- 25 • An average of 184 dental patients seen each day
- 26 • An average of 1,032 patients triaged each day (patient census for MEDCAP)
- 27 • The DENCAP reached approximately 17.9 percent of the total patient census, on average

28 The WHO also recommends improving the oral health of two populations: children and the  
29 elderly.

30

OPERATIONS ASHORE (DENCAP)														Totals
	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May		
Adult Dental Visits	44	105	99	123	88	34	159	85	67	118	104	0		1,026
Pediatric Dental Visits	205	65	105	88	84	45	122	67	71	85	67	0		1,004
Dental Examinations	121	106	108	138	125	49	170	124	119	173	122	0		1,355
Dental Extractions	46	89	83	145	113	57	78	95	100	115	118	0		1,039
Sealants	240	227	415	158	284	89	0	226	116	253	78	0		2,086
Fillings	0	0	0	0	0	0	0	0	0	0	0	0		-
Varnishes	18	20	40	64	76	9	124	70	52	46	65	0		584
Cleanings/Scalings	33	65	55	42	70	30	62	53	59	96	45	0		610
Flouride Treatment	126	170	190	195	229	107	278	259	203	119	214	0		2,090
Other Dental Procedures	0	0	0	0	0	0	0	0	0	0	0	0		-
Total Primary Care Dental Patients Seen	249	170	204	211	172	79	281	152	138	203	171	0		2,030
Total Patients Triage (Actual Census)	782	784	978	1114	1184	572	872	1267	1341	1232	1222	0		11,348
Total Patient Encounters (ex. 1 person goes to Medical,	936	882	996	1087	1198	586	983	1303	1352	1276	1218	0		11,817
Total Patient Service	2613	2189	2846	2870	3084	1597	2609	3190	3295	3455	3254	0		31,002

**Figure 9: Dental Services Data Extract from USS BOXER Mission, 2008**

The outputs and measures of performance (MOPs) for Dental Services are presented in the table below.

**Table 13: Outputs and Measures of Performance for Dental Services**

Dental Service Outputs	Dental Service MOPs
Provide some form of dental service to all patients presenting to a MEDCAP/DENCAP site	Percentage of patients triaged at a MEDCAP/DENCAP site who received one or more dental services
Target limited dental services (such as exams & extractions) to children and the elderly	Percentage of the pediatric and elderly patients who received one or more of the following: dental examination; extractions, cleanings, and restoration (optimizes scarce dental resources for the target groups)
Provide sealants to all children presenting to a DENCAP/MEDCAP	Percentage of the pediatric patients who received a sealant (optimizes a key preventive measure for a target group most likely to benefit)
Provide oral health education to as many patients as possible	Percent of patients who receive an oral health education class; specify the class topic and total number of trainers
Provide training to HN dental professionals	Description of each dental training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
Support national/local fluoridation efforts	Description of support provided to national/local fluoridation efforts to include HN contact, support provided, scope of support, and recommended follow-on actions

## 16.5 Dental Service Planning Considerations

The following describes a successful training event for a recent hospital ship mission, illustrating what can be done, even in a short period of time.

In the 2009 USNS COMFORT mission, Dental Services hosted a series of dental symposia on board the ship.<sup>62</sup> The lead Dental Officer (Dental Lead) contacted the HN Ministries of Health and requested point of contact information for the Deans of the national dental schools. The Dental Lead then invited each of these individuals to attend - with students of their choice - a 2 day Dental Symposium to be hosted on the USNS COMFORT. In general, the attendees would stay aboard the COMFORT for the Symposium. For those HNs that didn't have dental schools, the Dental Lead would invite local dentists to the Symposium.

The topics for the Symposium vary, depending upon the needs of the HN and the dental capabilities available on the USNS COMFORT. In general, the capabilities of the HNs could be categorized as:

- Developed: the available dental technology and practices are comparable to that within the U.S.
- Developing: HN has advanced dental capabilities, but may not have all of the latest technology:
- Least Developed Dental Capabilities: HN has inadequate dental care available for its population

For the Least Developed HNs, the Symposium topics focus on the management of dental emergencies and infections.

For the Developing and Developed HNs, the topics can focus on using or applying the latest technologies, such as using CEREC, a digital crown system, to create and apply porcelain crowns in a single visit. The manufacturer, Sirona, donated three CEREC systems to the USNS COMFORT for use during the mission.

The dentists in the Developed Countries already had experience using CEREC, so they were invited to present topics for the Symposium, making the event a true professional exchange. Other topics that would be appropriate for Developing and Developed Countries include laser dentistry and digital radiography.

Planning considerations relevant for future training activities include:

- The Dental Lead should attend the mid and final mission planning conferences. One of the important outcomes of attending these conferences is to meet the Military Group Liaisons assigned to the U.S. embassies in the various HNs; it is these liaisons who can then arrange contact with HN representatives.
- Collect data at the encounter/procedure level of detail; data sets from previous missions can be obtained from the Dental Career Plans Officer at BUMED (202-762-3413). The eventual goal is to collect data that can be used to benchmark dental services and support analysis of effectiveness across multiple missions.
- Acquire the point of contact information for Ministries of Health and Dental School Deans from previous mission Dental Lead
- Solicit donations of dental equipment, such as CEREC, from manufacturers

---

<sup>62</sup> CAPT David Hartzell, Office of the Chief, Dental Corps, BUMED. Interview conducted by Ms. Schnelle on 23 Sep 10.

- 1 • Prepare a list of potential Symposium topics (dependent upon skills sets of dentists supporting the mission) and allow the HNs to select the topics of interest
- 2
- 3 • Invite dentists from Developing and Developed HNs to present at the Symposium
- 4 • Assess HN dental capabilities and structure the training topics accordingly

## 17 Appendix G: Surgical Services

### 17.1 Introduction

Surgery has often been associated with technology-intensive interventions that can be extremely costly. Furthermore, surgery is neither specific to a particular disease or risk factor nor is it exclusive to a particular level of health care. Consequently, its public health potential has often been overlooked by health policy makers. The document, "Disease Control Priorities in Developing Countries" (DCP2) gives renewed attention to surgery as a cost-effective health care service for a range of common conditions.

DCP2 estimates that about 12 percent of the world's disease burden is associated with conditions that could benefit from surgery. Injuries account for about 38 percent of these surgical conditions, followed by malignancies and congenital anomalies. Surgically treatable conditions fall into four general categories:

- The provision of competent, initial surgical care to injury victims, not only to reduce preventable deaths but also to decrease the number of survivable injuries that result in personal dysfunction and impose a significant burden on families and communities
- The handling of obstetrical complications (obstructed labor, hemorrhage)
- Timely and competent surgical management of a variety of abdominal and extra-abdominal emergent and life-threatening conditions
- Elective care of simple conditions, including hernias, club feet, and cataracts

DCP2 defines surgery as services involving sutures, incisions, excisions, manipulation, and other invasive procedures that require local, regional, or general anesthesia.

### 17.2 Surgical Outcomes and MOEs

The outcome for surgical services is to reduce pain and suffering from injuries or emergent/existing conditions, especially in times of disaster through timely and appropriate surgical intervention.

Restoring health is appropriate for surgical services to injury victims, women suffering from obstetrical complications and patients suffering from emergent and life-threatening conditions.

Improving health refers to the surgical care of simple conditions, such as hernias, club feet, and cataracts.

The ideal measure of effectiveness for surgical services would be the WHO estimate of DALYs (Disability Adjusted Life Year) for HN for the following categories:

- Injuries
- Maternal Conditions: the sum of the categories for maternal hemorrhage and obstructed labor
- Congenital Anomalies

Recall that the medical/mission planner is *not* responsible for calculating this DALY; only for reporting the current and historical values for the HNs.

### 17.3 Surgical Activities

The four surgical activities in support of restoring and improving health are the following:

- 1 • The provision of competent, initial surgical care to injury victims, not only to reduce
- 2 preventable deaths but also to decrease the number of survivable injuries that result in
- 3 personal dysfunction and impose a significant burden on families and communities
- 4 • The handling of obstetrical complications (obstructed labor, hemorrhage)
- 5 • Timely and competent surgical management of a variety of abdominal and extra-abdominal
- 6 emergent and life-threatening conditions
- 7 • Elective care of simple conditions, including hernias, club feet, and cataracts

8 The type of capacity-building activities that can be conducted in support of a HN obviously  
 9 depend upon the level of development of the HN and the available surgical skills. Generally  
 10 speaking, for the Least Developed and Developing nations, the HN surgeons are so busy that  
 11 they rarely have the time to attend training sessions on board the ship. The ideal capacity  
 12 building activity would be to imitate Operation Smile, and offer to work with them in *their*  
 13 facilities, on *their* cases. This approach, of course,  
 14 requires advanced planning and coordination in  
 15 partnership with the HN.

16 There are several types of activities, which - if performed  
 17 with HN surgeons - could provide a significant capacity  
 18 building impact to the HN. These activities include:

- 19 • Cataract surgery, especially the techniques for
- 20 performing the surgeries in mobile clinics
- 21 • Training on management of childbirth deliveries
- 22 (conducted in partnership with midwives)
- 23 • Surgical management of childbirth complications, such
- 24 as fistulas and rectal tears
- 25 • Training on casting and non-surgical management of
- 26 club feet
- 27 • Partner with Operation Smile for the treatment of cleft
- 28 palate
- 29 • Circumcision techniques and training on the health
- 30 benefits of circumcision (used in support of HIV/AIDS
- 31 programs)
- 32 • Training on pelvis screenings to identify at risk pregnancies
- 33 • Surgical correction of large lymphatic filariasis hydroceles

#### 34 **17.4 Surgical Outputs and MOPs**

35 The outputs and the MOPs for surgical services focus on the four basic activities described  
 36 above; additional outputs and measures could be added in the future to capture capacity building  
 37 activities.

*Treating cataracts is one of the best-documented cases of surgical interventions provided at the population level. India has used mobile camps to provide cheap and efficient cataract surgery in rural areas. The number of surgeries more than doubled from 1.2 million in 1991–92 to 2.7 million in 1996–97. The cost was about US\$97 per patient in camps, compared with US\$176 in medical college hospitals and US\$54 in nongovernmental hospitals. At less than US\$25 per DALY, cataract surgery in India is highly cost-effective.*

*WHO, "Priorities in Health," pg 141*

1

**Table 14: Surgical Outputs and Measures of Performance (MOPs)**

Surgical Outputs	Surgical MOPs
Provide surgical care to injury victims	Number of surgeries provided to injury victims (in disaster responses, this can be further broken down by types of surgeries, i.e., orthopedic, thoracic, etc.)
Improve the management of obstetrical complications	<ul style="list-style-type: none"> <li>• Number of surgeries</li> <li>• Number of surgical training sessions (include type of training, description of target audience and size of target audience)</li> </ul>
Improve the surgical management of abdominal and extra-abdominal emergent conditions	Number of surgeries provided
Provide elective care of simple conditions	Number of surgeries provided, broken down by type of surgery (e.g., clubfoot, cataracts, LF hydroceles)
Provide training to HN surgical professionals	Number of patients treated (if conducted in conjunction with a surgery) Number of HN surgeons involved Number of Training Sessions: number of attendees, topic, and profession of audience defined

2 **17.5 Planning Considerations**

3 Under development.

4

## 18 Appendix H: Infectious Disease

### 18.1 Introduction

The material in this appendix is drawn largely from the document, "Priorities in Health,"<sup>63</sup> unless otherwise indicated. Additional material is drawn from the WHO document, "Disease Control Priorities in Developing Countries" (chapters 16, 18, and 21; TB, HIV/AIDS and malaria, respectively). The sections review common activities in managing and treating these diseases, and then identify those activities most appropriate for an MSO that are consistent with these internationally recommended interventions.

Many of the diseases and health conditions that account for a large part of the disease burden in less developed and developing countries are far less common in developed countries. These burdens are primarily associated with infectious diseases, reproductive health, and childhood illnesses. Just eight diseases and conditions account for 29 percent of all deaths in less developed and developing countries: TB, HIV/AIDS, diarrheal diseases, vaccine-preventable diseases of childhood, malaria, respiratory infections, maternal conditions, and neonatal health. For many of these diseases, cost-effective strategies are known, available, and feasible. The prevention and management of diarrheal disease is covered in the Public Health Appendices (Appendices K through R); this section will focus on communicable diseases such as malaria, TB, and HIV/AIDS.

### 18.2 Infectious Disease Outcomes and MOEs

Three communicable diseases, HIV/AIDS, TB, and malaria, account for about 10 percent of the deaths in less developed and developing countries.<sup>64</sup>

The outcome for infectious disease is to improve the treatment and management of infectious disease, focusing on TB, malaria, and HIV/AIDS.

This concentrated focus on these three critical diseases will allow MSOs to collaborate and support ongoing global health programs in these areas.

The associated MOEs for this outcome are:

Incidence, prevalence, and death rates associated with tuberculosis, specifically:

- TB incidence rate per year per 100,000 population (MDG and WHO indicator)
- TB prevalence rate per 100,000 population (MDG and WHO indicator)
- TB death rate per year per 100,000 population (MDG indicator)

Incidence and death rates due to malaria, specifically:

- Malaria death rate per 100,000 population, all ages (MDG indicator)
- Notified cases of malaria per 100,000 population (MDG indicator)

Incidence, prevalence, and death rates due to HIV/AIDS, specifically:

- Percentage of people living with HIV/AIDS, 15-49 yrs old (MDG indicator)
- HIV prevalence rate, women 15-49 years old, in national based surveys (MDG indicator)
- Deaths due to HIV/AIDS per 100,000 population per year (WHO indicator)

---

<sup>63</sup> The World Bank, "Priorities in Health," The World Bank, 2006, pp 59-126.

<sup>64</sup> The World Bank, "Priorities in Health," The World Bank, 2006, pp 60

## 1 **18.3 Infectious Disease Activities**

2 This section will review those activities known to be effective in managing and treating TB,  
3 HIV/AIDS and malaria. However, it is always possible that it will be difficult to integrate the  
4 health engagement activities of a short-term MSO into longer, country-specific programs.

5 In that case, it is appropriate for MSO missions to also support HNs on other infectious disease  
6 efforts, such as influenza, typhoid, cholera, dengue or some country-specific infectious diseases  
7 such as lymphatic filariasis or onchocerciasis. These interventions are discussed in additional  
8 depth in Section 18.3.4.

### 9 **18.3.1 HIV/AIDS Activities**

10 HIV is transmitted primarily through sexual intercourse, which accounts for approximately 80  
11 percent of all infections. HIV is also transmitted via exposure to infected blood and from mother  
12 to child in utero due to membrane rupture, during childbirth due to fluid and blood exposure, and  
13 from post-natal behaviors of breastfeeding, and pre-chewing food. Efforts to reverse the  
14 epidemic are founded on preventive strategies. For sexual transmission and exposure to infected  
15 blood, such measures include educating people about infection and how it is transmitted,  
16 encouraging condom use and decreased sexual contact with concurrent partners, or adult  
17 circumcision practices, screening blood that will be used for transfusions, establishing needle  
18 exchanges for injecting drug users, and promoting universal access to clean needles in health  
19 care settings. Antiretroviral drugs can be used to halt mother-to-child transmission (MTCT)  
20 during birth; perinatal transmission can also be reduced by limiting the duration of breastfeeding  
21 and further preventing mixed feeding and pre-chewing, and finally by implementing maternal  
22 education programs. Epidemic control strategies must not only include preventative strategies  
23 including training, but should also incorporate treatment regimens using antiretroviral therapy  
24 (ART), which can extend lives and improve the quality of life for people living with AIDS.

25 In spite of these efforts, global attempts have not proved sufficient to control the spread of the  
26 pandemic or to extend the lives of the majority of those infected. The desired level of success  
27 has not yet been achieved for several reasons. Most people who could benefit from available  
28 control strategies (including treatment) do not have access to them. Modeling of the epidemic  
29 has determined that existing interventions could prevent 63 percent of all infections projected to  
30 occur between 2002 and 2010. However, as of now, fewer than one in five people at high risk of  
31 infection had access to the most basic prevention services, including condoms, AIDS education,  
32 MTCT prevention, voluntary counseling and testing (VCT), and harm reduction programs.  
33 Furthermore, care for those infected with HIV has historically been limited in developing  
34 country settings, and coverage of ART has been unavailable to most people living in resource-  
35 scarce countries (notable exceptions include Argentina, Brazil, and Mexico) In short, national  
36 programs have lacked the means to undertake a comprehensive approach to HIV/AIDS.

37 The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) five-year strategy recommends  
38 the following actions in support of HNs:<sup>65</sup>

- 39 • Support coverage of testing for pregnant women
- 40 • Support coverage of antiretroviral drug (ARV) prophylaxis and treatment, as indicated, of  
41 women found to be HIV-infected
- 42 • Support education programs on how HIV/AIDS is transmitted and how to prevent  
43 transmission

---

<sup>65</sup> PEPFAR, "Five Year Strategy" <http://www.pepfar.gov/strategy/index.htm>, accessed on 31 Aug 10.

- 1 • Support direct treatment of people infected with HIV/AIDS
- 2 • Support coverage for early infant diagnosis and testing of older children of HIV-positive
- 3 mothers, with increased referrals and linkages to care and treatment
- 4 • Support training of health care workers in the prevention and treatment of patients with
- 5 HIV/AIDS.

6 Specific experience from USNS MERCY and COMFORT missions indicates that performing  
7 HIV screening during an MSO is a controversial issue. In two USNS COMFORT missions,  
8 (2007 and 2009 Continuing Promise missions), the USNS COMFORT staff partnered with the  
9 local HN program for HIV screening; the MEDCAP operation attracted large numbers of people  
10 who could be rapidly screened by their HN medical staff and the COMFORT mission staff was  
11 available to treat opportunistic infections, such as thrush. In Guyana in 2007, the local HIV  
12 resources pulled up to the MEDCAP site with a screening van complete with posters. They  
13 occupied a room in the MEDCAP facility and the COMFORT staff was able to direct their  
14 patients to the HN staff.

15 A final thought on cost effective HIV/AIDS interventions for MSOs. The Naval Health  
16 Research Center (NHRC, Dr. Stephanie Brodine) is working on building capacity in HNs for  
17 Voluntary Testing and Counseling (VTC) for HIV/AIDS. The concept is to build a capacity in a  
18 specified area, by training about 50 VTC counselors who are then paid by the HN Ministry of  
19 Health (via the PEPFAR program) to provide those services.

### 20 **18.3.2 TB Activities**

21 TB remains the second largest cause of death from an infectious agent in the world, even though  
22 drugs to cure the disease have been available for 50 years. TB is high on the international public  
23 health agenda because of this enormous burden, because of the increase in TB cases associated  
24 with HIV infection and drug resistance, and because the internationally recommended TB  
25 control strategy known as Directly Observed Therapy Short Course (DOTS) is recognized as one  
26 of the most cost effective of all health interventions.

