

# **MINIMUM DATA SET**

## **FOR REPORTING BY EMERGENCY MEDICAL TEAMS**

**2016**

**Emergency Medical Team Minimum Data Set Working Group**

**– Working Group Report –**



## 1. Acknowledgement

We would like to express our sincere gratitude to the host and leading agencies, the Working Group (WG) members and their organizations, the literature review team and individuals who contributed to this project. Their valuable contributions and support were crucial for the successful development of the Minimum Data Set (MDS).

**Host and leading agencies:** The Emergency Medical Team Minimum Data Set Working Group was supported by Japan International Cooperation Agency (JICA) and Israel's Agency for International Development Cooperation (MASHAV) in collaboration with the World Health Organization's (WHO) Emergency Medical Teams (EMT) secretariat.

**Japan International Cooperation Agency (JICA), Tokyo**

Secretariat of Japan Disaster Relief Team

URL: <http://www.jica.go.jp/>



**MASHAV, Ministry of Foreign Affairs, Jerusalem**

URL: <http://mfa.gov.il/mfa/mashav/Pages/default.aspx>



**World Health Organization, Geneva**

Emergency Medical Teams (EMT) Secretariat

Emergency Operations

URL: <https://extranet.who.int/emt/page/home>



**Working group members:** The following members attended the workshops of the Working Group. The first workshop was held in Tokyo, Japan, from the 6<sup>th</sup> to the 7<sup>th</sup> of May 2016. The second workshop took place in Jerusalem, Israel, from the 13<sup>th</sup> to the 14<sup>th</sup> of September 2016. These meetings were hosted by JICA and MASHAV in collaboration with WHO.

● Ian Norton	WHO EMT Secretariat
● Flavio Salio	WHO EMT Secretariat
● Christopher Haskew	WHO Intelligence, Information and Monitoring
● Ryoma Kayano	WHO Centre for Health Development
● Ronald Law	The Philippines / Department of Health
● Salawoot Herabat	Thailand / NIEM
● Tony Redmond	U.K./ University of Manchester
● Anisa Jafar	U.K./ University of Manchester

● Kathleen McDermott -Byrnes	Australia / AusMAT
● Tim Das	Belgium / B-FAST
● Justin Rashad Chin	Canada / CMAT
● Isabelle Arnaud	France / ESCRIM
● Rosa Crestani	MSF
● Panu Saaristo	Switzerland / IFRC
● Nelson Olim	Switzerland / ICRC
● Pranav Shetty	USA / International Medical Corps
● Sharon Kabalo	Israel / MASHAV
● Odeda Benin-Goren	Israel / MASHAV
● Elhanan Bar-on	Israel / MASHAV
● Dror Yifrah	Israel / MASHAV
● Noa Tamir-Hasdai	Israel/ Ministry of Health
● Tatsuhiko Kubo	Japan / JDR Medical Team, JICA
● Tomoe Shimada	Japan / JDR Medical Team, JICA
● Yutaka Igarashi	Japan / JDR Medical Team, JICA
● Tomoaki Natsukawa	Japan / JDR Medical Team, JICA
● Emiko Nakayama	Japan / JDR Medical Team, JICA
● Kei Jinnai	Japan / JDR Medical Team, JICA
● Makoto Sasakawa	Japan / JDR Medical Team, JICA

**Literature review team:** JICA, MASHAV and WHO would like to acknowledge the experts that conducted the literature review for this project. The review was performed at the WHO Centre for Health Development [WHO Kobe Centre (WKC)] as part of a personnel exchange program with the University of Occupational and Environmental Health (UOEH) in Japan in February and March 2016.

● Tatsuhiko Kubo	University of Occupational and Environmental Health
● Ian Norton	WHO EMT Secretariat
● Flavio Salio	WHO EMT Secretariat
● Ryoma Kayano	WHO Centre for Health Development
● Shinjiro Nozaki	WHO Centre for Health Development
● Alex Ross	WHO Centre for Health Development

**Other Contributions:** We would also like to credit the following individuals who significantly contributed to the MDS project:

- Clara van Gulik            MSF
- Eric Pujo                    MSF
- Noriko Suzuki            Japan / JDR Medical Team, JICA
- Tsutomu Kobayashi    Japan / JICA Jordan Office, JICA
- Kota Katsumata        Japan / JICA Turkey Office, JICA
- Norie Hashimoto        Japan / JDR Medical Team, JICA
- Naoki Aoyagi            Japan / JDR Medical Team, JICA
- Daniela Martini        WHO EMT Secretariat
- Sameera Hassan        WHO EMT Secretariat
- Jonathan Baum        WHO EMT Secretariat

Host agencies would also like to thank the following individual for technical support to develop the electronic file format of the MDS:

- Hideshige Tanaka      Tokyo Electronic Systems Corporation

Lastly, we would like to express our appreciation to the MASHAV staff that dealt with logistics and administration for the second working group session in Israel:

- Maya Federman        Israel / MASHAV
- Dalia Noy                Israel / MASHAV

## 2. Acronyms and abbreviations

DPC	Diagnosis Procedure Combination
DRG	Diagnosis Related Groups
EMT	Emergency Medical Team (encompasses N-EMT and I-EMT)
EMTCC	Emergency Medical Team Coordination Cell
EOC	Emergency Operations Center
ERC	Emergency Relief Coordinator
eDATA	Electronic DATA
eMR	Electronic Medical Record
GHSA	Global Health Security Agenda
HC	Health Cluster
ICU	Intensive Care Unit
I-EMT	International-Emergency Medical Team (subgroup of EMT)
IHR	International Health Regulations
JDR-MOS	Japan Disaster Relief Medical Mission Operating System
J-SPEED	Surveillance in Post Extreme Emergencies and Disasters - Japan version
MAM	Moderate Acute Malnutrition
MDS	Minimum Data Set
MOH	Ministry of Health
MR	Medical Record
N-EMT	National Emergency Medical Team (subgroup of EMT)
NVD	Normal Vaginal Delivery
SAM	Severe Acute Malnutrition
SGBV	Sexual Gender Based Violence
SOD	Sudden Onset of Disaster
SPEED	Surveillance in Post Extreme Emergencies and Disasters
WASH	Water, Sanitation and Hygiene
WG	Working Group

### 3. Introduction

- A disaster is a “situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance”. [1] In terms of medical services, the following three scenarios for international assistance have been identified considering the balance between the need for medical care and the national availability of services and expertise: A) the capacity of the health services at national level is sufficient to provide timely care; B) the medical needs exceed the capacity of the affected country’s health system; and C) a complex situation that requires additional levels of expertise and support [2]. For scenarios B) and C) in particular, a number of Emergency Medical Teams (EMTs) deploy to the affected area to supplement the capacity of local medical services and provide emergency care for patients. EMTs are defined as “groups of health professionals and supporting staff providing health care specifically to disaster- and health emergency-affected populations” [2]. Such teams can be governmental (both civilian and military) and non-governmental, and they can be further classified as either National or International EMTs depending on the area of response. Considering the significant surge of medical demand and the variety of services provided by EMTs, gathering information from deployed EMTs and the subsequent data analysis are crucial for coordination and decision-making to facilitate a timely response.
- The Emergency Medical Team Coordination Cell (EMTCC) provides a common technical platform for the coordination of both National-EMTs (N-EMTs) and International-EMTs (I-EMT). [2] Ideally, the EMTCC is managed by the affected government and Ministry of Health (MOH) with assistance from WHO and partners as required. The primary authority for responding to sudden onset disasters and outbreaks is the national government; according to International Health Regulations (IHR 2005) each State Party has an obligation to develop a core public health capacity to respond to public health emergencies, which includes surveillance, detection, notification, verification, response, reporting and collaboration activities. [3] Similarly, The Global Health Security Agenda (GHSA) suggests every country to have a public health Emergency Operations Center (EOC) functioning according to minimum common standard; to maintain real-time surveillance networks and information systems; and establish trained and functioning multi-sectorial rapid response teams. [4]
- Currently, reporting by I-EMTs to the EMTCC or the respective national health and

EMT coordination system is considered a minimum standard for EMT deployment. The ability of teams to manage their data and report using the designated daily and/or weekly reporting format is examined by WHO during the verification and quality assurance of classified EMTs. [5] However some MOHs have no pre-existing reporting templates for such teams and the data sets and forms for reporting have not been standardized globally yet.

This gap results in the following situation:

- Inadequate and insufficient information on the reporting forms since they are constructed hastily following sudden onset of disasters (SOD).
  - Low compliance to reporting from EMTs due to multiple changes in reporting form during the response.
  - Reduced quality of data from EMTs limits the ability of the EMTCC to coordinate a cohesive response.
  - Limited and inadequate data available to allow evidence-based improvements for future EMTs responses.
- Standardization of the reporting form will enable EMTs to prepare beforehand, increase compliance and quality of reporting to the EMTCC/MOH and allow improved evidence-based coordination. Moreover, EMTs could serve as (additional) “sentinel reporting sites” strengthening the surveillance and disease early warning systems of the affected country.
  - Previous works suggest the starting point for the process of standardization is to define and establish the Minimum Data Set (MDS); namely, the minimum medical and other information to be collected, aggregated and reported by EMTs to EMTCC on a regular basis. [6, 7] (Fig.1). Thus, the EMT Minimum Data Set Working Group (MDS-WG) was established to develop the MDS and supporting materials for standardized EMT reporting system.

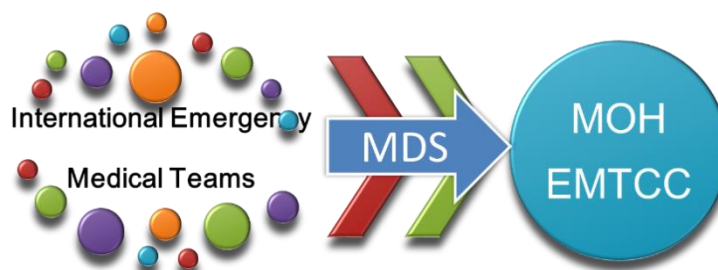


Fig.1. Flow of medical information from EMTs to the EMTCC using the MDS.

MDS: a minimum medical information to be collected, aggregated and reported by EMTs.

The **gaps** for EMT reporting are:

- Some MOHs do not have pre-existing reporting templates.
- No standard reporting template has been proposed globally so far.
- For EMTs, it is difficult to prepare and practice without an international standard, which results in low reporting rates.
- For the EMTCC, it is difficult to manage unstandardized information during the response, which leads to a lack of quality information and analysis.
- For the EMTCC, the coordination of EMTs and related response plan is hindered by the lack of reporting, resulting in a late and uncoordinated response.
- The shortage of data for analysis limits operational research for the future disasters.

The combination of above factors slows the response and complicates the coordination of EMTs to address the medical needs of the affected population.

Reasons to **standardize** and enhance EMTs reporting are:

- To enhance the flow of standardized information between EMTs and EMTCC.
- To understand the current medical demand.
- To support prompt and proper action and resource allocation.
- To plan and act for optimum continuity of care.
- To contribute to public health surveillance for specific diseases posing a public health threat.
- To improve EMT coordination and ensure coverage of needs and avoidance of duplication of efforts.
- To support the MOH in reporting on health-related response activities within the national disaster management system.
- To improve EMT performance by feeding back collected and analyzed information.
- To protect health care workers by supporting surveillance and disease early warning system.
- To provide data for research and future planning.

