The Republic of the Union of Myanmar
Ministry of Health and Sports
Department of Public Health
Child Health Division

Review/Assessment of Implementation of Child Death Surveillance and Response (CDSR) in Myanmar

March – June 2018

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Abbreviations

AMW	Auxiliary Midwife
BHS	Basic Health Staff
CDSR	Child Death Surveillance and Response
CEMD	Confidential Enquiry Into Maternal Death
CHD	Child Health Division
CHLWG	Child Health Lead Working Group
CSO	Central Statistics office
DHS	Demographic and Health Survey
DMO	District Medical Officer
EAP	East Asia and Pacific Region of UNICEF
HA	Health Assistant
ICD	International Classification of Disease
IGME	United Nations Inter-agency Group for Child Mortality Estimation
IP	Implementing Partner
LBW	Low Birth Weight
LHV	Lady Health Visitor
MDG	Millennium Development Goal
MDR	Maternal Death Review
MDSR	Maternal Death Surveillance and Response
MPDSR	Paternal and perinatal Death Surveillance and Response
MS	Medical Superintendent
PHC	Population and Housing Census
PH	Public Health
PHS	Public Health Supervisor
SDG	Sustainable Development Goal
SEAR	South East Asia Region of WHO
SCI	Save the Children International
UNICEF	United Nations Children's Fund
VA	Verbal Autopsy
WHO	World Health Organisation

Executive Summary

Myanmar introduced Child Death Surveillance and Response (CDSR) in 2015 as an initiative to reduce child (under-5) mortality, an initiative that will contribute to the country's efforts to meet the Sustainable Development Goals (SDG).Technical Guidelines for CDSR were developed in 2015 followed by the development of Training Package in 2016. An Implementation Plan was made in 2016; and this led to all townships implementing CDSR in early 2017. After one year of implementation an assessment was carried out in early 2018. The overall aim of the assessment was to find out if CDSR implementation was progressing well, so that any weakness found can be remedied.

The assessment was conducted in 3 region/states – Ayeyarwaddy, Magway, Shan South, with information gathered from the state/region, district, township and basic health unit levels. In addition a caretaker interview was conducted to see health-seeking behavior. In addition to these three regions/ states, information was also gathered from three other regions/states but only at the at region/state level – Mandalay, Yangon, Kachin.

After the preparatory work, the assessment was conducted using 5 methodologies - (1) getting feedback from staff members implementing CDSR, using a feedback tool, conducted by a team of facilitators (2) review of CDSR forms prescribed in the Technical Guideline (3) interview of caretakers of deceased children for their health-seeking behavior (4) quantitatively measuring the burden of child deaths and (5) getting feedback from partners. The number of child deaths is big (about 20 times of maternal deaths) and it is not possible to review every child death unlike review of maternal deaths in Maternal Death Surveillance and Response (MDSR). Review can only be done on a sample of notified child deaths. The Technical Guidelines provide the methodology for this sampling, done at District level.

Findings: These are presented in this report based on the five methodologies

1. Feedback from implementing staff: The performance of staff at all levels was satisfactory. All midwives found CDSR-1 form to be easy to fill. But a few problems were detected. There were gaps in understanding of the three delays, resulting in findings that did not appear realistic. There was also lack of clarity and poor design of some of the CSR forms. Manpower shortage at all levels was a major weakness. Training has been conducted according to the plan, the master training for region/state was conducted in 2016, and it has to some extent cascaded to district, township and BHS. But there are still gaps and more staff need to be trained. The training package was found to be useful. All districts (in Shan State, this was at state level) have set up the District Review Teams, with members appointed according to the Technical Guidelines; meetings were held quarterly, attendance by members was inconsistent; the number of deaths reviewed at each meeting was variable. The weak Public Health structure at district compromised the smooth running of the review team and review meetings. The review tended to focus on cause of death, and less on the three delays. Staff at all levels felt that CDSR is a useful initiative, and they recognized and appreciated the benefits of CDSR.

2. Review of CDSR forms: While there was no problem in filling up CDSR-1 forms by midwives except some minor difficulties in assigning cause of death and the three delays, problems were detected in CDSR-3 and CDSR-4. This could be due to the lack of understanding of the TMO and DMO, which could have arisen from lack of clarity in the questions asked in the forms for them to answer. This lack of clarity led to incongruity in the answers such as numbers not adding up to the expected total that deal with some aspects of child deaths. The information on preventability of deaths was unsatisfactory. The use of CDSR-2 was very infrequent, verbal autopsy was seldom conducted. CDSR-5 was not used at all because there is an already existing mechanism / tool of supervision. There was an expressed need to introduce a new tool/form for the region/state to report to the central level.

3. Health seeking by caretaker – There was adequate awareness on the need to seek care (no first delay); there was no barrier to seek care (no second delay); and there was no constraint in the health care system that would have discouraged caretakers from seeking care(no third delay). However, because the selection of caretakers and methodology used were not technically robust, there was unavoidable bias, therefore interpretation and conclusion from this is limited and need to be taken with caution.

4. The burden of child deaths: The number of under-five deaths was grossly lower than the number found in the recent population census and Demographic and Health Survey (DHS) – only one third of the expected number was notified. Newborn deaths contributed 58%, and the leading cause was prematurity and birth asphyxia; and children 29 days to under-5 contributed to 42%, with pneumonia (and other infectious conditions) as the leading cause. Fatal congenital anomalies was a significant cause in both age groups. Half of the deaths was not associated with any delay to seek care, of the half that did have delay, most were type 1 delay. Slightly more than half of deaths had preventable factors.

5. Feedback form partners: UNICEF Country Office has been the lead partner in this initiative since its inception in 2015, and continues to provide technical and financial support. The role played by 3MDG Fund which manages the funds from donors is significant. Money from this Fund is channeled to several implementing partners (IPs) which provide support to the Township Health Department to implement various activities of CDSR. The feedback from one of these IPs, Save the Children provided an example of the progress and impact of some of these activities in remote parts of the country.

Discussion:

It is encouraging that CDSR was implemented in all townships since early 2107; a reflection of the commitment of the health department at all levels, including of Child Health Lead Working Group (CHLWG) and National CDSR Coordination Committee which provided the necessary oversight to the initiative. The problems found in the filling up of CSDR-3 and CDSR-4 forms, was due to gaps in competence of staff, as well as to lack of clarity in the CDSR forms themselves. The information in these forms on preventability of deaths was inadequate, and preventability is the central feature of a death review. The very low number of verbal autopsy needs to be studied further including the usefulness of CDSR-2 form. The fact that CDSR-5 form was not used for supervision was explained, but this explanation was inadequate and efforts need to be made to ensure supervision of midwives is conducted for CDSR tasks.

The progress made in training, using the multiplier model, is encouraging, although there are still gaps that need to be addressed. Training was more easily implemented in regions/states that receive support from 3MDG Fund. In the other regions/states, there was financial constraint; and some good innovative solutions were explored, such as public-private partnership. Information obtained separately from SCI staff suggests that some BHS staff use their own personal funds to come to attend meeting, which indicates a high level of commitment and dedication.

Review teams have been established at district level. Review meetings conducted at district was satisfactory overall, although there is need to improve the attendance rate of members in some districts. The most glaring finding was the weak District Public Health structure, in fact it is non-existent in Shan South. This was predicted during the development of the Technical Guidelines, with the restructuring of health departments being very recent then. But CDSR requires clinical acumen in assigning cause of death (more complex than maternal deaths), and in sampling of child deaths to be reviewed (not necessary in maternal death review). This necessitated the review to be conducted at District level where there is a paediatrician at the District Hospital. With the low likelihood that the District PH structure will be strengthened in the near future, the current approach needs to be reviewed to consider the death review to be conducted at township instead of district level.

Another major management issue is manpower shortage. Some remedial measures were identified, such as reviewing the posting and responsibilities of some new staff. Staff transfer has affected performance of CDSR, but transfer of staff is unavoidable, and some mechanisms to minimize its effects are recommended. There was adequate technical competencies at all levels for epidemiological analysis, but staff shortage had compromised this function. The shortage of manpower and the fact that the excel spreadsheet has not been made available has affected data entry and analysis. But most townships had created death registers that incorporated basic variables. In some townships/districts, the lack of staff has been ameliorated to some extent by support from implementing partners, but this support cannot be sustained.

Collaboration at all levels was good; there was no serious problem for public health staff dealing with hospital staff; hospital-health relationship has existed for a long time. In almost all districts the MS of the hospital was also the DMO.

For feedback, the monthly CME meeting at township health office was an important platform, and this has to be maintained and if needed, strengthened. Feedback from supervision of midwives need to be recorded more systematically. At district and state levels, the review meetings held quarterly and six-monthly respectively was found to be adequate for feedback. Advocacy and dissemination was paid less attention to, for two reasons – the shortage of manpower; and the fact that CDSR is still in the early stage of implementation, so there was not much information to be shared.

It was extremely encouraging that the staff had positive opinions on CDSR, they acknowledged its importance and appreciated the benefits - more reliability in number of child deaths, and information on cause of death, type of delay and preventability. Several strengths were cited - involvement of paediatricians and obstetricians, good cooperation between public health and hospital, use of data for epidemiological surveillance. Paediatricians felt that CDSR was no extra burden. There were difficulties with remote hard-to-reach areas and high transport costs. Most staff agreed that CDSR and MDSR are of equal importance, a few felt that MDSR had been perceived as being more important. CDSR was seen as easier because the CDSR-1 form is shorter.

The findings of caretaker interview were useful especially in the delay to seek care. The fact that none of them had any of the three delays needs to be interpreted with caution since the methodology used was not robust enough. This may have been the reason why the findings from caretaker interview were not in consonance with findings from feedback from staff and review of CDSR forms.

The role and contribution of UNICEF is clear; the 3MDG Fund, besides being a fund management entity, also provided professional and technical support. The activities carried out by implementing partners (IPs) were significant, as was exemplified by Save the Children and Relief International, whose major contribution were training, support to data entry, and transportation for staff to attend meetings at township and district levels.

Conclusion: CDSR in Myanmar is being implemented successfully, although there are several weaknesses and shortcomings, which is not unusual for any new initiative. Most of these weaknesses are amenable to improvement and corrective actions. There is need to review and make necessary amendments to the Technical Guidelines.

Recommendations : Eleven recommendations were made - maintain current commitment; continue and enhance training; enhance competency of staff; review Technical Guidelines and CDSR forms; review the role of district health office in conducting review of child deaths; address manpower and other management issues; strengthen supervision and feedback; strengthen advocacy, dissemination, public awareness; maintain partnerships; enhance the visibility of CDSR; and consider making policy on stillbirth/perinatal death review.

The immediate next step is to look at the above recommendations closely to develop Policy briefs that will facilitate advocacy and dissemination; make a decision on whether review of child deaths is to be retained at District Health Office or to move it to Township Health Office; make a decision on review of stillbirths/perinatal/neonatal deaths; and develop a plan of action for implementing the recommendations. In the longer term, another assessment of CDSR should be conducted in order to see if the weaknesses in this first assessment are corrected, and to assess aspects that could not be assessed this time, such as the sampling of deaths to be reviewed and the use of excel spreadsheet. Also a caretaker interview using a more robust approach is needed. If the death review is to be moved from District to Township, this will need to be assessed.

Part I:

Backround, Preparation, Data Collection

1. Child Death Surveillance and Response (CDSR) In Myanmar

1.1. The beginning

The Child Health Lead Working group (CHLWG) in 2014 recommended that Child Death Surveillance and Response (CDSR) be introduced in Myanmar. This recommendation was made against the background that Myanmar has begun to implement Maternal Death Review (MDR) since 2005, which was planned since 2012 to be upgraded to Maternal Death Surveillance and Response (MDSR) as part of the global Strategy for Women and Children Health. In addition Myanmar in 2013, had conducted a study on cause of under-5 mortality using a verbal autopsy tool developed by WHO[1], to obtain a database on the cause of death among children below 5 years old. The country did not meet the target of the fourth Millennium Development Goal (MDG4) to reduce under-five mortality rate by two-thirds from 1990 to 2015. These various experiences provided an appropriate platform for Myanmar to begin CDSR as an initiative to reduce child mortality, especially to achieve the Sustainable Development Goal (SDG), which aims to end by 2030, preventable deaths of newborns and children under 5 years of age, and with all countries aiming to reduce neonatal mortality to at least as low as 12/1,000 livebirths, and under-5 mortality to at least as low as 25/1,000 livebirths. There are several challenges for the country in its quest to achieve these targets. This can be seen from data in two sources, the World Health Statistics 2017, and the report of the United Nations Inter-agency Group for Child Mortality Estimation (IGME) 2017. Data from these two sources are shown in the table below, and comparison is made with the situation in South East Asia (SEA) Region of WHO and the East Asia/Pacific Region (EAP) of UNICEF, and with the global situation. The reader is to note that the rates for SEAR of WHO are higher than EAP of UNICEF, and one reason is the different countries (with different socio-economic profile) that make up these two regions, with a few countries overlapping between them.

	Under-5 mortality/1,000 livebirths		**Neonatal mortality/1,000 livebirths**	
	WHS 2017	**IGME 2017**	**WHS 2017**	**IGME 2017**
Myanmar	50.0	51.0	26.4	25.0
SEAR/WHO	42.5	39.0	24.3	23.0
EAP/UNICEF	Not available	16.0	Not available	9.0
World	42.5	41.0	19.2	19.0

The IGME has in addition, data that gives the trend since 1990, and the table below shows the mortality rates for 1990 and 2016.

	Under-5 mortality/1,000 livebirths 1990 --- 2016	**Neonatal mortality/1,000 livebirths 1990 --- 2016**
Myanmar	116 --- 51	48 --- 25
SEAR/WHO	119 --- 39	53 --- 23
EAP/UNICEF	57 --- 16	28 --- 9
World	93 --- 41	37 --- 19

Clearly, Myanmar in 2016 reported higher under-5 and higher neonatal mortality rates than the two regions - SEA Region of WHO and especially the EAP Region of UNICEF.

The National Population and Housing Census 2014 revealed a disturbing picture, as quoted below (taken from the 2014 Myanmar Population and Housing Thematic Report on Mortality).

1. WHO. A Standard Verbal Autopsy Method for Investigating Causes of Death in Infants and Children. WHO/CDS/CSR/ISR/99.4. http://www.who.int.emc

"Infant and under-five mortality in Myanmar is the second-highest in ASEAN. But there is significant geographical variation within the country. A new census report reveals an alarmingly high number of deaths among children in several districts. In Labutta, Ayeyarwaddy, one in six boys die before their fifth birthday. At state/region level, the highest figures come from Magway and Ayeyarwaddy, where one in ten children die before they reach the age of 5."

It has become clear, from experience in MDR and MDSR that knowing the burden of mortality is only one aspect; it is equally important to know the circumstances that lead to the death, such as poverty and lack of access to health care. This is reflected in a statement in the thematic report of the National Population and Housing Census 2104, which highlights the role of socio-economic condition.

"The single most important factor contributing to the deaths of babies and children is low standard of living. Millions of people live in dire conditions in households without safe drinking water, a toilet, or electricity. Substantial reductions in under-five mortality could be achieved by improving people's standard of living, especially in remote areas."

In 2015, under the coordination of the Division of Child Health Development (CHD) of the Ministry of Health and Sports (MOHS), efforts were initiated to introduce CDSR in Myanmar, with the development of the Technical Guidelines. It was decided that CDSR is to be carried out for two age cohorts of under-5 children – stillbirths and neonatal deaths (0-28 days) and children aged 29 days to below 5 years. It was also decided that for stillbirths[2], it was limited to only counting the numbers/burden, without reviewing the death[3]. The other deaths were to be reviewed (audited) using specific tools prescribed in the Technical Guidelines. This was followed in 2016, by the development of a Training Package, and conduct of a national level training of "master trainers". Two potential master trainers were selected from each region/state. After the master training, they were responsible for conducting multiplier training at their respective states, cascading from townships to health centres and hospitals. Also in 2016, an Implementation Plan for CDSR was developed, which provided a practical guide on how to initiate and roll-out CDSR as described the Technical Guidelines. The plan was to roll-out the implementation in selected pilot areas, and then scaling it up in a phased manner.