27 Interventions for controlling TB include preventing infection by means of vaccination, treating  
28 latent infections, and treating active disease. About 80 percent of infants worldwide currently  
29 receive a live attenuated vaccine, Bacille Calmette-Guérin (BCG). While the vaccine is  
30 protective against meningitis and miliary TB in children, it has low efficacy against pulmonary  
31 TB in adults. Vaccination is still cost-effective in places with a high incidence, but is often  
32 discontinued in low-incidence countries, because the risk of infection is low and the immune  
33 response to the vaccine makes tuberculin skin tests less effective for disease surveillance  
34 purposes.

35 Identifying and treating active cases is currently the primary and most effective measure to  
36 control TB. The cornerstone of this approach is the DOTS strategy. DOTS entails diagnosis  
37 with a positive sputum sample, short-course treatment with effective case management, regular  
38 drug supplies, and systematic monitoring to evaluate outcomes for every patient. Effective case  
39 management includes regular supervision by a health worker or community volunteer to ensure  
40 that the patient is actually taking the medication. The additional cost of monitoring patients and  
41 ensuring their adherence to the drug regimen even after symptoms have stopped has proven cost-  
42 effective because of its impact on cure rates, both in slowing the epidemic and limiting the  
43 development of drug resistance.

44 Success in controlling TB is closely related to the capacity of local health systems to maintain an  
45 effective system for identifying cases, beginning treatment, and assuring adherence. Continued

1 international financial assistance is critical to ensuring that TB control can be maintained in the  
2 world's poorest countries, where the challenge of TB control is aligned with the challenge of  
3 building and implementing effective public health programs.

4 The proposed interventions, in support of the HN, for TB are the following:

- 5 • Support health care worker training on DOTS
- 6 • Promote best practices in prevention, diagnosis, and therapy of TB

### 7 **18.3.3 Malaria Activities**

8 Malaria is directly responsible for about 2 percent of all deaths in the world each year (an  
9 estimated 1.2 million deaths) and almost 3 percent of global DALYs. In Sub-Saharan Africa,  
10 malaria accounts for a large share of the disease burden, causing about 9 percent of all deaths.  
11 The share in other regions is much lower, approximately 1 percent, but still accounts for a  
12 significant number of deaths and disabilities.

13 In addition, malaria has a significant impact on other health conditions. Women contracting  
14 malaria during pregnancy are more likely to develop anemia and bear children with low birth  
15 weight who are then at greater risk of disease, disability, or even death. About 3.7 percent of  
16 maternal deaths, or 5,300 deaths per year, are the result of malaria-related conditions. Estimates  
17 show that between 190,000 and 934,000 children die each year when malaria contributes to the  
18 development of anemia. Being ill with malaria has a variety of other consequences. One study  
19 in Africa estimated that 13 to 15 percent of school absenteeism was due to malaria in children.  
20 Studies in Gambia and Kenya showed that children who were protected by insecticide-treated  
21 bednets grew faster than those left unprotected.

22 Drug use and vector controls are the main anti-malaria strategies and interventions for  
23 controlling malaria. Others aim at killing mosquitoes, preventing bites, blocking the  
24 development of the disease, or treating the disease itself. Environmental methods to kill the  
25 mosquitoes that spread malaria include eliminating breeding sites and the application of  
26 insecticides as is advocated in some circumstances in the context of indoor residual spraying.  
27 Other efforts to kill mosquitoes or prevent bites include indoor residual spraying and the use of  
28 insecticide-treated bednets. Though a range of prophylactic drugs are taken by travelers to  
29 malaria-ridden areas and pregnant women, finding drugs to treat the disease has become more of  
30 a challenge because of the emergence of drug-resistant strains of malaria globally.

31 Many places have successfully used insecticide-treated nets (ITNs) to reduce transmission. ITNs  
32 have been associated with reductions in child mortality by 18 percent and reductions in malarial  
33 episodes by as much as 50 percent in different parts of Africa. The impact of ITNs is related not  
34 only to the technical effectiveness of the nets and the duration and efficacy of the insecticide  
35 used, but to the social and cultural acceptance of their use and to their affordability. China,  
36 Tanzania, and Vietnam have successfully promoted the use of ITNs and achieved substantial  
37 control of malaria in many places. Strategies to encourage ITN use have included social  
38 marketing in Kenya and Malawi; assisted commercial sector development in Mali, Senegal, and  
39 Tanzania; free generalized distribution in Togo; and vouchers for highly subsidized ITNs  
40 distributed to pregnant women in Tanzania.

41 Treatment programs have traditionally relied on relatively inexpensive drugs, principally  
42 chloroquine though areas in which this drug can be used against *P. falciparum*, the deadliest  
43 common pathogen causing malaria, are rare. The key to success is timely detection and  
44 treatment. In South Africa, where 83 percent of the population lives within 10 kilometers of a  
45 health clinic, health professionals play a central role. In countries like Burkina Faso, Ethiopia,

1 and Uganda, where health clinics are much less accessible, reducing mortality and morbidity  
2 through treatment has required training mothers and community health workers to dispense  
3 treatment based on presumptive diagnoses. In most areas, strains of the parasite resistant to  
4 chloroquine and sulfadoxine-pyrimethamine are common. Fortunately, researchers have  
5 developed a new array of drugs, including artemisinin combination therapy (ACT), which costs  
6 more than traditional first-line drugs but is cost-effective in areas where drug-resistant strains are  
7 highly prevalent.

8 Health education and counseling are also significant for controlling malaria. They improve the  
9 timeliness of treatment by helping people identify the disease and seek appropriate care. They  
10 also promote better and more regular use of ITNs and encourage re-treatment of nets with  
11 insecticide as required. In addition, they further improve adherence to treatments, thereby  
12 reducing transmission of the parasite and the development of drug resistance.

13 As discussed above, recommended interventions, taken in support of the HN, include the  
14 following:

- 15 • Providing drug treatments
- 16 • Supporting assessments of drug-resistant malarial strains in country
- 17 • Providing insecticide-treated nets (ITNs)
- 18 • Supporting education and marketing programs for use of ITNs
- 19 • Supporting training of health care workers.

#### 20 **18.3.4 Other Infectious Diseases**

21 As mentioned earlier, sometimes the MSO mission is of such short duration that it is difficult to  
22 engage meaningfully with the HN's on-going malaria, TB or HIV/AIDS programs. In addition,  
23 there are other infectious diseases that have a profound impact in many developing countries and  
24 where MSO missions may make a difference. This section introduces some cost effective  
25 interventions, recommended by the WHO and from previous humanitarian assistance missions.

##### 26 **18.3.4.1 Lymphatic Filariasis (LF)**

27 In recent years, new control tools and strategies have become available for lymphatic filariasis  
28 (LF) and the World Health Assembly adopted a resolution to eliminate the disease and launched  
29 a campaign in 2000. The primary goals are to interrupt the transmission of the disease and the  
30 prevent the suffering and disability caused by the disease.

31 The core strategy for interrupting transmission is annual mass drug administration to treat the  
32 entire at-risk population for a period long enough to ensure that levels of blood microfilariae  
33 remain below those necessary to sustain transmission. Where feasible, diethylcarbamazine-  
34 fortified salt (DEC salt) as the only domestic source of salt for a period of at least six months is  
35 an alternative to the mass drug administration.

36 The principal strategy for alleviating suffering and decreasing the disability caused by LF  
37 focuses on decreasing secondary bacterial and fungal infections of limbs or genitals whose  
38 lymphatic function has already been compromised by filarial infection. In addition, simple and  
39 cheap methods exist to manage lymphedema, such as using water and soap occasionally  
40 supplemented with antibiotics. Studies in India, Africa, and the Americas have shown that such  
41 methods can significantly improve the quality of life of those affected.

42 One intervention successfully employed by the USNS MERCY and COMFORT is the surgical  
43 correction of large LF hydroceles, difficult to do in countries which may not have adequate  
44 surgical facilities. A hospital ship - with its surgical suites - can provide a safe venue for these

1 surgeries, if these activities are coordinated ahead of time with the HN and with the hospital ship  
2 surgical teams.

### 3 **18.3.4.2 Onchocerciasis**

4 Onchocerciasis control is based on vector control and large scale ivermectin treatment. Vector  
5 control measures are discussed in Appendix J, Public Health Services. In 1987, Merck & Co.,  
6 the manufacturer of ivermectin, agreed to donate the drug for onchocerciasis for as long as  
7 needed. Clinical and community trials involving more than 70,000 people showed that annual  
8 ivermectin treatment was safe, prevented ocular and dermal morbidity, and significantly reduced  
9 transmission; however, ivermectin is a microfilaricide and does not kill the adult worms, and  
10 long-term treatment is needed to sustain suppression of the microfilarial load.

11 The African Programme for Onchocerciasis Control now uses a community approach for  
12 managing the ivermectin treatments, known as community-directed treatment with ivermectin.  
13 In this program, local communities - rather than the health services - direct the treatment process.  
14 A community decides collectively whether it wants ivermectin treatment, how it will collect  
15 ivermectin tablets from the medical supply entity, when and how the tablets will be distributed,  
16 who will be responsible for distribution and recordkeeping, and how the community will monitor  
17 the process. Health workers provide only the necessary training and supervision.

### 18 **18.3.4.3 Summary of Recommended Activities**

19 Some appropriate activities for these other arenas include:

- 20 • Enhancing hospital infection control for wound infections and *C. difficile*
- 21 • Train healthcare workers on the Hgb cards and how to titrate volume repletion in the setting  
22 of dengue distributive shock
- 23 • Partner with the HN in supporting a mass drug administration or distribution of DEC salts
- 24 • Coordinate corrective surgeries for patients with large LF hydroceles
- 25 • Support HN in managing ivermectin distribution

## 26 **18.4 Infectious Disease Outputs and MOPs**

27 Most of the infectious disease outputs and measures focus on training efforts, but also include the  
28 assessment and evaluation of country-specific infections such as lymphatic filariasis or  
29 onchocerciasis (see Appendix D, Surgical Services, for measures specific to surgical services,  
30 such as the corrective surgery of large LF hydroceles).

31

1 **Table 15: Infectious Disease Outputs and Measures of Performance (MOPs)**

Infectious Disease Outputs	Infectious Disease MOPs
Support HN in its management and treatment of TB	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
Support HN in its management and treatment of HIV/AIDS	
Co-locate primary care services with HIV screening services	
Train Voluntary Testing and Counseling (VTC) counselors for a given region (coordinate with NHRC)	
Support HN in its management and treatment of malaria	
Support HN in the assessment and management of country-specific infections such as lymphatic filariasis and onchocerciasis	

2

3 **18.5 Infectious Disease Planning Considerations**

4 Under development

5

6

7

8

9

10

11

12

13

14

## 19 Appendix I: Children's Health

### 19.1 Introduction

From 1 month to 5 years of age, the main causes of death are pneumonia, diarrheal disease, malaria, measles and HIV and malnutrition contributes to more than one-third of all child deaths.<sup>66</sup>

- Worldwide, pneumonia is the most important cause of death in children under 5 years of age with nearly three-quarters of all cases occurring in just 15 countries. Major risk factors include malnutrition and indoor air pollution. Programs which address these causes, provide vaccines against respiratory pathogens and support breastfeeding are central to reducing the morbidity and mortality. Antibiotics and oxygen are vital tools for effectively managing the illness.
- Diarrheal diseases are another leading cause of illness and death among children in developing countries. Breastfeeding and improved food and water sanitation are pivotal in reducing diarrheal illnesses among young children as are immunization. Treatment with Oral Rehydration Therapy (ORT) combined with zinc supplements is safe, cost-effective, and life-saving.
- One African child dies every 30 seconds from malaria. Insecticide-treated nets prevent transmission and increase child survival.
- Over 90 percent of children with HIV are infected through mother-to-child transmission, which can be prevented with antiretrovirals during delivery, as well as safer delivery and feeding practices.
- About 20 million children under 5 worldwide are severely malnourished leaving them more vulnerable to illness and early death.

### 19.2 Children's Health Outcomes and MOEs

The outcome for children's health is to improve the health status of children.

The MOEs are:

- Children under five mortality rate per 1,000 live births (MDG and WHO indicator)
- Infant mortality rate (0-1 year) per 1,000 live births (MDG and WHO indicator) Children's Health Activities

As discussed earlier, recommended interventions, provided in coordination with the needs of the HN can include but are not limited to:

- Reducing Diarrheal disease burden by (discussed in more detail below)
  - Encouraging exclusive breastfeeding during a child's first six months of life
  - Establishing local breast feeding education expertise able to provide education to expecting mothers and recently delivered couplets
  - Improved feeding practices by training local resources on hygienic food storage and preparation

---

<sup>66</sup> WHO website, "What Are the Key Health Dangers for Children?"  
<http://www.who.int/features/qa/13/en/index.html>, accessed 31 Aug 10.

- 1           ○ Providing Vitamin A (200,000 units) and zinc supplements
- 2           ○ Introduction of better diarrheal case management.
- 3           ○ Support HN development of Oral Rehydration Treatment (ORTs) capabilities
- 4   ● Train HN resources on the evaluation of the nutritional status of children under the age of 5
- 5       and the use of data for targeted interventions and monitoring of effectiveness of interventions
- 6   ● Establish a train the trainer program for "Helping Babies Breathe" (discussed in more detail
- 7       below)
- 8   ● Based on a needs assessment and in concert with HN resources, provide basic training on the
- 9       management and treatment of pneumonia and asthma in children
- 10 ● Provide training on "Pediatric Advanced Life Support (PALS)" based on a needs assessment
- 11       and availability of required technology (discussed in more detail below)

### 12 **19.2.1 Diarrheal Disease**

13 Diarrheal disease is one of the top five preventable killers of children under 5 years old in  
14 developing countries. It is most dangerous for the young, with about 90 percent of deaths from  
15 diarrhea occurring in small children.

16 The strategies for reducing the burden of diarrheal disease focus on providing better and more  
17 hygienic feeding practices, immunization, improved water and sanitation, and better case  
18 management. They are also the major interventions available for preventing and treating  
19 diarrheal disease.

20 Better and more hygienic feeding starts with programs that promote exclusive breastfeeding  
21 during a child's first 6 months of life. This reduces the likelihood that a child will ingest  
22 contaminated food or water during infancy and strengthens the child's immune system through  
23 the ingestion of beneficial elements in the mother's milk. Such programs include hospital  
24 policies that encourage breastfeeding, counseling and education from peers and health workers,  
25 mass media and community education campaigns, and mothers' support groups. Better feeding  
26 practices once a child is 6 months old can also be encouraged and effective. Some 800,000 lives  
27 per year could be saved by more hygienic food storage and preparation and by promoting  
28 education, providing good nutrition, and ensuring adequate weight gain. Researchers have also  
29 shown that vitamin A and zinc supplementation have beneficial effects on diarrhea: both are  
30 associated with reducing the frequency of severe diarrhea, and zinc supplementation also reduces  
31 the incidence of diarrhea.

32 Another way to reduce diarrheal disease is by providing clean water and sanitation, because  
33 estimates indicate that contaminated water causes 90 percent of diarrheal cases among children.  
34 Nevertheless, the Disease Control Priorities in Developing Countries (*DCP2* (chapter 41, p. 778)  
35 notes that "domestic hygiene—particularly food and hand hygiene—is the principal determinant  
36 of endemic diarrheal disease rates and not drinking water quality." Rather than quality, the  
37 quantity, continuity, and convenience of water services is what reduces the incidence of diarrhea  
38 by encouraging more hygienic behavior with regard to personal care and food preparation.

39 When diarrhea prevention fails, simple and low-cost techniques are available for managing most  
40 cases. ORT, which consists of the oral administration of fluids containing simple salts and  
41 sugars, is inexpensive, can be administered by family members with limited training, and is  
42 highly effective at reducing the severity of many diarrheal diseases and averting death. After its  
43 introduction in the 1980s, many countries rapidly expanded the use of ORT to reach 33 percent  
44 of children with diarrhea in the Philippines, 35 percent in Brazil, 50 percent in Egypt, and 81  
45 percent in Mexico. Zinc supplementation for children with diarrheal disease also helps reduce

1 the severity of the illness. For bloody diarrhea, treatment with antimicrobial drugs is indicated,  
2 but as with so many other diseases, resistance to first-line antimicrobials is spreading and making  
3 these drugs less effective.

#### 4 **19.2.2 Helping Babies Breathe<sup>67</sup>**

5 The WHO estimates that one million babies die each year from birth asphyxia (eg. inability to  
6 breathe immediately after delivery). The Helping Babies Breath (HBB) program addresses this  
7 challenge as well as helping to move forward Millennium Development Goal of reducing child  
8 mortality by two thirds from 1990 to 2015.

9 Helping Babies Breathe (HBB) is an evidence-based educational program to teach neonatal  
10 resuscitation techniques in resource-limited areas. It is an initiative of the American Academy of  
11 Pediatrics (AAP) in collaboration with the World Health Organization (WHO), US Agency for  
12 International Development (USAID), Saving Newborn Lives, the National Institute of Child  
13 Health and Development, and a number of other global health organizations.

14 The objective of HBB is to train birth attendants in developing countries in the essential skills of  
15 newborn resuscitation, with the goal of having at least one person who is skilled in neonatal  
16 resuscitation at the birth of every baby.

17 A key concept of HBB is *The Golden Minute<sup>SM</sup>*: Within one minute of birth, a baby should be  
18 breathing well or should be ventilated with a bag and mask. The Golden Minute identifies the  
19 steps that a birth attendant must take immediately after birth to evaluate the baby and stimulate  
20 breathing.

21 The HBB curriculum is designed to be used as part of a coordinated educational approach to  
22 early neonatal care and can be effectively combined with other curricula. It can be locally taught  
23 to birth attendants in diverse venues and locations. HBB focuses on practices that all persons  
24 who care for babies at birth can learn to care for healthy babies and/or assist babies who do not  
25 breathe on their own.

26 To accomplish this goal HBB has developed a comprehensive training solution, which includes:

- 27 • An evidence-based educational program, using the conclusions from the International Liaison  
28 Committee on Resuscitation (ILCOR) Consensus on Science that have undergone a WHO  
29 scientific technical review.
- 30 • Culturally sensitive, pictorial-based learning materials
- 31 • Realistic newborn simulator with ability to imitate an umbilical pulse, bag-mask ventilators,  
32 and bulb suction that can be cleaned by boiling which will be made available at cost to MDG  
33 countries.
- 34 • An ongoing mentorship program to provide: expert assistance, implementation guidance,  
35 knowledge exchange, integration and evaluation support, and continuous quality improvement  
36 for sustained practice outcomes and decreased infant mortality.

#### 37 **19.2.3 Pediatric Advanced Life Support (PALS)**

38 The PALS course gives healthcare professionals the knowledge and skills to better recognize and  
39 treat critically ill infants and children. The course uses a scenario-based, team approach to teach  
40 pediatric emergency management of pediatric patients approaching or already in respiratory or

---

<sup>67</sup> American Academy of Pediatrics, "Helping Babies Breathe" website,  
<http://www.helpingbabiesbreathe.org/about.html>, accessed 11 Oct 10.