## 4. Model of the MDS

- The idea for a Minimum Data Set (MDS) was proposed by Jafar, et al. in 2015. [6] A literature review demonstrated considerable variation in the management of medical information by EMTs and implied the need to develop an international standard. Jafar et al. suggested the MDS should not only cover trauma but also broader aspects of non-injury-related medical problems, both are required to meet the need for medical attention with the focus shifting over time.

### 4.1 Basic concept of the MDS

- The medical information included in the MDS is compiled by EMTs based on individual medical records (MRs). Given the wealth of MR forms and the information contained in them, it is important to define a strategy or model to select the appropriate MDS items. Of particular relevance is the identification of those items that are specific to disaster-related MRs (but missing from normal MRs), as these may be required in regular reporting to the EMTCC. The EMTCC requires aggregated statistics rather than individual patient records in way to identify the type and needs in terms of medical demand. [6-8] Based on the medical record of EMTs, the MDS is a “list of minimum items for EMT reporting”, which represents the medical resources in use and needed.

## MDS derived from Medical Records of EMT

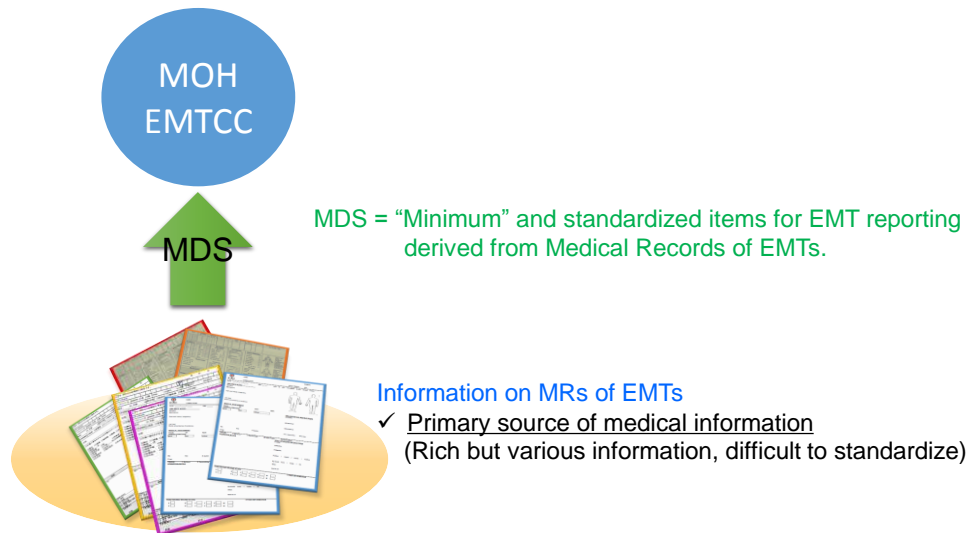


Fig. MDS derived from Medical Records of EMTs

- One good existing model for medical reporting during disaster is the Surveillance in Post Extreme Emergencies and Disasters (SPEED) system developed in the Philippines. (see Appendix 1) [7] SPEED was developed mostly based on the country's experiences during Tropical Storm Ondoy, Typhoon Pepeng and Typhoon Santi in 2009. The system was developed as a joint project between the Philippines' Department of Health and the WHO with the aim of creating a health information system for use during emergencies and disasters that gives timely information for evidence-based decision making as well as a more focused and targeted response. The SPEED system has also been adopted by Japan, where it was further developed into the so called J-SPEED in 2015. (see Appendix 2) [8, 9] The SPEED systems focus on counting and reporting pre-established sets of syndromes based on case definitions. [10] It is therefore suggested that the number of patients per diseases is one component of the MDS, which in turn represents the medical resources used and needed.

Reporting form used for SPEED (Appendix 1)

Reporting form used for J-SPEED (Appendix 2)

- Further input for the development of the MDS concept can be derived from the so called Case-Mix. This is a patient classification system based on clinical similarities and homogeneity in medical resources. Examples for the use of this system include the DRG (Diagnosis Related Groups) in the USA, AR-DRG (Australian Refined Diagnosis Related Groups) in Australia, and DPC (Diagnosis Procedure Combination) in Japan. Originally developed with a focus on medical expenses it combines diseases with clinical similarities and common medical needs. Therefore it shares some analogy to the MDS approach, which aims at assessing the required medical resources. SPEED systems only report diagnoses (syndromes) while, for the most basic classification factors, the Case-Mix combines diagnosis and medical procedures in a set providing a more complete picture of the medical demand. Such information would be of great value in trauma cases, since basic diagnostic information (e.g. the type of injury) alone is of limited use in describing the condition of the patients and the seriousness of their injuries. For example, additional information on procedures such as “hospital care”, “general anesthesia” or “hemodialysis” and outcome of the medical interventions such as “admission” or “discharge with follow up” facilitate a better understanding of the needs and resources required. Consequently, the inclusion of procedures and outcomes as the second module of the MDS is proposed.
- MRs are incomplete without personal identification information. Identifying patients

can be very challenging during a health emergency, especially for International Emergency Medical Team. Additionally, there is always concern over confidentiality with medical information. In consideration of the difficulties involved and the volume of information received by the EMTCC, a practical option for EMT reporting is to exclude detailed personal identification information like names and address. For example, in order to simplify the counting process, the SPEED systems does not distinguish between two visits by a single patient and one visit by two patients, based on the assumption that medical resources are required in both cases. In the other hand, information related to sex and age are required as those influence the type of medical resources needed. Consequently, omitting detailed personal information, while keeping sex and age for MDS is an acceptable compromise between patient confidentiality and the need to estimate the required medical resources.

- The necessity to include in the MDS public health or context based information like the availability of water, food, and housing or the presence of unaccompanied children was repeatedly emphasized. [8, 11] Many of the MRs do not have columns for recording such information. Given the importance of this information and the potential role of EMTs as “sentinel reporting sites”, there is considerable potential for context based information to be included in the medical record and in the MDS [9].
- Naturally, as the MDS is intended for reporting, information on the reporter itself (e.g. name of the EMT), as well as the time and location of its activities are required. For example, the contact of an EMT for detailed medical information on specific cases is more reliable than individual patient contact information. The team information can be a supplemental module for MDS, being not derived from the MR, and should be distinguished from the other four modules.
- Finally, even though the MDS focus on aggregated data, free text box for reporting of urgent issues should be included as previous cases showed that it was mostly utilized to report brief but essential information. [7]

## 4.2 Definition and Modules of the MDS

### Definition of the EMT Minimum data set (MDS)

The EMT Minimum Data Set (MDS) is a package of essential data items for EMT reporting derived from medical records of patients treated by EMTs.

- The MDS provides an overview of the type and severity of cases seen, medical resources in use/needed, ongoing needs, potential outbreaks and support decision-making for coordination and management of the EMTs response.
- The items of MDS should be measurable and can be divided into four modules including Sex & Age, Disease, Procedure & Outcome, and Context.
- Those four modules of the MDS will be accompanied by a supplemental module containing Team information at the time of reporting.

### Modules of the MDS

<b>MDS</b> <b>Sex &amp; Age</b>	<b>MDS</b> <b>Disease</b>	<b>MDS</b> <b>Procedure &amp; Outcome</b>	<b>MDS</b> <b>Context</b>	<b>Sup.</b> <b>Team Info.</b>
<ul style="list-style-type: none"><li>- Sex</li><li>- Age</li></ul>	<ul style="list-style-type: none"><li>- Extremity injury</li><li>- Acute watery diarrhea</li><li>- etc...</li></ul>	<ul style="list-style-type: none"><li>- Surgery</li><li>- Caesarean section</li><li>- Admission</li><li>- etc...</li></ul>	<ul style="list-style-type: none"><li>- Unaccompanied child</li><li>- Violence</li><li>- etc...</li></ul>	<ul style="list-style-type: none"><li>- Contact info.</li><li>- Daily Summary</li><li>- Urgent notice</li></ul>

- **Sex & Age**
  - Basic patient information to give an overview of patient numbers, sex and age.
- **Disease**
  - Medical information which represents medical demand and contributes to surveillance and early warning systems.
- **Procedure and Outcome**
  - Medical information which indicates medical services provided by EMTs and outcomes of medical interventions. This information will not arise without an EMT on site.
- **Context**
  - Context based information to cover not only medical needs but a broader

scope of the population's situation and needs.

[Supplemental Module]

- **Team information**

- Additional information to be included in the reporting forms for the MDS such as specify time, place, type of the team and contact information, free text for reporting urgent issues and needs as well as the summary statistics derived from information beside the MDS. (not an element of the MDS).

**Items of MDS should be**

- Countable by every EMT (clear and concise definition that does not require complex diagnostic testing).
- Useful to support the coordination mechanism and decision making process.
- Not too detailed but provide “good enough” information.
- Focus on the acute phase of the emergency (phase of EMT deployment).
- Tick box selectable (recordable by Tick-box on medical record to minimize workload and data error).
- Limited in number to be manageable in the field.

**Relationship between MDS and the national reporting systems (Fig.)**

- Every MOH is encouraged to prepare its own original list and dataset for EMT reporting, reflecting the country's context, disease burden and public health risk profile. (Examples are the Philippines' SPEED [12], and Japan's J-SPEED [8]).
- The most commonly used universal data items will make up the MDS leaving space to country specific information.
- Countries that have not yet developed their own list and dataset can use this global standard as the basis for their product and flexibly add additional items (e.g. endemic diseases) as required. The country's list and dataset should have a built-in mechanism for extracting and reporting the universal MDS (manually or electronically).
- A standard approach to EMT MDS across regions and globally would be ideal allowing I-EMTs to prepare and rapidly contribute to the surveillance and reporting systems upon arrival in a country during an emergency.

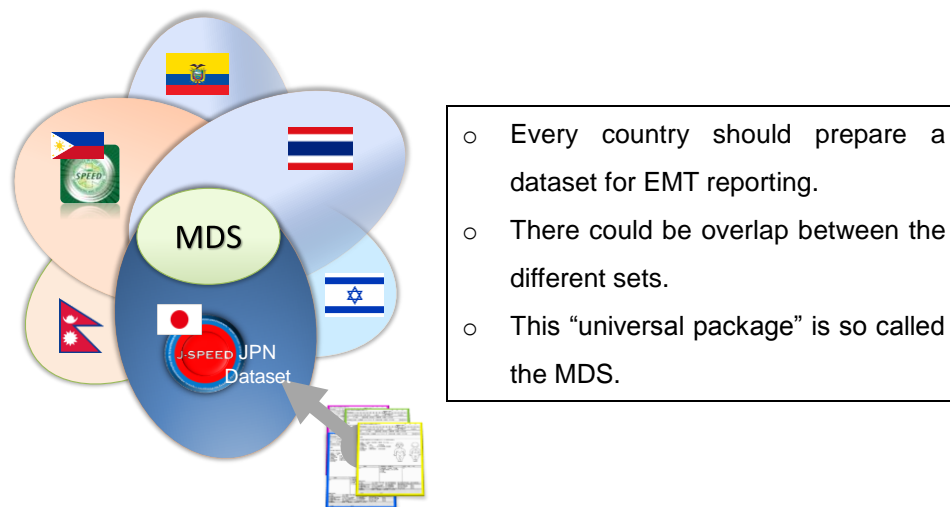
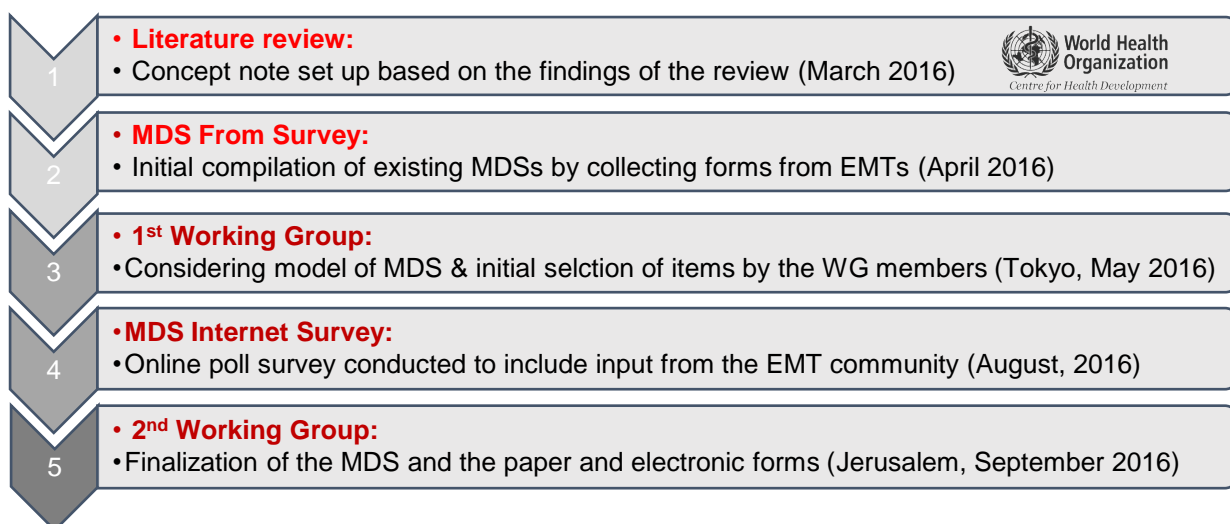