1.2. The current progress of CDSR in Myanmar

The Implementation Plan suggested that CDSR was planned to be rolled out as "pilot' in 61 selected districts and townships. These were the townships supported by the 3MDG Fund, child health services implemented by the Township Health Departments with support from several implementing partners (IPs). However all districts and townships throughout the country decided to implement it since January 2017. Since this nationwide implementation, to date, some information has emerged on the current status of CDSR. This information however is inadequate, and does not serve as a systematic assessment. It does however provides some useful information for this assessment. Some of the observations made were – the number of stillbirths was higher than expected; the review rate is slightly higher for neonatal deaths compared to under-5 deaths; the number of notified deaths for verbal autopsy was conducted was very small; the proportion of deaths for which cause of death identified by the midwife was agreed on by the review team was high (more than half for under-5 deaths and is higher for neonatal deaths); using the 3-Delay Model, the deaths that reported no delay was relatively high, with lower proportions reporting the three delays.

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2. It was recognised that there is more than one definition of stillbirth, generally based on weight of the foetus, and if weight is not available on the weeks of gestation, and that both these measures are often not available in many countries

3. Stillbirths and early neonatal deaths (0-7 days) constitute perinatal deaths. There is as yet, no system of perinatal death review in Myanmar. There are several approaches for conducting perinatal death review, and a common model is to make it part of maternal death review as Maternal and Perinatal Death Surveillance and Response (MPDSR)

In terms of the processes of conducting the CDSR, the experiences have led to some recommendations, applicable to the relevant level, and these include – to ensure all staff involved in CDSR are trained; and to conduct refresher training; to consider the use of standardized way in COD (eg, ICD-10 code); to strengthen supportive supervision and giving guidance on usage of forms and data-entry methods in excel sheet; to ensure timely replacement of focal persons at all levels; to assign the data-entry person in township and to ensure adequate supply of CDSR forms for BHSs.

2. Assessment of CDSR

2.1. Rationale

According to the implementation plan, a review/assessment of CDSR is supposed to be carried out after 9 to 12 months of implementation in the 61 pilot townships; but all townships in the country have implemented it. The review/assessment is to answer the salient question "*Was the roll-out a "success"?* If it was a "success", when and how can the experience from it be scaled up for eventual nationwide implementation? If it was not a "success", what were the problems and are the corrective actions to be taken.

2.2. Objectives

The general objective of the assessment was to find out how the implementation of CDSR is going on since it started in early 2017. Specifically it was conducted to:

1. Find out how well (or otherwise) CDSR is being implemented at every level of the implementation by each of the categories of staff
2. Find out the problems (if any) related to the understanding and use of the Technical Guidelines and the CDSR forms, and the inadequacies of the guidelines itself and the tools (CDSR forms) in the guidelines
3. Find out the health-seeking behavior of the caretaker of deceased child before the death
4. Measure the burden of child deaths reported in CDSR, after 12 months of implementation
5. Review the role of partnerships in CDSR and how this can be optimized for ensuring sustainability of CDSR
6. Identify the strengths and good practices to be maintained and further supported, and weaknesses/ problems for which solutions need to be found, and make recommendations
7. Identify the next steps for CDSR

2.3. Preparatory work

At country level, preparation which started in February 2018, was carried out by relevant officers in CHD Department and UNICEF Country Office. These involved:

- the compilation of relevant documents, and what is already known about CDSR implementation
- the sampling of sites for the assessment and making arrangements for data collection
- preparing for the meeting of the Child Health Lead Working Group (CHLWG) meeting before the assessment is carried out. This was held on 8-9 March (see below)

The international consultant started work off-country in February, and kept contact with the country team by email and telephone. The preparatory work consisted of:

- reviewing of the CDSR Technical Guidelines and Implementation Plan
- conducting literature search for added information
- writing Review/Assessment Protocol which included developing the tools for the assessment. The content of the protocol is shown in summary in ANNEX 1
- preparing the workplan for the duration of the consultancy

A meeting of the Child Health Lead Working group (CHLWG) was held on 8-9 March 2018; the objectives of the meeting were explained, and progress reports on CDSR in 6 regions/states were presented – Mandalay, Kachin, Shan South, Kayin, Ayeyarwaddy, Magway. The CDSR Implementation Plan was revisited, focusing on the assessment/review protocol, and introduction of the feedback tools for assessment. This was followed by participants of the meeting working in small groups to review the feedback tools and gave comments for consultant to make necessary amendment. Three states present at the meeting will not be visited to get feedback from the various levels (Mandalay, Yangon and Kachin) so feedback was obtained using the feedback tool for the region/state level by interview of CH focal points. For the other three states (Ayeyarwaddy, Magway and Shan) feedback will be obtained during the field visit at all levels, from 12 – 16 March.

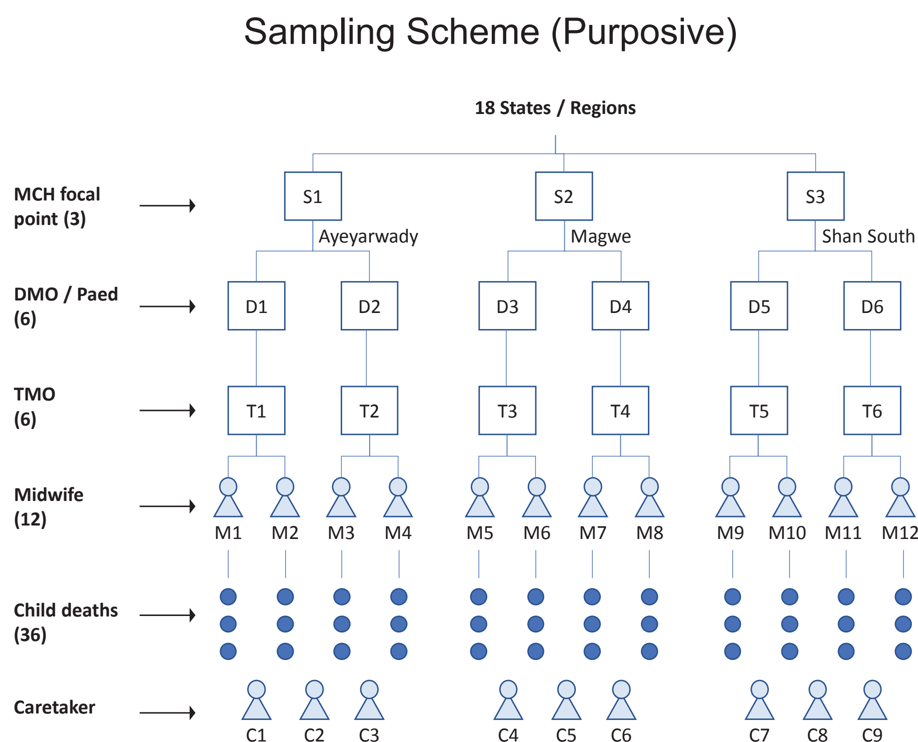
2.4. Components of CDSR for assessment

CDSR has three components – the review (audit) of a death, the surveillance on trend child deaths, and the responses to the findings of the review and the surveillance data. This assessment focusses mainly on the review component. But it is logical to assume that the review has led to responses or actions taken based on the findings. It also attempted to assess the surveillance component. However, with only 12 months of implementation, the information generated was limited especially in terms of trend of child death over time.

2.5. Selecting the sites and dates of assessment

Study sites were selected by convenient/ purposive sampling. The schematic diagram of the site selection/sampling is shown in Figure 1.

Figure 1: Sampling scheme for assessment of CDSR



State/Region (*)	District (**)	Township	Health centres – identified by TMO
Ayeyarwaddy	Labutta	Labutta	Kyaut Pyu Subcentre, Mway Hauk Subcentre
	Pyapon	Dedaye	Dedaye MCH Clinic, Lay Ean Kone Subcentre
Magway	Pakokku	Myaing	Kangyitaw Subcentre, Kyauk Sauk RHC
	Minbu	Ngape	Paunkalay Subcentre, Min Lwin Subcentre
Shan South (*)	Taunggyi	Hsiseng	Sauk Kaung RHC, Lwe Put RHC
	Langkho	Maukmai	Phar Son Subcentre, Htee War Poh Subcentre

Mandalay, Yangon and Kachin were also assessed, but only at Region/State level.

(**) Unlike Ayeyarwaddy and Magwe, where there is a district health department, in Shan South. Therefore the feedback from Taunggyi and Langkho was obtained from the State health department.

The dates of assessment - As provided by the Implementation Plan, assessment was to be after 9 to 12 months of implementation. CDSR was rolled-out in all townships in early 2017. Therefore assessment was in early 2018.

- February 2018: Preparation for assessment, both in-country by CHD and UNICEF, and off-country by the consultant
- March 2018: Meeting of CHLWG on 8-9 March; data collection was on 12 – 16 March 2018
- April to mid May 2018: Analysis of the findings was carried out by international consultant
- Third week June : A meeting of CLHWG was held on 26 June, at which the draft report was discussed, and plans made for the report to be disseminated

2.6. The assessment team

The assessment was conducted by a team of facilitators, who are staff in the Child Health Department (CHD) and UNICEF (country office and field staff), with assistance from an international consultant, and a national consultant (only for data collection). There was also participation for two members of the 3MDF Fund, which has a critical role in the development and implementation of CDSR.

Region/state	Team members
Ayeyarwaddy	Dr Narimah Awin, International consultant for CDSR, UNICEF Country Office
	Dr Tin Moe Moe Win, National consultant for CDSR, UNICEF Country Office
	Dr Sarabibi Thuzarwin, Health Specialist (MNCH) UNICEF Country Office
Magway	Dr Zaw Myo Aung, Assistant Director, Child Health Division MOHS
	Daw Win Mar Htay, Admin officer, Child Health Division MOHS
	Dr Su Mon Kyaw, Health and Nutrition officer, UNICEF Mandalay office
	Dr Khin Sabai Maung, Programme Analyst, The 3MDG Fund
Shan South	Dr Aung Naing Soe, Medical Officer, Child Health Division MOHS
	Dr Nang Mya New Tra, Health and Nutrition specialist, UNICEF Shan office
	Dr Lin Lin Htun, Programme Team Leader, The 3MDG Fund

3. Methodology and Data Collection

Five methodologies were used for the assessment:

3.1. Feedback from staff members

This is the major component and methodology of the assessment, and the information obtained from this provides input for the first specific objective of the assessment – to find out how well (or otherwise) CDSR is being implemented at every level by each cadre of staff, and to identify the strengths and good practices to be maintained and further supported, and weaknesses/problems for which solutions need to be found.

The assessment was intended to be largely qualitative, and this was done by using a direct face-to-face discussion with respondents who are staff who are directly implementing CDSR processes in their various capacities at the different levels of the health system. These processes are described in detail in the Technical Guidelines and Implementation Plan. This was carried out using feedback tools (ANNEX 2a to 2e) A simple instruction was provided (ANNEX 2f). The processes of data collection is summarized in ANNEX 3. The findings are in Section 4.

Meeting with District team on CDSR implementation at Labutta District Hospital

3.2. Review of CDSR forms

A sample of three forms used in CDSR were taken to see how well these forms are being filled. These three forms were CDSR-1 (notification by midwife), CDSR-3 (summary by TMO) and CDSR-4 (summary by DMO). For any interested reader, these forms are to be seen in the Technical Guidelines. There was no necessity to examine CDSR-2 because verbal autopsy was done on a very small number of deaths, and CDSR-5 (supervision checklist) which was not used at all. For any interested reader, these forms are annexes in the Technical Guidelines. Three forms were examined:

- CDSR-1 : 3 forms/midwife randomly selected (12 forms x 3 teams = 36 forms)
- CDSR-3 : 6 forms randomly selected from each state/region (6 forms x 3 teams = 18 forms)
- CDSR-4 : 6 randomly selected from each region/state (12 forms x 3 teams = 18 forms)

There was no necessity to review CDSR-2 because the number of verbal autopsy done was very small, and the supervision checklist in CDSR-5 was not used at all.

It needs to be noted that the intention is to see how well/correctly/accurately these forms are filled, and not to get a profile of the deaths (which is of course possible), because the profile of child deaths was to be obtained from the quantitative part of the assessment. The findings from are in Section 5.

3.3. Interview of caretakers of deceased children

A questionnaire (ANNEX 2g) was applied for caretakers of the deceased child to elicit information on knowledge of caretakers of children on child health, and on their health seeking behavior, especially in the context of the three delays of seeking care. The selection of the caretaker was done by the township health authority, in consultation with the BHS. A convenient (and therefore not robust, with unavoidable bias) approach was taken because some caretakers were not available to be interviewed on the particular day and time, especially mothers who are working away from the home. There was no specific guideline for this, but it can be assumed that factors such as age and cause of death were likely to have been considered in the selection. The main aim of the caretaker interview was to find out his/her health literacy and health seeking behavior especially to detect any delay in seeking care using the three-delay model. The findings from these caretaker feedback sessions are in Section 6.

Interview with Caretaker of deceased child in Hpar Son village, Mauk Mae Township, Shan South

3.4. Measuring the burden of child deaths in Myanmar

There was a limited quantitative component in the assessment that attempted to measure the burden and describe the profile of child deaths. In the absence of the spreadsheet which has all the variables, it would have been ideal for this quantitative component to be carried out by analyzing individual CDSR-1 forms. However this was not possible. Instead the number of child deaths (with only basic variables) to estimate the burden was obtained by analysis of CDSR-4 forms, obtained from all 75 districts in the country (not only the sample sites); but forms were obtained only for 59 districts. The findings are shown in Section 7.

3.5. Feedback from partners

The implementation of CDSR in Myanmar is highly dependent on partnership; and besides the financial technical support from UNICEF Country office, it is supported by funding from the 3MDG fund which provides funds to several implementing partners (IPs). Feedback was obtained by discussion with the 3MDG Fund team, and with one IP (Save the Children). The findings are in Section 8.

Part II:

Findings

Before the findings are presented, the first finding answered the question "*When did implementation of CDSR begin?*" - implementation started in early 2017. As explained earlier, the implementation was planned to be in selected townships after the Implementation Plan was ready. This was therefore an "over-achievement" in this aspect of implementation. The other findings are presented in the five sections below (Sections 4 to 8) based on the five methodologies.

4. Findings (1): How Well Is CDSR Being Implemented?

This was the most essential and was the focus of the assessment, and it attempted to seek strengths, and weaknesses of CDSR implementation. A question was asked at every level on the number of child deaths that had been notified since CDSR began, with the number broken down into the two age cohorts and the place where death occurred. These numbers were not critical for the assessment, but it served as a suitable "ice-breaker" and to get the setting for the feedback.

4.1. Basic health service level (information form midwives, REV-1 form)

a. All the 12 midwives said that they began to implement CDSR in early 2017. The number of child deaths reported to them varied between 2 to 12 deaths for the year 2017. The midwives gave different categorization – some gave deaths broken by age, some by hospital and community deaths, and some by both.

2. The person who informed of the death were mainly family members, with a few from AMW and when the midwives themselves happened to visit the family for some other activities such as immunization. For deaths that occurred in hospitals the informer was the hospital staff. The method of information was mostly verbal or by mobile phone.

3. The time from death occurred to time it was informed to the midwife was variable; the shortest was 30 minutes and the longest one month, the most number were between 2 to 3 days. As to the time from midwife being informed to time she fills up the CDSR-1 form, it varied from immediately to one week, there was one midwife who said within 2 weeks.