1 cardiac arrest. The course covers treatment beyond the first few emergency minutes and goes  
 2 through stabilizing patients or transport phases of a pediatric emergency, in or out of the hospital.

3 The training program includes:

- 4 • Recognition and treatment of infants and children at risk for cardio-pulmonary arrest
- 5 • The systematic approach to pediatric assessment
- 6 • Effective respiratory management
- 7 • Validate skills for 1- and 2-person CPR and AED skills for infant and child
- 8 • Defibrillation and synchronized cardioversion
- 9 • Intraosseous access and fluid bolus administration
- 10 • Effective resuscitation team dynamics

11 **19.3 Children's Health Outputs and MOPs**

12 The outputs and MOPs for children's health are summarized in the table below.

13 **Table 16: Children's Health Outputs and MOPs**

<b>Children's Health Outputs</b>	<b>Children's Health MOPs</b>
Support HN in improving hygienic feeding practices	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of education sessions performed, topics and number of attendees.
Improve diarrheal case management	
Improve child mortality by providing vitamin A and zinc supplements	Describe the increased ability of the HN to provide vitamin A and zinc supplements
Establish train the trainer programs for HN to provide training to birth attendants on "Helping Babies Breathe"	Describe the number of trainers trained education sessions performed, profession and number of attendees.
Support HN efforts with the collection and interpretation of health statistics	Initially report efforts to tailor content of health surveys with eventual evaluation of the use of health indicators
Provide PALS courses to pediatric care professionals	Describe the number of education sessions performed, profession and number of attendees.

14 **19.4 Planning Considerations**

15 Under development

16

## 20 Appendix J: Women's Health

### 20.1 Introduction

Along with infectious diseases, maternal and neonatal conditions account for a substantial part of the health gap between rich and poor countries; for example, more than 99 percent of maternal deaths occur in the developing world. This differential represents the largest single disparity in public health statistics between developing and less-developed countries and developed countries. Overall, the average lifetime risk of maternal death is 1 in 4,000 in high-income countries, 1 in 61 in middle-income countries, and 1 in 17 in the lowest-income countries.

Death rates during the neonatal period (from birth to 28 days old) also reveal vast differences between rich and poor countries. Only 1 percent of all neonatal deaths occur in high-income countries, where the neonatal mortality rate averages 4 per 1,000 live births. In low-income countries, the average is about 33 per 1,000 live births. The majority of neonatal deaths occur in South Asia because of its sizable population; however, 20 of the countries with the highest neonatal mortality rates are in Sub-Saharan Africa. The highest rates are found in countries where civil wars and political instability have exacerbated poverty, such as Ethiopia, Liberia, and Sierra Leone. In these countries, neonatal mortality rates exceed 50 per 1,000 live births.

The maternal and infant mortality rates in a particular country may reveal more about the state of its health system than any other figures. Achieving low maternal and infant mortality rates requires an integrated and well-functioning health care delivery system that reaches communities with education and counseling, helps people avoid unwanted pregnancies, promotes good nutrition, screens for risks, assists healthy births, and responds to obstetric emergencies effectively.

### 20.2 Women's Health Outcomes and MOEs

The outcome for women is to improve the health status of women.

The MOE is the maternal mortality rate (per 100,000 live births).

The MOE defined above is a very ambitious MOE that might require nation-wide and system-wide changes over many years for any improvements to be visible. It might be more useful to measure other surrogates of improvement in care - *if* these surrogate measures are collected internationally and do not require MSO personnel to calculate and determine. Some examples of these surrogate measures are:

- Postpartum hemorrhage rates
- Postpartum hemorrhage rates requiring transfusions
- Rates of women with hypertension being treated with magnesium sulfate in labor

### 20.3 Women's Health Activities

#### 20.3.1 Overview

For women who are pregnant, a variety of maternal conditions can lead to death or disability even though pregnancy and childbirth are not inherently pathological. Providing care during normal, healthy pregnancy and childbirth while ensuring a state of readiness to deal with potential health problems is the goal of safe motherhood programs.

1 Thirteen countries—Afghanistan, Angola, Bangladesh, China, Democratic Republic of Congo,  
2 Ethiopia, India, Indonesia, Kenya, Nigeria, Pakistan, Tanzania, and Uganda—account for 70  
3 percent of all maternal deaths because of varying effects of population size, low incomes, and  
4 poor health care. Together South Asia and Sub-Saharan Africa account for 74 percent of the  
5 global burden of maternal conditions. Complications experienced by mothers also lead directly  
6 to many stillbirths and neonatal deaths each year, and several studies have shown that the  
7 survival prospects for a baby whose mother dies are low.

8 Just five conditions account for three-quarters of maternal deaths: hemorrhage, sepsis,  
9 hypertensive disorder, obstructed labor, and unsafe abortion. Many of these conditions can be  
10 effectively mitigated through prenatal screening and skilled attendants, and differences in access  
11 to such care explain a large part of the regional disparities. For example, fewer than 30 percent  
12 of women in the poorest countries have access to skilled birth attendants, compared with more  
13 than 98 percent of women in the world's richest countries. Yet progress on this front is  
14 frustratingly slow: the regional average for birth attendants in Sub-Saharan Africa has increased  
15 by only 0.2 percent per year in the past decade.

16 Given the nature of pregnancy and childbirth, no single intervention or approach can fully  
17 address their associated disease burden. The only relevant analysis is to compare alternative  
18 packages that differ by content and means of distribution. For example, a comprehensive safe  
19 motherhood strategy might include the following range of interventions:

- 20 • Adolescent reproductive health education and services
- 21 • Community education on safe motherhood and newborn care
- 22 • Prenatal care and counseling, including nutritional supplements, blood pressure screening,  
23 sexually transmitted infection (STI) screening, treatment for syphilis, breastfeeding advice,  
24 tetanus toxoid immunization, and treatment of urinary tract infections
- 25 • Skilled assistance at delivery
- 26 • Care for obstetric complications and emergencies
- 27 • Postpartum care.

28 Studies have shown that four prenatal visits with a health care provider can be cost-effective.  
29 Training for such providers should include how to recognize danger signs and arrange for rapid  
30 transfer to an appropriate facility in the event of an emergency, and should also emphasize the  
31 use of skilled attendants during childbirth. Other essential elements of prenatal care include  
32 prevention and treatment of malaria and anemia, screening and treatment for syphilis, and  
33 immunization against tetanus.

34 In general, capacity-building activities must be matched to the HN's level of development and  
35 needs. Mission specialty leads should assess countries as falling into one of three categories:

- 36 • Developed: capabilities on par with the U.S.
- 37 • Developing: HN has women's health capabilities, but needs improvement
- 38 • Least Developed: Host nation lacks basic maternal health capabilities.

39 Depending on the level of a Host Country's development, some programs which offer a  
40 significant impact for improving Women's Health in an MSO are:

- 41 • Advanced Life Support in Obstetrics (ALSO)
- 42 • Sexual safety for vulnerable populations (women and children)
- 43 • Cervical cancer prevention

- 1 • Pregnancy planning/spacing
- 2 • Life Saving Skills
- 3 • Helping Babies Breathe

4 It is also critical to understand that Women's Health is an issue of significant cultural sensitivity;  
5 many cultures may not be comfortable with some of the services suggested in this appendix, and  
6 the planner needs to **ensure** full HN participation and support of *any* Women's Health activities.  
7 Ideally, the HN will identify and select desired services for any of the clinical care offered by an  
8 MSO; this is paramount for Women's Health. In many cases, the HN may even dictate exactly  
9 what can and can't be performed by the mission staff.

10 Many of the activities below are fairly 'high end' services, which may be most appropriate for  
11 those more developed countries. It is unfortunately true that in the least developed countries, the  
12 focus may not be on women's health as much as it is necessarily directed at public health issues  
13 such as drinking water, sanitation, and ensuring a safe food supply.

### 14 **20.3.2 Advanced Life Support in Obstetrics (ALSO)<sup>68</sup>**

15 Advanced Life Support in Obstetrics (ALSO) helps physicians and other health care providers  
16 develop and maintain the knowledge and skills they need to effectively manage potential  
17 emergencies during the perinatal period. The program additionally serves as an aid for training  
18 residents in obstetrics as well as family medicine.

19 ALSO emphasizes labor and delivery room emergencies but also covers:

- 20 • Prenatal risk assessment
- 21 • First-trimester bleeding
- 22 • Consultant relationships
- 23 • Helping parents cope with a birth crisis
- 24 • Information on reducing medical malpractice risk

25 ALSO provides three courses:

- 26 • Provider course: a 2 day course for all maternity care providers, including physicians, nurse  
27 midwives, registered nurses and other clinicians
- 28 • Refresher course: a 1 day course on treating emergencies that may occur during pregnancy
- 29 • Instruction course: a 1 day course on specific teaching skills required for adult learning.

30 MOPs could include describing the type of course provided and number and professional  
31 occupation of attendees for each course.

32 It should be noted however, that the 'Advanced Life Support in Obstetrics' (ALSO) program  
33 might be relevant to both developing and developed countries, whereas the 'Helping Babies  
34 Breathe' might be most appropriate for least developed countries, such as Haiti. This is further  
35 detailed in subsection 33.2.6.

### 36 **20.3.3 Sexual Safety for Women and Children**

37 Women and children are at particular risk for sexual assault/exploitation in many nations.

38 Women and children are impacted by unwanted pregnancies, STI/HIV transmission, physical

---

<sup>68</sup> American Academy of Family Physicians, ALSO program website:  
<http://www.aafp.org/online/en/home/cme/aafpcourses/clinicalcourses/also/aboutalso.html>, accessed on 11 Oct 10.

1 trauma and psychological trauma. This is especially true for disaster relief and post-  
2 combat/refugee settings.

3 Educating host nations on how to address sexual safety and develop actions plans for their  
4 vulnerable populations can become an integral part of even the short-term MSO missions. MOPs  
5 might include reporting the development of a contingency plan for sexual safety in disaster  
6 operations; the number of women/children seeking safe haven as a result of a HN program; and  
7 the number of condoms distributed.

#### 8 **20.3.4 Cervical Cancer Prevention**

9 Eighty percent of cervical cancer deaths worldwide occur in resource-limited countries. Most of  
10 these countries have no cervical cancer screening services.

11 JHPIEGO is an international non-profit health organization affiliated with Johns Hopkins  
12 University. For 35 years, JHPIEGO has designed and implemented effective, low-cost, hands-on  
13 solutions to strengthen the delivery of health care services for women and their families.<sup>69</sup>

14 JHPIEGO has developed a program for a 1-time see and treat cervical cancer screening that has  
15 been successfully implemented in several resource-limited countries. It is a program that can be  
16 taught to host nation medical personnel (nurses & mid-wives) in a two-week time period and can  
17 be sustained by the host nation. The WHO also has a great training manual for implementing  
18 cervical cancer screening activities in resource-limited settings.

19 MOPS could include the number of women seen/treated; development of national protocol for  
20 cervical cancer prevention; and number of medical personnel trained.

#### 21 **20.3.5 Pregnancy Planning and Spacing**

22 Infant and maternal morbidity and mortality in resource-limited countries is greatly impacted by  
23 spacing of pregnancies. A recent demographic study in Zambia showed that pregnancies  
24 occurring less than 24 months since the previous pregnancy were at much higher risk than those  
25 spaced more than 24 months. Acceptance, availability and accessibility of effective  
26 contraception has the potential to significantly impact maternal/child mortality and morbidity.  
27 Likewise, other mechanisms for birth control that are not “contraceptive” per se have shown to  
28 be effective in curbing these rates as they lower pregnancy rates. One example of such would be  
29 the use of cycle beads, which help women determine their fertile periods and play an active role  
30 in family planning.

31 Thus MSOs are an opportunity for educating the local communities, teaching host nation medical  
32 personnel and providing family planning services. MOPs could include number of women  
33 provided with access to contraception or beads; number of classes provided on contraceptive use;  
34 and the number of medical personnel trained.

#### 35 **20.3.6 Life Saving Skills<sup>70</sup>**

36 In 1989, the American College of Nurse-Midwives (ACNM), in collaboration with the  
37 Government of Ghana, conducted two maternal mortality studies in the Greater Accra Region.  
38 Based on the results of these studies, the ACNM began providing assistance to Ghana on the  
39 development of a program for updating and expanding the skills of public and private-sector  
40 midwives with the goal of reducing the high infant and maternal mortality in the country. This  
41 program focused on training a core of midwife trainers in life saving skills (LSS) and the

---

<sup>69</sup> JHPIEGO website, <http://www.jhpiego.org/about/who.htm>, accessed 11 Oct 10

<sup>70</sup> American College of Nurse Midwives, "Life Saving Skills: Increasing the Public Health Impact of Midwives," [http://accesohealth.net/toolres/pdfs/ACNM\\_LSSbroch\\_forweb.pdf](http://accesohealth.net/toolres/pdfs/ACNM_LSSbroch_forweb.pdf), accessed 10 Oct 10.

1 development of a ten-module training package that came to be known as the Life Saving Skills  
2 Manual for Midwives (LSS Manual). ACNM's approach was to provide didactic training in  
3 critical knowledge, along with intensive on-the-job, competency-based clinical experience in  
4 specific interventions aimed at preventing or minimizing the mortality and morbidity associated  
5 with the major causes of maternal death and neonatal death.

6 In developing countries, 81% of maternal mortality is from direct causes: hemorrhage, sepsis,  
7 unsafe abortion, pregnancy induced hypertension and obstructed labor. Globally, 77% of  
8 neonatal death is from direct causes. Most of these deaths are preventable through quality  
9 maternity care, improved nutrition, family planning, access to post abortion care, available  
10 transportation and communication, rapid and safe blood services, improved education for women  
11 and girls, and improved status of women within the culture.

12 The LSS manual and training program encourages an expanded role for the midwife in  
13 recognizing and responding to life-threatening emergencies. The ten modules include:

- 14 • Introduction to Maternal Mortality
- 15 • Quality Antenatal Care
- 16 • Monitoring Labor Progress
- 17 • Episiotomies and Repair of Lacerations
- 18 • Prevention and Treatment of Hemorrhage
- 19 • Resuscitation (adult and infant)
- 20 • Prevention and Management of Sepsis (adult and infant)
- 21 • Hydration and Rehydration
- 22 • Vacuum Extraction
- 23 • Other Emergencies (labor and delivery problems, postabortion care, LSS Formulary)

#### 24 **20.3.7 Averting Maternal Death and Disability**<sup>71</sup>

25 The Averting Maternal Death and Disability Program (AMDD) is part of the Mailman School of  
26 Public Health in the Department of Population and Family Health at Columbia University in  
27 New York City. The organization helps to strengthen national health systems in providing  
28 emergency care for all women experiencing life-threatening obstetric complications. It conducts  
29 research and policy analysis, lends technical expertise, and advocates for solutions that reduce  
30 maternal and newborn mortality.

31 One of AMDD's services is to provide a weekly global maternal health literature review,  
32 available at <http://www.amddprogram.org/d/>.

### 33 **20.4 Women's Health Outputs and MOPs**

34 The outputs and MOPs for women's health are still being refined at this time.  
35

---

<sup>71</sup> Averting Maternal Death and Disability website, <http://www.amddprogram.org/d/>, accessed 12 May 11

**Table 17: Women's Health Outputs and MOPs**

<b>Women's Health Outputs</b>	<b>Women's Health MOPs</b>
Provide Advanced Life Support in Obstetrics (ALSO) training	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
Provide training sessions and support in developing a sexual safety action plan for women and children	Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.
<ul style="list-style-type: none"> <li>• Provide training on the JHPIEGO cervical screening method</li> <li>• Support HN in developing a national protocol for cervical cancer prevention</li> </ul>	<ul style="list-style-type: none"> <li>• Number of women seen/treated</li> <li>• Progress toward development of a national cervical cancer protocol</li> <li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li> </ul>
<ul style="list-style-type: none"> <li>• Provide training on pregnancy planning and spacing</li> <li>• Supporting HN in improving access to contraception services</li> </ul>	<ul style="list-style-type: none"> <li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li> <li>• Number of cycle beads distributed</li> </ul>
<ul style="list-style-type: none"> <li>• Provide training to midwives using the Life Saving Skills course</li> </ul>	<ul style="list-style-type: none"> <li>• Number of midwives trained</li> </ul>
<ul style="list-style-type: none"> <li>• Provide training to birth attendants, using the "Helping Babies Breathe" course</li> </ul>	<ul style="list-style-type: none"> <li>• Number of birth attendants trained</li> </ul>

2

### 3 **20.5 Planning Considerations**

4 The health of women is a broad-spectrum journey from young adolescence through the child-  
5 bearing years and on into menopause. Each phase of a women's journey offers health challenges  
6 ranging from health and wellness to episodes of acute and chronic illness. Embedded in this  
7 journey are the aberrant conditions of abuse, violence, and the practice of cultural norms that can  
8 have far-reaching effects on all phases of women's health (i.e. female circumcision) that may or  
9 may not be apparent or discussed in the short time frame of Medical Stability Operations.

10 Due to cultural sensitivity, HN capability, and a short time frame of intervention the ability to  
11 address many of the key elements facing women's health remain a challenge.

12 Maternal and infant mortality rates are a good indicator of the state of a health system. Medical  
13 Stability Operations have the ability to influence women's health through education on  
14 nutrition, exercise and general health. Cultural sensitivity and HN support will be key drivers in  
15 the outcomes and methods of effectiveness achieved within a given region.

16 Leadership assessment of HN development, length and type of mission and cultural sensitivity  
17 will drive the mission framework for women's health. At a minimum education on general

1 health and hygiene, self-care during pregnancy, and nutrition and exercise (i.e. good body  
2 mechanics to decrease musculoskeletal pain) can be provided.

3 Measures of outputs can be achieved through administrative tracking of patients seen and the  
4 number and content of classes taught. Measures of effectiveness in this specialty can be difficult  
5 given the fact missions do not consistently return to the same area making evaluation of  
6 interventions a challenge.

7 One of the common limitations to teaching the Home Based Life Saving Skills course from the  
8 American College of Nurse Midwives (ACNM) is the lack of electricity and equipment.

9 The Advanced Life Support in Obstetrics (ALSO) course might also be difficult in many  
10 countries that don't have fetal monitoring and are limited to no vacuum/forceps applications. A  
11 modified ALSO course involving postpartum hemorrhage and preeclampsia recognition and  
12 management would probably be the most beneficial with hands on practice.

13  
14  
15  
16  
17

## 21 Appendix K: Dermatology Services

### 21.1 Introduction<sup>72</sup>

In assigning health priorities, skin diseases are sometimes thought of, in planning terms, as small-time players in the global league of illness compared with diseases that cause significant mortality, such as HIV/AIDS, community-acquired pneumonias, and tuberculosis. However, skin problems are generally among the most common diseases seen in primary care settings in tropical areas, and in some regions where transmissible diseases such as tinea imbricata or onchocerciasis are endemic, they become the dominant presentation.