Fig. Relation between national reporting systems and the MDS.

## 5. Method to define items and forms of the MDS

- The MDS has been developed following the below five steps:



### 5.1 Literature review (March 2016)

- First, a literature review on the Medical Records and collection of standardized health data by EMTs was conducted. [7]
- Key findings of the review were:
  - The standardization of medical data in the MDS should focus on reporting by EMTs to the EMTCC, rather than on the internal recordings of EMTs.
  - The starting point for the process of standardization is to define and establish the Minimum Data Set (MDS); namely, the minimum medical and other information to be collected, aggregated and reported by EMTs.
  - Once a column to record specific information was provided on MRs, the information recording rate increased significantly.
  - Introduction of standardized tick-box forms dramatically improved the quality of documentation with only a limited workload.
  - When the standard is implemented, not only a paper form but also an electronic data (eDATA) format should be simultaneously established and published.
- Based on the findings, a concept note for this project was set up. The concept was further developed into the definition and modeling of the MDS presented at the introduction section of this report.

## 5.2 MDS Form Survey (Existing Form Survey, April 2016)

- To collect candidate items for the MDS, the MDS Form Survey was conducted, reviewing the forms of the EMTs listed below.
- The process identified around 140 candidate items for the MDS.

### Materials reviewed in the MDS Form survey

- Existing forms of EMTs (Medical record, data collecting form, reporting form).
  - COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO
  - CMAT
  - EMERCOM
  - ICRC
  - IDF Haiti system
  - IMC
  - informe SVA
  - MSF
  - SSM ITA-ARES
  - SPEED
  - JDR(JDR-SPEED)
  - J-SPEED
- Emergency Medical Team Coordination Cell (EMTCC) COORDINATION HANDBOOK 2015 (Draft Version 9)

## 5.3 1<sup>st</sup> EMT-MDS WG meeting (Tokyo, May 2016)

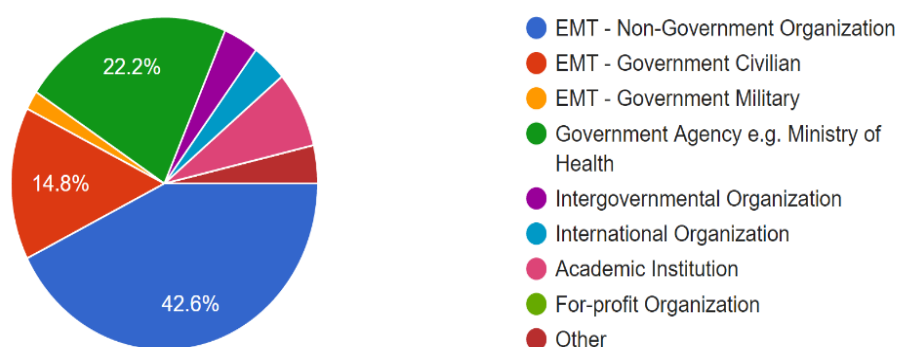
- The working group reviewed the candidate items in small discussion groups. The groups scored each item's importance as high, moderate or low.
- Each group had the opportunity to add new items based on their discussion.
- After merging the group results in one table, the whole WG discussed the selection of the items for the MDS.
- Several items, where the WG did not reach consensus, were presented to the EMT community in the MDS Internet Survey (Internet Poll Survey, August 2016).

Item	A Group	B Group	C Group	D Group
Pregnant	Low	High	Low	Low
Lactating	Moderate	Moderate	Low	Low
Vaccination status Tetanus	Low	Low	Low	Low
Vaccination status Measles	Low	Low	Low	Low
Vaccine Preventable Diseases	Low	Low	Low	Low
Allergy	Low	Low	Low	Low
Poor access to medical facility		Low	Low	Moderate
Child without caretaker	High	High	High	High
Child/Gender-based violence	High	High	Low	High
Urgent need of nursing care	Moderate	Low	Low	Moderate
Interrupted essential medical services	Moderate	High	High	High
WASH related	High	Low	High	High
Food security and nutrition	High	Low	High	High
Living in shelter/moved due to disaster	High	Moderate	High	Low
Others (Open space)		High	High	High
pre-existing disability		High		
TB/HIV				
Family member dead or missing	High			
Health worker affected	High			
Initial Assessment				

Fig. Example of the merged table.

#### 5.4 MDS Internet Survey (August 2016)

- A summary report of the 1<sup>st</sup> WG meeting was published online.
- To gather input from the global EMT community, several disputed items were presented in a web based survey. The survey website was set up in English and Spanish.
- Responses from 59 organizations from 28 countries were collected, with the following distribution:



- ✧ Countries: Australia, Bangladesh, Belgium, Canada, Colombia, Costa Rica, Ecuador, France, Germany, Guatemala, Haiti, Hungary, Indonesia, Italy, Japan, Liberia, Nepal, New Zealand, Peru, Philippines, Poland, Russian Federation, Spain, Sweden, Switzerland, Turkey, United States of America, Venezuela

- ✧ Contributing Organizations (name as per registration to the survey): AECID (Spanish Cooperation Agency), Alliance of International Doctors (AID), All-Russian Centre for Disaster Medicine "Zaschita", ASB Germany (FAST-Team), AUSMAT, Bangladesh Association of PMR, B-FAST, CAJA COSTARRICENSE DE SEGURO SOCIAL, CMAT, CRIMEDIM, EMERCOM Field Hospital, EPES, German Red Cross, Getro MATHIEU, Global Outreach Doctors, Handicap International, HCRI, Health Department, Papua New Guinea, Heart to Heart International, HOSPITAL MOVIL 1, Humanitarian Medical Assistance, Humedica e.V., Hungarian Red Cross, IDSC/NIID, International Committee of the Red Cross, International Federation of Red Cross and Red Crescent Societies, Japan Disaster Relief, Massachusetts General Hospital, Medair, Ministry of Health New Zeland, Ministerio de Salud, Ministerio de Salud Pública - Ecuador, Ministerio del poder popular para la salud, Ministry of Health- Liberia, MTI, Muhammadiyah Disaster Management Centre (MDMC) Indonesia, NA, Nepalese Army Medical Corps, NYC Medics, Patrulla Aerea Civil Colombiana, Philippines Department of Health, Polish Emergency Team PCPM, Samaritans Purse, SAMUR-PROTECCIÓN CIVIL MADRID, Swedish Civil Contingencies Agency, TMAT, Universidad Nacional Mayor de San Marcos, USAID/OFDA, Vector360 - MEDSAR, WHO.

## 5.5 2<sup>nd</sup> EMT-MDS WG meeting (Jerusalem, September 2016)

- The Results of the MDS Internet Survey were reviewed and discussed by the WG experts, which reached final agreement on the items selected for the MDS.
- The paper forms for the MDS such as reporting form, tally sheet and recommendations for Medical Record were discussed and adopted by the WG.
- An electronic file format of the MDS was discussed at the WG and agreed to be presented as standard file format in the WG's final report.

## 6. Selected Items of MDS and its discussion

- The total number of items selected reached 46 with 4 additional columns for context dependent items. These were categorized in four groups: 1) Age and Sex, 2) Disease, 3) Procedure and Outcome, and 4) Context, shown in section 7.1 to 7.4. Other essential information from the reporter was formatted in the reporting form as three categories: a) Team Information, b) Daily Summary, c) Needs and Risks, shown in section 7.5.
- The asterisk (\*) directed to the footnote of MDS represent the requirement of line listing with the report form or additional information to be provided using dedicated boxes for comment..

### 6.1 Sex and Age

**Short Summary:** although this category was initially named “Patient Identification Information”, sex (male, female, female pregnant) and age were selected for the MDS and the group was renamed. Information from this module is used to demonstrate the basic distribution of patients treated by EMTs. Much time was spent in discussing the grouping method of age. The conclusion was to have detailed age distribution as it is valuable to analyze age dependent medical needs but does not necessarily need to link with the disease count.

#### Selected Items:

Age		<1, 1-4, 5-17, 18-64, 65+
Sex	1	Male
	2	Female non-pregnant
	3	Female pregnant

For the counting of other MDS besides sex, age would be divided into two conventional age groups of <5 and >=5.

#### Rationale:

##### 1. Sex/ Pregnancy

- Important to know the sexual distribution of the patients to monitor the limitation of access to medical services by sex.
- Pregnant women have specific medical needs. From lessons learnt in earthquakes in Japan, identifying the number of affected pregnant women support the analysis

of additional neonatal care needed. Pregnant women tended to have a high probability of being referred to higher health care levels during the aftermath of the Kumamoto earthquake.

- Sex and pregnancy can be merged into one category as both are closely related and necessary information to be asked in medical consultation.

## **2. Age**

- Initial proposal of age groups was <5 and >5 by conventional international standards though, to visualize specific medical and other social needs, breaking down the age more in detail was suggested. Examples are <1yo for vaccination and medical devices, <18yo for legal issue of child rights, >65yo for complication and chronic needs in elderly population.
- The MDS internet survey showed 63% agreeing to have more detailed information for the age groups than “<5 and >=5”.
- The importance of having the detailed distribution of age for analysis was clear although it was not deemed necessary creating further age divisions for all health events, procedures and outcomes. Thus, to see the distribution of patients, five age groups were suggested for counting while for other information such as diseases, procedures and outcomes, the cut off of age 5 remained.