4. All midwives found no problem in understanding and filling CDSR -1. A few even said it was "easy". One midwife found lack of clarity in the information about "referral to higher level". A few midwives found the parts on cause of death and the three delays not very easy to fill. When asked if help is needed, all of them said they would get either the PHSII or the HA to help them. When asked if AMW can be asked to do this task of notification in CDSR-1, all the midwives with no exception, felt that it is NOT appropriate for AMW to do this.

5. All midwives had no problem to fill CSO-201 form; almost all of them appreciated the importance of this form. A few of them made the observation that it is easier than CDSR-1 to fill. One midwife even added the extra information that death certification is not always sought for because it is not a requirement for burial or cremation.

6. Most of the midwives had report of child deaths from the hospitals, all were government hospitals. After receiving the information, the midwives would visit the family of the deceased child. None of them had seen any clinical audit report from the hospital. The collaboration between the health and hospital has been good overall. There has been no report of a child death from a private facility.

7. They feel that the monthly CME meeting at the township is a very important platform, this is where CDSR is discussed with the TMO and THN, and problems solved.

8. The number of child deaths that needed a verbal autopsy using CDSR-2 form was very small. In the few cases that needed verbal autopsy, it was conducted by staff other than the midwife – mainly the HA, THN.

9. Most midwives carry out health education immediately after a death is investigated, to the family members, and sometimes this includes the neighbours. Many midwives have made requests to the village committee to encourage the community to report of any child death. Some midwives use existing opportunities to do health education. For example the midwife in Mway Hauk in Labutta township used the "1000 day Nutrition Initiative"[4] for which eligible pregnant mothers are provided monthly financial aid from the time she is pregnant up to when the child reaches 1,000 days. In Dedaye, the midwives, serving an urban area (divided into wards), claimed that health education is not as easy to do as in rural areas

10. The supervision checklist (CDSR-5 form) was not used at all. Supervision of midwives was carried as part of the routine supervision by HA, LHV and THN. The facilitators did not request to see if there was any existing checklist for supervision, but through casual conversation, it appeared that supervisor does not use a standardized format, but a record is made that the visit was made. All midwives expressed appreciation of the supervision they received. The number of supervisory visits varied – in most centres, it was between 2 to 5 times in 2017, and monthly in some centres

Midwives interviewed on CDSR implementation from Kyar Kan RHC, Labutta Township

CDSR assessment team visiting Phar Son SubRHC, Mauk Mae Township

4. This Scaling Up Nutrition Movement is carried out by the government in partnership with INGOs with the lead role from the LIFT project (Livelihood and Food Security Trust Fund), a multi-donor fund established in 2009 to improve the lives and prospects of smallholder farmers and landless people in rural Myanmar.

4.2. Township level (information from TMO, REV-2 form)

a. In all townships the THN is responsible for checking all CDSR-1 forms, and sometimes, she is assisted by the HA. In almost all townships, the TMO checked the forms after the THN had done the first checking. CDSR1 forms are adequate in terms of adequate and correct information. If any detailed information is needed by TMO, he asked the midwife at the monthly meeting. About 5% of forms are incompletely filled. Some forms are incompletely filled. The number of variables in the form is enough, no suggestion was made to review this form, but one TMO (Dedaye) suggested there should be space below the list of symptoms for the midwife to write the cause of death. About information on the three delays, some TMOs noticed a lack of understanding of the concept of 3 delays.

b. The number of deaths in hospital was variable – none of them had a clinical audit report. There were various means for the midwife to be informed of the hospital death – some were reported by the hospital, some were reported by the family, and in a few cases, the midwife got to know when she makes a visit to the family. There is no death reported by any private hospital.

c. Verbal autopsy was rarely carried out, done for 19 deaths only. In Dedaye there were 2 deaths for which there was VA conducted, by the THN with the MW of the area. In Myaing, VA was carried out on 12 out of 65 child deaths. The VA were conducted by the MO in charge of MCH and HA1. In Ngape, VA was done for 5 cases out of 21 child death. In all these, the CDSR-2 forms were properly filled up. There was no VA conducted in Labutta, Hsiseng and Maukmai.

d. The CDSR-5 form is not used by the supervisors (LHV, HA, THN) who carried out supervision for overall tasks of the midwife, as an integrated supervision and not specifically for CDSR.

e. Almost all the townships have created the death register, incorporating basic variables (age, sex, cause of death), although a few preferred to wait for the Excel sheet. In most townships, this task was carried out by the THN and HA, sometimes assisted by a station medical officer. In Labutta, this task was carried out by Save the Children, but this will soon stop.

f. Overall, there was no problem faced by TMOs in filling CDSR-3 form. However this feedback is not accurate, because in the in the assessment of the filling-up of three CDSR forms (See section 6 below) there were several errors and inaccuracies found. Three TMOs gave comments – Hsiseng suggested there should have a table to show deaths by month; Ngape found it is sometimes difficult to categorize preventable or not-preventable deaths; Dedaye felt that it focusses only on the output of CDSR-1 forms but it is not analytical enough.

g. For all townships either the TMO (Dedaye, Myaing, Ngape) or the THN (Labutta) attend the review meeting in the district. For Hsiseng and Maukmai, there is no district review teams, and both the TMO has attended the meeting at state level, and they found it to be very useful.

h. For training, in Labutta, the THN has been trained at the training session in Nay Pyi Taw organised/funded by 3 MDG; and after that she had conducted training for midwives. The TMO of Dedaye had attended the two-day training when he was TMO in Mandalay in 2016. In Myaing the HA1 and MO in charge of MCH attended central CDSR training in Feb 2017. After that, a multiplier training was conducted in March-2017 by the township – participants were BHS, HA, LHV, MO, hospital staff. CDSR training was conducted a second time, integrated with EPC Training. In Ngape, TMO had undergone 3 days training, as also all hospital and all BHS staff in the township. In Hsiseng, a 2 day training was conducted and this was adequate. All midwives have been trained, and it is felt that PHSII also need to be trained. In Maukmai, training was in December 2016, only newly posted midwives are not yet trained, but they had obtained orientation during the monthly CME. PHS II also should be trained.

i. The general opinion of TMOs was that CDSR is useful because they can know the "delay" and the preventable causes; and if competence of midwives needs to be improved, they should be given refresher training. The strengths identified were increased awareness in CDSR; support from IPs for AMW training and for support to transport midwives to monthly meetings; it encourages good reporting; in Shan, the Ethnic Health Organisations (EHO) facilitate village health committee, to reach so hard-to-reach areas.

j. A major weakness was insufficient human resources. Other weaknesses were hard to reach areas with high transport cost; and in Ayeyarwaddy, migration rate is high. Some words in CDSR forms are difficult to for midwives to understand. If child death occurred in other townships, districts, regions; it is difficult to follow-up and ask history on cause of death (COD); mothers had thrown away Hospital discharge book. Comparing CDSR with MDSR, most said that CDSR is easier because the forms have less pages. But some felt MDSR is easier because it is easier to identify cause of maternal death. In MDSR it is more difficult to ask family of deceased woman compared to CDSR. Both are felt to be equally important.

Discussion with Township Team, Labutta Township

4.3. District level (information from DMO, REV-3 and Paediatrician, REV-4 form

District Medical Officer

a. In terms of timeliness, and proper filling up of CDSR1 forms, it is variable, some are on time and properly filled, some are not so. At first, townships did not send CDSR forms according to the two age cohorts but this has improved.

b. Some townships send death register; bit some did not; it is not difficult to create a death register even without the Excel sheet, though some errors were detected, e.g. there was one case with different name – one name in midwife's list and another in hospital. It was checked against parent's name – the same.

c. The CDSR-1 from is well designed but there is need to mention name of public hospital (eg., Pathein Hospital, Yangon Children Hospital). There is also need to add information on low birth weight and gestational week for preterm baby.

d. Overall, it is very rare that they needed to change the cause identified in the CDSR1 form, in most districts, the deaths had been discussed thoroughly at TMO level. There was a few who suggested to use defined coding (ICD code) for cause of death. The accuracy in assigning cause of death by midwives was variable.

e. About the three delays, delays are not common, but sometimes it is not easy to see the delay. In some cases the midwife does not fill the part on delay, and the district has to figure out and fill it accordingly.

Some DMOs said that finding out the delay is useful but they have no time to discuss this because they emphasize on causes of death.

f. Sampling of forms to select deaths for review was not done, it was unnecessary, as the number was small, but even in districts where the number of deaths was relatively high (as in Pakokku with about 80 deaths in a quarter), sampling was not needed. All DMOs opined that if sampling becomes necessary, the scheme provided by the guidelines is acceptable.

g. In all four districts and the in Shan South state, the review team was established in early 2017, with six to nine members. Attendance is variable and inconsistent. In Labutta, TMO from Mawlyamine Gyun did not attend because of the distance. In one district, the obstetrician has not attended any meeting presumably because there was no instruction from the MS. Review meetings have been held each quarter, except in Pakokku there had been only one meeting (first quarter); after that a meeting was cancelled after it was planned, apparently due to a miscommunication/ misunderstanding between the DMO and the CDSR coordinator. In most cases a review meeting lasts between one and two hours, and where the number of deaths to be reviewed is large, this efficient use of time is explained by paediatrician having reviewed the deaths before the meeting is convened. In general no minutes of the meeting was recorded, although the proceedings may be entered into a record book, but this is not disseminated to members. There is no feedback received by districts from State/Region.

h. Because the number of deaths is small, epidemiological analysis was fairly simple. There was no Public Health support in terms of manpower, and in some districts as in Labutta support is provided by IP. In Pakokku, the HA is tasked with data entry but not for analysis. Computer availability was variable but generally limited. No comparison has been made with CDSR and HMIS data except in Minbu.

i. The DMO faced no problem in filling up CDSR-4 form. However the assessment of the CDSR forms (See Section 5), there were several mistakes and inaccuracies detected.

j. About identifying preventable factors, one DMO commented that in CDSR-1 from, there is no question "has the mother received ANC?" which is useful especially for death due to prematurity. Some mothers are illiterate and they have no knowledge that they should get ANC regularly when they pregnant. In Pyapon, the causes of death and some preventable factors can be identified. Pakkoku DMO said sometimes it is difficult to differentiate between preventable and non-preventable causes. In Minbu – generally preventable factors are identified, and after review, district team develops action plan/makes recommendations.

k. For dissemination and advocacy, the weak PH structure has been a constraint. Also at this early stage of CDSR, the District Review Team decided to focus mainly on cause of death and the preventable cause of death mainly the clinical aspects, because they feel there are several interventions that can be instituted once these causes and risk factors are understood. The PH aspects is not given much attention yet.

l. Training – In Labutta the DMO had undergone training when he was serving as TMO at Shan North. The Acting TMO of Pyapon represented the District at the CDSR training in NPT organized by 3 MDG. The THN also attended the training. Respective townships provided the multiplier training to their midwives. In Pakokku, TMO and one focal person from each township had been trained for 3 days; and in Minbu the HA1 and THN from each township had been given training in CDSR.

m. As was found in the townships, all DMOs (or their representatives) recognized the benefits of CDSR, which included new information (such as number of stillbirths), causes of child deaths, the delays to seek care, and disease trends. The strengths were interest and commitment of paediatricians and obstetricians, and effective working together among the staff involved in CDSR. The main weakness is human resource shortage, and in several situations one staff have to cover two positions. In Labutta, the support from Save the Children to do data entry is highly appreciated. One staff said that CDSR was good only for data collection but it has not led to reduction in child mortality (see comment under section on discussion).

Paediatrician, District Hospital

a. All paediatricians in the four districts find this task to be easily done as they are familiar with diagnosing illnesses in children. In Shan South where district health departments do not yet exist, feedback was obtained from the senior paediatrician in the State Women and Children, who said that she was not familiar with CDSR.

b. As to the pattern found since implementation of CDSR, the four paediatricians said they found the number of stillbirths to be unexpectedly high. The cause of death of stillbirths is difficult to ascertain. There were no unusual causes except in the two districts in Ayeyarwaddy, drowning was cited as unusual. It is rare that they needed to change the cause in the CDSR-1 form.

c. For deaths in the district hospitals, the paediatricians naturally had no problem, because they themselves would have reported the death. For the other hospitals, they also have faced no problem with CDSR-1 forms submitted. About needing to refer back to midwives, only the paediatrician in Labutta said she had to ask for the details of one death - caused by drowning.

d. Overall, the paediatricians faced no difficulty in their role in the Review Team, and their decision on cause of death and recommendations for actions were generally accepted. In districts where the attendance of members at review meetings is low, there was little ground for disagreement.

e. All the four paediatricians felt that CDSR was no extra burden to them, and they agreed that CDSR is an important activity with a lot of benefits. As to the strengths, in Labutta, the fact that there are only two townships in the district makes it easy. In Pyapon, the strong leadership and commitment of the MS/DMO is a strength. In Pakokku, the meeting preparations on the review deaths before the meeting is well done. In Minbu, the findings of CDSR were useful.

f. The weaknesses the lack of public health staff at district level is the major constraint in all four districts. In Labutta, although there is a newly appointed team leader, she is posted to Labutta township and not district. Also in Labutta, it was again highlighted that the support from Save the Children in data entry will cease soon. Labutta felt that CDSR-1 form need to have additional information – name of the government hospital where the death occurred, not just "government hospital" to detect any duplication of notification. It is also important to have information on antenatal care for review of deaths due to prematurity (this is available in hospital deaths, but not deaths in the community). The paediatrician in Minbu suggested that the coordination between public health and medical services to be strengthened.

Discussion with District Paediatrician and team at Pyapon District

4.4. Region/state level (information from focal person, REV-5 form)

a. There were varying feedback from the region/states. While all regions/states received the CDSR4-forms on a quarterly basis, there was delay in a few cases. The adequacy and quality of the completed form also varied. Some focal points also receive CDSR-3 forms (which means that the TMOS in some districts, not all, send to region/state as well as to the districts. This of course was the situation in Shan state where there is no health structure). In Magway, about 10% of CDSR-4 forms are not completely filled. In Mandalay, some districts needed to be pushed to send the forms on time in the quarter. In Shan, since there is no district structure, the focal points received CDSR-3 and CDSR-1 forms from the township, and overall, these were filled properly and completely.

b. All regions/states said that it is not difficult to collate the findings from the various districts to generate a region/state profile, but this has been constrained without the excel sheet. Some focal persons eg Ayeyarwaddy had created an excel sheet on his own, and using his own computer. He has the knowledge in statistics and epidemiology, but time and heavy workload are impediments. The same situation exists in Magway, where there is no manpower and no electronic device. The same attempts have been made in Mandalay, Yangon and Kachin, with very little manpower and computer support. In Shan south, forms are received from townships and the focal point has been able to make death registry from these. In Kachin, the person collating these forms is not the person who had been trained.

c. The profile of child deaths at state by collating data from districts could not be assessed because there was a delay in sending the spreadsheets to all state/regions. There appeared to be little effort to create the death register manually. Therefore it has not been possible to carry out epidemiological analysis of child deaths since CDSR was implemented.

d. All the six focal persons said that there has been no necessity to provide feedback specifically because the six monthly meetings provide an adequate and convenient platform for giving feedback. Also, in all of their experiences, CDSR-4 has adequate information, so they felt that feedback was not necessary (See comment under Discussion section).

e. The focal persons in the three state/regions were quite satisfied with the responses reported in the CDSR-4 forms, and it had not needed any additional recommendation from the region/state. The focal person from Ayeyarwaddy region added that he feels that the district level would monitor their responses as their routine task, and need not be checked. He also added that the fact that detailed analysis had not yet happened and only 12 months have passed, this situation may change later. There was a different feedback from the other three – focal persons Mandalay, Kachin and Yangon felt that the responses reported by the district are too generic/non-specific, and they are repeatedly the same general statement like "give health education". It is recommended that specific examples be included in the district report. Mandalay added that there is no evidence that the responses have actually been carried out.