Although mortality rates are generally lower than for other conditions, people's needs for effective remedies for skin conditions should be met for a number of important reasons:

- First, skin diseases are so common and patients present in such large numbers in primary care settings that ignoring them is not a viable option. Children, in particular, tend to be affected, adding to the burden of disease among an already vulnerable group;
- Second, morbidity is significant through disfigurement, disability, or symptoms such as intractable itch, as is the reduction in quality of life. For instance, the morbidity from secondary cellulitis in lymphatic filariasis, which may lead to progressive limb enlargement, is severe, and subsequent immobility contributes to social isolation;
- Third, the relative economic cost to families of treating even trivial skin complaints limits the uptake of therapies. Generally, families must meet such costs from an overstretched household budget, and such expenses in turn reduce the capacity to purchase such items as essential foods;
- Fourth, screening the skin for signs of disease is an important strategy for a wide range of illnesses, such as leprosy, yet a basic knowledge of the simple features of disease whose presenting signs occur in the skin is often lacking at the primary care level.

A number of common diseases account for the vast majority of the skin disease burden; therefore implementing effective treatments targeted at those conditions results in significant gains for both personal and public health. Even where eradication is impossible, control measures may be important in reducing the burden of illness; yet few systematic attempts have been made to validate control programs for skin diseases as public health interventions. A recent (unpublished) survey by the International Foundation of Dermatology designed to provide information about community patterns of skin disease in nine different countries across the world—Australia (Northwest Territory), Ethiopia, Indonesia, Mali, Mexico, Mozambique, Senegal, Tanzania, and Thailand)—and poor regions in other tropical environments from Mexico to Madagascar indicates that the following were the main skin conditions at the community level:

- *Scabies*. Although scabies was often the most common skin disease, it was completely absent in some regions.
- *Superficial mycoses*. This group of infections was usually reported as one of the three commonest diseases.
- *Pyoderma*. This disease was often, but not invariably, associated with scabies.

---

<sup>72</sup> The World Bank, "Disease Control Priorities in Developing Countries," 2d edition, Oxford University Press and The World Bank, 2006, pp 707-708.

- 1 • *Pediculosis*. This disease was the subject of much variation but is often overlooked in  
2 surveys. Firm, community-level data on the prevalence of pediculosis are deficient; thus, this  
3 disease is not discussed further in this chapter.
- 4 • *Eczema or dermatitis*. Although this disease was usually unclassified, irritant dermatitis and  
5 chronic lichen simplex were often cited.
- 6 • *HIV-related skin disease*. This disease was reported mainly in Africa. The pruritic papular  
7 dermatitis of AIDS is a specific problem.
- 8 • *Pigmentary anomalies*. Three different problems were cited: hypopigmentation, often  
9 diagnosed as pityriasis alba, a form of eczema; melasma; and dermatitis caused by cosmetic  
10 bleaching agents.
- 11 • *Acne*. This disease was reported as an emerging and common problem.
- 12 Dermatology services contribute to systemic wellness by diagnosing conditions often missed by  
13 primary care providers, such as leprosy, leishmania, lupus, unusual presentations of varicella,  
14 and a host of genoderm.

## 15 **21.2 Dermatology Outcomes and MOEs**

16 There are no outcomes or measures of effectiveness (MOEs) specific to dermatology services.

## 17 **21.3 Dermatology Activities**

18 The previous discussion highlights some potential interventions for dermatology.  
19 Dermatologists on MSO missions generally end up providing a great deal of direct care and  
20 consultation on dermatological issues. The potential interventions for dermatological problems  
21 include providing treatment for the more common skin ailments, in support of the HN.  
22 However, it is equally important – if not more so – to educate the local, HN medical assets in the  
23 proper identification, treatment, and prevention of common public health issues such as scabies.  
24 These training activities require meeting with local HN medical personnel to realistically  
25 understand what medicines/compounds would be available, and then to develop training that  
26 treatment strategies that use these available medications. Key training activities would include:

- 27 • Visual diagnosis of significant skin ailments
- 28 • Management and treatment of preventable skin diseases

29 The MOPs for these activities include detailed descriptions of the support provided to the HN,  
30 the extent of the support (e.g., number of training sessions conducted and the number of  
31 attendees, number of treatments provided, by type), and a brief description of the role of the  
32 MSO support to the HN.

33

1 **21.4 Dermatology Outputs and MOPs**

2 The outputs and MOPs for dermatology are still being refined at this time.

3 **Table 18: Dermatology Outputs and MOPs**

<b>Dermatology Outputs</b>	<b>Dermatology MOPs</b>
Provide training on the management and treatment of preventable skin diseases	<ul style="list-style-type: none"><li>• Describe support provided, the extent of the support and the intended outcomes for each activity. Specifically identify the number of training sessions performed, topics and number of attendees.</li></ul>
Provide training on skin cancer prevention and treatment	<ul style="list-style-type: none"><li>• Number of consultations conducted; specify the professional status of the consulting partner (e.g., physician, dermatologist, medical technician)</li><li>• Number of training sessions, specifying topic, number of attendees and number of instructors</li></ul>

4

5 **21.5 Planning Considerations**

6 Under development

7

8

9

10

11

12

13

14

## 22 Appendix L: Eye Care Services

### 22.1 Introduction<sup>73 74</sup>

The WHO defines ‘low vision’ as visual acuity of less than 6/18 but equal to or better than 3/60, or a corresponding visual field loss to less than 20°, in the better eye with the best possible correction. ‘Blindness’ is defined as visual acuity of less than 3/60, or a corresponding visual field loss to less than 10°, in the better eye with the best possible correction. ‘Visual impairment’ includes both low vision and blindness .

The major causes of adult-onset blindness are cataract (47.8 percent), glaucoma (12.3 percent), macular degeneration (8.7 percent), diabetic retinopathy (4.8 percent), trachoma (3.6 percent), and onchocerciasis (0.8 percent). Uncorrected refractive errors are also a major cause of morbidity related to vision, but this type of disability is not included in the global burden of disease by definition.

In 2006, WHO released new global estimates, which, for the first time, included the global magnitude of visual impairment due to uncorrected refractive errors, accounting for an additional 153 million people. At least 13 million children (aged 5–15) and 45 million working-age adults (aged 16–49) were affected globally. Thus, according to WHO estimates, there are approximately 314 million people around the world whose vision is impaired, due either to eye diseases or uncorrected refractive errors. Of this number, 45 million people are blind. This statistic does not include uncorrected presbyopia, the prevalence of which is unknown.

The major causes of childhood vision loss have marked regional variations. They include vitamin A deficiency (xerophthalmia) and ophthalmia neonatorum in low-income countries, retinopathy of prematurity and hereditary conditions in middle-income countries, and congenital cataract and glaucoma everywhere.

Vision loss is chronic and, almost invariably, without remission. The extent of morbidity is related to the level of alteration of vision function. However, 80 percent of cases are avoidable, either through treatment (cataract and refractive errors) or through primary prevention (onchocerciasis, trachoma, glaucoma, and diabetic retinopathy). Strictly speaking, blindness attributable to glaucoma and diabetic retinopathy can be prevented. However, prevention depends on the availability of a simple, cheap, and efficacious diagnostic test and rigorous treatment.

Recently released World Health Organization (WHO) data<sup>75</sup> indicate that the prevalence of visual impairment has been significantly reduced to 285 million. Of these, 246 million have moderate to severe visual impairment, while an estimated 39 million people are blind.

This reduction reflects the investment of governments and their international development partners in improving eye health services and strategies. Socioeconomic developments in many countries have also contributed to these welcome trends.

Key Global Facts:

---

<sup>73</sup> The World Bank, “Disease Control Priorities in Developing Countries,” 2d edition, Oxford University Press and The World Bank, 2006, pp 953-955.

<sup>74</sup> World Health Organization, "Vision 2020: The Right to Sight, Action Plan 2006-2011," 2007.

<sup>75</sup> International Agency for the Prevention of Blindness, " New WHO estimates reveal downward trends in blindness and visual impairment worldwide," accessed 2 Mar 11 from <http://www.vision2020.org/main.cfm?type=PUBLICATIONS&objectid=2536>

- 1 • A total of 285 million people are visually impaired
  - 2 • Of these, 39 million are blind
  - 3 • 246 million have moderate to severe visual impairment
  - 4 • 63% of those with low vision and 82% of blind people are over 50 years of age<sup>76</sup>
- 5 Of the six WHO world regions, South East Asia and Western Pacific account for 73% of  
6 moderate to severe visual impairment and 58% of blindness.

7 The global initiative known as ‘VISION 2020: the right to sight’ was launched in 1999 and is  
8 now an established partnership between WHO and the International Agency for the Prevention  
9 of Blindness ( IAPB). The mission of VISION 2020 is to eliminate the main causes of avoidable  
10 blindness by the year 2020 by facilitating the planning, development and implementation of  
11 sustainable national eye-care programmes based on the three core strategies of disease control,  
12 human resource development and infrastructure and technology, incorporating the principles of  
13 primary health care. The vision of VISION 2020 is a world in which no one is needlessly blind  
14 and where those with unavoidable vision loss can achieve their full potential. Its aims are to  
15 eliminate the main causes of avoidable blindness by the year 2020 and to prevent the projected  
16 doubling of avoidable visual impairment between 1990 and 2020.

17 From the outset, it has been considered that the goal of eliminating avoidable blindness by the  
18 year 2020 would best be achieved by integrating an equitable, sustainable, comprehensive eye-  
19 care system into every national health system. The initiative is intended to strengthen national  
20 health-care systems and facilitate national capacity-building.

21 The objectives of VISION 2020 are to:

- 22 • Raise the profile in key audiences of the causes of avoidable b • lindness and the solutions to  
23 the problem
- 24 • Advocate for and secure the necessary resources to increase prevention and treatment  
25 activities
- 26 • Facilitate the planning, development and implementation of national VISION 2020 programs  
27 in all countries

## 28 **22.2 Eye Care Outcomes and MOEs**

29 The outcome for the eye care services is presented in this section; there are no measures of  
30 effectiveness associated with this outcome.

31 The outcome for eye care is to improve visual function and reduce preventable causes of  
32 blindness.

## 33 **22.3 Eye Care Activities**

34 The proposed activities for eye care, in support of HN programs, are the following:

- 35 • Provide visual screening examinations for the major causes of blindness
- 36 • Provide corrective lenses
- 37 • Provide reading glasses.

---

<sup>76</sup> The SEAR and WPR regions account for around 50% of the world’s population (Source: WHO, World Health Statistics, 2010)

1 In addition to these direct care activities, the Eye Care team of an MSO can directly support the  
2 VISION 2020 goals by providing data that the HN can use to assess their progress toward  
3 improving visual function in their country. The VISION 2020 Action Plan for 2006-2011 has  
4 identified indicators and proposed a monitoring framework to track progress in the  
5 implementation of interventions and the achievement of a set of objectives and target. These  
6 indicators include:

- 7 • Measuring the impact on the burden of blindness and visual impairment
- 8 • Measuring the related human resource development
- 9 • Measurements of the related eye health sector and technology development
- 10 • Measures of the Member States' commitment to implementation of VISION 2020 and
- 11 development of partnerships.

12 MSO Eye Care teams can provide data on:

- 13 • Prevalence of visual impairment: the absolute number of individuals (by gender and age)
- 14 with a presenting visual acuity less than 3/60 and less than 6/18-3/60 in the better eye
- 15 • Prevalence of visual impairment: the absolute number of individuals (by gender and age)
- 16 with a presenting visual acuity less than 3/60 and less than 6/18-3/60 in the better eye due to a
- 17 preventable cause
- 18 • Cataract surgical rate: number of cataract surgical operations performed per million
- 19 population per year
- 20 • Control of refractive errors: proportion of people by age group with uncorrected refractive
- 21 errors causing visual impairment (can be measured by documenting the number of corrective
- 22 lenses distributed, by refractive power)
- 23 • Prevalence of avoidable childhood blindness by cause: number of children blind from
- 24 avoidable causes (must be clearly defined, e.g. vitamin A deficiency, cataract, retinopathy
- 25 of prematurity) per million population
- 26 • Incidence of blinding trachoma: number of individuals presenting who are blind due to
- 27 trachoma
- 28 • Population at risk for onchocerciasis: number of individuals presenting with or at risk for
- 29 onchocerciasis
- 30 • Prevalence of age-related macular degeneration: number of individuals presenting with
- 31 blindness or visual impairment due to age-related macular degeneration
- 32 • Prevalence of diabetic retinopathy: number of individuals presenting with blindness and
- 33 visual impairment due to diabetic retinopathy
- 34 • Prevalence of glaucoma: number of individuals presenting with blindness and visual
- 35 impairment due to glaucoma

36 These data collection activities are NOT listed as MSO measures of performance, because the  
37 number of individuals presenting to an Eye Care Team at a MEDCAP site do NOT constitute  
38 prevalence data; however, the HN can use this data to determine prevalence for these measures,  
39 given additional information on the presenting population. If strong relationships are forged with  
40 HN Eye Care professionals, this data may become accessible, and MSO personnel may be able  
41 to develop population health measures relevant to a single MSO.

42

1 **22.4 Eye Care Outputs and MOPs**

2 The outputs and MOPs for eye care services are provided in the table below.

3 **Table 19: Eye Care Outputs and MOPs**

Eye Care Outputs	Eye Care MOPs
Provide screening examinations to as many patients as possible	<ul style="list-style-type: none"> <li>• Provide number of screening examinations, as percentage of the population presenting to the MEDCAP</li> <li>• Note age and gender of individuals screened</li> </ul>
Issue corrective lens	<ul style="list-style-type: none"> <li>• Provide number of corrective lenses issued, as percentage of the population who received a screening exam</li> <li>• Note the refractive power of each set of issued corrective lenses</li> </ul>
Issue reading glasses	Provide number of reading glasses issued, as percentage of the population who received a screening exam
Perform cataract or pterygium surgeries	Provide number of surgeries performed, as a percentage of the population that presented to the MSO diagnosed with the condition
Provide training on the eye care treatment and management	Number of training sessions, specifying topic, number of attendees and number of instructors

4

5 **22.5 Planning Consideration**

6 Navy Medicine Optometry has established a valuable resource on Navy Knowledge Online  
7 (NKO) on planning and executing optometry services during a humanitarian assistance mission.  
8 The link for Operational Optometry is:

9 <https://wwwa.nko.navy.mil/portal/navymedicine/medicalservicecorps/optometry/>

10 The lessons learned and planning considerations presented below are a synthesis of the following  
11 After Action Reviews (AARs) posted on Operational Optometry as of February 2011.

- 12 • Cambodian Interoperability Program 2009 Optometry AAR (CDR Byman, LT Senko)
- 13 • Lessons Learned Balikpapan 2009 (LT Linnell)
- 14 • Africa Partnership Station 2010 AAR (LCDR Sunman)
- 15 • Haiti 2010 Optometry Lessons Learned (CDR Jackson)
- 16 • Humanitarian Optometry USS PELELIU, 2007 (LCDR Behil; served as the basis for the  
17 discussion below)

18 **22.5.1 General**

19 Optometry services are highly desirable and the demand can run as high as 500 patients per day.  
20 Try to provide some level of service to everyone who presents as many of these patients have  
21 gone through a great deal to be seen.

1 On some missions, patients are screened through medical before going to optometry, but this  
2 significantly degrades patient flow. Recommend that all eye patients go directly to optometry,  
3 where we had our own waiting room.

#### 4 **22.5.2 Planning**

5 As far ahead as possible, find out which nations you will be assisting and how long you will be  
6 in each location. Review the demographics for each nation and/or location (if applicable) and try  
7 to discover the prevalence of refractive error. Sometimes mission reports from previous  
8 missions can help in this task.

9 The greatest challenge is determining how many spectacles are required and what powers are  
10 needed; Navy Medicine Optometry is currently developing a database to record the refractive  
11 powers of each set of spectacles distributed for each mission that will serve as a resource in this  
12 planning. A rough planning guide is described  
13 below.

- 14 • Identify how long you will be in a particular  
15 country
- 16 • Eliminate the first and last day that you will be in  
17 the country and the number of days left is an  
18 indicator of the number of MEDCAPs for that  
19 country (there may be multiple MEDCAP  
20 sites/day, as well).
- 21 • For each day, assume that approximately 300  
22 patients will be seen by each provider; don't be  
23 afraid to err on the high side! Extra glasses can  
24 always be left at the local clinic.
- 25 • Use the Optometry database for information on  
26 the distribution of powers for the reading glasses,  
27 previous mission reports or the rough planning  
28 guide provided in the text box.

*For hyperopes, the reading glasses should cover their distance correction and any correction for presbyopia. Determining how many minus powered spectacles to bring becomes more of a challenge. As stated previously, there are no country specific studies of refractive error. Based on our experience, myopia levels were generally low. With rising literacy rates, we did see areas where myopia levels reached 10 percent. On average, I would plan for 20 pairs at each site, concentrated on the low minus range, starting at -1.00D*

*LCDR Behil, USS PELELIU, 2007*

#### 29 **22.5.3 Staffing**

30 Typical mission staffing is two optometrists and two  
31 optometry technicians and there would often be two MEDCAP sites run simultaneously - and  
32 sometimes more than two. Sometimes the advance planning teams commit to providing  
33 optometric services in more locations each day than the number of available optometrists.  
34 Leadership may opt for sending a single technician to a deployment site, but this isn't  
35 recommended because the technician will not be able to handle disease management issues.  
36 Ideal is providing optometry services in partnership with a HN ophthalmologist.

#### 37 **22.5.4 Supplies**

38 Submit the order for pre-fabricated glasses as far in advance as possible (more than 3 months  
39 out) as it is safest to assume that there *will* be problems with the process of providing  
40 prefabricated spectacles. Basically, as soon as you are tasked with the mission, begin the process  
41 of ordering the glasses by talking with the Medical Supply Officer for the mission. Generally, do  
42 *not* assume that glasses can be fabricated on the ship, as there are too many variables that can go  
43 wrong in this process, and this frees up your technician to do other tasks.

1 ADSPECs do have a role in these missions, but must not be relied upon as the primary means of  
2 refractive correction when an eye care provider is available. In one mission, the provider noted  
3 that these adjustable glasses are remarkably versatile, but of poor quality. The failure rate in  
4 making these glasses is on the order of 30%; which means that about one third will have temple  
5 glue issues, leaking problems, brittle screws, stripped screws or barrel issues that will render the  
6 pair useless. In addition, these glasses are heavy and....unattractive. Many people may simply  
7 refuse to wear them.

8 Prior to arriving in a country, package about 300 pairs of glasses in varying powers for each  
9 MEDCAP for each provider. Each power was sorted into a separate box or compartment and  
10 easily labeled so once on site, the glasses were easy to account for and distribute. Recommend  
11 using plastic containers to transport the glasses and equipment in, as cardboard boxes can be  
12 easily crushed in transit or will dissolve if they get wet.