## **3. Excluded candidates**

- Patient's name, address, face picture, ID
  - Detailed patient identification information makes difficult to keep the confidentiality of the patients and ensure their privacy as well as is not influential for coordination purposes.
- Triage Category
  - The triage system has not yet been standardized throughout EMTs, thus every team could have different categories. It should be excluded until a global standard triage system has been put in place.
- Mode of attendance of patient
  - Importance of differentiating between new patients and follow-up patients for an accurate analysis was addressed strongly during the working groups. However, the majority of the EMTs do not have the capability to make separate flow charts or statistics for the two types of consultation. Moreover, the difference between these types of admission does not significantly affect the assessment of medical resources needed for either situation. An issue was also identified with the situation of double counting or multiple presentations within the same day. To simplify the calculation, modes of attendance or

multiple daily presentations are not to be differentiated and should be counted equally.

- Occupation (Health care worker)
  - Special support may be needed to restore the capacity of local health care systems. However, it is unrealistic to ask all patients of their occupation and, it is not necessarily through the counting of health care workers that medical capacities are rebuilt.

#### 4. Patient identification and subject to be counted

- In a disaster setting it is difficult to identify patients, which can lead to the potential problem of double counting patients.
- MDS is a system to measure medical resources needed, thus all visits by a single patient should be recorded when counting visits.
- MDS accepts double counting in order to catch medical resource needed and to make the system more practical.

## 6.2 Health Events

**Short Summary:** information should include health events that support the analysis of medical resources needed due to trauma demand, the risk of epidemics and the requirements for potential special measures to be taken. Main discussions in this category were related to how to categorize trauma and how to express (list) infectious diseases.

The value of other information that was not included in this section varies according to the context. It was agreed to leave blank rows to allow MOH to add the context dependent items before finalizing the format.

#### Selected Items:

Trauma	4	Major head / spine injury
	5	Major torso injury
	6	Major extremity injury
	7	Moderate injury
	8	Minor injury
Infectious disease *	9	Acute respiratory infection
	10	Acute watery diarrhea

(Follow the national mandatory reporting instruction)	11	Acute bloody diarrhea
	12	Acute jaundice syndrome
	13	Suspected Measles
	14	Suspected Meningitis
	15	Suspected Tetanus
	16	Acute flaccid paralysis
	17	Acute haemorrhagic fever
	18	Fever of unknown origin
Surgical / medical emergency	19	Surgical emergency (Non-trauma)
	20	Medical emergency
Other key diseases	21	Skin disease
	22	Acute mental health and psychosocial problem
	23	Obstetric complications
	24	Severe Acute Malnutrition (SAM) *
	25	Other diagnosis, not specified above

#### Rationale:

### 1. Number of health events items per patient

- MDS will count every applicable event on the list per each patient in way to facilitate the accuracy of the data collected.

### 2. Trauma

- The main goals in measuring trauma are the coordination of appropriate resource allocation and the monitoring of the quality of care provided by qualified teams.
- Severity of trauma was primarily divided into major and minor, but following the final WG discussion, a moderate category was added. The justification was to further differentiate trauma that consume time and human resources, such as requiring conscious sedation or regional blocks versus minor injury that necessitates simple sutures and dressings. Thus, it was concluded to classify as major: needs general anesthesia and/or hospitalization, moderate: treatment in ER under conscious sedation or regional blocks, minor: treated by light dressing kit.
- Anatomical classification was only valuable for major trauma due to its high impact on resource allocation and the prediction of future needs for rehabilitation. Head/Spine injury includes facial injury that requires maxilla surgery as well as brain and spinal injury with neurological deficit. It is not necessary to differentiate

anatomical location of injury for moderate and minor injury.

- The MDS Internet Survey showed 78% agreed in using both severity and anatomical aspect in categorizing trauma.
- Division between causes of trauma such as violence, direct relation to disaster, indirect relation to disaster was also proposed. It is very important to know this information however the catchment of the etiology could be relevant for other cases besides trauma situations, thus it was suggested to add these items to the context section. To further support this conclusion, the MDS Internet Survey also resulted in 76% agreeing to include relation to disaster for trauma and 59% for non-trauma.
- 54% of the MDS Internet Survey requested to add Crash injury and it was agreed to be aggregated into wider classification, namely major injury, as well as severe burns.

### **3. Infectious Disease**

- Two broad types of case definitions are used by clinicians to record infectious diseases and other health events for surveillance purposes. Both were discussed in the working groups and the MDS Internet Survey:
  - 1) Syndromic case definitions. These use definitions of diseases that are very easy for clinicians to understand and apply in resource poor settings and with little training. They adopt very sensitive, but less specific, definitions of diseases (e.g. "fever with rash").
  - 2) Clinical case definitions. These use definitions of diseases that require stronger history taking and examination skills, and may also include the use of laboratory tests to confirm the diagnosis. They are often less sensitive and more specific in classifying diseases and health events under surveillance.
- The argument to support the use of syndromic case definitions was that it would be easier for non-health care workers to use. However, as all EMTs should have a qualified medic in the team, they should all be able to use clinical case definitions whilst in the field.
- The final decision on whether to use syndromic or clinical case definitions is the responsibility of the Ministry of Health (MOH). However, the vast majority of countries use clinical case definitions and at a global level these are also recommended by the WHO in its standardized case definitions for communicable disease control in emergencies.
- Therefore, although 79% of respondents in the MDS Internet Survey expressed a preference to use the syndromic case definitions, the working group concluded that

the use of clinical case definitions was most appropriate for the MDS.

- A total of 10 communicable diseases were chosen to be used in MDS as they are of global public health concern. Additional diseases should be included in the list based on the epidemiological profile and priorities of the MOH in each country. Concerns were raised over the inclusion of Fever of Unknown Origin, however 76% of web respondents agreed to keep it in the MDS due to its importance as a diagnosis of exclusion and in identifying potential cases that need further investigation and follow-up, therefore it was kept.
- Concerns were also raised over acute haemorrhagic fever to be kept in the MDS as it may be unnecessary to consider in every country however, it was agreed to maintain the item in the global form (with the option to be removed in line with the context).

#### **4. Surgical/Medical Emergency**

- Primarily this category was named Non Communicable Disease (NCD) for its candidate list of NCDs. However, as a result of the discussion, knowing the number of specific diseases was considered less important compare with the need to monitor conditions that require medical attention. Thus, the integration of non-trauma surgical and medical emergencies items was suggested. This process led to rename the category NCD to Surgical/Medical Emergency.
- Examples of non-trauma surgical emergencies are gastrointestinal perforation, appendicitis, strangulated ileus, spontaneous pneumothorax, etc. Examples for medical emergencies are asthmatic attack, gastric bleeding, acute myocardial infarction, stroke, pulmonary embolism, toxicosis, etc. If the number of cases reported increase, further request for detailed information from the EMTCC to the reporting team should be considered.

#### **5. Others key diseases**

- Skin disease
  - Skin disease was suggested to directly reflect the condition of shelter and hygiene problems either communicable or non-communicable.
- Acute mental health and psychosocial problems
  - To capture the needs for mental and psychosocial support to prevent further incident.
- Obstetric complications
  - Pregnancy with complications such as eclampsia, early contractions, and NCDs requiring close monitoring, should all be directed to a specialized care unit.

- Severe acute malnutrition (SAM)
  - No need to include moderate acute malnutrition (MAM) due to the nature of the response and required targeted activities.
  - There was a big discussion regarding whether to have an additional item such as “Other diagnosis, not specified above”. The importance of knowing this information was suggested to be considered as per monitoring purpose.

## 6. Excluded candidates

- All the context dependent items including very important diseases depending on the country or disaster type were excluded. Instead, additional blank columns were added to the bottom of Disease information to allow the Ministry of Health to add context specific diseases of concern. Examples shown below.
  - Context dependent for Infectious disease e.g.) Suspected Malaria / Dengue / TB / Leptospirosis / Rabies.
  - Context dependent for Hazard e.g.) Drowning / Hazmat.
  - Context dependent for Population e.g.) Chronic diseases for elderly etc.

### 6.3 Procedure & Outcome

**Short Summary:** Procedure and Outcome is an important module combined with Health Events information in particular to support the analysis from the EMTCC of the severity/impact of the disaster and required resources. Furthermore, number and type of procedures allow the monitoring of the work load of the EMTs and the quality of the services provided.

#### Selected Items:

Procedure	26	Major procedure except limb amputation and obstetric
	27	Minor procedure
	28	Limb amputation excluding digits *
	29	Normal Vaginal Delivery (NVD)
	30	Caesarean section
	31	Other Obstetrics and Gynecology
Outcome	32	Discharge without follow up
	33	Discharge with follow up
	34	Admission
	35	Referral / Transfer *

	36	Left against medical advice
	37	Dead on arrival
	38	Death within facility *
	39	Requiring long term rehabilitation *

#### Rationale:

### 1. Surgery to Procedure

- EMTCC coordination handbook gives the definition of major and minor surgery for counting, however, surgery only captures specific part of procedures. Instead of using the term surgery, the catchment was broadened to procedures including surgery.

### 2. Limb amputation and Obstetric procedure

- Limb amputation and obstetric procedures were separated from the major/minor category due to the need for special care. For example, estimation of future needs of prosthesis and rehabilitation are essential and critical after limb amputation.
- In addition to normal vaginal delivery (NVD) and caesarian section, other obstetric procedures such as instrumental delivery, dilation and curettage (D&C) were discussed as necessary to monitor as well. These would be integrated in obstetric other.

### 3. Subjects to be counted

- Items of procedures will be counted only in the case of a patient undergoes a procedure, as this is an indicator to monitor medical services actually provided by EMTs.

### 4. Excluded candidates

- Still birth
  - Raised during the working groups to monitor legal problems however it is noted that the definition could differ country by country. It can be monitored through the calculation of NVD, C-section and live births.
- External fixation
  - The number of external fixations was considered as important element however not necessarily included in the daily report. Instead, it should be reported in the final activity report when the team exits the field.

## 6.4 Context

**Short Summary:** Although the primary indicator to assess medical resources needed is the number of patients, it is very important for MOH to evaluate characteristics and trends of medical needs in relation to the disaster. Protection is an issue that cannot be covered by EMTs alone however, EMTs have good chance to detect cases and call for a collaborative response with other stakeholders. Additional blank lines should be included to easily adopt context based items.

### Selected Items:

Relation to disaster	40	Directly related to disaster
	41	Indirectly related to disaster
	42	Not related to disaster
Protection	43	Vulnerable child
	44	Vulnerable adult
	45	Sexual Gender Based Violence (SGBV)
	46	Violence (non-SGBV)
Additional	47	
	48	
	49	
	50	

【Additional】 Context dependent for

- infectious disease, e.g.) Suspected Malaria / Dengue / TB / Leptospirosis / Rabies.
- hazard e.g.) Drowning / Hazmat.
- population e.g.) Chronic diseases for elderly etc.

### Rationale:

#### 1. Relation to disaster

- It is very important for the Ministry of Health to evaluate characteristics and trends of medical needs and their relation to the disaster. Although it may not be easy to judge the relationship clearly, in past cases such as the earthquake response in Japan, the correlation with the disaster was captured even without concrete definitions and with much turnover of EMTs.

#### 2. Protection

- The population under special needs and risks regarding basic protection should not be ignored. This includes vulnerable children and adults as well as victims of

sexual and gender based violence (SGBV) or any other violence. Protection issues should be highlighted on the daily summary.

### 3. Excluded candidates

- Vaccination status: although low vaccination coverage can cause an epidemic of vaccine preventable disease, assessing vaccination status for all children is not realistic. The latest coverage data reported by the Ministry of Health could be used for decision making during the aftermath of a disaster. If there is no epidemic, re-establish the expanded immunization program is a priority during the early recovery phase.