f. Advocacy to stakeholders has been done in Mandalay in January 2017 which was combined with MDSR. Yangon and Kachin had carried out one advocacy activity each. Shan South had discussions with the Ministry of Social Welfare who promised to do something on preventing teenage pregnancy. Magway felt that the discrepancy among sources (HMIS, CDSR) makes advocacy and dissemination problematic. There was general agreement that only one year of implementation may be too early for dissemination and sharing with stakeholders.

g. As to sending 6 monthly report to Central level, this was not assessed, partly because the Technical Guideline has not provided any template on how this is to be performed, except to require in general terms to "submit report to Central level every 6 months".

h. Training - In Ayeyarwaddy the current focal person who was recently transferred here had been trained. However the previous focal person had undergone the 3 day master training, and had trained 18 staff members, including the MS, the paediatrician, and Child Health focal persons in 6 districts. In Magway the Master trainers had conducted training for district staff, as well as some TMOs and THNs. In

Shan, a one day training for township staff was conducted by the Master trainers. In Mandalay, two persons in all districts (one Public Health and one medical) totaling 14 persons, had been trained, and it is recommended that training should be conducted for township level; and because the region is not a recipient of 3MDG funding, efforts should be made to use the money from other sources, such as the World Bank loan. In Yangon the focal point who underwent the Master training had trained 16 persons (3 per district plus paediatrician). The focal person and one paediatrician from Kachin who attended the Master training had conducted training for one district level training covering all 4 districts, for 3 days. With financial constraint it has not been easy in Kachin to have the training cascaded to lower levels, but some midwives were trained with support from a private medical supply company who also helped to print the CDSR forms. All focal persons found the training to be useful, but all felt that there should be more practical exercises on filling of forms and on explaining and the three delays.

i. All focal persons found the CDSR to be an important activity, mainly because it provides a more reliable number of child deaths, with useful information especially on cause of death, type of delay and preventability. The availability of data that allows for epidemiological surveillance is also cited by a few focal persons. *A*lmost all cited the involvement of paediatricians, obstetricians of other staff as a strength. There is now good cooperation between public health and hospital. The requirement of regular (quarterly) reporting from the district was also mentioned as a strength.

j. The common weakness cited was the shortage of human resource, especially with most districts having no person posted as DMO. In Shan, the problem is even more severe with no district structure for health. There is also no staff to manage data entry, and the problem is compounded by many states having no computer and electronic means of information management. Specifically some of them felt that a Child Health focal point should exist in all districts. The problem of workload in CDSR was illustrated by the Kachin focal person – Myitkyina Hospital with 500 beds have to manage patients from other districts, means that the number of child deaths is high. This situation is probably existing in all region/state hospitals.

k. Ayeyarwaddy suggested that guidelines and materials related to CDSR be uploaded in the MOHS website, and that CDSR forms to be made user-friendly. All emphasize the need for strengthening human resource especially at district and state level. Training should be given to all newly posted staff. Shan requested for clarification in the form for cause of death and for the three delays. Magway suggested that the state/region focal point to attend district review meetings, but of course with considering the cost implications. Yangon suggested that mortality rates be calculated in CDSR-3 and CDSR-4 forms.

Photo taken during Review of CDSR Implementation (8-9 March 2018)

Summary of Findings (1): The performance of staff at all levels was satisfactory. All midwives found CDSR-1 form to be easy to fill, mainly because they have been filling similar forms for death that occurs. There is also no problem in filling the CSO 201 form. But a few problems were detected. There was some gaps in understanding of the three delays, resulting in findings that did not appear realistic. The weaknesses were mainly due to manpower shortage and gaps in competence of staff, as well as to lack of clarity and poor design of some of the CSR forms. Training has been conducted according to the plan, the master training for region/state was conducted in 2016, and it has to some extent cascaded to district, township and BHS. But there are still gaps and more staff need to be trained. The training package was found to be useful. All districts (and in Shan State, this was at state level) have set up the District Review Teams, with members appointed according to the Technical Guidelines; meetings are held quarterly, attendance by members is inconsistent; the number of deaths reviewed at each meeting is variable. The review tended to focus on cause of death, and less on the three delays. There was a suggestion that the state/region focal point to attend district review meetings. Staff at all levels felt that CDSR is a useful initiative, and they appreciated the benefits of CDSR. Their experiences allowed them to identify the weaknesses and strengths of CDSR implementation.

5. Findings (2): How Well Were The CDSR Forms Filled?

The examination of these forms was done to see if they have been correctly or accurately filled – and the focus is on CDSR-1, CDSR-2 and CDSR-3 forms.

5.1. Form CDSR-1: Notification for child death, questionnaire on the 3 delays

In Findings (1), it was found that all midwives found no problem in understanding and filling it up. A few even used the term "easy" to describe the process; they also faced no difficulty in terms of time to fill it up. A few midwives found the parts on diagnosis of cause of death not easy to fill; a few also found the three delays not very easy to fill, although they understood the concept.

In this assessment, 32 CDSR-1 forms (the target was 36) were obtained and examined – 12 each in Ayeyarwaddy and Shan, and 8 in Magway. These were for 3 stillbirths, 18 neonatal deaths and 11 deaths of children between 28 days and 5 years. From Part I of the form, the findings were.

a. Overall, they have filled up the form properly with hardly any mistake thus suggesting they faced no difficulty and even found it "easy". There was no error and inconsistency in the filling up of the socio-demographic variables (age, sex, race, rural-urban etc.,).

b. There is justification on the suggestions made at the feedback, such as - in "place of death", to specify the specific name of the hospital and clinic – for example it is not enough to just tick "government hospital". The statement by the midwife who found the part on referral unclear is justified - currently the form asks for any referral to a higher level; the midwife asked what to do for cases that were referred to the BHS form another service provider such as a private clinic or a quack/traditional healer. The cause of death is not easy to fill is not surprising.

The assessment of Part II of the form on the 3 Delays consisted of examining how the following questions in the form were filled:

Q1: Were you aware you had to take the child to the clinic/hospital for his/her illness
Q2: How did you know that you needed to seek treatment?
Q3: Did you (or someone else) take the child to the clinic/hospital
Q4: Why did you not seek treatment?
Q5: Did you have any difficulty to go to the clinic/hospital?
Q6: Were you satisfied with the treatment given at the clinic/hospital

It was found that all the 32 forms had positive responses to all these questions, suggesting there was no delay at all – no Delay1 (Q1, Q2) or Delay 2 (Q3, Q4, Q5) or Delay 3 (Q6). From the feedback from midwives in the preceding section, most midwives said that they understand the 3 Delays and they know how to fill up Part II of CDSR-1 form. However it is to be noted that a few midwives also found the three delays not very easy to fill.

5.2. Form CDSR-3: Summary report by TMO sent to DMO

Eighteen (18) CDSR-3 forms were selected – these were four forms (for the 4 quarters) each from the Labutta, Dedaye, Myaing and Ngape. However the two townships in Shan had only one form each, for fourth quarter in Hsiseng and third quarter in Maukmai.

a. The first finding was the person who filled up this form, because the TMO can and may delegate this task to another person in the Township Health Office. The TMO was the person to fill this in Dedaye and Myaing. In Labutta, Ngape it was the THN. No information was recorded for Hsiseng and Maukmai on who filled the form.

b. In question 1 (Q1), the number of deaths has been filled up in all 18 forms. The number ranges from 5 in Ngape in second quarter to 45 in Labutta in second quarter. In all the six townships, the numbers are quite similar for every quarter.

c. For the number of deaths in the two age cohorts neonatal deaths, this provides an in-built check for accuracy of reporting, because these two numbers must add up to the number in Q1. This addition was correct in all except in Labutta in second quarter, when these numbers did not add up. In Maukmai, there was information only for third quarter, and the numbers do not add up.

d. The answer to Q3 on hospital deaths, and how many of these deaths were audited clinically in the hospital added up correctly except in Maukmai and Labutta, both in first quarter.

e. There was no problem on the question on how many deaths were of children not resident in the township. Only two deaths were from outside the township – one in Myaing first quarter, and one in Labutta in second quarter

f. To the question on how many CDSR-1 forms were filled (i) completely and properly (ii) partially but overall satisfactory and (iii) poorly, not satisfactory, in many forms, these did not add up. It is observed that the performance is variable. Dedaye was consistently correct; Labutta was correct for first and fourth quarters, but incorrect for second and third quarters; Myaing was incorrect for all four quarters, with several "O" recorded, and this suggest they have a different meaning and not zero, which should not happen. Ngape was correct, with a small error in first and fourth quarter; Hsiseng was incorrect; Maukmai was correct.

g. For the question on the cause of death and how many were (i) clear single cause of death (ii) clear but more than one cause of death (iii) unclear cause of death (iv) no cause of death, the finding was encouraging – almost all added up, except for Ngape for the first three quarters, The case of Ngape deserves further study, because while there was error for the first three quarters, the fourth quarter had numbers that added up correctly.

h. On the three delays, and how many were (i) filled properly able to identify a delay and type of delay (ii) partially clear, some idea of type of delay (iii) poorly filled, unable to identify delay, there was no error except for some missing data in Ngape for the third quarter.

i. In ascertaining if there were preventable factors, the findings were confusing. This may be due to a misunderstanding of the question, which is due to the poor design of the form. The question asks for preventable factors only for deaths in hospital, but the townships used different numbers – some used total deaths, some used hospital deaths. And even in the same township, there was inconsistency in

the different quarters. Myaing, Ngape, Hsiseng and Maukmai used total deaths, Labutta used hospital deaths, while Dedaye used hospital deaths for the first and second quarters and total deaths for the third and fourth quarters.

j. On responses, all townships except Labutta responded by saying they did have to take actions but the number of deaths that actions were needed varied widely – from 2 deaths in Ngape in the first quarter (when there were 11 deaths) to 36 in Hsiseng in fourth quarter when there were 40 deaths. To the question if TMO needed actions, could they do it fully, partially or not at all, all TMOs answered "yes, fully".

k. In CDSR-3 form, the TMO is required to describe any action that have been taken or planning to be taken on deaths with preventable factors. These were very similar among the 6 townships and these actions were - provide quality ANC by midwives with 4 visits; make home visits, and do post-natal care; give more health education; give awareness to community about AN, delivery, PN and danger signs of pregnant mother and danger signs of under 5 child; and ensure early referral.

l. Finally, if the TMO may summarise the answers to the ten questions, or add any other relevant information. All except Labutta gave this feedback. The comments by TMO in the 5 townships appeared to be similar and repeated in the succeeding quarters. The comments touched on - need to improve ANC, PNC, home visit; more HE to community; difficulties in deciding on the delays and cause of death; need for CDSR team to work together; need for newborn care and neonatal resuscitation on-the-job training; health staff to work together with local authorities; early referrals; tackle problem of malnutrition; need to overcome difficulties of transportation; issue of seeking treatment from quack and difficulty in changing behaviour of community.

5.3. CDSR-4: Summary report by DMO to be sent to region/state

The form has 8 questions for the DMO to answer. A total of 21 forms were reviewed, to see how these questions were answered. These were for the four quarters from Pyapon, Labutta, Pakokku and Minbu – totalling16 forms; and three from Langkho and two from Taunggyi.

a. All districts gave answers for the number of deaths in the two age cohorts, and the numbers added up correctly.

b. About DMO being satisfied with cause of death in the CDSR-1, four districts gave correct (Pyapon, Minbu, Langkho and Taunggyi). There was no answer from Pakokku in all quarters. There was lack of clarity in Labutta, where in all quarters the DMO indicated option (b) which is "yes satisfied in some" but with no numbers for option (a) which is "yes in all of them" and (c) which is "in none". Out of 243 deaths in Labutta in all four quarters,147 were given option (b), and we can assume that the remainder 96 were either option (a) or (c).

c. The answer to the 5 leading causes of death had no problem, and these causes were the same in all districts. For neonates, these were stillbirth/intrauterine death, extreme prematurity, birth asphyxia, sepsis and congenital anomalies. For 28 days to under 5 years, the leading causes were septicaemia, pneumonia, congenital anomalies, acute gastroenteritis, and beri-beri.

d. On the satisfaction of the DMO on the assignment to the three delays, the findings were the same as in the cause of death above. There was clarity and consistency in Pyapon, Minbu, Langkho and Taunggyi where for every quarter, the answer given is (a) which means the Review Team agreed with the type of delays in all the CDSR-1 forms. There was no answer from Pakokku in all the four quarters. In Labutta, the answers given were only for option (b) which is "yes but only in some" in all quarters; and no numbers were given for option (a) which is "yes in all of them" and option (c) which is "in none". The total number for all quarters for option (b) was 154, so we can infer that the remaining 89 would be option (a) and option (c).

e. The numbers by type of delay appeared to be problematic, the numbers do not add up to the total number of deaths reported, and the gaps are large. This would have been expected if there was sampling but in this assessment, sampling of CDSR-1 forms was not done; all forms were subjected to review by the District Review Team, so every death should be counted. There were also several blanks in the answers, and there is no certainty whether these blanks are meant to be 0 or data was not available.

f. On the CDSR-3 received from townships, in terms of being properly filled, the answers were unclear, even confusing; but this was probably due to the poor design of the question itself. Almost all townships gave the answer as "completely and clearly filled" which were very small numbers. A few had "partially filled" and a few had "poorly filled", but none of them had all three options filled, so there was a problem with the total. There was one that had a number that added up – Pyapon in third quarter when there were 104 deaths, and all 104 were reported to be "completely and clearly filled up".

g. For the section on preventability of death, there answers were not clear, also probably arising out of the lack of clarity with the question itself. The three numbers in the three options should add up to the number of deaths. The numbers filled were mainly in option (a) "clearly had factors to indicate the death was preventable" , the other two options had very small numbers or blanks, thus falling far short of the number of deaths.

h. In the part of the CDSR-4 form requires the DMO to briefly describe any response, the descriptions were very similar across districts and across quarters, and these were - health and nutrition education; seeking care early when the child is sick; do not take treatment from quacks; provide adequate quality ANC; give immunization regularly; good infection control, appropriate investigations such as blood culture and sensitivity, and effective antibiotics therapy; good PNC and early referral for birth asphyxia.

i. The final instruction in CDSR-4 is to write a concise narrative to summarise. These are collated and the main contents were - high number of stillbirth which indicates the importance of regular ANC especially at near term; give health education regularly; need to increase human resources and equipment; caretakers to work together with the BHS; caretakers need to be made to understand prevention is better than cure, that complete immunization and exclusive breastfeeding are also important; need to institute infection control in hospital.

Therefore while there was no major problem in CDSR-1, there were several inaccuracies and errors in CDSR-3 and CDSR-4 especially in numbers that do not add up for some of the questions. This is not in consonance with the findings from the feedback in the preceding section, where the TMOs and DMOs said they faced no problem in filling up these forms.

Summary of Findings (2): While there are also no problems in filling up CDSR-1 forms by midwives except some minor difficulties in assigning cause of death and the three delays, problems were detected in CDSR-3 and CDSR-4, and these could be due to both the lack of understanding of the TMO and DMO, which arise lack of clarity in the questions asked in the form for TMO and DMO to answer. This lack of clarity had led to incongruity in the answers such as numbers not adding up to the expected total that deal with some aspects of child deaths. The information obtained from these forms on preventability of death was unsatisfactory. The use of CDSR-2 was very infrequent, verbal autopsy was seldom needed. CDSR-5 was not used at all because there is an already existing mechanism / tool of supervision. There was an expressed need to introduce a new form for the region/state to report to the central level.

6. Findings (3): Knowledge and Health-Seeking of Caretaker

As mentioned under data collection, the interview of nine caretakers was conducted in villages (all except two in Ayeyarwaddy were villages served by health centres/subcentres that were in the sample for assessment). The interview attempted to get information on health awareness and health seeking behaviour of caretaker. For practical reasons, the methodology used was not adequately robust.