13 Sometimes a mission would be supplied with donated glasses; these need to be inspected and  
14 sorted prior to the mission. Many donated glasses are unusable due to their poor condition or  
15 because the prescriptions are so unusual (e.g., high degree of anisometric correction).

16 In tropical countries, sunglasses are also essential in order to protect patients from UV exposure  
17 which leads to pterygium, early cataracts, and macular degeneration.

18 Artificial tears are also needed and provide an easy way to give all patients something, just as  
19 family medicine and pediatrics provide multivitamins to all of their patients. The high incidence  
20 of pterygium necessitates treatment for dry eye and irritation.

### 21 **22.5.5 Equipment**

22 Essential items to bring are: retinoscope, ophthalmoscope, transilluminator, acuity charts  
23 (multiple), tropicamide, proparacaine, tonopen, lens bars, prism bars, pens, markers. We also had  
24 a portable slit lamp, BIO, and a retinomax. These last three items were very helpful when they  
25 worked. Again, in a bright environment, the effectiveness of these instruments decreased  
26 dramatically.

27 In the heat and humidity, we found that the batteries in our instruments drained very quickly.  
28 Many instruments that we would have liked to have used more often stopped working after only  
29 a few hours. Make sure you have several new batteries for each item you bring and don't rely on  
30 re-chargeable batteries, as the re-charging equipment may not always function or needs a  
31 transformer appropriate to the HN voltage.

### 32 **22.5.6 Facility Setup**

33 Each MEDCAP site would have a perimeter with a single entrance and exit to control patient  
34 flow. Site setup will be different for each location. In most cases, the MEDCAP is in either a  
35 clinic or a school, and when no building was available, a tent. Make known to the EMBEDS that  
36 optometry requires a dark space. Many times this will not be possible. Tents aren't very effective;  
37 they is too much light and they are incredibly hot. Buildings tend to be both darker and cooler.

38 Try to get at least two tables and four chairs to have enough room to set up your equipment and  
39 stage your glasses.

### 40 **22.5.7 Transport**

41 Transport times from a hospital ship (or gray hull) can be significant, on the order of several  
42 hours each day.

43  
44

### 1 **22.5.8 Translators**

2 Translators are essential and the optometry team should ensure they receive at least one full-time  
3 translator for each MEDCAP site. The best translators are those with medical training, such as a  
4 nursing student or a local physician. In any case, be prepared to keep your instructions simple  
5 and to repeat yourself a great deal.

6 Treat your translators well! A small gift from the ship is a thoughtful gesture to someone who is  
7 volunteering their time to make your stay more productive.

### 8 **22.5.9 Examinations**

9 Each site will be different, but try to do the most good at each location and see all patients who  
10 come. The following guidelines summarize some basic ideas for seeing a large number of  
11 patients in a single day from various mission reports.

- 12 • The majority of patients will just want reading glasses. By far, most of our patients were over  
13 the age of 40. With large volumes of patients, the exam consisted of a brief history. The  
14 patient would then try a pair of reading glasses based on their age. If distance vision was their  
15 concern, we would do a quick ret, and then try the closest pair of distance glasses with them.  
16 We would then take a look with a transilluminator, and then an ophthalmoscope. This would  
17 take 1-2 minutes for each person. When it was slower, or a patient presented with an ocular  
18 disease complaint, we were able to do a more thorough exam.
- 19 • After the patients were triaged, the corpsmen would perform an autorefraction on the patients  
20 with a Nikon Retinomax autorefractor. They would then print out the autorefraction and have  
21 the patient hold it until they were examined by the optometrist. We would then ask the  
22 patient if they wanted distance or reading glasses (with the help of the translator) and refract  
23 them depending on their needs. Most of the time we were able to refract with just the  
24 autorefraction but sometimes we had to perform retinoscopy with the lens rack. We would  
25 then give them their distance or reading glasses that was close to their Rx. We were not  
26 trying to make the patients 20/20 but rather just 20/30 or 20/40. We performed direct  
27 ophthalmoscopy on a small percentage of patients only when indicated.

28 If performing eye care services with an ophthalmologist, any patients with cataracts or pterygium  
29 are immediately referred to ophthalmology.

### 30 **22.5.10 Record Keeping**

31 Each patient will be given a registration/examination form at check-in. There should be an area  
32 to write down notes of what you did, what you dispensed, and an area to report the diagnosis. We  
33 tried to gather as much information as we could for future missions. We kept track of the total  
34 number of patients seen, male or female, over or under age 40, what power glasses were  
35 dispensed, what medications were prescribed, and the number of referrals. Just have a  
36 spreadsheet and put a tick mark in each category and tally the numbers at the end of the day.

### 37 **22.5.11 Surgical Referrals**

38 The referral process will vary for each country as they each have different health care systems.  
39 Try to find out what the process is prior to arrival. Most countries we visited had a system where  
40 we would simply generate a list of patients, what the diagnosis was, and how they could be  
41 contacted. We would give this list to the host nation who would pass it to the nearest  
42 ophthalmologist that could do the surgery. In some countries, the surgery would be free for the  
43 patient and in others it was not. Find out if any other humanitarian missions will be coming  
44 through and will do ophthalmological procedures. If you will be traveling with an

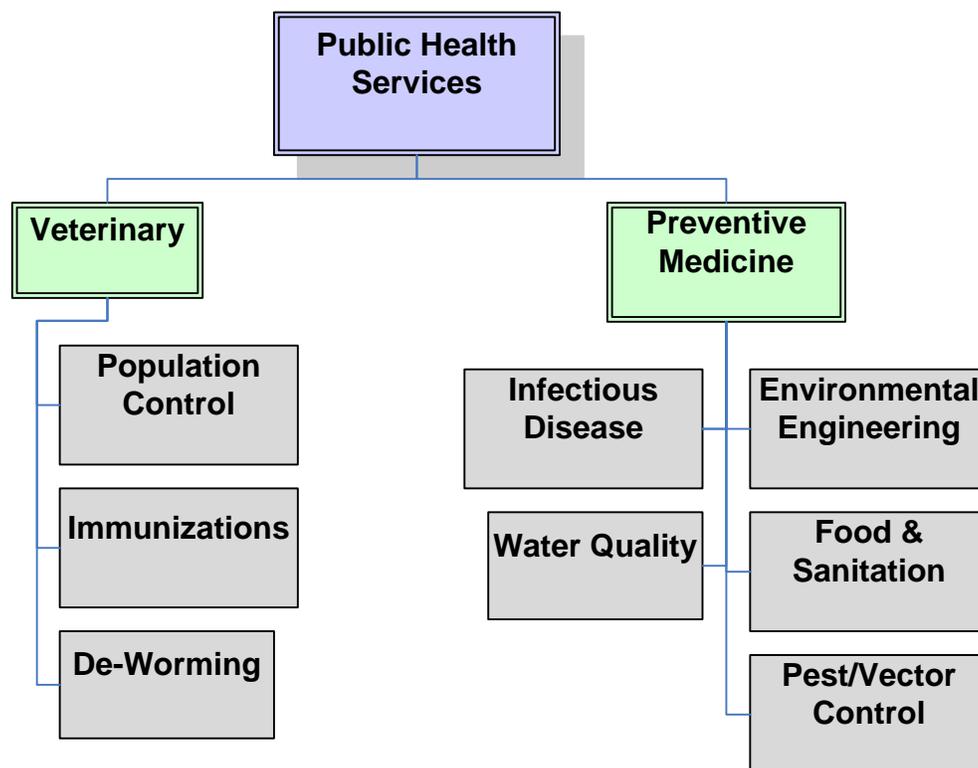
- 1 ophthalmologist, they will most likely have their own patients who have been prescreened, but
- 2 they may be open to taking some referrals from you.
- 3

## 23 Appendix M: Public Health Services

### 23.1 Introduction

One definition of public health is “a field of medicine that deals with the physical and mental health of the community, particularly in such areas as water supply, waste disposal, air pollution, and food safety.” Important elements of public health include the prevention and control of diseases, distinct from the treatment of individuals suffering from disease.

The current organization of the Public Health Service from the Menu of Health Services is depicted in Figure 13 and does not match the definition provided above. Due to input from various subject matter experts, this document recommends that the adaptive force package for public health services be modified slightly. For example, in the construct illustrated below, veterinary personnel are depicted as separate from other public health functions, which is not normally the case.

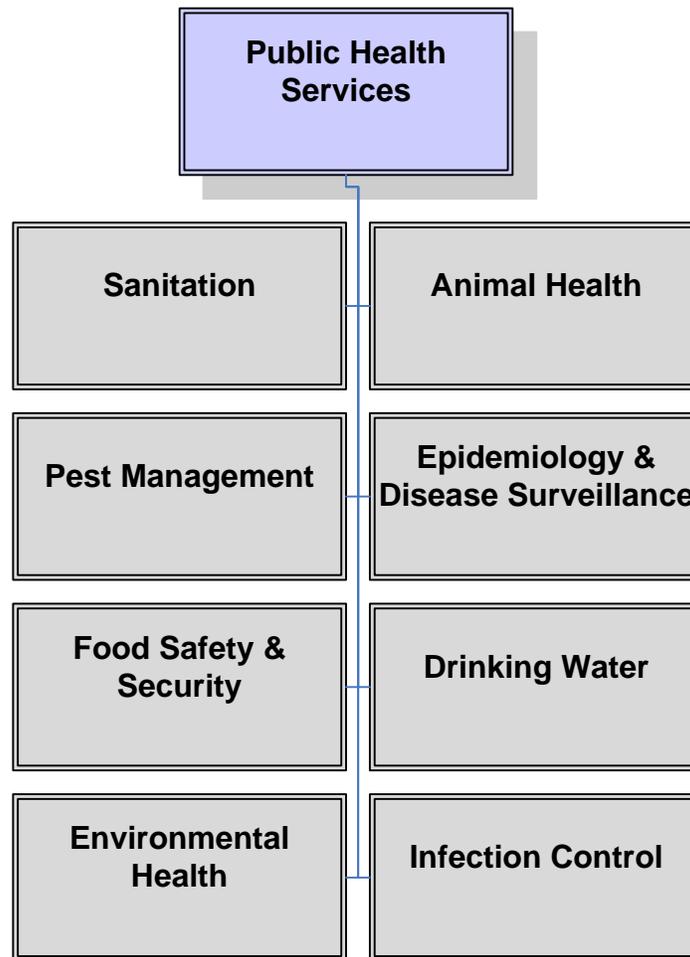


**Figure 10: Original Depiction of Public Health Services**

The “One World, One Health” approach to public health recognizes the “interconnectedness of human, animal, and environmental health...interventions that simultaneously and holistically address multiple and interacting causes of poor human health—unsafe and scarce water, lack of sanitation, food insecurity, and proximity between animals and humans—will yield significantly larger health benefits than policies that target each of these factors individually and in isolation.”<sup>77</sup>

The recommended structure for the public health services is shown in Figure 14 below.

<sup>77</sup> PLoS Medicine, “A One Health Approach to Address Emerging Zoonoses: The HALI Project in Tanzania,” Vol 6, Issue 12, December 2009



2

3

**Figure 11: Preferred Organization of Public Health Services**

4

5 Many MSOs are on the order of 2 weeks; ensuring sustained impact from such a short-term  
 6 mission is difficult and requires a specific, defined public health focus. An *effective* public  
 7 health mission is one that addresses a public health need using a coordinated and integrated  
 8 public health strategy.

9 An important part of planning public health activities in support of the HN is recognizing that  
 10 these activities exist in a natural hierarchy, as illustrated by the quote below.

### 11 **23.2 Public Health Outcomes and MOEs**

12 The outcome for public health is: to optimize health by addressing the multiple and interacting  
 13 causes of poor human health: unsafe water, poor sanitation, food insecurity, and proximity  
 14 between animals and humans, and the environment.

15 The following are the proposed MOEs specific to water and sanitation:

- 16 • Percentage of deaths among children under 5 years of age due to diarrheal disease (WHO  
 17 indicator)
- 18 • Proportion of the population using improved drinking water sources, rural (MDG and WHO  
 19 indicator)

- 1 • Proportion of the population using improved sanitation facilities, rural (MDG and WHO  
2 indicator)  
3 Of course, public health activities contribute to population health in a variety of ways, and the  
4 complete list of MOEs can all be considered as 'public health' measures, in one way or another.

### 5 **23.3 Public Health Activities**

6 In planning the public health aspects of an MSO, the emphasis, as always, needs to be on  
7 defining activities that meet the three requirements for effectiveness:

- 8 • Partnership: the activity is conducted in partnership with the HN or NGO  
9 • Sustainability: the activity is conducted in support of a national or international health  
10 initiative  
11 • Capacity Building: the activity contributes  
12 to the HN capacity in some manner

13 Most of the activities conducted during an  
14 MSO can be considered as "public health  
15 activities," but this appendix - and the other  
16 appendices that follow - will focus on those  
17 activities that are specific to improving human  
18 health by addressing food, water, sanitation,  
19 and environmental issues.

20 As the quote to the right illustrates, advanced  
21 clinical curative interventions may be of  
22 limited impact in an environment where the  
23 populace does not have reliable access to  
24 potable water, food, shelter or adequate  
25 sanitation. For these interventions to be  
26 sustainable, the health system must include  
27 those traditional public health measures such  
28 as immunizations, health education, maternal  
29 and child health issues, and health  
30 surveillance.

31 In earlier versions of this document, the Public Health appendix included information on Animal  
32 Care, Pest Management, Drinking Water, Sanitation, Epidemiology, Infection Control, and Food  
33 Security. The complexity of these public health issues led to their development as separate  
34 appendices and now this appendix serves to introduce the topic of public health and to discuss  
35 those public health activities that don't fit neatly into any single professional category. These  
36 public health activities include:

- 37 • Health Fairs  
38 • Community Needs Assessments  
39 • Subject Matter Expert Exchanges (SMEES)

40 Providing Health Fairs is an excellent mechanism for reaching large numbers of individuals, and  
41 can range from teaching secondary education students, nursing or medical school students, or  
42 other healthcare professionals. Topics typically included in Health Fairs include: Sexual Health,  
43 Handwashing, Keeping Drinking Water Safe, Proper Nutrition, Food Safety, and Vector Control.  
44 An excellent way to assess the effectiveness of these training sessions is to administer an

*The difference between the U.S. life expectancy of over seventy eight years and the forty three years in Afghanistan is not a result of cardio-bypass surgery or cancer therapy. It is access to potable water, nutritional food, waste management, and window screens for vector control; it has nothing to do with managing hypertension or treating chronic back pain; it has everything to do with immunizing children, hand washing and sterile delivery techniques for mid-wives. None of this is possible with a single-day visit from an American provider.*

*Information Paper, "Cooperative Medical Assistance Planning Considerations in Afghanistan," Combined Joint Task Force - 82, Bagram, Afghanistan*

1 assessment of some kind to determine if knowledge of a topic improves after a training session.  
 2 Experiences from recent missions have indicated that training is effective if one of the following  
 3 objectives is met:

- 4 • The training session improved the knowledge or skills of the attendees in a specific area
- 5 • The training session provided an opportunity for HN professionals to meet and discuss an  
 6 issue in a common setting; some mission participants comment that public health training  
 7 sessions provide a mechanism for HN public health personnel to talk *to each other*.
- 8 • The training session provides an opportunity for the HN public health professionals to share  
 9 lessons learned with the U.S. personnel

10 Community needs assessments should be performed only at the request of the HN and should  
 11 support clearly defined objectives.

12 The focus of Subject Matter Expert Exchanges (SMEEs) is to allow health professionals from the  
 13 HN and the MSO staff to discuss an issue as professional colleagues. It is a valuable mechanism  
 14 for demonstrating - by actions - that the MSO staff considers the HN professionals as partners,  
 15 and not as recipients of charity. One effective mechanism for conducting a SMEE in this manner  
 16 is to ask the HN professionals to share their public health successes with the MSO staff; this not  
 17 only allows them to share their experiences - but understanding the strategy behind successful  
 18 public health strategies is critical information in forming and sustaining an effective partnership  
 19 with the HN.

20 **23.4 Public Health Outputs and MOPs**

21 The outputs and MOPs for general Public Health services are summarized in the table below.

22 **Table 20: Public Health Outputs and MOPs**

Public Health Outputs	Public Health MOPs
Provide training on: <ul style="list-style-type: none"> <li>• Hygienic feeding practices</li> <li>• Hygienic food storage</li> <li>• Use of Oral Rehydration Treatments in diarrheal case management</li> <li>• Protection of drinking water and water purification at point of use</li> <li>• Use of vector control equipment</li> <li>• Food safety</li> <li>• Food services capability</li> </ul>	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting Health Fairs, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.
Support HN public health initiatives	Describe extent and scope of support
Support HN in completing community needs assessments	Type and scope of assessment and initial results
Conduct Subject Matter Expert Exchanges on topics of mutual interest with HN Public Health professionals	Identify the number of training sessions performed, topics and number of attendees.

## 1 **23.5 Planning Considerations**

### 2 **23.5.1 Tiered and Tailored Approach**

3 In general, capacity-building activities must be matched to the HN's level of development and  
4 needs. Mission specialty leads should assess countries as falling into one of three categories:

- 5 • Developed: capabilities on par with the U.S.
- 6 • Developing: HN has capabilities, but needs improvement
- 7 • Least Developed: Host nation lacks basic capabilities.

8 Frequently, programs such as Continuing Promise and Pacific Partnership include visits to HNs  
9 from all three categories in a single mission, so mission planners need to include a spectrum of  
10 activities appropriate for each type of country. There is very little point in providing  
11 sophisticated instruction on fetal monitoring techniques in a country that does not use fetal  
12 monitoring equipment, or even have reliable power sources for such equipment. For these Least  
13 Developed countries, a simple class on handwashing and management of pre-eclampsia may be  
14 much more effective and useful to its healthcare providers.

15 When providing instruction courses to the HN personnel, consider the following aspects of the  
16 instruction:

- 17 • Do the course materials for the attendees require the attendees to be literate? Recommend the  
18 use of pictorial-based instructional materials. Many course materials provided by the WHO  
19 are pictorially based
- 20 • If the course materials require literacy, are they written in the language of the attendees, or do  
21 they require the attendees to be able to read and write English? The WHO, and other  
22 international organizations, often provide course materials in many different languages; using  
23 standardized course materials also improves the standardization of instruction across multiple  
24 missions
- 25 • Are the course materials culturally appropriate? For that matter, is the instruction itself  
26 culturally appropriate? Classes on contraception and family planning may not always be  
27 appropriate for all audiences, for example.
- 28 • Is the course length appropriate for the duration of the mission? A life saving skills course  
29 which takes three days to complete may not be viable for a mission that stays in a single  
30 country for only 4 or 5 days (without careful advance planning)
- 31 • Does the course use or demonstrate equipment that is not available to the HN?

### 32 **23.5.2 Provide Sustainable Care**

33 It is tempting in humanitarian assistance missions to provide the latest and most effective care to  
34 the patient, but it is critical to accept that this care is ineffective – and possibly harmful – if it  
35 can't be adequately sustained by the HN. This is a major reason why a requirement for effective  
36 MSO missions is to provide support within the context of an *existing national or global health*  
37 *program*: to ensure that any care provided is effective and sustainable.