## 6.5 Definition Table of the MDS items

Module	Categories	No	Items	Definition
Sex and Age	Age		<1, 1-4, 5-17, 18-64, 65-	Age (estimated age for unknown case)
	Sex	1	Male	Sex based on biological sex.
		2	Female non-pregnant	
		3	Female pregnant	
Health Events	Trauma	4	Major head / spine injury	Any major trauma to the scalp, skull, brain and spinal cord. (Require care at EMT Type 2 & 3).
		5	Major torso injury	Any major trauma involving the chest and abdomen that can be penetrating and non-penetrating. (Require care at EMT Type 2 & 3).
		6	Major extremity injury	Upper and lower extremity injuries including limb-threatening injuries. (Require care at EMT Type 2 & 3).
		7	Moderate injury	Injury that can be treated in Emergency Room as outpatient but need conscious sedation or regional blocks.
		8	Minor injury	Injury that requires first aid and light

				dressing care without anesthesia. (EMT Type 1 mobile capable)
	Infectious disease * (Follow the national mandatory reporting instruction)	9	Acute respiratory infection	Any infection of the upper or lower respiratory tracts.
		10	Acute watery diarrhea	Acute diarrhea is defined as passage of three or more loose or watery stools in the past 24 hours with or without dehydration. (WHO Recommended Surveillance Standards WHO/CDS/CSR/ISR/99.2)
		11	Acute bloody diarrhea	Acute diarrhea with visible blood in the stool. (WHO Recommended Surveillance Standards WHO/CDS/CSR/ISR/99.2)
		12	Acute jaundice syndrome	Acute onset of jaundice and severe illness and absence of any known precipitating factors. (Communicable disease control in emergencies: A field manual. WHO. 2005)
		13	Suspected Measles	Any person with fever AND maculopapular (nonvesicular) generalized rash AND ONE of the following: cough, runny nose (coryza) or red eyes (conjunctivitis) OR any person in whom a clinician suspects measles. (Outbreak surveillance and response in humanitarian emergencies. WHO guidelines for EWARN implementation. WHO. 2012)
		14	Suspected Meningitis	Sudden onset of fever (> 38.0 °C axillary) and one of the following: neck stiffness, altered consciousness, other meningeal sign or petechial / purpurial rash. In children < 1 year, meningitis is suspected when fever is accompanied by a bulging fontanelle.

			(Communicable disease control in emergencies: A field manual. WHO. 2005)
		15	<p>Suspected Tetanus</p> <p>Adult; Either of the following signs 3–21 days following an injury or wound: trismus of the facial muscles or risus sardonicus, painful muscular contractions.</p> <p>Neonatal; Any neonate with normal ability to suck and cry during the first 2 days of life who, between day 3 and day 28, cannot suck normally, or any neonate who becomes stiff or has spasms or both.</p> <p>(Communicable disease control in emergencies: A field manual. WHO. 2005)</p>
		16	<p>Acute flaccid paralysis</p> <p>Acute flaccid paralysis in a child aged &lt; 15 years, including Guillain-Barré syndrome or any paralytic illness in a person of any age in whom poliomyelitis is suspected.</p> <p>(WHO Recommended Surveillance Standards WHO/CDS/CSR/ISR/99.2)</p>
		17	<p>Acute haemorrhagic fever</p> <p>Acute onset of fever (duration of less than 3 weeks) and any two of the following: haemorrhagic or purpuric rash, vomiting with blood, cough with blood, blood in stools, epistaxis, other haemorrhagic symptoms.</p> <p>(WHO Recommended Surveillance Standards WHO/CDS/CSR/ISR/99.2)</p>
		18	<p>Fever of unknown origin</p> <p>Fever (body temperature &gt;38.5 °C) for &gt;48 hours and without other</p>

				known etiology. (Communicable disease control in emergencies: A field manual. WHO. 2005)
	Surgical / medical emergency	19	Surgical emergency (Non-trauma)	Non-trauma general surgical emergencies. e.g.) Gastrointestinal perforation, appendicitis, strangulated ileus, pneumothorax
		20	Medical emergency	Conditions that require urgent non-surgical intervention. e.g.) Asthmatic attack, acute myocardial infarction, pulmonary embolism, toxicosis
	Other	21	Skin disease	Disorders of exclusively (or predominantly) the superficial layers of the skin. (Epidemiology and Management of Common Skin Disease in Children in Developing Countries. Department of Child and Adolescent Health and Development. WHO. 2012)
		22	Acute mental health and psychosocial problem	Mental illness and psychosocial disorders requiring immediate treatment and/or social support.
		23	Obstetric complications	Pregnancy related complications (e.g. obstructed labor, severe bleeding etc..)
		24	Severe Acute Malnutrition (SAM) *	A very low weight for height (below -3 z scores <sup>1</sup> of the median WHO growth standards), by visible severe wasting, or by the presence of nutritional oedema. In children aged 6–59 months, an arm circumference less than 110 mm is also indicative of severe acute malnutrition.

				( COMMUNITY-BASED MANAGEMENT OF SEVERE ACUTE MALNUTRITION; A Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund. 2007)
		25	Other diagnosis, not specified above	Other diagnosis, not specified on this list.
Procedure & Outcome	Procedure	26	Major procedure except limb amputation and obstetric	Procedures that usually require general anesthesia and hospitalization. e.g.) open reduction internal fixation, trauma laparotomy
		27	Minor procedure	Procedure acceptably performed with local anesthesia, no hospitalization.
		28	Limb amputation excluding digits *	Upper and lower limb amputations, excluding toe amputations. (EMTCC COORDINATION HANDBOOK. WHO. 2015)
		29	Normal Vaginal Delivery (NVD)	Vaginal delivery
		30	Caesarean section	Delivery by Caesarean section
		31	Other obstetrics and gynecology	Other obstetrics procedure (e.g. D&C, ectopic pregnancy etc..)
		32	Discharge without follow up	Patients who don't require follow up after hospitalization
	Outcome	33	Discharge with follow up	Patients who require medical follow up after hospitalization
		34	Admission	Patients who have been admitted to the facility (in-patient department) excluding observations.
		35	Referral / Transfer *	Patient who referred/transferred to other medical facilities.
		36	Left against medical	Patient who left EMT facility against

Context			advice	medical advice
		37	Dead on arrival	Patient who is found/brought clinically dead upon the arrival to the EMT facility
		38	Death within facility*	Death of an admitted patient occurred within the EMT facility
		39	Requiring long term rehabilitation *	Patients requiring long term rehabilitation services secondary to the severity of the lesion and/or the presence of permanent disability
	Relation to disaster	40	Directly related to disaster	Patient visit with injury directly caused by disaster e.g.) Injury caused by typhoon / earthquake / tsunami / eruption, drowning, burn
		41	Indirectly related to disaster	Patient visit with disease including injury caused by post disaster environment and/or Patient who deteriorate chronicle conditions due to lack of access to healthcare secondary to the disaster. e.g.) Disease / injury related to environment / situation caused by the disaster, ARI, diarrhea, skin disease, injury by debris.
		42	Not related to disaster	Patient visit with health problem not caused by disaster and without urgency. e.g.) Non communicable diseases (NCD), cancer
	Protection	43	Vulnerable child	Vulnerable child who are in urgent needs for protection. e.g.) child separated from both parents and other relatives and are not being cared for by an adult (The UN Committee on the Rights of the

				Child, Convention on the Rights of the Child 2005)
		44	Vulnerable adult	Vulnerable adult who are in urgent needs for protection. e.g.) Elderly / handicapped requiring caretaker. Who is or may be in need of community care services by reason of mental or other disability, age or illness; and who is or may be unable to take care of him or herself, or unable to protect him or herself against significant harm or exploitation. (1997 Consultation Paper Who decides? issued by the Lord Chancellor's Department UK)
		45	Sexual and Gender Based Violence (SGBV)	Any act that is perpetrated against a person's will and is based on gender norms and unequal power relationships. Typology: physical; sexual; psychological; and deprivation or neglect. (WHO Violence Prevention Alliance)
		46	Violence (non-SGBV)	The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation. (WHO Violence Prevention Alliance)
	Additional	47		
		48		
		49		
		50		

## 6.6 Team Information

**Short Summary:** The working group agreed to rename this section previous called “public health information” as “needs and risks” since the reporting form itself has public health implications.

Team information covers information regarding the Emergency Medical Team such as name, contact details and assigned location. MOH has the authority to decide the cut off time (or period of activities counted) and time for submission of the daily report. The daily summary section enables the EMTCC/MOH to get a quick glance of main indicators related to the EMT activities namely number of patients, outcomes and beds count. The needs and risks section aims to report urgent risk factors within the affected community as well as communicate support required from the EMT side. Boxes with free text space allow the provision of additional information related to the above mentioned needs and risks.

### Selected Information:

#### ➤ Information of reporting team

Team info.	a	【Organization name】
	b	【Team name】
	c	【Type】 <input type="checkbox"/> Type1mobile <input type="checkbox"/> Type1fixed <input type="checkbox"/> Type2 <input type="checkbox"/> Type3 <input type="checkbox"/> Specialized cell
	d	【Contact Person(s) name(s)】
	e	【Phone No.】
	f	【Email】
	g	【Estimated date of departure】 dd/mm/yy
	h	【Date of activity ※2】 dd/mm/yy
	i	【Time of reporting】 dd/mm/hh:mm(24h)
	j	【Location】 (State: )
	k	(City: )
	l	(Village etc.: )
	m	(Facility name: )
	n	【Geo-tag】

※1Report to EMTCC until ( : ) ※2 Submit one form per one activity day and location.

➤ **Daily summary of number of patient and bed count (at the time of reporting)**

<b>Daily Summary</b>	o	Patients (consultations)	Outpatient (not admitted)
	p		New admission
	q		Live birth
	r	Bed	Total bed capacity
	s		Empty regular bed
	t		Empty ICU bed

※3New admission(p) is equivalent to Admission (MDS34) .

➤ **Free text reporting for following issues**

<b>Needs and Risks</b>	51	Immediate report	Unexpected death *
	52		National mandatory immediate reporting disease
	53		Critical incident to EMT and/or community
	55		Any other issue
	56	Risks	WASH
	57		Community/rumor based infectious disease
	58		Environmental risk / exposure
	59		Shelter / Nonfood item
	60		Food security
	61	Operational constraints	Logistics/operational support
	62		Supply
	63		Human resources
	64		Finance
	65		Others

**Rationale:**

**1. Organization name/team name**

- One organization may have several teams deployed, thus clear identification is required when stating the team name. Country code is not required as it is included in the registration form.

**2. Date/Time**

- There are three dates that need to be filled in. The first is the date of reporting with the time. The second one is the date of reported activities. The activity date is set for 24 hours and one form per day should be submitted. The cut off time and the time of daily submission should be decided by the EMTCC/MOH. The third date is

the estimated time of EMT departure, to allow the EMTCC to plan for possible handover to another EMT if needed. It is necessary that the EMTCC provides feedback on the data reported by EMTs on regular basis.

### **3. Location**

- Each EMT should submit the daily report with clear indication of the assigned location. In case the medical services are provided in several locations, the form should indicate all of them. For EMTs working within an existing facility, the name of the facility should be indicated. In this particular case, the report should indicate if the reporting activities are referring exclusively to the EMT work or specify otherwise.

### **4. Geo-tag**

- Signed decimal format with negative numbers for South and West (e.g. "12.3456, -98.7654") is suggested to be a standard format. However, other formats will be optionally accepted as the geo-tag itself has been found difficult to standardize for reporting purposes.