The profile of these nine deaths is shown below

Case	Child's age	Cause of death	Nearest health centre	Nearest hospital	Mother education/ occupation
Ayeyarwaddy 1	2 days	Preterm. LBW	10 minutes	20 minutes	Std 2/casual
Ayeyarwaddy 2	2yr 9 month	Congenital intestinal stenosis	30 minutes	30 minutes	Std 4/paddy farmer
Ayeyarwaddy 3	2yr 7 month	Drowning	10 minutes	Not recorded	Std 3/ housewife
Magway 1	Newborn	LBW	5 minutes	10 minutes	Std 7/ dependent
Magway 2	3 days	Prematurity	5 minutes	10 minutes	Std 3/casual
Magway 3	3 days	Preterm, LBW, RDS	5 minutes	15 minutes	Std 4/ housewife
Shan 1	Newborn	Cord bleeding	30 minutes	45 minutes	Std 2/farmer
Shan 2	1 yr 6 month	Fever and fits	10 minutes	15 minutes	None/farmer
Shan 3	Newborn	Jaundice	15 minutes	15 minutes	None/farmer

Besides these, information related to care seeking and the three delays was obtained, as follows:

- Distance/time from the nearest health centre and nearest hospital -,all of them had easy geographical access to health centre and hospital (no second delay)
- When the midwife came, and was the time alright for the caretaker – all answered "yes" although they were still very sad over the death of child (no third delay)
- Did caretaker seek care before death – "yes" except for one case, newborn baby became very sick at 1.30 am and she died soon after (no first and second delay)
- Did caretaker follow the advice given – "yes" generally, one child was in ICU and was very ill with no hope of recovery, so family took child to die at home (no second and third delay)
- Did caretaker decide on her own to seek care – "yes" (no first delay)
- Was there any language barrier with health care provider – NO generally, one caretaker spoke only Pa O, but the midwife knew Pa O (no second and third delay)
- Was waiting time at health facility too long – "no" (no third delay)

The interview was not designed to probe further after the above questions were asked. However the facilitators in Ayeyarwaddy attempted to get more information by asking more questions, especially to assess if the death was preventable. It was found that:

i. For the first case, the death due to extreme prematurity was not preventable. The premature baby at 28 weeks could not have been saved. However, the pregnancy itself could have been prevented if the mother practised family planning.
ii. The second death was also not preventable, because the congenital anomaly of intestinal obstruction/ stenosis was not something that could have been prevented, and it there is no treatment for it.
iii. The third death due to drowning was preventable with parents making sure young children do not play near water unattended by adults.

Summary of findings (3) : There was adequate awareness on the need to seek care (no first delay); there was also no barrier to seek care (no second delay); and there was no constraint in the health care system that would have discouraged caretakers from seeking care(no third delay). However, because the selection of caretakers and methodology used were not technically robust, there was unavoidable bias; and therefore the interpretation and conclusion from this is limited and need to be taken with reservation.

7. Findings (4) : The Burden of Child Deaths In Myanmar In 2017

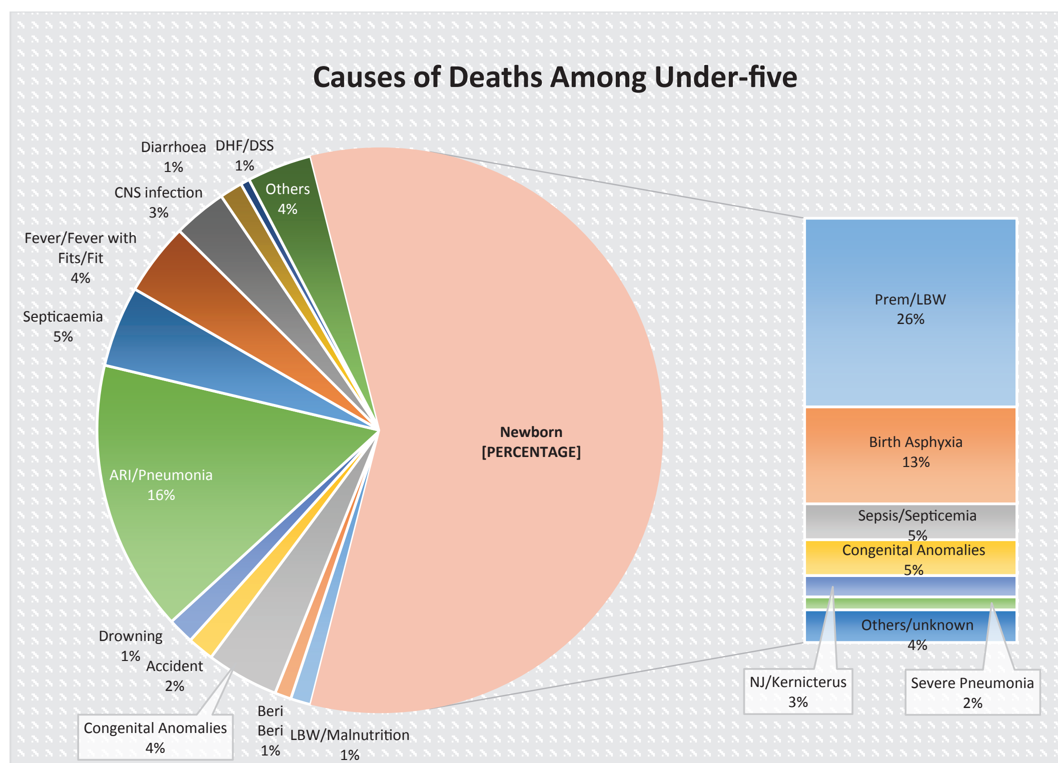
This quantification was done by getting the number of deaths and limited profile from the summary forms – the obvious choice is CDSR-4 forms. The CDSR-4 forms were collected by the CHD directly from the districts. Out of the 75 districts in the country, the CHD received the forms from 59 districts (79%), yielding 203 reports for analysis. Hence data from 16 districts have not been included in the findings below. It would have been ideal if the child deaths could be profiled by relevant variables. However, with the inherent limitations of using a summary report (CDSR-4) and not the basic report (CDSR-1) this complete profiling could not done. The CDSR-4 forms provide only cause of death, the three delays, and to some extent on preventability of death.

7.1. Burden of child deaths

A total of 12,161 under-five deaths were reported from 59 districts out of 75 districts. This is grossly lower than the number found in 2015 DHS, which gave the under-5 mortality rate of 50 per 1,000 livebirths; this amounted to about 45,000 deaths; and the Census 2014 gave an even higher rate of 72 per 1,000. Even if the data from the 16 missing districts are factored in, the number will still be significantly lower than the number found in the DHS and Census. From this, it can be inferred that almost four-fifths or 79% (59 out of 75 districts) of the country was able to notify just over one-fourth of estimated under-five deaths. The number of newborn deaths was 7,111(58%) of under-5 deaths; and the number of deaths 29 days to under 5 years was 5,050 (42%). This is quite different from the global profile – the report of IGME 2017 shows neonatal deaths to be 46% of under-5 deaths. There were 3,018 stillbirths (SB), and these were not disaggregated into antepartum SB and intrapartum SB.

7.2. Cause of child deaths

The CDSR-4 form asks for the top 5 leading causes of death. Because data was analysed using 203 reports/forms (and not the 12,161 deaths), it was possible to get more than 5 leading causes.



Newborn deaths: Of the 7,111 newborn deaths; 4,574 were ascribed to six specific causes, besides the other causes which accounted for 352 deaths. Prematurity (almost all would be with low birth weight) was the leading cause, followed by birth asphyxia (one can assume that these are not in premature babies, and therefore there was no overlap or double counting).

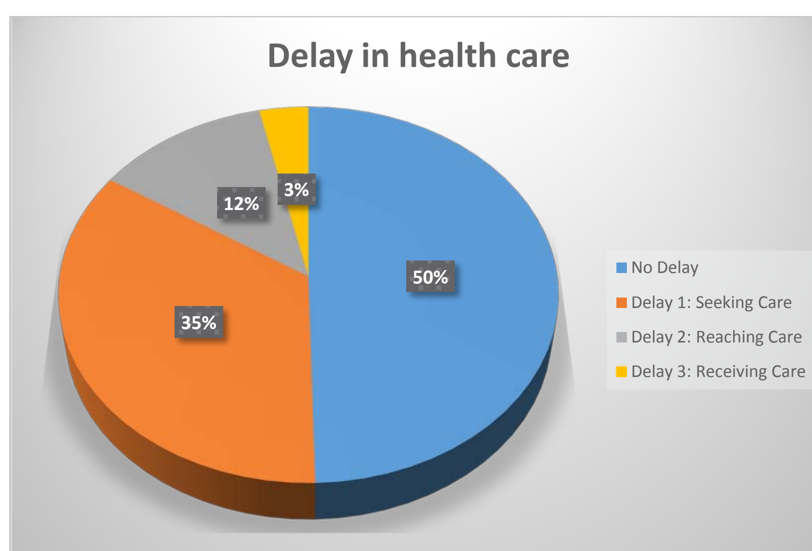
Rank	Cause of newborn death	Number	(%)
1	Preterm/LBW	2,034	(44.5)
2	Birth asphyxia	1,045	(20.7)
3	Congenital anomalies	387	(7.7)
4	Sepsis/septicaemia	387	(7.7)
5	Neonatal jaundice/kernicterus	230	(5.0)
6	Severe pneumonia	139	(3.0)
7	Other causes	352	(7.7)
	Total	**4,574**	**(100)**

Deaths in 29 days – 5 years: There were 5,050 deaths in children aged 29 days to under 5 years. Of these 3,339 were ascribed to eleven specific causes of death, besides other causes which accounted for 293 deaths. The overwhelming leading cause was ARI/pneumonia with 38% followed quite far behind by the second leading cause septicaemia – both are of infectious origin. Like in newborns, the third leading cause was congenital anomalies. The next two leading causes were also infectious in nature – fever (with or without febrile fits) and CNS infections. The data separates drowning (which is accidental) from other accidents of 203 reports, 66% said they agreed with all causes identified by townships while 19% partially did and 15% did not respond to this question.

Rank	Cause of death	Number	(%)
1	ARI/pneumonia	1,226	(24.3)
2	Sepsis	365	(7.2)
3	Congenital anomalies	327	(6.5)
4	Fever, with/without fits	327	(6.5)
5	CNS infection	242	(4.8)
6	Accident, other than drowning	119	(2.4)
7	Drowning	118	(2.3)
8	Diarrhoea	103	(2.0)
9	LBW/malnutrition	92	(1.8)
10	Beri-beri	74	(1.5)
11	DHF/DSS	41	(0.8)
12	Other causes	293	(5.8)
	Total	**5,050**	**(100)**

7.3. Delay in seeking care

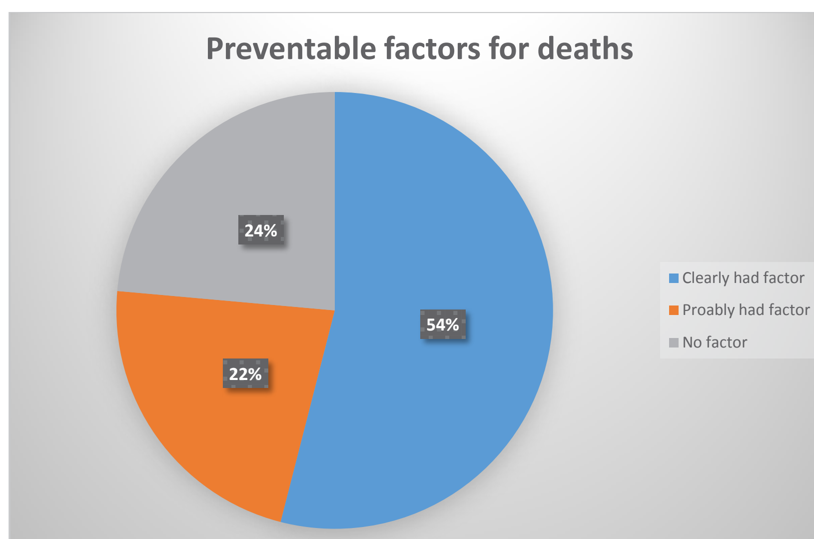
Of the 12,161 deaths there was information on type of delay for 9,078 deaths. In 4,503 deaths (50%) of deaths, there was no delay; of the deaths with one of the three delays (there was no combination of delays). There was an overwhelming number with Delay 1 (3,141 or 35%), with much lower numbers for Delay 2 (1,119 or 12%), and Delay 3 (315 or 3%).



In the CDSR-4 forms, the District Review Team has to provide information on the frequencies of the delay for which the Review Team agrees with the report of the TMO (CDSR-3 form). The frequencies were. In 67%, the Review Team fully agreed; in 14% it partially agreed and in 19% there was no information. Therefore there was none for which the review team disagree.

7.4. Preventability of death

Slightly less than half (6,015) of the 12,161 deaths had information on preventability. The profile was - 54% had clearly preventable factor, 22% had probable factor and 24% had no preventable factor.



Summary of findings (4): The number of under-five deaths was grossly lower than the number found in the recent population census and DHS; the CDSR reported just over one-fourth of expected number of under-five deaths. Newborn deaths contributes 58%, and the leading cause was prematurity and birth asphyxia; and children 29 days to under-5 contributed to 42%, with pneumonia (and other infectious conditions) as the leading cause. Fatal congenital anomalies was a significant cause in both age groups. Half of the deaths was not associated with any delay to seek care, of the half that did have delay, most were type 1 delay. Slightly more than half of deaths had preventable factors

Additional information: This quantitative methodology using review of CDSR-4 forms also examined the completeness in filling of the form which was also done in the second methodology of reviewing the CDSR forms (Section 3). Therefore some comparison can be made between the findings from these two methodologies. It was found that 70% were complete/clearly filled, 23% partially filled and 7% were incompletely or not clearly filled; while 21 % did not respond to this question.

8. Findings (5): What Is The Contribution of Partners To CDSR?

The two partners that contribute to CDSR are UNICEF Country Office and the 3 MDG Fund. The latter provides funding to several implementing partners (IPs) which carry out specific CDSR activities.

8.1. UNICEF Country Office

This is the lead partner in introduction of CSR to Myanmar, and has provided both technical and financial support in:

- Development of the Technical Guidelines (with international consultant) in 2015
- Development of Training Package (with national consultant) in 2016
- Conduct of Master Training for State/Region focal persons followed by training of trainers (TOT) in all State/Regions for District focal persons in 2016 and 2017
- Conduct of advocacy session at Central as well as All State/Region in 2016
- Development of CDSR Implementation Plan (with international consultant in 2016), which provided the platform for this assessment
- This assessment of CDSR after 12 months of implementation

In addition to these, UNICEF also supports all the meetings of the CHLWG and National CDSR Coordination Committee, held at Nay Pyi Taw, each meeting lasting one or two days.

8.2. The 3MDG Fund and implementing partners

The discussion on Friday 23 March was with the following team members of 3 MDF Fund:

1. Dr Lin Lin Htun – team leader
2. Dr Wunna Htay – team leader
3. Dr Kyaw Nyunt Sein – senior national adviser
4. Dr Saw Min Thu Oo – M&E officer
5. Dr Khin Sabai Maung – programme analyst
6. Dr Myo Ya Zar – progamme analyst
7. Dr Joshua – Programme Analyst
8. Dr Aung Thein Tun – Programme Analyst
9. Dr Gulshod Allabergenova – M&E officer

The main points of the discussion were

- The direct participation of 3MDG Fund in data collection, with Dr Lin Lin Htun joining the assessment team to Shan State and Dr Khin Sabai Maung to Magway was beneficial.
- The lack of commitment of the clinicians including the senior paediatrician in Shan was a weakness that needs to be overcome.
- The delay in the distribution of the Excel spreadsheet needs to be addressed; this spreadsheet not only provides the basis for creating the registry of child deaths and meaningful quantitative analysis, it also gives a measure of the qualitative component because it can only be created if processes are carried out properly.
- The weakness of the district structure was particularly noted. Considering the fact that townships have always been the main focus of activities, it was suggested that the review of child deaths be conducted at township instead of district. There were two opinions on this – the first opinion is to retain the current approach where the district conducts the review especially in view of the possible need in future for sampling of deaths to be done (which needs a paediatrician) and the possibility of the district Public Health structure to be strengthened. The other opinion was based on both these possibilities not being realised or will take too long a time, and therefore it is advisable to move the review team from the district to the township; and if feasible for the district paediatrician to attend the review meetings held at townships.