### 38 **23.5.3 Public Health Training**

39 One effective and simple method of assessing the quality of public health training is to conduct  
40 an oral assessment of the material taught during the class; answers can be quickly assessed by  
41 counting raised hands or other, similar mechanisms. This would allow the mission staff to  
42 rapidly evaluate the quality of the instruction and identify areas for improvement.

1 Furthermore, lessons plans and visual aids from previous missions should be saved and available  
2 to each mission team.

3 Training materials should be obtained from WHO or other international sources, as they are  
4 often available in storyboard form (does not require literacy) and may also be translated into a  
5 variety of languages. Advance detail about the target audience is critical to the development of  
6 effective training modules; the minimum knowledge necessary includes: age range, occupation,  
7 and some information on the audience's current knowledge or expertise on the subject.

#### 8 **23.5.4 Subject Matter Expert Exchanges**

9 An important part of building a partnership with a HN is being willing to learn from the HN, in  
10 addition to teaching. Listening to HN professionals is often a more challenging task for U.S.  
11 personnel, but it is a vital task, none the less. One effective mechanism is the Subject Matter  
12 Expert Exchanges, which are based on the assumption of professional equality, and allow for  
13 subject matter experts to exchange their experiences and knowledge freely.

14 A useful technique for such exchanges is to ask the HN to share a recent success in their area;  
15 not only does this provide a forum for them to speak, but very often it provides a great deal of  
16 useful information and insights to the mission personnel.

#### 17 **23.5.5 Translators**

18 Many After Action Reviews have noted the importance – and difficulty – of obtaining good  
19 translators. Ideally, the translators used during the mission are medical personnel familiar with  
20 the types of activities being conducted during the mission and are working with mission  
21 personnel to provide those services. Even in these best of circumstances, mission personnel will  
22 need to condense their instructions to the simplest form and learn to speak concisely, clearly, and  
23 slowly – and to be prepared to repeat themselves, as necessary.

24 Translation software might be useful for modifying presentations for specific audiences.

25

## 24 Appendix N: Drinking Water

### 24.1 Introduction<sup>78, 79</sup>

The drinking water supply can be broken down into three categories, which are illustrated in the form of a 'drinking water ladder' similar to that developed for sanitation:

- Unimproved drinking water sources such as an unprotected dug well, unprotected spring, cart with small tank/drum, tanker truck, and surface water (river, dam, lake, pond, stream, canal, irrigation channels) or bottled water
- Improved drinking water sources other than piped water such as public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs and rainwater collection.
- Water piped into a dwelling, plot or yard defined as piped household water connection located inside the user's dwelling, plot or yard.

The main benefit of water supply, sanitation and hygiene is a reduction in diarrheal disease, although the effects on other diseases are substantial. Providing safe, reliable, piped-in water to every household is an essential goal, yielding optimal health gains while contributing to the Millennium Development Goal (MDG) targets for poverty reduction, nutrition, childhood survival, school attendance, gender equity and environmental sustainability. While strongly committed to this goal and to incremental improvements in water supplies wherever possible, the World Health Organization (WHO) and others have called for targeted, interim approaches that will accelerate the health gains associated with safe drinking-water for those whose water supplies are unsafe.

Interventions to treat and maintain the microbial quality of water at the household level are among the most promising of these approaches. In many settings, both rural and urban, people have access to sufficient quantities of water, but that water is unsafe. Effective household water treatment and safe storage (HWTS)—if used correctly and consistently—can significantly improve the microbiological integrity of the water at the point of ingestion. Ensuring widespread and equitable access to effective HWTS solutions to those for whom water is a significant pathway for the transmission of enteric infection can deliver some of the health benefits of improved water supplies and thus complement other efforts in water, sanitation and hygiene.

This section will briefly describe some household-based interventions for HWTS. Critical to the success of these interventions is the need to:

- Focus on the user's attitudes and aspirations
- Take advantage of simple technologies to minimize the need for intensive behavior change promotion
- Promote non-health benefits, such as cost savings, convenience and aesthetic appeal
- Use schools, clinics and women's groups to gain access to more vulnerable population segments
- Take advantage of existing manufacturers and supply channels to extend coverage

This section will briefly discuss the advantages and disadvantages of various HWTS strategies.

---

<sup>78</sup> UNICEF and WHO, "Progress on Drinking Water and Sanitation, 2008, pp 21-32.

<sup>79</sup> WHO, "Scaling Up Household Water Treatment Among Low Income Populations," 2009, Geneva, Executive Summary

### 1 **24.1.1 Boiling**

2 Boiling is the most prevalent means of treating water in the home; it is practiced by hundreds of  
3 millions of people, perhaps because the necessary hardware is already available in most cases. In  
4 certain Asian countries, boiling is practiced by more than 90% of the population. Boiling is  
5 among the most effective methods of improving the microbiological quality of water, even under  
6 a variety of conditions that challenge other methods. This combination of scalability and  
7 effectiveness renders boiling the benchmark by which other methods must be measured.

8 At the same time, boiling presents potential disadvantages in actual practice that raise questions  
9 about whether it should continue to be promoted over other HWTS options. These include  
10 relatively high cost compared with certain alternatives, susceptibility of boiled water to  
11 recontamination, contribution to poor indoor air quality and adverse environmental impact. Some  
12 of these shortcomings can be minimized with cleaner fuels, more efficient stoves, the use of  
13 simple indicators to show householders when pasteurization temperatures have been reached,  
14 and safe storage. Unless and until alternatives to boiling have demonstrated higher performance  
15 at scale, boiling should continue to be encouraged.

### 16 **24.1.2 Safe Water System**

17 CDC and the Pan-American Health Organization introduced the “safe water system”, a  
18 combination of sodium hypochlorite (liquid bleach), safe storage and a hygiene message as a  
19 means by which householders could protect themselves against cholera. No single approach has  
20 been more extensively tested, and, apart from boiling, none has reached the same levels of scale,  
21 despite some resistance in uptake due to objections to taste and odor.

22 Like sodium hypochlorite, chlorinated isocyanurates (e.g. sodium dichloroisocyanurate  
23 [NaDCC] tablets) produce hypochlorous acid to disinfect drinking-water. At the same time,  
24 NaDCC may have certain advantages over sodium hypochlorite owing to its solid form, long  
25 shelf life, visual activity, convenience and lower up-front cost (although higher overall cost per  
26 litre treated). Microbiological performance has been demonstrated in the laboratory and in the  
27 field, and a health impact trial has recently been completed in Ghana.

### 28 **24.1.3 Solar Disinfection**

29 Solar disinfection, which synergistically applies the biocidal action of heat and ultraviolet  
30 radiation, has also been shown to be effective, both microbiologically and in reducing diarrhoeal  
31 disease and cholera. Although continuous commercial systems are used in some settings, the  
32 approach that has gained the largest traction among low-income populations consists simply of  
33 filling clear plastic bottles with water and placing them on the roof to expose the water to  
34 sunlight for at least 6 h.

35 Like boiling, this method is fundamentally a behavior change strategy more than a product and  
36 thus has little commercial potential. Accordingly, it is promoted exclusively by governments and  
37 NGOs.

38 Despite these limitations, solar disinfection reported more than 2.1 million users as of the end of  
39 2007.

### 40 **24.1.4 Filtration Options**

41 Among various filtration options whose microbiological performance has been demonstrated,  
42 only ceramic and biosand filters have been promoted actively as HWTS options for lower-  
43 income populations. Ceramic filters have been tested widely in the laboratory and in the field and

1 have demonstrated their capacity for reducing diarrhoeal disease, despite little, if any, capacity  
2 for removing viruses.

3 While ceramic “candle” filters have a long history in treating water in the home, inconsistent  
4 performance owing to poor quality of the medium, especially in Asia, has limited the potential of  
5 these devices for making an important contribution to overall scale. Large producers of higher-  
6 end ceramic candles in Brazil, Switzerland, the United Kingdom and elsewhere have so far  
7 demonstrated only minor interest in lower-income markets, although 100 000–150 000  
8 microbiological-quality units are estimated to be in use.

9 Pot-style filters have shown more promise recently, especially in Cambodia, where factories  
10 have produced more than 194 000 filters to date, overcoming quality challenges and creating  
11 some demand at full cost-recovery pricing. Quality control, breakage in transport or cleaning,  
12 high up-front cost, slow flow rates, the need for regular cleaning and susceptibility to water  
13 recontamination are challenges that may inhibit scaling up this alternative.

14 Biosand filters provide a means by which the well-established process of continuous slow sand  
15 filtration can be carried out intermittently, thus making it suitable for household-based  
16 applications. While somewhat less effective in microbiological performance than other HWTS  
17 options—possibly due in part to recontamination arising from a lack of safe storage—biosand  
18 filters have nevertheless been shown to reduce diarrhoeal disease in efficacy trials. Like solar  
19 disinfection and pot-style ceramic filters, biosand filters have been promoted mainly by NGOs.

## 20 **24.2 Drinking Water Activities**

21 Experience in previous missions indicate that drinking water solutions need to be simple,  
22 meaning using the techniques of boiling water and solar disinfection. More complicated  
23 solutions, such as filtration and chemical disinfection, should be limited to persons with more  
24 training or who are associated with a professional organization (e.g., school or hospital) that can  
25 help to sustain the effort.

26 The key public health activities for improving drinking water include:

- 27 • Training programs on how to prevent diarrhea by using safe drinking water and proper  
28 techniques for safeguarding water (storage, transport, boiling, chlorination, etc)
- 29 • Protection of drinking water and water purification at point of use; can train a targeted  
30 audience of community volunteers for a 'train the trainer' effect
- 31 • Installation of sand filtration units which provide clean drinking water
- 32 • Repair of hospital well pumps

33

1 **24.3 Drinking Water Outputs and MOPs**

2 The outputs and MOPs for drinking water services are provided in the table below.

3 **Table 21: Drinking Water Outputs and MOPs**

<b>Drinking Water Outputs</b>	<b>Drinking Water MOPs</b>
Training sessions on safe use and storage of water	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting training sessions, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.
Provide safe drinking water	<ul style="list-style-type: none"><li>• Number of sand filtration units installed</li><li>• Number of facility corrective actions implemented</li></ul>
Assess existing sources and facilities with users and community leaders.	<ul style="list-style-type: none"><li>• Number of assessments conducted</li><li>• Number of opportunities identified for improvement that were implemented (e.g. patched a crack in the wellhead, placed a cover on a storage tank, etc)</li></ul>

4

5 **24.4 Planning Considerations**

6 See Section 24.5, "Appendix M: Public Health Planning Considerations."

7

8

9

## 25 Appendix O: Sanitation

### 25.1 Introduction<sup>80</sup>

Readers of the BMJ (British Medical Journal) recently identified sanitation as “the most important medical advance since 1840.” Nevertheless, only 62 per cent of the world’s population has access to improved sanitation – that is, uses a sanitation facility that ensures hygienic separation of human excreta from human contact. A further 8 per cent shares an improved facility with one or more households, and another 12 per cent uses an unimproved sanitation facility – one that does not ensure hygienic separation of excreta from human contact. The remaining 18 per cent of the world’s population practices indiscriminate or open defecation. The WHO defines sanitation coverage as a four-step ladder that includes the proportion of the population:

- Practicing open defecation in fields, forests, bushes, bodies of water or other open spaces, or disposal of human feces with solid waste.
- Using an unimproved sanitation facility that does not ensure hygienic separation of human excreta from human contact. Unimproved facilities include pit latrines without a slab or platform, hanging latrines and bucket latrines.
- Using a shared sanitation facility of an otherwise acceptable type shared between two or more households. Shared facilities include public toilets.
- Using an improved sanitation facility that ensures hygienic separation of human excreta from human contact. They include: flush or pour-flush toilet/latrine to a piped sewer system, septic tank or pit latrine; ventilated improved pit (VIP) latrine; pit latrine with slab; and composting toilet.

### 25.2 Sanitation Activities

Latrine construction has been demonstrated to be the most important public health intervention for the prevention of diarrheal disease in the populations of developing countries. Latrine construction is determined on a household basis, with the percent coverage being extrapolated to the population covered. Crude construction designs, such as a pit or a structure hanging over the water, do not qualify.<sup>81</sup> The construction of the latrines also needs to be accompanied by instruction on maintaining the latrine.

- Construct latrines
- Teach how to sanitize open pits or spilled sewage w/ lime or chlorine; a good topic to combine with a handwashing class
- Teach how to sanitize open pits or spilled sewage w/ lime or chlorine.

---

<sup>80</sup> UNICEF and WHO, “Progress on Drinking Water and Sanitation, 2008, pp 6-20.

<sup>81</sup> Laron, Charles; Mercer, Alan, “Global Health Indicators: An Overview,” Canadian Medical Association Journal, Nov. 9, 2004; 171(10)

1 **25.3 Sanitation Outputs and MOPs**

2 The outputs and MOPs for sanitation services are still in development.

3 **Table 22: Sanitation Outputs and MOPs**

<b>Sanitation Outputs</b>	<b>Sanitation MOPs</b>
Increase the number of improved sanitation facilities	Percent of latrine construction
Improve knowledge on how to construct and maintain various types of latrines	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting training sessions, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.
Improve knowledge on disease organisms and transmission	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting Health Fairs, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.
Assess existing sources and facilities with users and community leaders.	<ul style="list-style-type: none"><li>• Number of assessments conducted</li><li>• Number of opportunities identified for improvement that were implemented</li></ul>

4

5 **25.4 Planning Considerations**

6 See Section 24.5, "Appendix M: Public Health Planning Considerations."

7

8

9

10

11

12

## 26 Appendix P: Pest Management

### 26.1 Introduction<sup>82</sup>

Vector-borne diseases are responsible for a significant fraction of the global disease burden and have profound effects not only on health but also on the socioeconomic development of affected nations. Thus, an econometric model for malaria — which is responsible for more than 1 million deaths every year — suggests that countries with intensive malaria have income levels only 33% of those without malaria.

Vector control has a proven record in the prevention and control of vector-borne disease. The distribution and incidence of vector-borne disease are strongly determined by the ecological conditions that favor different species of disease vector. Knowledge and understanding of these characteristics provide a unique opportunity to prevent and control such diseases, by reducing vector–human contact and vector population density and survival.

Integrated Vector Management, or IVM, is based on the premise that effective control is not the sole preserve of the health sector but requires the collaboration of various public and private agencies and community participation. The engagement of communities is a key factor in assuring sustainability. IVM entails the use of a range of interventions of proven efficacy, separately or in combination, in order to implement more cost-effective control and reduce reliance on any single intervention. This strategy also serves to extend the useful life of insecticides and drugs by reducing the selection pressure for resistance development.

Although many vector-borne disease control programs continue to rely heavily on vector control, the benefits are far from being fully realized. Reasons for this include the following:

- The skills to both manage and implement vector control programs remain scarce, particularly in the resource-poor countries that are in most need of effective vector-borne disease control. This has led to control measures that are unsuitable or poorly targeted, with insufficient coverage and consequent wastage of resources and sometimes avoidable insecticide contamination of the environment.
- The use of insecticides in agriculture and poor management of insecticides in public health programs have contributed to resistance in disease vectors.
- Development programs, including irrigated agriculture, hydroelectric dam construction, road building, forest clearance, housing development and industrial expansion, all influence vector-borne diseases but opportunities for cooperation between sectors and for adoption of strategies other than those based on insecticides are seldom grasped. Integrated vector management is a process for managing vector populations in such a way as to reduce or interrupt transmission of disease.

Characteristic features of IVM include:

- Methods based on knowledge of factors influencing local vector biology, disease transmission and morbidity;
- Use of a range of interventions, often in combination and synergistically;
- Collaboration within the health sector and with other public and private sectors that impact on vectors;

---

<sup>82</sup> WHO, “Global Strategic Framework for Integrated Vector Management,” Geneva, 2004.

- 1 • Engagement with local communities and other stakeholders;  
2 • A public health regulatory and legislative framework.
- 3 Effective IVM requires the establishment of principles, decision-making criteria and procedures,  
4 together with time frames and targets. These principles need to be incorporated into national  
5 health policies and supported by legislation and regulation. To be successful, IVM requires an  
6 inventory of essential functions and organizational structures that optimize the use of financial,  
7 human and technical resources for vector-borne disease control. The key elements are:
- 8 • Advocacy, social mobilization and legislation: promotion and embedding of IVM principles  
9 in development policies of all relevant agencies, organizations and civil society; establishment  
10 or strengthening of regulatory and legislative controls for public health; empowerment of  
11 communities.
- 12 • Collaboration within the health sector and with other sectors: consideration of all options for  
13 collaboration within and between public and private sectors; application of the principles of  
14 subsidiary in planning and decision-making; strengthening channels of communication among  
15 policymakers, vector-borne disease control program managers and other IVM partners.
- 16 • Integrated approach: ensure rational use of available resources through application of a multi-  
17 disease control approach, integration of nonchemical and chemical vector control methods,  
18 and integration with other disease control measures.
- 19 • Evidence-based decision-making: adaptation of strategies and interventions to local vector  
20 ecology, epidemiology and resources, guided by operational research and subject to routine  
21 monitoring and evaluation.
- 22 • Capacity-building: development of essential physical infrastructure, financial resources and  
23 adequate human resources at national and local level to manage IVM programmes based on a  
24 situation analysis.

## 25 **26.2 Pest Management Activities**

26 The proposed activities for pest management include:

- 27 • Support vector control programs, particularly that of mosquitoes in countries where malaria or  
28 dengue and that of sandfly where leishmaniasis is an issue
- 29 • Donations of vector control equipment (i.e., Thermofogger)
- 30 • Initiate vector control measures for lymphatic filariasis and onchocerciasis
- 31

1 **26.3 Pest Management Outputs and MOPs**

2 The outputs and MOPs for pest management services are still in development.

3 **Table 23: Pest Management Outputs and MOPs**

<b>Pest Management Outputs</b>	<b>Pest Management MOPs</b>
Improve vector control equipment	Describe the equipment donated in terms of its value to the HN vector control program
Improve knowledge on Integrated Vector Management principles and practices	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting training sessions, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.

4

5 **26.4 Planning Considerations**

6 See Section 24.5, "Appendix M: Public Health Planning Considerations."

7

## 27 Appendix Q: Animal Health

### 27.1 Introduction

Much of the following section is excerpted from a WHO report, “Future Trends in Veterinary Public Health.”<sup>83</sup> In this section, the term ‘veterinary personnel’ includes para-veterinary personnel and does not specify only those individuals trained as veterinarians.