### **5. Number of patients (consultation)**

- The MDS counts number of patients based on number of consultations, and further does not distinguish new consultations and follow up consultations (or re-presentations). Reasons for this are as follows:
  - Patient identity is sometimes difficult to verify on disaster sites, particularly for I-EMTs.
  - Many teams do not differentiate the log book for new patients and follow-up patients.
  - Every consultation requires medical resources.
  - Counting consultations rather than patients is more practical for EMTs.
  - Double counting patients does not represent an issue as MDS aims, among other objectives, to assess required medical resources.

### **6. Beds count at the time of reporting**

- The majority of the items reflect the total number for 24hours period of activity, whilst, for the beds count, the latest beds availability at the time of submitting the report is required. Both availability of regular beds and Intensive Care unit (ICU) beds are valuable for coordinating the referral system.

### **7. Free text format for report**

- Other needs and risks related to the disaster should be assessed and reported. The environmental risk/exposure is one of the items included in this section and are mandatory to report on the daily basis.

Forms for MDS

6.7 Daily Forms

- The MDS cycle is based on four steps described as following. Data (items) are collected from each patient medical record (MR), compiled in a tally sheet and inserted in the daily report form. For these three steps, the EMTs are the data handler. The last step refers to the feedback provided by the EMTCC to the stakeholders involved in the disasters response with particular reference to the EMTs. It has been valued that the feedback stimulates the involvement of EMTs and increases the compliance rate. Relevant forms to enhance these information processing steps will be proposed.

Fig. Information processing of the MDS

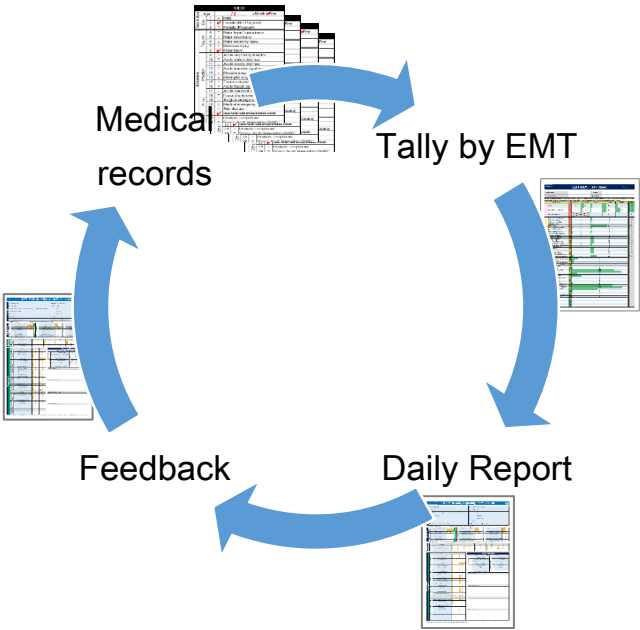


Table. Forms of MDS and its explanation

Step	Data location	Name	Explanation
1	Medical Record	Tick-box	An example form to support recording and generating MDS on medical record (MR). MDS is created as data arises from MR. To generate the

			data, introduction of standardized tick-box on MR is recommended as a robust way to improve the quality of documentation with only a limited workload. "Check all that apply" is the only instruction needed to utilize this tick-box. To locate the tick box as one straight column is recommended as that will decrease chance of omission.
2	EMT	Tally Sheet	<p>An example form to support tallying by the EMT staff. Referring tick-box by the MR allows staff to sum up the data by using tally marks. For EMTs who do not have MR with MDS tick-box, physicians can utilize this form to count MDS after each consultation.</p> <p>Electronic tally sheet is available on the Appendix for EMTs who can utilize Microsoft Excel. Not only tally table but statistics on the Daily Report Form and patient's individual electronic data become simultaneously obtainable using this approach.</p>
3	EMT to EMTCC	Daily Report Form	<p>A standard EMT MDS Daily Report Form. Instructions as follow.</p> <ul style="list-style-type: none"> <li>- <b>[Team information]:</b> Team information should be provided appropriately to allow EMTCC proper coordination. Team information should also be the best contact information for EMTCC to reach individual patient's medical information.</li> <li>- <b>[Daily summary]:</b> This part catches the number of outpatients and newly admitted patients per activity day. This setting is also applicable for every MDS statistics, but for the procedure (MDS No.25-30) those will be counted on the day it was performed,</li> </ul>

			<p>irrespective of when a patient was admitted.</p> <p>- <b>[Needs and Risks]:</b> Essential free text reporting to EMTCC can be inserted. To help EMTCC categorize the information and send it out to proper stakeholders, it is necessary to specify the number of relevant issues in the reporting.</p>
4	EMTCC to relevant stakeholders	Feedback	<p>Feedback from EMTCC to relevant stakeholders including EMTs should be regularly provided. EMTCC should aggregate daily reports from EMTs efficiently to induce a timely response. To prompt aggregation, it is recommended to keep a similar look between the Daily Report Form and the Feedback Form as that will effectively minimize workload for data aggregation and sharing.</p>

## 6.8 Electronic Data Form

- Even though paper-based information management during a disaster is still a golden standard and should be maintained, there is a growing need for an electronic patient recording system for use in disaster responses. Such a system is expected to have the potential to improve communication, care and coordination, enhance public health surveillance and promote efficient and effective decision-making [13]. Some systems have already been developed for EMT electronic MR (eMR) management. These include HAITI, which has been developed in 2010 during Haiti earthquake mission by computer engineers in the Israeli Medical Corps for use in their field hospital for international disaster relief, and the Japan Disaster Relief Medical Mission Operating System (JDR-MOS), which has been developed by the JDR. These EMT-eMR systems were developed independently, thus it would not be possible to replace them with one single system. Given this, the question is how can these systems, including future ones, be harmonized and standardized?

- One robust solution that has already been suggested is to standardize the eDATA format for eMR, rather than the systems themselves. [9] Using such approach allows all the systems to produce standardized data and the various stakeholders would be able to develop their own systems as part of a collective effort toward realizing a product for the EMT community. More ideas, greater experience and an increased budget will be made available for the development of a single standardized data format. This standardization would also prevent a situation in which a single system development company would monopolize the entire system.
- Fig. x shows the current situation for EMT reporting, where gaps in the current paper based system generates difficulties in swift aggregation and feedback as well as lack of individual patient level data at the EMTCC/MOH. Fig. x shows the situation that is expected to exist after standardization of the electric data format. Through this standardization, individual level data will be made available to the EMTCC/MOH from the EMTs with eMR, and the usability of data will be improved significantly.
- Based on this understanding, electronic data format for MDS is under development simultaneously with paper forms.

*(Testing of the selected items will generate the MDS form)*

- Appendix x: MDS eDATA format for Individual patients
- Appendix x: MDS eDATA format for Daily Reporting Form
- Appendix x: MDS eDATA format for Feedback Form

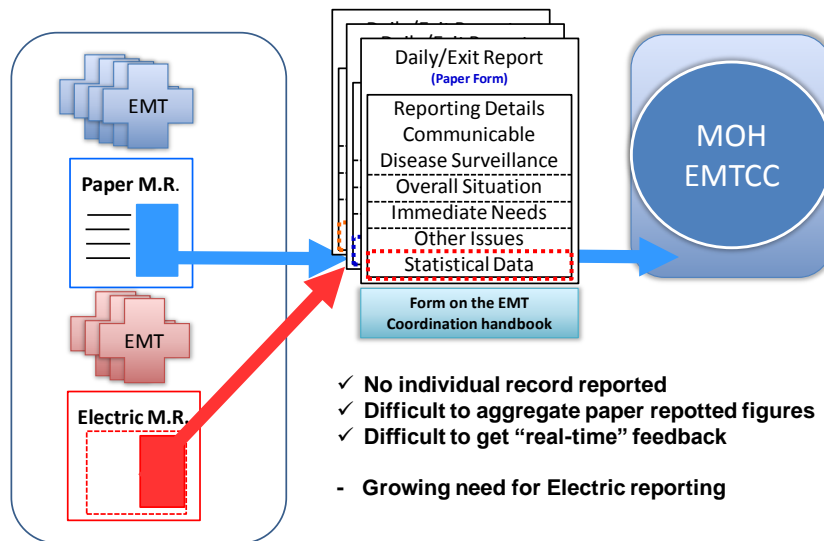


Fig. Current Paper based EMT reporting.

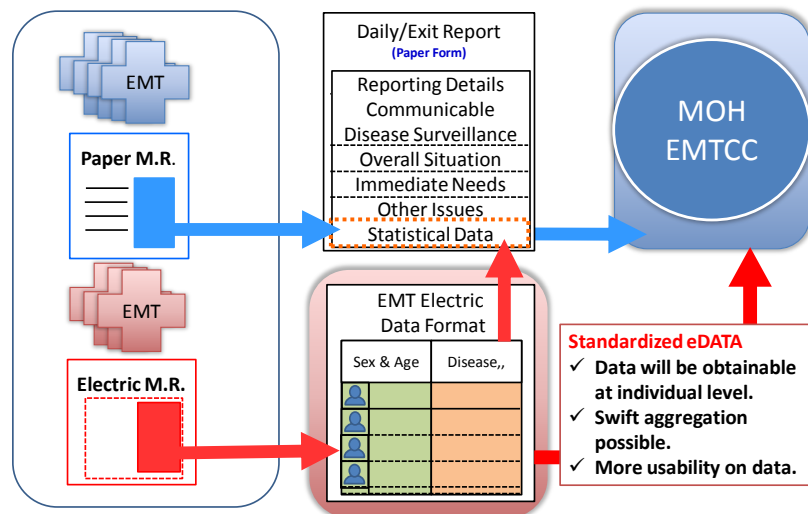


Fig. Expected EMT reporting combining paper and standardized eDATA.

## 7. Value and Strength of the MDS

### 7.1 Value of the MDS

- The MDS is based on two pillars: the information content of the MDS items and a framework for information processing. Both were developed in an evidence based process, taking into account experiences from previous reporting systems, to ensure an operational and practical system.
- The first pillar of the MDS is the information collected (MDS items). Those items were selected and defined in evidence and consensus based process. In a first step available evidence was collected via literature review, the MDS Form Survey and the multi-language internet survey. The resulting information was shared with the WG and intensively discussed. This methodology lead to an operational, useful and well-defined data set that is manageable by EMTs in the field.
- A framework for information flow and processing is the second pillar of the MDS, namely the MDS forms. The forms developed by this WG will enhance EMT internal information flow and exchange of information between EMTs and EMTCC/MOH. They are based on the lessons learned from the SPEED and J-SPEED systems in the Philippines and Japan, where their tick-box approach proved useful and robust in disaster response. The working group members from the Philippines Department of Health (DOH) and JICA provided valuable input based on the achievements and failures of their systems. These experiences were discussed intensively among the WG experts to develop practical and operational MDS forms.

### 7.2 Strength of the MDS (Case study: Kumamoto response)

- J-SPEED, the Japanese reporting system, was first activated for the response to the Kumamoto earthquake in 2016. As J-SPEED bears similarities to the MDS system, some of the lessons from the earthquake response may be transferred and highlight the strength of the MDS approach.
- **High feasibility:**  
The tick-box approach and the use of tally sheets allow standardized EMT reporting with limited workload and pre-training.