Information on activities in three states was shared (ANNEX 4).

Implementing partners (IPs) - There are several implementing partners (IPs) which receive funding from 3MDG Fund, for CDSR, operating in different locations/townships. Discussion was held with one IP, Save The Children, with Dr Aung Zaw Lin, at which he gave a briefing of what the progress is with CDSR in the townships supported by SCI. Up until 2017, there were 10 townships supported by STC with funds from 3MDG under the component of health systems strengthening; but 4 have been phased out in 2018; and currently only 6 townships are being supported (5 in Chin and one in Northern Shan). However, Dr Aung gave a briefing on all ten townships including the four that have been phased out (Ngapudaw and Labutta in Ayeyarwaddy, and Gangaw and Ngape in Magway).

Summary from findings (5): UNICEF Country Office has contributed significantly to CDSR, with both technical and funding support. The role played by 3MDG Fund team in UNOPS which manages the funds (known as 3 MDG Fund) from donors for improving maternal and child health, and strengthening health systems, is well-known; CDSR could not have been implemented without the financial support of this fund. Money from this Fund is channeled to several implementing partners (IPs) which implement various activities of CDSR. The feedback from one of these IPs, Save the Children provided an example of the progress and impact of some of these activities in remote parts of the country.

PART III:

Discussion, Conclusion and Recommendations

9. Discussion

From the wide range of findings derived from the five methodologies, several inferences can be drawn and discussed.

The finding on **the progress of CDSR implementation** is encouraging – it has been implemented in all townships and not only in the 61 targeted pilot townships. It is equally encouraging that implementation began in early 2107, not too long after the Implementation Plan was finalized. This positive finding is a reflection of the commitment of the health department at all levels, in implementing CDSR. It can be reasonably inferred that this commitment started with the central level at the CHD Division in MOHS, which provided the political commitment and leadership, and from there it cascaded down to the other levels.

In any initiative, **oversight** is critical. The Child Health Lead Working Group (CHLWG) which provided the impetus in 2015 to introduce CDSR, sustained its interest and commitment. Equally encouraging is the convening of the National CDSR Coordination Committee, the second meeting was in December 2017, at which some progress of CDSR implementation was reported. While not comprehensive, these early findings (basic profiling of child deaths, and some experiences in filling up the CDSR forms) were useful and they led to specific recommendations. Certainly, these findings have been useful in providing some background information for this formal assessment after 12 months of implementation.

Overall, there has been adequate **training**, although there are still some weaknesses and gaps that need to be addressed. From the feedback, although there was no specific question on the Training Package that was developed in 2016, it is quite clear that the staff find this package suitable and beneficial; there were several direct statements made to this effect. The plan for a cascading training model has worked quite effectively in most regions/states. The master training conducted in 2016 by the consultant national trainer has been found to be effective, with all regions/states having sent two potential master trainers to be trained. The planned cascading phenomenon (by having multiplier training at the various levels) was implemented fairly effectively. The important role played by the TMO and THN was evident; after being trained by the master trainers at region/state level, they have conducted training of other staff especially the midwife and other BHS staff. It is also very encouraging to note that paediatricians have also been active in training. About the duration of training at the various levels, the variability in opinions is not unexpected, but the finding that most staff members found the training adequate and of appropriate duration is strong evidence that the training package designed in 2016 was a commendable effort that met its objective.

Region/states that are not receiving **support from the 3MDG Fund** lag behind the regions/states that do receive support. This was evident in the differences observed during the assessment, as was given in the feedback given by focal points from Mandalay and Kachin. With financial constraint it has not been easy for regions/states not receiving 3MDG funding to implement training optimally. It was very encouraging that focal points reported on some good solutions. In Kachin, the training of some midwives with support from a private medical supply company (which also helped to print the CDSR forms), was creative and reflected a productive public-private partnership; and as long as this does not go against government policies and ethics, it should be encouraged. In Mandalay, the training of the master trainers should be cascaded to township level; and because the region is not a recipient of 3MDG funding, a good suggestion was made – to use other sources of fund, such as the World Bank loan. It was also encouraging that all focal persons expressed their opinion so how to improve training, and these was also mentioned by staff at other levels – for example, all felt that there should be more practical exercises on filling up the forms, and on explaining and the three delays.

Availability of funds is a determining factor not only in conduct of training, but also for other activities in CDSR. Information was given separately by SCI that some BHS use their own personal funds to

enable them to attend meetings; and this reflects a high level of commitment and dedication that is commendable. However this should be viewed as an unacceptable practice, and efforts must be made to redress this problem.

The review of **CDSR forms**, and **competency of staff** in filling them up was a major component of the assessment, and it needs a comprehensive discussion. In an assessment of an initiative such as this, where the implementation is dependent on guidelines, if the implementation is found to be less than satisfactory, it is important to recognize three scenarios – (1)The guidelines are good, but the staff implementing are not sufficiently competent (2) The guidelines are not good enough, even if the staff are competent, implementation is not optimal (3) There is both the problem of guidelines not being good enough, and in addition, staff lack knowledge in specific areas.

This assessment shows that the third scenario applied to CDSR implementation. In terms of **weakness related to the guidelines** especially the CDSR forms, one thing needs to be borne in mind; when the Technical Guidelines were developed in 2015, the team developing it acknowledged that guidelines may have contents that are incorrect in the context of implementation, or that some assumptions made are not correct. This is one of the main reasons why an assessment is required. Indeed the second specific objective of the assessment is... *To find out the problems (if any) related to the understanding and use of the Technical Guidelines and the CDSR forms, and the inadequacies of the guidelines itself and the tools (CDSR forms) in the guidelines.*

The **CDSR-1** form is the beginning of the CDSR process. Midwives found very little problem with filling this form, and this can be explained by their familiarity with the existing system of death reporting. The specific issues that need to be attended to are in two major areas, the cause of death and the three delays. Amendments are needed to CDSR-1. These include – to give the exact "place of death" (name of hospital and clinic); to make it clearer on the information on treatment before death; a clearer instruction on referral; and to make it easier to identify the cause of death. On this last point, it is relevant to consider a suggestion from a TMO – after the list of signs and symptoms (which the midwife may select more than one), there needs to be a line for the diagnosis. It is noteworthy that even during the development of the Technical Guidelines, this part on cause of death was expected to face difficulties, and that many deaths will not have a clear cause of death. Indeed, this was the situation that was predicted to make a verbal autopsy necessary. But the finding that very few verbal autopsies were done suggests that the midwives had identified signs and symptoms that could lead to a diagnosis, which the TMO and DMO agreed with. Part II of the form on the 3 Delays had findings that need to be examined and discussed – because while the midwives claimed they understood the concept of the three delays, the information appeared to suggest otherwise – for instance most deaths were not associate with any delay which was an unexpected finding. It is possible that the first delay is uncommon, presumably because health education and public information has been effective. However, this same assumption cannot be made for the second delay – in rural Myanmar, it is known that access (both geographical and financial) is often difficult.

The low frequency of the use **CDSR-2** form for verbal autopsy was not really unexpected, but some facilitators expected the use to be more than this. The inference to be made from this finding may be (i) the CDSR-1 form is comprehensive to enable the cause of death to be identified (even though they are in terms of signs and symptoms) (ii) the CDSR-2 form is difficult and cumbersome, and staff are not motivated to use it (which would be unfortunate if there was a need to use it). This second possibility was something the team deliberated on during the development of the Technical Guideline in 2015.The form is indeed a very long one. However there was a general consensus to use it firstly, it was developed by WHO[5] and presumably had been used by some countries, and secondly, it had been used in Myanmar in 2013 in the study on causes of death in under-5 mortality.

5. WHO. A Standard Verbal Autopsy Method for Investigating Causes of Death in Infants and Children. WHO/CDS/CSR/ISR/99.4. http://www.who.int.emc

The findings related to **CDSR-3** forms revealed some useful features that may have implications on the next revision of guidelines. One finding was some focal points at region/state level also receive CDSR-3 forms, which means that TMOs in some districts, send to region/state as well as to the districts. Of course in Shan State, this was the norm not the exception, because of the absence of district health organization. It is noteworthy that the focal person from Ayeyarwady Region said this was useful because it provides opportunity to counter-check any information in the summary report of the district (CDSR-4) that is not clear. It was not surprising that besides the TMO, this form was filled up by another staff (mostly the THN) as a delegated by the TMO. We can assume that townships differ from one another in several aspects that led to this delegation such as workload of the TMO, and the interest TMOs have in child death especially with competing priorities. One feature was clear – in all townships, the THN being the next level of professional expertise in MNCH, is a very capable staff member. In some townships the HA also carried out several functions related to CDSR.

The problem in some townships of numbers not adding up in the various categories is not easy to explain. This should not have happened because there is no complex concept involved; these are mere arithmetical addition. But there was a possibility that the questions were not easily understood, and there could have been problems related to inaccurate translation from English to Myanmar. The additions involved the numbers of deaths in (i) the two age cohorts, and the situation was made less clear when hospital deaths were factored into the addition (ii) cause of death (iii) the three delays and (iv) preventable factors.

It is also not easy to explain why in the same township, the numbers added up for some quarters and not add up for other quarters. One can hypothesise that when these forms are filled up by the TMO himself/herself (and not delegated) the entries are correct and the numbers add up. But there was not enough data to test this hypothesis.

There are two aspects that need to be paid attention to in addressing this problem - (i) to review the questions in the form in case they were unclear (ii) if the questions are clear to improve the knowledge of staff filling this form. In this context, it is relevant to see the accuracy of the translation from English to Myanmar, to check if some information was lost in translation.

The **CDSR-4** forms - as found in CDSR-3, there were discrepancies and inaccuracies in the numbers that do not add up. While the numbers for the two age cohorts added up correctly, the numbers assigned to the three delays had large discrepancies, and no inference can be drawn from them. For the part on whether the CDSR-3 forms from townships were properly filled, the answers were unclear, even confusing. This was unexpected because the idea/concept was simple. However, as suggested under the findings in the preceding section, this was probably due to the poor design of the question itself, and this question will need to be reviewed, including checking the translation from English to Myanmar. The same lack of clear answers was found regarding preventability of deaths, which perhaps was expected because the concept itself is not simple, and this question in the form will need to be relooked at critically. The part on responses was clear, and the type of responses were similar among districts, and were in terms of generic non-specific actions like "health education" especially to "seek early care". The last part of the form asks for a narrative by the DMO(if needed or he wishes to) – it was encouraging that many districts did write this narrative, and the contents differ from each other based on the findings, and also perhaps on the interest and priorities of the DMO.

Some comments made at the feedback suggested some **gaps in the understanding** of some principles of CDSR. For example, one staff said that CDSR was good only for data collection but it has not led to reduction in child mortality. It is to be appreciated that CDSR is for collecting information, and this information should be the basis for responses that will prevent future deaths and in the long term, lead to reduction of child death. There was a suggestion that mortality rates be calculated in CDSR-3 and CDSR-4 forms. While this is a valid suggestion, it will only be meaningful if the number of deaths are big enough, when they represent a fairly good proportion of all deaths, which does seem to be the case. Also a reliable denominator has to be available, which should not be a problem because the number of livebirths in any area is known.

CDSR -5 form - although CDSR-5 was not used, supervision was carried out. Clearly, supervision is done in an integrated manner – to cover all functions and tasks of the midwife and not on CDSR or even child health alone. Unfortunately during the data collection, no attempt was made to check any existing tool/form used for supervision. It is likely that this would be an entry in the visitors book, or in a special supervision book, a practice common in many countries. There was information provided by 3MDG team that there is indeed an existing supervision checklist used by HA and LHV, covering some specific areas (data recording and keeping, clinic opening, health education, equipment. However there is no such checklist from the central level; and also this checklist does not cover tasks in CDSR. There is need to make a decision on this. There was consensus at the CHLWG meeting on 26 June that this checklist be retained (it may however be useful to relook at it and see its adequacy); and that supervisors of midwives be encouraged to use.

There is another form that midwives are required to fill, and this is not part of CDSR but has implications on CDSR. This is the **CSO-201** form. It was not only encouraging to get feedback that all midwives found no problem related to this from, and several midwives appreciated the importance of this form. In fact a few of them said this form is much easier to fill than CDSR-1. Additionally it was encouraging to get feedback from one midwife who provided extra information during the feedback session – she appreciated the importance of death certification, but also observed that since death certification is not required to get a burial/cremation permit, people do not always notify a death. One can assume that many (if not all) midwives have this awareness. This reflects the good level of knowledge of public health among midwives, and needs to be appreciated.

While the Technical guidelines prescribe CDSR-3 (from township to district) and CDSR-4 (from district to region/state), one significant finding was the **absence of a form for the region/state** to report to the central/ministry level. There was agreement that this form be introduced.

As for **feedback**, while it can be assumed that feedback to midwives is given during supervision, thus is not likely to be specific for CDSR. All midwives opined that the **monthly meeting** at Township Health Office is a sufficient platform for feedback. Therefore this very good practice must continue and be assured of its sustainability (there was evidence that a barrier was lack of funding, and some BHS staff use their own personal funds to attend this meeting, some were supported by IPs such as Relief International). At state/region level, all the six focal persons felt that there has been no necessity to provide feedback because the review meeting held once in six months provide an adequate and convenient platform for this purpose. Also, they said that the information in CDSR-4 form seldom has inadequate information for which a feedback question is needed. This however has a weakness – it is good practice that good (not only poor) performance needs to be given a feedback; it contributes to maintaining commitment among the staff.

In terms of **weaknesses related to staff knowledge**, besides those due to the problems associated with the CDSR forms described above, staff members especially midwives need to enhance their competencies in specific areas. These gaps were few and generally not serious, and were concerned with certain concepts which the staff member has not been familiar with. The feedback mentioned time and again on some problems encountered with causes of death, but these were not specific, and it had more to do with the forms than with knowledge of midwife. Some of the feedback mentioned the problem of having only signs and symptoms instead of a diagnosis. There was clearly some problems (which however remains vague) about the understanding by midwives of the three delays. While they claim to understand the concept, the findings did not appear what the situation is, unless the caretakers gave incorrect/inaccurate responses. The majority of deaths had no delays, and this is does logical, at least for second and third delays, because it is common knowledge that many rural families have problems of reaching a health facility, and that the health systems in some places are weak unable to give quality care.

While data from the review of CDSR-3 and CDSR-4 showed inaccuracies in the adding up of numbers, this is not a reflection of inadequate knowledge but likely to be errors in entering data and having different persons to fill up for different quarters, because there is inescapable subjectivity in understanding the questions. Besides for causes and three delays, this was found in classifying deaths by preventability.

For **death registers and data analysis**, overall, there was adequate technical competencies among the public health cadre of staff at all levels to enable them to conduct epidemiological analysis, but they were constrained by inadequate number of professionals to carry out this task. This was not an unexpected finding and is a common problem in many countries. It is very important that this be used to advantage – that once CDSR is seen to be beneficial, the authorities should put in more resources including manpower. The experience of Malaysia in the Confidential Enquiry into Maternal Deaths (CEMD) is a good example. After the CEMD was seen to have an impact on understanding maternal deaths that can reduce maternal mortality, CEMD was given a budget line with dedicated ear0marjed budget, every hospital was given a senior nurse to be the CEMD coordinator.