Veterinary science contributes to human health by promoting the health of animals, which provide necessary income, food, transport, draught power and the raw materials for clothing throughout the world. By promoting animal health, the quality and quantity of animal products is enhanced. This is especially important in developing countries, where foods of animal origin help to improve the nutritional status of malnourished people by providing high-quality protein and micronutrients. In the same way, using animals for draught power and their manure for fertilizer and fuel increases crop production, especially on small-scale farms. In all countries, improved animal health and quality assurance of foods of animal origin contributes to food security at local and national levels. Agricultural policies that encourage both small-scale producers and larger operators contribute to economic development through national and international trade in animals and animal products; increased livestock productivity facilitates rural development and reduces rural–urban migration by stimulating the rural economy.

Veterinary Public Health (VPH) is an essential part of public health and includes various types of cooperation between the disciplines that link the health triad of people–animals–environment, and all of its interactions. Examples of subjects related to this triad include zoonoses, chemical residues, animal production systems, nature conservation, and wildlife and water pollution. To better understand the local and regional differences involved in implementing VPH in different geographical areas, countries and regions can be classified into three stages of socioeconomic development.

Stage 1 is characterized by virtually no organized agricultural society, very basic actions against animal diseases, and little systematic governmental support for improving livestock and the production of food of animal origin. Because national income is directly linked to production, countries and regions at this stage are among the poorest in the world. The low productivity also leads to malnutrition and a lower physical ability to produce food, further undermining the ability of these countries to feed their own populations. In countries and regions at this stage, the major role of VPH almost completely overlaps with that of basic veterinary medicine (i.e. taking care of primary needs at the local level, such as animal power for transportation and traction, food production and the control of animal diseases).

Stage 2 is characterized by some wealth and the existence of legislation for public health and control of animal diseases. Inspection, condemnation and rendering of meat are well organized, at least on paper. However, modern quality assurance systems based on good manufacturing practices (GMP), HACCP or good veterinary practices do not exist. VPH is thus largely involved in meat and food inspection and in programs for controlling some zoonoses. There is an emphasis on prevention of human diseases, rather than on programs to eradicate zoonoses, and the diagnostic skills of veterinarians form the basis of the VPH system. The more advanced systems involve veterinarians in food hygiene in areas such as fish, vegetables and retail markets. Although there is some discussion of environmental pollution, animal welfare and the health

---

<sup>83</sup> WHO, “Future Trends in Veterinary Public Health,” 2002, p. 24.

1 risks associated with companion animals, in most cases these are considered as merely a  
2 formality in the work of VPH veterinarians.

3 Stage 3 is characterized by a relatively affluent life style, highly organized agricultural  
4 production systems, and industrialized meat and  
5 milk production. Large production animal units are  
6 often kept indoors with controlled feed, water, waste  
7 disposal, quarantine procedures for imported  
8 animals, and quality assurance systems based on  
9 HACCP or good veterinary practices. Records are  
10 kept on all critical control points and the  
11 responsibility for animals, products or disposals is at  
12 the production level. Governmental control consists  
13 primarily of monitoring the herd or flock and the  
14 actual production system, rather than inspection of  
15 individual animals.

16 The definition of the above stages implies that most  
17 of the veterinary work in MSOs will be within the  
18 area defined as Stage 1, meaning the major role of  
19 veterinarians in humanitarian assistance missions is  
20 on primary care of the animal population. For these  
21 countries, capacity building focuses on animal  
22 health programs and programs to control zoonotic  
23 diseases.

24 Most veterinary and extension programs exhibit a  
25 bias towards cattle and other large animals, which  
26 are typically controlled by men. Meanwhile, goats  
27 and other small animals, which may contribute more  
28 to family food security, receive relatively scant  
29 attention.<sup>84</sup>

30 In developing countries, women in rural areas are  
31 significant food producers, although they usually are  
32 responsible for raising species such as small  
33 ruminants, poultry, guinea-pigs and rabbits. In  
34 addition to producing food, women also process  
35 food for home use and the market, and prepare food  
36 for family meals. Compared to men, women spend  
37 a greater portion of their income on food, medicine, and other necessities to maintain family  
38 health. Expanded support for women's livestock production is thus an effective strategy for  
39 improving human nutrition and health.

#### 40 **27.1.1 Control of Zoonotic Diseases**

41 WHO defines zoonoses as diseases and infections that are naturally transmitted between  
42 vertebrate animals and humans. A zoonotic agent may be a bacterium, a virus, a fungus or other  
43 communicable disease agent. At least 61% of all human pathogens are zoonotic, and have  
44 represented 75% of all emerging pathogens during the past decade. Except for the newly

*The basic principle of VPH programs in developing countries should be to deliver fundamentals of public health programs as close as possible to the individual, small group or community. These should include basic hygiene principles, quarantine and isolation, biosecurity and inexpensive vaccines, as well as more sophisticated priorities such as surveillance systems, diagnostic capability, treatment options and depopulation capability. Programs should evolve in technical complexity and scope as they are developed over time. This implies that a coherent and coordinated approach is best. The ideal would be zoonotic disease control and food safety programs that educate the individual in methods and practices that can be carried out at zero to low cost, with minimal equipment and materials. These programs would ultimately require considerable human resource but little monetary investments, especially if the human resources came from the local community. Training at the top of the pyramid could be delivered by outside agencies*

**UN Food & Agriculture Organization,  
"Veterinary Public Health and Control of  
Zoonoses in Developing Countries"**

<sup>84</sup> WHO, "Future Trends in Veterinary Public Health," 2002, p. 42-43.

1 emerging zoonoses such as SARS and highly pathogenic avian influenza H5N1, the vast  
2 majority is not prioritized by health systems at national and international levels and is therefore  
3 labeled as neglected.

4 Interventions to control zoonoses require concerted action between the veterinary and the human  
5 health sectors, because they affect both people and animals. WHO has long taken the lead in  
6 bringing together international and national organizations to deal with the problems posed by  
7 both emerging and endemic zoonoses. Although much publicity has been accorded to the  
8 emerging zoonotic diseases, it is the endemic, and occasionally epidemic zoonoses, which year  
9 in, year out affect poor livestock keepers in marginalized communities.

10 Many zoonotic diseases impact significantly on human health as well as livestock productivity,  
11 thus undermining livelihoods both by causing illness in the household and threatening its  
12 livestock and their output. WHO and other international agencies hence saw the need in  
13 strengthening multidisciplinary, intersectoral and cross cultural efforts by health, agriculture,  
14 environment and other sectors of society at the national and international level.<sup>85</sup>

15 Seven neglected zoonotic diseases with great impact on human populations are:

- 16 • Anthrax (multiple species)
- 17 • Bovine tuberculosis (cattle)
- 18 • Brucellosis (multiple species, particularly goats and sheep)
- 19 • Cysticercosis and neurocysticercosis (NCC)
- 20 • Cystic echinococcosis or hydatid disease
- 21 • Zoonotic sleeping sickness or human African trypanosomiasis (HAT)
- 22 • Rabies

### 23 **27.1.2 Transboundary Diseases<sup>86</sup>**

24 The Animal Health Service within the AGA Division of FAO addresses four animal health  
25 related issues: transboundary diseases, vectorial diseases, veterinary public health (including  
26 food safety) and veterinary services.

27 Transboundary Animal Diseases (TADs) may be defined as those epidemic diseases which are  
28 highly contagious or transmissible and have the potential for very rapid spread, irrespective of  
29 national borders, causing serious socio-economic and possibly public health consequences.

30 These diseases which cause a high morbidity and mortality in susceptible animal populations,  
31 constitute a constant threat to the livelihood of livestock farmers.

32 Furthermore, their potential consequences are of such a magnitude that their occurrence may also  
33 have a significant detrimental effect on national economies.

34 Seven transboundary diseases are of particular interest:

- 35 • African swine fever
- 36 • Avian influenza: Highly pathogenic avian influenza (HPAI) program
- 37 • Contagious bovine pleuropneumonia
- 38 • Foot and mouth disease (FMD): affects multiple species

---

<sup>85</sup> WHO, [http://www.who.int/zoonoses/control\\_neglected\\_zoonoses/en/index.html](http://www.who.int/zoonoses/control_neglected_zoonoses/en/index.html), accessed 9 Mar 10.

<sup>86</sup> Food and Agriculture Organization of the United Nations (FAO), Animal Production and Health Division (AGA) website, [http://www.fao.org/ag/againfo/themes/en/animal\\_health.html](http://www.fao.org/ag/againfo/themes/en/animal_health.html), accessed 10 Mar 2010

- 1 • Hemorrhagic septicemia: affects cattle
- 2 • Rift valley fever: affects multiple species
- 3 • Rinderpest: affects multiple species; Global Rinderpest Eradication Program (GREP)

### 4 **27.1.3 World Organization for Animal Health (OIE) Performance of Veterinary** 5 **Services (PVS) Tool**

6 The World Organization for Animal Health (OIE) Performance of Veterinary Services (PVS)  
7 Tool is an important internationally recognized tool for assessing the animal health services in a  
8 nation; it can be found on the OIE website, ([http://www.oie.int/eng/OIE/en\\_oie.htm](http://www.oie.int/eng/OIE/en_oie.htm)).

9 OIE is the international intergovernmental organization responsible for developing standards for  
10 terrestrial and aquatic animal health, animal welfare, and safe international trade of animals. The  
11 organization has 172 Members which include nearly every country in the world involved in any  
12 form of animal agriculture. The OIE is officially recognized by the World Trade Organization as  
13 the standard setting organization for international trade in terrestrial and aquatic animals.

14 PVS Tool assessments are conducted at the request of member countries by OIE trained and  
15 certified experts. The in-country portion of the evaluation normally takes about 10-14 days and  
16 the team is made up of four to five certified assessors from the OIE.

17 The PVS Tool is a comprehensive evaluation of the performance of the national veterinary  
18 services throughout the country. The tool is divided into four fundamental components:

- 19 • Human, physical, and financial resources
- 20 • Technical authority and capability
- 21 • Interaction with stakeholders
- 22 • Access to markets

23 Each of these four components has six to twelve specific critical competencies that are assessed  
24 during the evaluation. For each critical competency the team of assessors assigns a level of  
25 advancement from 1 to 5 with 1 representing the lowest level of advancement.

26 The PVS evaluations are a collaborative effort between the OIE, the assessment team, and the  
27 national veterinary services of the country being evaluated. The PVS evaluation is not an audit  
28 and countries do not “pass” or “fail” an evaluation. The objective of a PVS assessment is to  
29 identify gaps and weaknesses in the performance of veterinary services, to recommend actions to  
30 improve performance in critical areas and to develop investment projects. Major international  
31 donors such as the World Bank recognize and use the OIE PVS Tool assessment as a prerequisite  
32 to funding investment projects in countries. PVS reports are also very useful internally in the  
33 country for the VS to justify budgetary increases or adjustments to increase effectiveness in  
34 specific areas.

35 The PVS assessments and reports are confidential and are internally peer reviewed at the OIE  
36 before being sent to the country for review. Once finalized, the evaluated country can decide to  
37 keep the report completely confidential, conditionally release the report to donors only, or  
38 unconditionally release the report. As of March 2010, the OIE has conducted 49 evaluations, 27  
39 of those reports are finalized, and 10 countries have agreed to release the reports unconditionally.

40 The results of PVS Tool evaluations could be useful in guiding veterinary activities in successive  
41 humanitarian assistance missions. At present, the PVS Tool evaluations for 9 countries are  
42 available on the OIE website: Belize, Bolivia, Brazil, Guinea-Bissau, Namibia, Panama,  
43 Paraguay, Uruguay and Vietnam.

1 Even if the country has not publically released the report; asking the Chief Veterinary Officer if a  
2 PVS assessment has been performed in the country may result in obtaining the results of that  
3 report directly from the country. The tool can also be used informally during PDSS and missions  
4 to identify areas for improvement.

5 Working within the framework of the OIE standard ensures that the assistance provided has the  
6 ultimate goal of increasing the overall veterinary service capabilities in accordance with current  
7 international standards.

## 8 **27.2 Animal Health Outcomes and MOEs**

9 There are no defined outcomes or measures of effectiveness for animal care at this time.

## 10 **27.3 Animal Health Activities**

11 The current VETCAP structure consists of providing de-worming treatment and vitamin  
12 supplements to the greatest number of animals possible within the scope of the mission. This  
13 section will present an *illustration of what is possible* during the transition from the current  
14 structure of de-worming as many animals as possible to the desired situation of conducting  
15 sufficient planning prior to allow the performance of high impact, sustainable activities during a  
16 visit to a HN, similar to the earlier discussion of moving from “activities to interventions”  
17 (Section 9).

### 18 **27.3.1 Illustration of a Capacity Building Approach to Animal Health Mission** 19 **Services**

20 If there are not strong, sustained relationships between mission animal health personnel and HN  
21 animal health professionals, then the default animal health service objective is to augment and  
22 extend host nation programs, while gaining an understanding of the needs of the HN. An  
23 emphasis on such capacity building activities do not *prevent* veterinarians in performing any  
24 services requested by the HN; they simply serve as the ‘default activities’ in the absence of more  
25 in-depth planning or coordination with the HN. The goal is to establish relationships, by  
26 assisting the HN veterinarians with an *existing* program – not to bring in a great deal of  
27 information and technology about a program they don’t have.

28 The proposed default activity when developing a relationship with HN veterinary personnel is to  
29 provide assistance on a national health program, such as a rabies control program. Most nations  
30 *have* a rabies control program; but many low and middle-income countries could use some  
31 assistance with their national rabies program. Working together with the HN veterinarians on an  
32 existing program helps establish a working relationship with them. Working with a rabies control  
33 programs also provides insight into the nation’s animal health infrastructure, since a rabies  
34 control program requires laboratory analysis, surveillance, case reporting, etc.

35 Specific support activities that would be helpful include:

- 36 • Use the education materials (available in a variety of languages) from the website of the  
37 Alliance for Rabies Control to support the host nation’s rabies education program  
38 (<http://www.worldrabiesday.org/EN/Education-Bank/english.html>)
- 39 • Share the lessons learned for effective community vaccination for rabies with host nation (for  
40 example, forced removal of community dogs is NOT effective in most tropical communities)
- 41 • Be prepared to participate in rabies vaccination programs, if requested, using local vaccine  
42 sources

### 1 **27.3.2 Other Proposed Animal Health Activities**

2 The proposed activities for animal care include:

- 3 • Identifying key veterinary personnel in the HN government and private sector
- 4 • Identifying key veterinary personnel of WHO, USAID and NGOs currently working in the  
5 HN
- 6 • Identifying local veterinary supply sources and range of available drugs and supplies
- 7 • Review of the PVS and other national assessments to define future activities, focusing  
8 initially on disease-specific programs and eventually on national capabilities.
- 9 • Assess the status of herd health programs
  - 10 ○ Identify the prevalence and incidence of the top 3 infectious diseases in herd  
11 animals
  - 12 ○ Identify the top 3 non-infectious diseases of herd animals (by region, if  
13 applicable)
  - 14 ○ Identify tribal seasonal migratory routes (if applicable)
  - 15 ○ Identify production practices/breeding practices and fertility rates of herds
- 16 • Perform herd health assessments (if requested)
- 17 • Supervise locally trained veterinary personnel in providing basic veterinary care to local  
18 herders and farmers
- 19 • Assist in parasite surveys to determine relative burden
- 20 • Support national/global disease control programs
- 21 • Vaccine donations
- 22 • Laboratory renovations
- 23 • Animal corral areas in local markets
- 24 • Participatory veterinary working groups
- 25 • Develop parasite control program
- 26 • Support the development of laboratory capability for testing for zoonotic or transboundary  
27 diseases by training laboratory staff on identification and detection measures
- 28 • Support the development of an effective surveillance system for reporting of zoonotic or  
29 transboundary disease by conducting outbreak investigations, testing animals for zoonotic or  
30 transboundary diseases, providing epidemiological training to veterinary professionals, and  
31 conducting prevalence surveys of animal populations
- 32 • Assist in identifying vaccine sources and vaccination techniques; provide training on cold  
33 chain custody of vaccines and other medications; support vaccination of animal populations  
34 as part of an on-going surveillance program
- 35 • Support the development of a system for animal and group identification
- 36 • Support the communication of public health information
- 37 • Support the application of the principles of biosecurity and hygiene by providing training to  
38 veterinary professionals
- 39 • Equip trained veterinary personnel with veterinary supplies (see Section 26.5 for a draft  
40 supply list)

- 1 • Review the World Organization for Animal Health (OIE) "Evaluation of the Performance of  
2 Veterinary Services" (PVS) report with the HN and identify opportunities for improvement of  
3 the animal agricultural system  
4 The Food and Agriculture Organization (FAO) of the United Nations provides tools and training  
5 materials for many of these activities.

## 6 **27.4 Animal Health Outputs and MOPs**

7 This section discusses the development of use of MOPs for animal health and then presents the  
8 recommended outputs and MOPs for animal health services in the table below.

9 Measures of performance for education and training activities should specify:

- 10 • The target audience (e.g., veterinarians, para-veterinarians, community health workers,  
11 slaughterhouse workers, etc)  
12 • The education and training topic/purpose, such as: provide community health workers with  
13 educational materials and advice for educating pet owners on rabies control

14 The measure of performance then assesses the value/relevance of the activity to the  
15 national/global program.

16 *EXAMPLE: "Country X is starting a national education program on rabies control in 6 months,*  
17 *which will include ten different education programs. These education sessions assisted HN*  
18 *personnel in finalizing 50% of these education programs.*

19 Measures of performance for disease-specific activities should specify the disease and the  
20 objective of the national/global program. For example, the purpose of a brucellosis control  
21 program might be to assess the prevalence of brucellosis and reduce the prevalence to less than  
22 2%. The measure of performance then assesses the extent to which the activity contributed to  
23 the national/global goal.

24 *EXAMPLE: "The Country X brucellosis control program will be conducting 10 prevalence*  
25 *studies throughout the nation in 2011. We assisted Country X personnel in designing these*  
26 *prevalence studies and assisted in the performance of the first study."*

27 Measures of performance for capability-specific activities should specify:

- 28 • The capability (e.g., laboratory, surveillance, vaccine supplies, etc)  
29 • Definition of the purpose of the specific activity; example: assisted in establishing improved  
30 procedures for cold chain custody of drugs by recommending solutions for storage of drugs in  
31 areas with minimal power.

32 The measure of performance then assesses the extent to which the activity contributed to the  
33 national/global goal.