- **[Lesson learned]:** During the response to the Kumamoto earthquake, the majority of EMTs did not have any training in J-SPEED reporting. Nevertheless, around 1,800 daily reports from 350 EMTs were sent to the EMTCC in 47 days. Thanks to the high feasibility of the system, this high rate of reporting was observed for the first time in Japan's long history of disaster response. The reported information resulted in detecting a minor outbreak of norovirus in a shelter area and urgent mental health care needs like suicide attempts. A specialized response was triggered and delivered within one day. The standardized tick-box system significantly improved and almost changed EMT reporting in Japan.
- **Enabling swift feedback:**  
A standardized and simple method for data aggregation permits a swift feedback.  
**[Lesson learned]:** EMTs participating in the Kumamoto earthquake response were expected to send daily paper based reports to the EMTCC (on the day of activity). The maximum number of daily reports received in one day was 115. The EMTCC aggregated the reports and prepared a feedback report, which was distributed prior to next day's coordination meeting. Very useful for quick data processing was the simple procedure for data aggregation, which allowed all team members of the EMTCC to help and share the workload. On the other hand, the feedback was complicated by the lack of a pre-identified form before the onset of the disaster. With support from skilled epidemiologists feedback forms and a practical procedure were quickly set up. Therefore it is strongly recommended to prepare a feedback form beforehand.
- **Improve communications:**  
Standardized information processing improves communication among stakeholders and supports evidence and consensus based decision making.  
**[Lesson learned]:** In the Kumamoto response the daily report form significantly shortened the length of coordination meeting with focus on exchanging information. Moreover, the availability of quantitative data improved communications between EMT professionals and decision makers without a disaster response background. For example, Fig below revealed a reduction in total patients and a shift from disaster-related to non-related patients. This was noticed by disaster professionals on the field, but the quantitative data made it easier to communicate the situation to local government representatives. Moreover, quantitative data supports the EMTCC and MOH in EMT coordination and decision making.

Fig. Example of J-SPEED reporting in Kumamoto earthquake 2016.

Date (Sunday/Holiday)	Total patients	Non-relation to disaster	
	N	N	%
26-APR-2016	427	32	7.5%
27-APR-2016	392	52	13.3%
28-APR-2016	563	89	15.8%
29-APR-2016	460	77	16.7%
30-APR-2016	435	52	12.0%
01-MAY-2016	448	74	16.5%
02-MAY-2016	317	53	16.7%
03-MAY-2016	315	37	11.7%
04-MAY-2016	384	64	16.7%
05-MAY-2016	457	111	24.3%
06-MAY-2016	297	91	30.6%
07-MAY-2016	299	67	22.4%
08-MAY-2016	300	100	33.3%
09-MAY-2016	190	55	28.9%
10-MAY-2016	132	36	27.3%
11-MAY-2016	73	23	31.5%
12-MAY-2016	116	49	42.2%
13-MAY-2016	114	34	29.8%
14-MAY-2016	102	37	36.3%
15-MAY-2016	79	38	48.1%
16-MAY-2016	52	24	46.2%
17-MAY-2016	32	17	53.1%

- **Highly flexible and adaptable to deployment contexts:**

MDS is very flexible and can be adapted to a country or disaster specific context by modifying items for reporting.

[Lesson learned]: SPEED and J-SPEED have been used in disaster responses in Japan and the Philippines. The successful implementation in two countries with significant differences both culturally and in the medical response structures demonstrates the flexibility of the system. The first factor contributing to its flexibility is the modifiable item list, which allows accommodating context-specific items. In Japan, for example, experts have started to update the item list of J-SPEED based on the analysis of recent response data. Another important factor supporting the flexibility is the possibility to indicate not just one disease per patient but several items if appropriate. The simple instruction "Check all that apply" Not only makes the system practical but allows capturing the actual medical needs.

- **Supporting preparedness:**

Countries without a dedicated national reporting system can use the MDS as a basis to develop their system and modify the item list as required. Publication (sharing the form) during the preparedness phase will allow EMTs and EMTCC staff to get familiar with the form, which will speed up implementation of the reporting system during the response phase.

[Lesson learned]: Prior to the Kumamoto earthquake in Japan, the list and reporting forms were prepared and published beforehand. For this reason the reporting system was established swiftly and effectively, despite the lack of actual training and exercises with the forms. For EMTs the workload of one paper-based reporting form per day was manageable. The EMTCC on the contrary, flooded by hundreds of daily reports, struggled with the data processing. This indicates the EMTCC's capacity to process a large amount of daily reports is the bottleneck in data flow. This should be reflected in training and the composition of the EMTCC team. The use of electronic data, such as the MDS eDATA format, could be useful in improving the EMTCC's data management capacity.

### 7.3 MDS as data for research and future planning

The objective of the MDS is not limited to improving current disaster response operations, but also providing data for future planning and research. Currently, research on EMT operations and disaster medicine is limited due to difficulties in data collection during emergencies. The MDS goes together with creating a culture around the importance of standardized data collection and analysis to support operations as well as improving better preparation for future responses and quality of care to the affected population.

## 8. References

1. *Definitions: emergencies*. Humanitarian Health Action [cited 2016; Available from: <http://www.who.int/hac/about/definitions/en/>].
2. *Emergency Medical Team Coordination Cell (EMTCC) COORDINATION HANDBOOK Draft Version 10*. 2016.
3. *International Health Regulations*. 2005, World Health Organization.
4. *Global Health Security Agenda*. 2014; Available from: <https://ghsagenda.org/home>
5. *CLASSIFICATION AND MINIMUM STANDARDS FOR FOREIGN MEDICAL TEAMS IN SUDDEN ONSET DISASTERS*. 2013; Available from: [https://extranet.who.int/emt/sites/default/files/EMT\\_guidelines\\_september2013.pdf](https://extranet.who.int/emt/sites/default/files/EMT_guidelines_september2013.pdf)
6. Jafar, A.J., et al., *A literature review of medical record keeping by foreign medical teams in sudden onset disasters*. Prehosp Disaster Med, 2015. **30**(2): p. 216-22.
7. Kubo, T., *Literature Review on the Medical Records of the Emergency Medical Team and Its Progress toward Standardization and Digitization*. 2016, WHO Center for Health Development.
8. Kubo, T., et al., *Development of the Health Status Reporting System during Disaster : J-SPEED*. Japanese journal of disaster medicine 2014. **19**(2): p. Development of the Health Status Reporting System during Disaster : J-SPEED.
9. Joint Committee for Disaster Medical Record of Japan, *Standard Disaster Medical Record - Report*. 2015.
10. A Philippines Department of Health –World Health Organization Collaboration. *Surveillance in Post Extreme Emergencies and Disasters (SPEED)*.
11. Goyet, C., J. Sarmiento, and F. Grünewald, *Health response to the earthquake in Haiti January 2010 - Lessons to be learned for the next massive sudden-onset disaster*. 2011, Pan American Health Organization,.
12. WHO Representative Office Philippines. *Surveillance in Post Extreme Emergencies and Disasters (SPEED)*. Available from: [http://www.wpro.who.int/philippines/areas/emergencies\\_disasters/speed/en/](http://www.wpro.who.int/philippines/areas/emergencies_disasters/speed/en/).
13. Canadian Red Cross, *THE FUTURE OF FIELD HOSPITALS IN DISASTER RESPONSE Discussion Paper Blue-Sky Workshop* 2014.

EMT-MDS Daily Reporting Form (Ver0.94) 

Team information	a	【Organization name】	f	【Date of activity ※2】 dd/mm/yy
	b	【Team name】	g	【Time of reporting】 dd/mm/hh:mm (24h)
	c	【Type】 <input type="checkbox"/> Type 1 mobile <input type="checkbox"/> Type 1 fixed <input type="checkbox"/> Type 2 <input type="checkbox"/> Type 3 <input type="checkbox"/> Specialized cell	h	【Location】 (State:
	d	【Contact Person(s) name(s)】	i	(City:
	e	【Phone No.】	j	(Village etc. :
	f	【Email】	k	(Facility name:
g	【Estimated date of departure】 dd/mm/yy	l	【Geo-tag】	Latitude ( ) Longitude

※1 Report to EMTCC until (            :            ) ※2 Submit one form per one activity day and location.

Daily Summary		※1 Report to EMTCC until ( )		※2 Submit one form per one activity day and location.		
Inpatient Statistics	Number of patient / Bed Count (at the time of reporting)	32	Inpatient Statistics	Discharge Without F/U	40	Directly related to disaster
	patient (not admitted)	33		Discharge with F/U	41	Indirectly related to disaster
	New admission	35		Referral / Transfer	42	Not related to disaster
	Live birth	36		Left against medical advice	43	Vulnerable child
	Total bed capacity	37		Dead on arrival	44	Vulnerable adult
	Empty regular bed	38		Death within facility *	45	Sexual Gender Based Violence (SGBV)
	Empty ICU bed	39		Requiring long term rehabilitation *	46	Violence (non-SGBV)
Outpatient Statistics		Outpatient Statistics		Outpatient Statistics		Outpatient Statistics

※3 New admission(p) is equivalent to Admission (MDS34) . MDS statistics count outpatient and inpatient consultation of patients admitted on the day of activity. But for the procedure (MDS No.26-31), those will be counted on the day it was performed, irrespective of

Demographic MUS statistics	-		Age Categories	<1	1-4	5-17	18-64	65-
	1	Sex & Age	Male					
	2		Female non-pregnant					
	3		Female pregnant					

Health Events		<5	>=5
4	Major head / spine injury		
	Major torso injury		
	Major extremity injury		
	Moderate injury		
8	Minor injury		
	Acute respiratory infection		
	Acute watery diarrhea		
	Acute bloody diarrhea		
12	Acute jaundice syndrome		
	Suspected Measles		
	Suspected Meningitis		
	Suspected Tetanus		
16	Acute flaccid paralysis		
	Acute haemorrhagic fever		
	Fever of unknown origin		
	Surgical emergency (Non-trauma)		
20	Medical emergency		
	Skin disease		
	Acute mental health and psychosocial problem		
	Obstetric		
24	Severe Acute Malnutrition (SAM) *		
	Other diagnosis, not specified above		
	Procedure	<5	>=5
	Minor procedure (Based on ICD classification and definition)		
28	Minor procedure		
	Limbo amputation excluding digits *		
	Normal vaginal Delivery (MVD)		
	Caesarean section		
32	Obstetrics others		
48			
52			

Needs and Risks							
Free text reporting to EMTCC/MOH on the following issues.							
Risks	Immediate report	51	<input type="checkbox"/>	Unexpected death *	59	<input type="checkbox"/>	Shelter / Non food item
		52	<input type="checkbox"/>	National mandatory reporting disease	60	<input type="checkbox"/>	Food security
		53	<input type="checkbox"/>	Critical / security incident to community	61	<input type="checkbox"/>	Logistics/operational support
		54	<input type="checkbox"/>	Critical incident to EMT	62	<input type="checkbox"/>	Supply
		55	<input type="checkbox"/>	Any other issue	63	<input type="checkbox"/>	Human resources
		56	<input type="checkbox"/>	WASH	64	<input type="checkbox"/>	Finance
		57	<input type="checkbox"/>	Community/rumor based infectious disease	65	<input type="checkbox"/>	Others
		58	<input type="checkbox"/>	Environmental risk / exposure			
Detailed comment for ( No. )							
Detailed comment for ( No. )							
Detailed comment for ( No. )							
Detailed comment for ( No. )							

\* To be listed and turned in to EMCC with MDS reporting form. Linelist for protection is context specific. ※4 Additional are used for context dependent counting following guidelines from the EMCC/MOH; eg. for infectious diseases: Malaria/ Dengue/ TB / Leptospirosis / Rabies; eg. for hazard: Drowning/ Hazmat; eg. for population: Chronic diseases for elderly etc.