Because there was a delay in giving the excel spreadsheet by the centre (CHD) to states/regions and the other levels, there has been sub-optimal performance in creating the death register and in conducting analysis. However, there were some positive findings – almost all townships created the child death register, although the overall structure and the variables captured differ among townships. After all, basic variables that do not need an excel sheet; and also death registers without an excel sheet is already an established practice. Focal persons in region/state office equipped with computers (eg Ayeyarwaddy) have taken the initiative to create their own excel sheets; and this is a commendable effort. In some places (eg. Labutta District), analysis has been done with support of IP (Save The Children), and the fact that this has recently stopped had placed a burden on the district health office, where analysis has ceased. Where the number of deaths is small, as found in many townships and some districts, analysis is fairly simple.

There has been relatively less activities related to **advocacy and dissemination**. This was likely due to two reasons – the shortage of manpower; and the fact that CDSR is still in the early stage of implementation, so there was not much information to be shared. This suggests that any assessment or evaluation of CDSR in future may see a difference in this.

In terms of **health education**, there was more substantial activities. The findings that most midwives carry out health education to the family members, neighbours and community, and the role played by village health committees was expected. It was commendable that midwives use existing opportunities to do health education, as exemplified the "1000 day Nutrition Initiative" reported in Mway Hauk subcentre in Labutta township. Another finding worthy to be noted was the relative difficulty in conducting health education in urban compared to rural area, as was reported in Dedaye MCH clinic, an urban health centre. Opportunities were also used by combining advocacy activities of CDSR with MDSR, as was reported by Mandalay. The shortcoming to carry out dissemination and advocacy at all levels due to shortage of staff was also an expected finding. Besides this constraint, it was interesting that some districts (Pyapon was one) said that in this early stage of implementation of CDSR, efforts are focused on finding the causes and risk factors of child death, and only when full knowledge on this is obtained can dissemination be meaningfully done; and this is especially so with the currently weak public health structure at district level. In this context, this is expected to happen in many settings for similar initiatives. For example, in Malaysia, when CEMD was introduced in 1991, the first few years focused on understanding the causes and circumstances surrounding maternal deaths, and on developing clinical practice guidelines (CPGs). Dissemination and advocacy was only carried out after these initial activities.

About the **District Review Team** a districts (and health department of Shan State) have set up the teams in early 2017. Overall the teams share similar features - review teams were formed with members according to the Technical Guidelines; meetings are held quarterly as in Technical Guidelines, attendance by members is variable and inconsistent; each meeting lasts between one or two hours; the number

of deaths reviewed at each meeting is variable. Where the number is big as in Labutta with 80 to 100 cases per meeting, it was commendable that a system was created to ensure efficient use of time by the paediatrician and acting DMO making a summary of each death before the review meeting. The Labutta team said (and this is probably the case in other districts too) that the review focused on cause of death, and less on the three delays. This is likely to be the reason why the findings on the three delays are unclear and suspiciously inaccurate.

It was significant that even where the number of deaths was big, none of the teams carried out **sampling** as prescribed in the Technical Guidelines. It has to be borne in mind that the number of deaths captured by CDSR is much lower that the real/expected number as revealed by the National Population Census and the DHS. As it matures and gets scaled-up, it is likely (and it should) that this number will increase, and there will a time that sampling is needed. Therefore this was one gap in the assessment – it did not allow for the assessment of this critical process in CDSR.

There was a finding that a TMO did not **attend the review meeting** because of distance. This is a situation that can be accepted for the sake of efficiency, but it is recommended that he/she attend when the deaths from that township needed discussion and deliberation, unless the information given in the death register and CDSR-3 form is detailed enough to be adequate for a good review. One finding in one district that deserves discussion and attention was the non-attendance of the obstetrician at review meetings, and it was speculated that this happened because there was no clear instruction from the MS of the district hospital; and further the MS (as acting DMO) had delegated the chairing of the review meeting to the senior paediatrician by an informal verbal communication. There was a suggestion that the state/region focal point to attend district review meetings. This is a suggestion worth considering, because the focal person from the state/region will have first-hand knowledge of how the review was conducted and how the members made the decisions and recommendations, which undoubtedly be of value to the state/region review process. Of course there will be cost implications.

In the context of death review by the Review Team at District level, one glaring finding was the **weak district Public Health structure** and organization, in fact it is non-existent in Shan South. This was the main point raised during the discussion with 3MDG Fund that considered some options including making townships taking the lead role in conducting a death review. It has to be acknowledged that this was a major issue that was discussed in 2015 during the planning stage of CDSR. The reason for the crucial role of the district level was straight-forward and has been referred to in this report. The number of child deaths is large, about 10 to 20 times that of maternal deaths, and it is not possible to review EVERY child death (as is done for maternal deaths[6]). Therefore a sampling is needed; the most appropriate basis for sampling is cause of death; and for ascertaining cause of death, the expertise of a paediatrician is needed. There is no paeditarician at township level, whereas in every district hospital, there is at least one paediatrician. In 2015, there was a strong impetus for MOHS Myanmar to strengthen the Public Health structure at district level, where a DMO will be assigned. However, this plan (not unexpectedly) will take a long time to be fully realized.

In this context, this assessment has provided a reason for a **reconsideration of the approach** used in CDSR to conduct the death review by a Review Team. This is presented as a recommendation (see Section 11.5 below).

On a more general management perspective, a major issue is human resource - **manpower shortage** has affected the progress of CDSR in all the 6 districts. This was most evident in the gaps in analysis of data and carrying out of dissemination activities. There was no staff to manage data entry, and the

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6. Currently the MDSR system in Myanmar detects only between 800 to 900 maternal deaths each year which is a much lower figure than the real figure (in the Census 2014, the number was 2,797). There has been no report of how many of the reported deaths are reviewed by the MPSR, although an analysis of the deaths have been conducted and reports generated and published for 2013, and 2015, and the 2016 report is currently being finalised. The report for 2014 was written but it was not published and disseminated outside the MOHS

problem was compounded by many states and districts having no computer and electronic means of information management. It was felt that a CH focal point should exist in all districts. While getting more staff is not easy and cannot be expected in the near future, some other approaches may be adopted to ease the situation to some extent (see recommendations below). There may be opportunities to review the posting and responsibilities of some new staff. An example is the Child Health Team leader posted to Labutta Township; it may be possible to get her to do some tasks at district level where shortage is acute, and where support in data entry by SCI will soon cease.

The problem of workload in CDSR was illustrated by the Kachin focal person – Myitkyina Hospital with 500 beds have to manage patients from other districts; this means that the number of child deaths is high. This situation is probably existing in all region/state hospitals besides Kachin.

Transfers of staff in any organization is a common unavoidable feature. In this assessment, there were several instances where staff transfer has affected performance of CDSR. The number of staff having just undergone transfer was unusually high, and it was explained that there was recently a fairly big transfer exercise in the MOHS. While staff transfer cannot be avoided, there needs to be some mechanisms or strategies to minimize its effects on work related to CDSR (as for all other programs and initiatives), and this will be covered under recommendations.

On a positive side, overall, there was adequate technical competencies among the public health cadre of staff at all levels to enable them to conduct epidemiological analysis, and if not for the shortage issue, this function could be better executed.

Manpower shortage is a common problem faced by many countries. As mentioned earlier, this shortcoming can be used to advantage CDSR. Once CDSR is seen to be make a difference in child survival, policy makers are likely to allocate more resources including manpower to CDSR. The experience of Malaysia in CEMD was already quoted as an example.

One very encouraging finding of the assessment was the **experiences and opinions** of staff, reflecting their positive attitude. Focal persons at region/state gave a very valid reason for the importance of CDSR – it provides a more reliable number of child deaths, with useful information on cause of death, type of delay and preventability. The involvement of paediatricians in the team, and participation and obstetricians of other staff, and good cooperation between public health and hospital were consistently cited as strengths. It was also encouraging that many respondents found it useful to have data for epidemiological surveillance. The statement made by many of the paediatricians was equally encouraging and is a strong cause for optimism for CDSR to progress further – they felt that CDSR was no extra burden to them, and they agreed that CDSR is an important activity. The paediatrician in Labutta related her experience that shows the importance of CDSR. When she saw deaths due to severe neonatal jaundice (kernicterus), she requested the THN to inform all midwives to tell mothers to bring jaundiced babies to hospital for prompt exchange transfusion, thus saving the life of the newborn.

Collaboration at all levels was good overall. With the MS and DMO being the same person in most districts, there was no issue of collaboration between hospital and health. Even at local level, the midwives reported that they had no serious problem dealing with hospital staff, especially in terms of notification of a child death in a hospital. This can be explained by the fact that the hospital-health relationship has existed for a long time, and most already existing health initiatives this linkage is established and functioning. CDSR as a new initiative naturally benefits from this long-established relationship. In addition, in several townships, there is good hospital-health collaboration because the TMO is also the MO in charge of the township hospital. Similarly in all the districts the MS of District Hospital is also the DMO.

There was no report of death in private hospital. In this regard one TMO (Dedaye) expressed his opinion - private hospitals tend to refer the serious and potentially fatal cases, and they did not want the death to happen in their hospital. This phenomenon is not uncommon, indeed in the CEMD in Malaysia, this was a common finding.

The problem of remote hard-to-reach areas and high transport cost made it difficult for the midwife to do the investigation; and this needs the responses from other sectors outside the health sector. The high migration rate in Ayeyarwaddy is another issue that needs intervention from other sectors.

One opinion that was sought from the staff was **comparing CDSR with MDSR**. The responses were similar among staff – most agreed that both are of equal importance, a few felt that MDSR had been perceived as being more important. It was felt that CDSR is easier because the form is shorter and less cumbersome. It is noteworthy that this may not be the case if comparison is made using CDSR-2 instead of CDSR-1 form. One TMO pointed out the difficulty of getting cause of child death (which can be from a wide range of possibilities) compared to the causes of maternal deaths which are quite well-circumscribed with specific causes.

The **health seeking behaviour of caretakers** could have been better planned and executed, using a robust methodology. The selection of health centres and midwives (two midwives from each township) was done by the township health department; and the each midwife was tasked to identify three caretakers to be interviewed by the facilitators. For understandable reasons the selection of caretakers could not have been truly representative. The caretakers who could come and be interviewed were those who were free to do so, i.e. they were not working (most of the women were farmers or paddy planters), and who did not live a very long distance from the health centre where the interview was conducted. There was therefore a bias, because these factors themselves have an influence on care-seeking behaviour. In addition, there was insufficient time to plan the interview and to get a good number; and the data collectors settled for three caretakers for each midwife. The midwife were told to use their discretion (and ease) to select caretakers, irrespective of any variable such as age of child who died, cause of death, whether community/hospital death, etc.

Information collected was related to what could influence health seeking behaviour especially in relation to the three delays. These were distance/time from the nearest health facility; did caretaker seek care before death; did the midwife come to see the child on time; did caretaker follow the advice given by health provider; did caretaker decide on her own to seek care; was there any language barrier with health care provider and was waiting time at health facility too long. It was noteworthy that in all the nine child deaths, there was none of the three delays – they were aware of the need to seek care (no first delay), the midwife came to see the child on time, the family had no problem getting to the nearest health facility, except for one case (no second delay),and none of them had to wait long at the health facility (waiting time was used as a proxy indicator of quality of service that can lead to the third delay).

Besides the selection of caretakers which was for convenience, there were two shortcomings in the interview – (i) There was no focus group discussion which would have elicited useful information; because this would have required more time both in planning and in conduct of interview, some logistical problems, and an ethical clearance; and (ii) The interview was not designed to probe further after the interview questions were asked.

On this second shortcoming, the data collectors in Ayeyarwaddy attempted to get more information by asking more questions, especially to assess if the death was preventable, and it can be inferred that the death due to extreme prematurity was not preventable. The premature baby at 28 weeks could not have been saved; even if it was in a tertiary level care with facilities to manage extreme prematurity death probably inevitable. However, the pregnancy could have been prevented if the mother practised family planning. The second death due to the congenital intestinal obstruction/ stenosis was also not something that could have been prevented, and there was no treatment for the condition, at least not in Myanmar. The third death due to drowning was preventable with parents making sure young children do not play near water unattended by adults.

This finding on seeking care was complemented by the finding in the quantitative component of the assessment which used CDSR-4 forms, where it was seen that, of the deaths that have information on type of delay, in 50% there was no delay, 35% had first delay, 12% had second delay and 3% had third delay. This profile deserves further deliberation and explanation, because there is discrepancies with the information given by the midwives in CDSR-1 forms. This becomes more important because, additionally in the analysis of CDSR-4 forms, the District Review Team fully agreed with the report of the TMO (CDSR-3 form) in 76% of cases and partially agreed in 12 % of the cases.

Using a pragmatic approach, the assessment attempted to measure the **burden of child death**, from an analysis of CDSR-4 forms from 59 districts. While there was no intentional sampling for getting this 59 out of 75 districts for the purpose of this assessment this can be considered as a sample. The number of child deaths collected form these 59 districts was grossly lower than the expected number, the CDSR was able to uncover only just over one-fourth of under-five deaths. Even if the unavailability of CDSR-4 forms from 16 districts are factored in, the number will still be a significantly lower than the expected number. This undercount is not unexpected. A national census gives the most complete count, the DHS gives an acceptable estimate, whereas an initiative like CDSR especially newly introduced will take a long time to arrive at a stage when reporting and notification becomes more complete. Newborn deaths contributes 58%, and the remaining 42% was deaths in children 29 days to under 5 years. As was seen earlier, data from the World Health Statistics 2017 shows that in Myanmar the proportion of neonatal deaths was 52.8% of under-5 deaths; therefore the 58% found in this assessment is higher. Globally this proportion is lower at 45.2%.

The leading cause of neonatal deaths was prematurity and birth asphyxia; while for the older cohort the leading cause was pneumonia (and other infectious conditions including CNS infections ranking slightly lower). Fatal congenital anomalies was a significant cause in both age groups. This profile is significant, as a country develops, infectious causes become less common compared to congenital anomalies. Therefore the profile of child deaths in Myanmar is still one of a developing country, and this is further evidenced by malnutrition as the eighth leading cause, diarrhea as the ninth and beri-beri as the tenth. Half of the deaths was not associated with any delay to seek care, of the half that did have delay, most were type 1 delay. As pointed out earlier, there is need to examine these findings and compare them to the findings from midwife interview (in the first methodology), and review of CDSR-4 forms (in the second methodology).

The central feature of a death review, and the main aim of MDSR and CDSR is the elicitation of **preventability of the death**. This forms the basis of the value of the death review in preventing future deaths in the same circumstances. In this assessment, preventability could have been assessed from three sources/methodologies:

- Information in CDSR-3 and CDSR-4 forms. In CDSR 3, question 8 is "Of the child deaths reported and reported from hospitals (in question 3), were you able to ascertain if there were preventable factors for the death, and three options were given to the TMO to fill – the number of deaths in which there were no preventable factors, the number in which there were preventable factors and the number that could not be ascertained. A similar question is asked in CDSR-4 for the DMO to fill. Unfortunately there was no clear finding from this methodology

- Information from caretaker interview, but this was not specifically asked in the interview questionnaire, and could only be done if the data collection team made an extra effort to ask probing questions, which was done by the team in Ayeyarwaddy in which one death due to severe congenital anomaly was not preventable, one death due extreme prematurity was not preventable by itself but the pregnancy in the multiparous mother could have been prevented by contraception, and the third death due drowning in a toddler was certainly preventable
- This analysis of CDSR-4 forms in the measurement of burden of death; in which slightly more than half of deaths had preventable factors, but this finding is likely to be not very accurate in this early stage of implementation, because this is a complex concept that requires more experience of the staff members who fill up these forms

The **contribution of partners**, best exemplified by the crucial role of UNICEF Country Office, which has been the lead international partner in the CDSR, right from its inception in 2104 when it was suggested by the CHLWG. The technical and financial support provided by UNICEF including the procurement of the services of an international consultant has laid down the ground for the development of CDSR.