34 *EXAMPLE: "The PVS report identified cold chain custody as an issue. We reviewed the*  
35 *situation and were able to assist the HN in ensuring adequate cold chain custody in each of its*  
36 *regions.*

37

1 **27.5 Animal Health Outputs and MOPs**

2 The recommended animal health outputs and MOPs are summarized in the table below.

3 **Table 24: Animal Health Outputs and MOPs**

<b>Animal Health Outputs</b>	<b>Animal Health MOPs</b>
Improved animal health practices	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting training sessions, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.
Trained and equipped local veterinary personnel	<ul style="list-style-type: none"> <li>• Provide list of equipment and supplies provided to HN personnel</li> <li>• Describe training provided to HN personnel to include: training topic; professional status of attendees; number of attendees and duration of training. Specify the expected outcome of the training (e.g., was it train-the trainer)</li> </ul>
Provide Level 1 and 2 veterinary medical care for Military Working Dogs, contracted Mine Detection Dogs, Cadaver Dogs, and Search and Rescue Dogs	Number of dogs treated.
Advise on public health considerations surrounding dislocated civilian populations in close contact with dislocated domesticated and feral animal populations	Describe the issue or situation and then define the support provided in terms of its value to the HN
Provided 'train the trainer' education sessions to Ministry of Health rabies control personnel on presentations appropriate for the following target audiences: pet owners; public; veterinarians; children and schools	Number of training sessions, specifying topic, number of attendees and number of instructors

Animal Health Outputs	Animal Health MOPs
<p>Share the lessons learned from the Alliance of Rabies Control and other nations for effective community vaccination for rabies with host nation. Specifically:</p> <ul style="list-style-type: none"> <li>• Control of rabies in dogs eliminates rabies in cats in Asia &amp; South America (exception is vampire bat areas in South America)</li> <li>• Four types of dogs: owned &amp; restricted; owned &amp; unrestricted; community &amp; unrestricted; strays. Approx 1 dog per 4.2 people</li> <li>• Different control measures for different types!</li> </ul>	<p>Number of training sessions, specifying topic, number of attendees and number of instructors</p>
<p>Be prepared to participate in rabies vaccination programs, if requested, using local vaccine sources</p>	<p>Participated in neighborhood vaccination program; reached X% of estimated neighborhood dogs</p>
<p>Identifying key veterinary personnel in the HN government and private sector</p>	<p>Identify relevant veterinary personnel</p>
<p>Identifying key veterinary personnel of WHO, USAID and NGOs currently working in the HN</p>	<p>Identify relevant veterinary personnel</p>
<p>Identifying local veterinary supply sources and range of available drugs and supplies</p>	<p>Identify sources</p>
<p>Assess the status of herd health programs</p> <ul style="list-style-type: none"> <li>• Identify the prevalence and incidence of the top 3 infectious diseases in herd animals</li> <li>• Identify the top 3 non-infectious diseases of herd animals (by region, if applicable)</li> <li>• Identify tribal seasonal migratory routes (if applicable)</li> <li>• Identify production practices/husbandry practices and fertility rates of herds</li> </ul>	<p>Specify the prevalence and incidence of individual diseases.</p> <p>Describe tribal seasonal migratory routes (if applicable)</p> <p>Describe production practices/husbandry practices and fertility herd rates</p>
<p>Perform herd health assessments (if requested)</p>	<p>Provide the average Body Condition Score (BCS) for each species and specify the range of BCS and the size of the samples for each species.</p>

Animal Health Outputs	Animal Health MOPs
Review the PVS and other national assessments to define future activities, focusing initially on disease-specific programs and eventually on national capabilities.	Specify recommended future support activities
Trained local veterinarians on use of anthelmintics to reduce parasite burden; also donated sufficient supplies of anthelmintics	Specify the amount of anthelmintic donations in terms of the number of herds that could be dosed within a given period of time

1

2 **27.6 Planning Considerations**

3 Under development.

4

5

6

7

8

9

10

## 28 Appendix R: Epidemiology and Public Health Surveillance

### 28.1 Introduction<sup>87, 88</sup>

Epidemiology is the study of the distribution and determinants of health-related states or events (including disease), and the application of this study to the control of diseases and other health problems. Various methods can be used to carry out epidemiological investigations: surveillance and descriptive studies can be used to study distribution; analytical studies are used to study determinants.

Public health surveillance is the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice. Such surveillance can:

- Serve as an early warning system for impending public health emergencies;
- Document the impact of an intervention, or track progress towards specified goals; and
- Monitor and clarify the epidemiology of health problems, to allow priorities to be set and to inform public health policy and strategies.

Surveillance systems need to be designed and implemented to meet top management's needs for focused, reliable, timely evidence gathered efficiently and presented effectively. Because these needs differ, a number of different strategies for public health surveillance have been developed, described briefly below.

#### 28.1.1 Sentinel Surveillance

In a sentinel surveillance system, a prearranged sample of reporting sources agrees to report all cases of defined conditions, which might indicate trends in the entire target population. When properly implemented, these systems offer an effective method of using limited resources and enable prompt and flexible monitoring and investigation of suspected public health problems. Examples of sentinel surveillance are networks of private practitioners reporting cases of influenza or a laboratory-based sentinel system reporting cases of certain bacterial infections among children. Sentinel surveillance is excellent for detecting large public health problems, but it may be insensitive to rare events, such as the early emergence of a new disease, because these infections may emerge anywhere in the population.

#### 28.1.2 Periodic Population-Based Surveys

Population-based surveys can be used for surveillance if they are repeated on a regular basis. Examples of population-based surveys in surveillance include the Behavioral Risk Factor Surveillance System in the United States, HIV-prevalence surveys, household surveys, and the demographic and health surveys that many developing countries conduct every five years (<http://www.orcmacro.com>). Population-based surveys require careful attention to the methodology, particularly the use of standard protocols, supervision of interviewers, comparable sampling strategy, and standard questionnaires. These surveys require a clear definition of the

---

<sup>87</sup> WHO websites on the health topics of Epidemiology and Public Health Surveillance, accessed at <http://www.who.int/topics/epidemiology/en/> and [http://www.who.int/topics/public\\_health\\_surveillance/en/](http://www.who.int/topics/public_health_surveillance/en/) on 3 Mar 11

<sup>88</sup> The World Bank, "Disease Control Priorities in Developing Countries," 2d edition, Oxford University Press and The World Bank, 2006, p 997-1013.

1 target population to which the results can be generalized, and they need careful attention to the  
2 sample size, based on efficiency and the epidemiologic characteristics of the health condition  
3 under surveillance (for example, rare conditions require substantial samples). Supervising  
4 interviewers and maintaining high response rates are critical to avoid bias. Because the surveys  
5 are repetitive, population changes (caused, for example, by mortality or mobility) might bias  
6 results.

### 7 **28.1.3 Laboratory-Based Surveillance**

8 The methods used for infectious disease surveillance form a spectrum that evolves with the  
9 economic development of a country and can be divided into four distinct levels of surveillance:

- 10 • No formal surveillance
- 11 • Syndromic surveillance
- 12 • Lab-based surveillance
- 13 • Integrated disease surveillance

14 Each level is more complex and has greater capacity for controlling and detecting disease, but it  
15 also depends on more resources and infrastructure. Laboratory-based surveillance systems  
16 require resources, facilities, and training. A central public health reference laboratory is essential  
17 for quality assurance and quality control and support. Such a laboratory-based system might  
18 begin with systematic referral of a sample of strains isolated at a sample of sentinel clinics, plus  
19 those strains that are part of outbreaks. A systematic sampling scheme provides better data than a  
20 more haphazard attempt at universal reporting. Regular sharing of information between the  
21 public health microbiology laboratory and epidemiologists is critical for the information to be  
22 used successfully.

### 23 **28.1.4 Integrated Disease Surveillance and Response**

24 The Integrated Disease Surveillance and Response (IDSR) strategy, first developed in Africa,  
25 links epidemiologic and laboratory data in communicable disease surveillance systems at all  
26 levels of the health system, with emphasis on integrating surveillance with response. Districts  
27 were identified as a focus for strengthening efforts in collecting timely data, analyzing the  
28 collected data, and using the generated information for public health responses.

29 The IDSR strategy is based on core activities, including case-patient detection, registration, and  
30 confirmation; reporting, analysis, use, and feedback of data; and epidemic preparedness and  
31 response (for example, outbreak investigations, contact tracing, and public health interventions).  
32 Support functions include coordination, supervision or performance evaluation, training, and  
33 resource provision for infrastructure, including communication. Key steps in implementing the  
34 IDSR strategy include sensitizing key health authorities and stakeholders; conducting situational  
35 analysis; preparing a strategic IDSR plan; identifying and training a motivated, competent  
36 workforce; developing national IDSR technical guidelines; implementing the plan; and  
37 monitoring and evaluating implementation to improve performance. Assessment of the existing  
38 national surveillance and response activities provides baseline data to measure progress; to  
39 identify and build consensus on the national priority communicable diseases; to identify  
40 surveillance gaps of the selected priority diseases; to document the strengths, weaknesses, and  
41 opportunities of the existing systems; and to make appropriate recommendations.

## 42 **28.2 Epidemiological Activities**

43 Some recommended epidemiological and public health surveillance activities include:

- 1 • Support HN surveillance programs through training, consultation, preparing an integrated
- 2 disease surveillance (IDSR) plan, and developing IDSR technical guidelines.
- 3 • Support HN surveillance programs by providing training on case-patient detection;
- 4 conducting outbreak investigations; contact tracing; and public health interventions.
- 5 • Conducting environmental surveillance, specifically air and water quality testing, with HN
- 6 professionals

7 **28.3 Epidemiology Outputs and MOPs**

8 The outputs and MOPs for epidemiology and public health surveillance services are provided in

9 the table below.

10 **Table 25: Epidemiology & Public Health Surveillance Outputs and MOPs**

<b>Epidemiology &amp; Public Health Surveillance Outputs</b>	<b>Epidemiology &amp; Public Health Surveillance MOPs</b>
Support HN public health surveillance programs	Number of training sessions, specifying topic, number of attendees and number of instructors When conducting training sessions, conduct simple pre and post-tests of attendee knowledge; these tests don't have to be written, but can be implemented orally, with a counting of hands.

11 **28.4 Planning Considerations**

12 See Section 24.5, “Appendix M: Public Health Planning Considerations.”

13

## 29 Appendix S: Food Security & Safety

### 29.1 Introduction<sup>89</sup>

Food safety is an increasingly important public health issue. Governments all over the world are intensifying their efforts to improve food safety. These efforts are in response to an increasing number of food safety problems and rising consumer concerns. Foodborne illnesses are defined as diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food. Every person is at risk of foodborne illness.

Foodborne diseases are a widespread and growing public health problem, both in developed and developing countries.

- The global incidence of foodborne disease is difficult to estimate, but it has been reported that in 2005 alone 1.8 million people died from diarrheal diseases. A great proportion of these cases can be attributed to contamination of food and drinking water. Additionally, diarrhea is a major cause of malnutrition in infants and young children.
- In industrialized countries, the percentage of the population suffering from foodborne diseases each year has been reported to be up to 30%. In the United States of America (USA), for example, around 76 million cases of foodborne diseases, resulting in 325,000 hospitalizations and 5,000 deaths, are estimated to occur each year.
- While less well documented, developing countries bear the brunt of the problem due to the presence of a wide range of foodborne diseases, including those caused by parasites. The high prevalence of diarrhoeal diseases in many developing countries suggests major underlying food safety problems.
- While most foodborne diseases are sporadic and often not reported, foodborne disease outbreaks may take on massive proportions. For example, in 1994, an outbreak of salmonellosis due to contaminated ice cream occurred in the USA, affecting an estimated 224,000 persons. In 1988, an outbreak of hepatitis A, resulting from the consumption of contaminated clams, affected some 300,000 individuals in China.

The major foodborne diseases from microorganisms include:

- Salmonellosis is a major problem in most countries. Salmonellosis is caused by the *Salmonella* bacteria and symptoms are fever, headache, nausea, vomiting, abdominal pain and diarrhoea. Examples of foods involved in outbreaks of salmonellosis are eggs, poultry and other meats, raw milk and chocolate.
- Campylobacteriosis is a widespread infection. It is caused by certain species of *Campylobacter* bacteria and in some countries, the reported number of cases surpasses the incidence of salmonellosis. Foodborne cases are mainly caused by foods such as raw milk, raw or undercooked poultry and drinking water. Acute health effects of campylobacteriosis include severe abdominal pain, fever, nausea and diarrhoea. In two to ten per cent of cases the infection may lead to chronic health problems, including reactive arthritis and neurological disorders.
- Infections due to enterohaemorrhagic (causing intestinal bleeding) *E. coli*, e.g. *E. coli* O157, and listeriosis are important foodborne diseases which have emerged over the last decades. Although their incidence is relatively low, their severe and sometimes fatal health

---

<sup>89</sup> WHO, Food Safety website, <http://www.who.int/mediacentre/factsheets/fs237/en/index.html>, accessed 3 Mar 11

1 consequences, particularly among infants, children and the elderly, make them among the  
2 most serious foodborne infections.

- 3 • Cholera is a major public health problem in developing countries, also causing enormous  
4 economic losses. The disease is caused by the bacterium *Vibrio cholerae*. In addition to water,  
5 contaminated foods can be the vehicle of infection. Different foods, including rice,  
6 vegetables, millet gruel and various types of seafood have been implicated in outbreaks of  
7 cholera. Symptoms, including abdominal pain, vomiting and profuse watery diarrhoea, may  
8 lead to severe dehydration and possibly death, unless fluid and salt are replaced.

9 Some major examples of other food safety problems include:

- 10 • Naturally occurring toxins, such as mycotoxins, marine biotoxins, cyanogenic glycosides and  
11 toxins occurring in poisonous mushrooms, periodically cause severe intoxications.  
12 Mycotoxins, such as aflatoxin and ochratoxin A, are found at measurable levels in many  
13 staple foods; the health implications of long-term exposure of such toxins are poorly  
14 understood.
- 15 • Unconventional agents such as the agent causing bovine spongiform encephalopathy (BSE, or  
16 "mad cow disease"), is associated with variant Creutzfeldt-Jakob (vCJD) Disease in humans.  
17 Consumption of bovine products containing brain tissue is the most likely route for  
18 transmission of the agent to humans.
- 19 • Persistent Organic Pollutants (POPs) are compounds that accumulate in the environment and  
20 the human body. Known examples are Dioxins and PCBs (polychlorinated biphenyls).  
21 Dioxins are unwanted byproducts of some industrial processes and waste incineration.  
22 Exposure to POPs may result in a wide variety of adverse effects in humans.
- 23 • Metals: such as lead and mercury, cause neurological damage in infants and children.  
24 Exposure to cadmium can also cause kidney damage, usually seen in the elderly. These (and  
25 POPs) may contaminate food through pollution of air, water and soil.

## 26 **29.2 Food Security and Safety Activities**

27 The primary food safety activity is providing training and train-the-trainer sessions on food  
28 safety. The WHO has developed a Train the Trainer course on the "*Five Keys to Safer Food*"  
29 which provides guidance on how to both educate and promote the adoption of safe food handling  
30 behaviors. The first module was designed to target women as women play an important role in  
31 the production and the preparation of safe food (women produce between 60% and 80% of the  
32 food in most developing countries and are responsible for half of the world's food production.

33

1 **29.3 Food Security and Safety Outputs and MOPs**

2 The outputs and MOPs for food security services are provided in the table below.

3 **Table 26: Food Security and Safety Outputs and MOPs**

<b>Food Security &amp; Safety Outputs</b>	<b>Food Security &amp; Safety MOPs</b>
Provide training and train-the-trainer courses on food safety based upon the WHO initiative, "Five Keys to Safer Food"	Description of each food safety training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
Provide Class I (food, bottled water, and ice) safety and defense and provide rapid field testing capability of food and water to meet immediate humanitarian needs of the population.	
Assess local food storage, transport and distribution systems for food safety and defense considerations	
Provide ‘train the trainer’ sessions on food inspection to MOH personnel	Description of each food safety training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)

4

5 **29.4 Planning Considerations**

6 There is a need to ensure that training is “localized” and training examples of local foods and  
7 cooking methods are used. Possibly provide thermometers and a one pager on safe cooking  
8 temps to students.

9 Also, see Section 24.5, “Appendix M: Public Health Planning Considerations.”

10

## 30 Appendix T: Infection Prevention Control

### 30.1 Introduction<sup>90, 91</sup>

Infection prevention and control concepts are cross-cutting for all activity associated with health care; including both prevention and delivery strategies. Infection prevention and control measures aim to ensure the protection of those who might be vulnerable to acquiring an infection both in the general community and while receiving care due to health problems, in a range of settings. The basic principle of infection prevention and control is hygiene.

Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. Medical hygiene therefore includes a specific set of practices associated with this preservation of health, for example environmental cleaning, sterilization of equipment, hand hygiene, water and sanitation and safe disposal of medical waste.

WHO launched the program "Clean Care is Safer Care" in October 2005 to promote safe hand hygiene practices globally and at all levels of health care as a first step in ensuring high standards of infection control and patient safety. This program focuses on reducing health care-associated infections (HCAI) which occur worldwide in both developed and developing countries and are among the major causes of death and increased morbidity for hospitalized patients.

Hand hygiene, a very simple action, is well accepted as one of the primary modes of reducing HCAI and enhancing patient safety.

### 30.2 Infection Control Activities

The recommended infection control activities include providing hand hygiene classes. Additional information concerning the most current approaches/guidelines for infection prevention and control can be found at the following WHO web site:  
[http://www.who.int/csr/bioriskreduction/infection\\_control/publications/en/index.html](http://www.who.int/csr/bioriskreduction/infection_control/publications/en/index.html)

### 30.3 Infection Control Outputs and MOPs

The outputs and MOPs for infection control services are summarized in the table below.

**Table 27: Infection Control Outputs and MOPs**

Infection Control Outputs	Infection Control MOPs
Improve knowledge and use of hand hygiene for the population and healthcare professionals	Description of each hygiene training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)

### 30.4 Planning Considerations

See Section 24.5, "Appendix M: Public Health Planning Considerations."

<sup>90</sup> WHO website on Infection Control, [http://www.who.int/topics/infection\\_control/en/](http://www.who.int/topics/infection_control/en/), accessed on 3 Mar 11.

<sup>91</sup> WHO website on Hygiene, <http://www.who.int/topics/hygiene/en/>, accessed on 3 Mar 11.

## 31 Appendix U: Environmental Health

### 31.1 Introduction<sup>92</sup>

Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behavior not related to environment, as well as behavior related to the social and cultural environment, and genetics.

### 31.2 Environmental Health Activities

The recommended environmental health activities include: providing assistance on management of hazardous waste (to include hospital, infectious and pharmaceutical waste), management of air pollution (indoor and outdoor), and management of storage tanks.

### 31.3 Environmental Health Outputs and MOPs

The outputs and MOPs for environmental health services are summarized in the table below.

**Table 28: Environmental Health Outputs and MOPs**

Environmental Health Outputs	Environmental Health MOPs
Provide HN with support and assistance in managing medical, infectious, and pharmaceutical waste	Description of each training initiative to include definition of target audience and number of target audience trained; if available, the total number of the target audience within the HN (provides more detailed information on the type of training provided and who received it)
Provide HN with support and assistance in limiting indoor and outdoor air pollution	
Provide HN with support and assistance in managing storage tanks	
Provide HN with support and assistance in managing hazardous materials	

### 31.4 Planning Considerations

See Section 24.5, “Appendix M: Public Health Planning Considerations.”

<sup>92</sup> WHO Environmental Health website, [http://www.who.int/topics/environmental\\_health/en/](http://www.who.int/topics/environmental_health/en/), accessed 12 May 11.