EMTCC-MDS Feedback Form (Ver0.94)										
EMTCC INFORMATION	a. 【Name of EMTCC】					h. 【Date of activity※1】 dd/mm/yy				
	b. 【Contact Person(s) name(s)】					i. 【Time of feedback】 dd/mm/hh:mm (24h)				
	c. 【Phone No.】					j. 【Total number of MDS daily reports aggregated】 ( )				
	d. 【Email】									
	e. 【Location】									
	f. (Facility name: )									
g. (Geo-tag) (Latitude ) (Longitude )										
※1 Date of EMT Activity for this feedback report.										
DAILY SUMMARY	Number of patient / Bed Count (at the time of reporting)		32	Discharge without E/U		40	Directly related to disaster			
	patient (not admitted)		33	Discharge with F/U		41	Indirectly related to disaster			
	New admission		34	Referral / Transfer *		42	Not related to disaster			
	Live birth		35	Left against medical advice		43	Vulnerable child			
	Total bed capacity		36	Dead on arrival		44	Vulnerable adult			
	Empty regular bed		37	Death within facility *		45	Sexual Gender Based Violence (SGBV)			
	Empty ICU bed		38	Requiring long term rehabilitation *		46	Violence (non-SGBV)			
※3 New admission(p) is equivalent to Admission (MDS34). MDS statistics count outpatient and inpatient consultation of patients admitted on the day of activity. But for the procedure (MDS No.25-30), those will be counted on the day it was performed, irrespective of										
DEMOGRAPHIC MDS STATISTICS	Age Categories		<1	1-4	5-17	18-64	65-			
	1. Sex & Age	Male								
	2. Female non-pregnant									
	3. Female pregnant									
DISEASE AND PROCEDURE MDS STATISTICS	Disease		<5	>=5						
	Trauma	4. Major head / spine injury								
		5. Major torso injury								
		6. Major extremity injury								
		7. Moderate injury								
		8. Minor injury								
		9. Acute respiratory infection								
		10. Acute watery diarrhea								
		11. Acute bloody diarrhea								
		12. Acute jaundice syndrome								
		13. Measles suspected								
	Infectious disease	14. Meningitis suspected								
		15. Tetanus suspected								
		16. Acute flaccid paralysis								
		17. Acute haemorrhagic fever								
		18. Fever of unknown origin								
		19. Surgical emergency (Non-trauma)								
		20. Medical emergency								
		21. Skin disease								
	Other key	22. Acute mental health and psychosocial problem								
		23. Obstetric complicated								
		24. Severe Acute Malnutrition (SAM) *								
		25. Other diagnosis, not specified above								
	Procedure		<5	>=5						
	Procedure	26. Minor procedure (non-amputation)								
27. Limb amputation										
28. Normal delivery *										
29. Delivery (MVD)										
30. Caesarean section										
31. Obstetrics others										
32. Additional										
Comment(s)										

• Team Name		• Location	
• Date of Activity		• Staff Name	

※How to: 1. Determine the vertical column according to the case's age group. 2. Check all the MDS items that apply for the case. 3.Count up the number of checks in each cell. ※Tally should be conducted daily per location of activity.

MDS Items		No	<1 year old	1-4 y.o.	5-17 y.o.	18-64 y.o.	65 y.o.-	Total
Sex	Male	1						
	Female (Not Pregnant)	2						
	Female (Pregnant)	3	X					
Trauma	Major head / spine injury	4						
	Major torso injury	5						
	Major extremity injury	6						
	Moderate injury	7						
	Minor injury	8						
Infectious/disease	Acute respiratory infection	9						
	Acute watery diarrhea	10						
	Acute bloody diarrhea	11						
	Acute jaundice syndrome	12						
	Measles suspected	13						
	Meningitis suspected	14						
	Tetanus suspected	15						
	Acute flaccid paralysis	16						
	Acute haemorrhagic fever	17						
	Fever of unknown origin	18						
Emerg	Surgical emergency (Non-trauma)	19						
	Medical emergency	20						
Other key diseases	Skin disease	21						
	Acute mental health and psychosocial problem	22						
	Obstetric complications	23						
	Severe Acute Malnutrition (SAM) *	24						
	Other diagnosis, not specified above	25						
Procedure	Major procedure except limb amputation and obsteric	26						
	Minor procedure	27						
	Limb amputation excluding digits *	28						
	Normal Vaginal Delivery (NVD)	29						
	Caesarean section	30						
	Obstetrics others	31						
Outcome	Discharge without F/U	32						
	Discharge with F/U	33						
	Admission	34						
	Referral / Transfer *	35						
	Left against medical advice	36						
	Dead on arrival	37						
	Death within facility *	38						
	Requiring long term rehabilitation *	39						
Relation	Directly related to disaster	40						
	Indirectly related to disaster	41						
	Not related to disaster	42						
Protection	Vulnerable child	43						
	Vulnerable adult	44						
	Violence (Sex & Gener Based)	45						
	Violence (non-SGBV)	46						
Additional		47						
		48						
		49						
		50						

## MDS Tick box on Medical Record (Example)(ver0

MDS - Check all that apply			
Sex & Age	Age	<input type="text"/> <input type="checkbox"/> Month <input type="checkbox"/> Year	
	Sex	1 <input type="checkbox"/> Male	
	2 <input type="checkbox"/> Female (Not Pregnant)		
Disease	Trauma	3 <input type="checkbox"/> Female (Pregnant)	
		4 <input type="checkbox"/> Major head / spine injury	
		5 <input type="checkbox"/> Major torso injury	
		6 <input type="checkbox"/> Major extremity injury	
		7 <input type="checkbox"/> Moderate injury	
	Infection	8 <input type="checkbox"/> Minor injury	
		9 <input type="checkbox"/> Acute respiratory infection	
		10 <input type="checkbox"/> Acute watery diarrhea	
		11 <input type="checkbox"/> Acute bloody diarrhea	
		12 <input type="checkbox"/> Acute jaundice syndrome	
		13 <input type="checkbox"/> Measles suspected	
		14 <input type="checkbox"/> Meningitis suspected	
		15 <input type="checkbox"/> Tetanus suspected	
		16 <input type="checkbox"/> Acute flaccid paralysis	
		17 <input type="checkbox"/> Acute haemorrhagic fever	
	Emerg.	18 <input type="checkbox"/> Fever of unknown origin	
		19 <input type="checkbox"/> Surgical emergency (Non-trauma)	
	Other	20 <input type="checkbox"/> Medical emergency	
		21 <input type="checkbox"/> Skin disease	
		22 <input type="checkbox"/> Acute mental health and psychosocial problem	
		23 <input type="checkbox"/> Obstetric complicated	
		24 <input type="checkbox"/> Severe Acute Malnutrition (SAM) *	
		25 <input type="checkbox"/> Other diagnosis, not specified above	
	Procedure & Outcome	Procedure	26 <input type="checkbox"/> Major procedure except limb amputation/obstetric
			27 <input type="checkbox"/> Minor procedure
28 <input type="checkbox"/> Limb amputation excluding digits *			
29 <input type="checkbox"/> Normal Vaginal Delivery (NVD)			
30 <input type="checkbox"/> Caesarean section			
Outcome		31 <input type="checkbox"/> Obstetrics others	
		32 <input type="checkbox"/> Discharge without F/U	
		33 <input type="checkbox"/> Discharge with F/U	
		34 <input type="checkbox"/> Admission	
		35 <input type="checkbox"/> Referral / Transfer *	
		36 <input type="checkbox"/> Left against medical advise	
		37 <input type="checkbox"/> Death on arrival	
		38 <input type="checkbox"/> Death within facility *	
		39 <input type="checkbox"/> Require long term rehabilitation *	
Context	Relation	40 <input type="checkbox"/> Directly related to disaster	
		41 <input type="checkbox"/> Indirectly related to disaster	
		42 <input type="checkbox"/> Not related to disaster	
	Protection	43 <input type="checkbox"/> Vulnerable child	
		44 <input type="checkbox"/> Vulnerable adult	
		45 <input type="checkbox"/> Violence (Sex & Gender Based)	
		46 <input type="checkbox"/> Violence (non-SGBV)	
	Additional	47 <input type="checkbox"/>	
		48 <input type="checkbox"/>	
		49 <input type="checkbox"/>	
		50 <input type="checkbox"/>	

- **Major**: Injury which needs care with general anesthetics and /or hospitalization. (EMT Type 2 & 3 care needed).
- **Moderate**: Injury which can be treated as outpatient but need conscious sedation or regional blocks. (EMT Type 1 Fix or more needed)
- **Minor**: Injury which can be treated by light dressing kit without anesthesia. (EMT Type 1 mobile capable)

- **Surgical Emerg.**: Non-trauma case which needs emergency surgery. e.g.) Gastrointestinal perforation, appendicitis,
- **Medical Emerg.**: Case which needs emergency intervention without surgery. e.g.) Asthmatic attack, gastric bleeding, acute myocardial infarction, pulmonary

- **Major**: Procedures usually needs general anesthetics and /or hospitalization. e.g.) open reduction internal fixation, trauma laparotomy.
- **Minor**: Procedure acceptably performed

- **Direct**: Patient visit with injury directly caused by disaster.
- **Indirect**: Patient visit with disease /injury caused by post disaster environment. e.g.) Disease / injury related to environment / situation caused by the disaster, ARI, diarrhea, skin disease. Patient who lost access to regular physician due to disaster.
- **Not related**: Patient visit with health problem not caused by disaster and without urgency. e.g.) Non

## Items of the Minimum Data Set (ver0.94)

Sex and Age	Age		<1, 1-4, 5-17, 18-64, 65-
	Sex	1	Male
		2	Female non-pregnant
Health Events	Trauma	3	Female pregnant
		4	Major head / spine injury
		5	Major torso injury
		6	Major extremity injury
		7	Moderate injury
		8	Minor injury
	Infectious disease * (Follow the national mandatory reporting instruction)	9	Acute respiratory infection
		10	Acute watery diarrhea
		11	Acute bloody diarrhea
		12	Acute jaundice syndrome
		13	Suspected Measles
		14	Suspected Meningitis
		15	Suspected Tetanus
		16	Acute flaccid paralysis
		17	Acute haemorrhagic fever
		18	Fever of unknown origin
	Surgical / medical emergency	19	Surgical emergency (Non-trauma)
		20	Medical emergency
	Other key diseases	21	Skin disease
		22	Acute mental health and psychosocial problem
		23	Obstetric complicated
		24	Severe Acute Malnutrition (SAM) *
		25	Other diagnosis, not specified above
Procedure & Outcome	Procedure	26	Major procedure except limb amputation and obstetric
		27	Minor procedure
		28	Limb amputation excluding digits *
		29	Normal Vaginal Delivery (NVD)
		30	Caesarean section
		31	Obstetrics others
	Outcome	32	Discharge without follow up
		33	Discharge with follow up
		34	Admission
		35	Referral / Transfer *
		36	Left against medical advice
		37	Dead on arrival
		38	Death within facility *
		39	Requiring long term rehabilitation *
Context	Relation to disaster	40	Directly related to disaster
		41	Indirectly related to disaster
		42	Not related to disaster
	Protection	43	Vulnerable child
		44	Vulnerable adult
		45	Sexual Gender Based Violence (SGBV)
		46	Violence (non-SGBV)
	Additional	47	
		48	
		49	
		50	