The contribution of 3MDG Fund is also obvious and well-known. It was the availability of this fund provided by donors (managed by a team specially established in the UNOPS Country Office) that made several activities in CDSR possible. Besides being a fund management entity, the 3MDG Fund team also provides professional and technical support. Indeed for this assessment, the 3MDG fund participated as facilitators in Magway and Shan South. At the meeting of health specialist UNICEF and the consultant, the weak district health structure was the main issue discussed. Options to solve this were considered, including making the township the focal point for the review of child deaths (instead of the district). However it was deemed necessary to keep the focal point at the district, for reasons elaborated in the section below under management issues. It was decided that this be brought to the National CDSR Coordination Committee at its next meeting.

The 3MDG Fund disburses funds to implementing partners (IPs) which provide support to Township Health Departments to carry out specific support functions in CDSR in specified areas in the country, and one such IP is Save the Children (SCI) with which the consultant and health specialist UNICEF had a feedback session. Feedback from SCI gave good insight on the role of IPs. The major contribution of SCI is in training in the areas it operates in. Besides training, it also supports other functions, as found in Labutta where SCI carries out data analysis. From data provided by SCI it was clear that its contribution especially in training, was significant, especially in remote areas such as Chin and Shan states. It can be reasonably assumed that without the funding from 3MDG Fund, and without SCI it would be extremely difficult for the MOHS to serve these remote areas optimally.

Besides the SCI with which a feedback session was held, the contribution of other IPs became apparent in some other areas during the course of the feedback sessions held in the three region/states. For example, Relief International provided support to Dedaye, Hsiseng, Maukmai (probably other areas too but did not turn up in the findings) in training in CDSR, and transportation of staff to attend meetings such as the monthly meetings/CME at townships.

The assessment was an opportunity for addressing the issue of **review of stillbirths**. When CDSR was planned in 2015, a decision was made to include stillbirths but only to count the numbers, not to conduct a review/audit. This was a good decision because this serves as a starting point to address stillbirths. It is to be noted that there are various models and approaches for review/audit of **stillbirths/perinatal/ neonatal deaths; and** the commonest approach for perinatal death review is being part of maternal death reviews – therefore it is maternal and perinatal death review (MPDR) which is, in all likelihood, has been transformed into maternal ad perinatal death surveillance and response (MPDSR), as is being done in several countries, such as Maldives, Nepal, Indonesia and some states in India. The rationale of doing perinatal death with maternal death is obvious – the risk factors are sometimes similar, and the interventions need to be during the pregnancy. In some countries, there is a stand-alone perinatal death review. In 2016, the WHO has developed guidelines for perinatal death review "*Making every baby*

count: audit and review of stillbirths and neonatal deaths"[7]. Also, in 2015 SEARO had convened a regional meeting in Maldives on "Strengthening Country Capacity on Maternal and Perinatal Death Surveillance and Response (MPDSR)" at which Myanmar participated.

The decision on the approach to be adopted will need to take into account universally accepted definitions of stillbirths and perinatal deaths. However, regardless of these definitions, the decision for what deaths to be reviewed is entirely up to the policy makers, specifically in the Maternal Health Division and Child Health Division. To illustrate, the guideline from WHO above is for stillbirths and neonatal deaths (which means still births and deaths up to 27 days), and not perinatal deaths (which means stillbirths and deaths up to 7 days). There will need to be deliberations on how extensive the scope shall be – for example, shall the review cover all deaths, or only deaths in hospitals. It is very likely that this review will start off as a pilot project.

10. Conclusion

Overall CDSR in Myanmar is being implemented successfully, although there are several weaknesses and shortcomings, which is not unusual for any new initiative. Most of these weaknesses are amenable to improvement and corrective actions; and they relate to training and staff competencies and weakness in the Technical Guidelines specifically the CDSR forms, and management issues especially in terms of district structure and manpower shortage. There are several strengths, opportunities and positive features that augur well for CDSR. The number of child deaths that are being notified in the CDSR system is far too low compared to the expected real number as revealed by the DHS 2015 and National Population Census 2014. With concerted efforts, this number will increase, adding value to the findings of CDSR, which when used optimally for remedial actions, will be a major step towards reduction of newborn and under-5 deaths in Myanmar and contribute to the Sustainable Development Goals (SDG).

11. Recommendations

Based on the findings, discussion and conclusion, the following recommendations are made:

11.1. Maintain current commitment

Since its implementation which began in Jan 2017, CDSR has made good progress. The commitment of CHLWG and the National Coordinating Committee is to continue to ensure there is enough oversight on CDSR implementation. Meetings of these two committees should be held regularly, preferably with dates identified at the beginning of the year for 2 or 3 meetings a year. Progress reporting on CDSR should be made more systematically, and the report distributed to members before the meeting to ensure maximal feedback and contributions from members. Minutes of meeting need to be comprehensive, as is currently being done.

To get commitment from staff members who implement CDSR, strategies need to be identified, including getting feedback from them. It is observed for the midwives and other BHS, the monthly meeting / CME with the TMO, and this good practice must continue. The same level of interest can be generated at the district level where the review meetings take place. To use the experience of Malaysia for CEMD, for the first few years, a senior nurse was appointed CEMD coordinator at the hospital, and she was given opportunity to participate at seminars and conferences, and study tours. Related to this is the "job satisfaction" and "sense of pride" the staff members have; for this there is need to enhance the visibility of CDSR (to be addressed separately in Section 17.10); and when the impact of CDSR becomes

7. It is significant that this document uses both terms "audit' and "review"; and that the guide is not on perinatal deaths (which means stillbirths and early neonatal deaths) but on stillbirths and neonatal deaths (which suggests it also includes late neonatal deaths)

apparent, staff will take pride that they have contributed to reducing child mortality. Refresher training especially when there are new contents/approaches/concepts, is a very strong motivating factor, as was experienced in Malaysia for CEMD.

11.2. Continue and enhance training

The training package developed in 2016 was found to be appropriate and useful, as well as adequate except that there needs to be more practical exercises and demonstrations for filling up the forms. There is also a need to ensure there is enough resources for training to be conducted, as expressed by regions/ states which do not receive support from 3 MDG Fund. This applies to first time training and refresher training. As mentioned above, refresher training is not only useful for improving and renewing knowledge and skills, it also contributes to maintaining commitment. Innovative strategies such as public-private partnership as seen in Kachin should be explored.

The content and methodology of training needs to be reviewed from time to time. For now, while overall there is adequate staff competency in filling up the forms, a few weaknesses were found and more simulation and practical exercises are needed. Also, there appeared to be poor understanding in some concepts, most notable in the three delays. Strategies are needed to ensure that staff transfer do not negatively affect training. Related to this is the need for a system to keep track of training – at all levels, so that the current information is available on the number (and who) of the staff to be trained, and who have been trained.

11.3. Improve competency of staff in CDSR

Besides the training and retraining above, there are other approaches to be explored and implemented to improve the competencies of staff. The monthly CME sessions at the township appeared to be a very useful and effective means. Understandably, these CME sessions cover the whole gamut of public health topics, and it is not easy to put too much attention on CDSR or even on child health in general.

Staff should be facilitated to attend seminar, conferences, forum and the like especially on child health - where they can meet 2 objectives at the same time – first to learn about child health, and second to share with others who can learn from them about CDSR. The staff especially as a team, should be encouraged to write articles for publication in reports, journals etc. This is especially important because CDSR is not an initiative that has been adopted as a national initiative/programme in many countries. The CHD department can consider establishing a "clearing house" which essentially is a virtual library, on child death reviews (or the broader area of child mortality), by which articles are sourced and the list is documented with the links for staff to access, on specific topics on child death.

11.4. Review/revise Technical Guidelines and CDSR forms

From the assessment especially in the first and second methodologies, a clear recommendation was made to review the forms used in CDSR.

For CDSR-1, the review and subsequent amendments will involve the following:

- In "place of death", to specify the specific name of the hospital and clinic – for example it is not enough to just tick "government hospital" but to allow space and give instruction to name the hospital eg Labutta District Hospital.
- The same applies to the section for "Any treatment and health services before death", to specify what was the treatment given and where.
- The part on referral unclear, currently the form asks for any referral to a higher level, if "yes" the reason for the referral, and was there any pre-referral treatment. There is need to have more clarity for deaths that were referred to a lower level, and from private clinic/hospitals and traditional healer/quacks.

- Some midwives had difficulty to understand how to fill in signs and symptoms, and a TMO suggested that after the signs and symptoms there should be a space for the diagnosis. This amendment is not as straight forward as the above three, because the difficulties reported were different among midwives and among the TMOs and DMOs who checked these (although in most cases, the TMO and DMO were in agreement with the midwife).
- PART II of the form on the three delays will need a thorough review and discussion, because it is not certain what amendments are needed. The problem appears to be different understanding among midwives as evident from the information they entered in the form, although all midwives said they understand the concept of the three delays.

For CDSR-3 and CDSR-4,

- the review and amendments will be quite substantial, not in the content/information to be obtained from the TMO, and DMO, but in the way the questions are asked to ensure clarity and ease of understanding. The steps will be quite tedious – first check the current English and compare it to the Myanmar version to see if they concur with each other in meaning and intent; then review the English version and identify the parts that are unclear (even in English) and make the amendments; then translate this amended form into Myanmar; and finally carry out a back-translation (from Myanmar back to English and check, if there is variance or inaccuracy, make necessary amendments)
- the question on preventability of death needs to be reviewed; the questions are quite straight-forward and clear, but TMO and DMO (and paediatrician) may not be confident in making this decision, and this requires a good level of knowledge in both clinical aspect (the medical cause of death needs to be assessed for preventability) and public health aspect (the death could have due to non-medical cause such as any of the three delays)
- it is also necessary to review the last two parts of these forms, that ask for (i) responses taken by TMO and DMO; and (ii) a narrative account (optional) by which the TMO or DMO summarises the answers to the questions (if he/she so wishes) or to give additional information. It was very encouraging that almost all TMO and DMO filled these parts, but from the findings, the inference are not very useful – the responses are very generic in nature that are usually applicable to any public health problem (health education, sanitation, good nutrition, antenatal care). The summary narrative contains similar statements. This is not surprising because the instruction itself is general in nature, and maybe vague. The review will decide on the 2 questions – (I) Are these needed at all? (ii) If needed, how can they be asked/presented in a clearer unambiguous manner?

Other forms: There is no need to review CDSR-2 form, since the findings on the small number of forms used did not suggest that any amendment is needed. As to CDSR-5 although it was not used, it was generally felt by stakeholders that it should be used because the existing supervision of midwives does not address CDSR specifically. In view of this, the 3MDG team is suggesting that supervisors (HA and LHV) be encouraged to use CDSR-5. There is need to introduce a new form, for the region/state to summarise their review findings and submit it to the central level (CHD). This will be named CDSR=5, and the supervision checklist will be renamed CDSR-6.

11.5. Review the role of district health office in conducting review of child deaths

Earlier under discussions, it was pointed out that a decision is needed with respect to the weak PH structure at district level which has compromised the effectiveness of death review by the review team at the district level. In particular, there is no full-time DMO as yet in almost all districts, and the functions of DMO are carried out by the MS, who already has a heavy workload. In Shan South state, there is as yet no District PH Department, and death review is conducted by the State Health Department.

In the discussions held with the 3MDG Team, two opinions were expressed – the first opinion is to retain the current approach where the district conducts the review; the second opinion was to conduct the death review at township instead. These two options have their own arguments for (pros) and against (cons) summarised below, and these can be used as guide to make the decision.

Option 1: Child death review to be maintained at district

Arguments for (pros)	Arguments against (cons)
• Paediatrician with good clinical knowledge and experience needed to assign cause of death, and sample the CDSR1 forms to be reviewed • This assessment shows the full commitment of the paediatrician • Enhances the hospital-health relationship • With only 75 districts, the region/state focal point has a small manageable number of review reports to collate and analyse	• The weak structure for public health at district, and not likely this will be improved in near future • The number of deaths is still small, and there is no necessity for sampling, (while this may change in the future, it is not likely to be soon)

Option 2: Child death review to be conducted at Township

• Townships have been the main focus of all health programmes and initiatives, and TMOs are familiar with managing health programmes, and are technically competent • There is THN and HA to support and assist TMO • This assessment shows that it is rare for the diagnosis made at township was changed by district level, so TMO are adequately competent to identify cause of death	• No paediatrician to provide necessary clinical input, and to sample when this becomes necessary (but if feasible, a paediatrician can be invited by township to attend the review meeting) • With 330 townships, the number of review reports to be collate and analysed by state/ region will be large and less easy to manage. However with the spreadsheets the analysis is relatively easy, and the number of variables is not large

11.6. Address manpower and other management issues

Staff shortage overall, besides being the main factor for weak/nonexistent district public health structure, is a constraint to CDSR implementation. Because this problem exists for almost all programmes of the MOHS, the solution will require major high-level policy decisions. As mentioned earlier, staff transfer is something necessary and unavoidable, but strategies need to be in place to ensure that transfer does not affect CDSR – for example, staff who is transferred should have a replacement (preferably at same time) there should be a proper in-depth passing over of duties by the outgoing staff to the in-coming staff.

There may be opportunities to review the posting and responsibilities of some new staff. An example is the Child Health Team leader posted to Labutta township; it may be possible for her to do some tasks at district level where shortage is acute, and where support in data entry by SCI will soon cease.

While staff transfer cannot be avoided, there needs to be some mechanisms or strategies to minimize its effects on work related to CDSR (as for all other programs and initiatives), and this will be covered under recommendations. In the district where a review meeting had to be cancelled because of miscommunication between DMO and CDSR coordinator (Child Health team leader), is basis for recommending that clear roles and functions be drawn up formally and agreed to and attested by all parties concerned.

11.7. Strengthen supervision and feedback

Although CDSR-5 was not used, supervision of the midwife was carried out through the existing system. However, this supervision is for general tasks and not specific for CDSR. Therefore it is recommended that CDSR-5 form be retained, and supervisors of midwives will need to be encouraged to use it. Feedback is relatively weak, but this is likely to improve as time goes on. For performance of midwives, supervision itself is the most direct form of feedback, further enhanced by the monthly CME meetings at the township. Therefore it is recommended that the supervision mechanism is reviewed as mentioned above, and improved on if necessary; and that the monthly CME meetings is sustained. It is important that feedback, by whatever mechanism, must take into account that good (not only poor) performance needs to be given a feedback. This will contribute to commitment among the staff who are implementing CDSR.

11.8. Strengthen advocacy, dissemination, public awareness

This has been suboptimal for reasons of staff shortage, and also because CDSR has not "matured" to a level where there is enough information to be shared with other agencies. Even then, it is useful to have a proper plan for advocacy and dissemination. For public awareness, currently health education is carried out, but mainly to the families and neighbours of the deceased child. The feedback on health education to the public covers broad areas like nutrition education, hygiene etc. It will be useful to have health education that are better-planned with specific topics relate to child health especially to potentially fatal conditions that can be prevented.

11.9. Continue to optimize partnerships

The support of the 3MDG Fund and the activities carried out by the IPs are crucial for CDSR. This has to be maintained. In specific situations where support is dwindling (such as data entry by SCI in Labutta) and financial support by Relief International in Dedaye in training and transport of staff for meetings, is worrisome, and the MOHS will need to find solutions to this problem.

11.10. Enhance the visibility of CDSR

Earlier it was suggested that commitment of staff is related to "job satisfaction" and "sense of pride" and that for this there is need to enhance the visibility of CDSR. In this early stage of implementation, this is not very easy, but some activities (such as the commitment of the CHLWG and National CDSR Coordination Committee) should be reported at appropriate platforms. Opportunities should be sought for more advocacy efforts, including media exposure. As an immediate step, Policy Briefs will be developed to garner support from high level policy makers, donor organisations and other high level stakeholders. This is mentioned as a next step in Section 12. It is worthwhile to point out that CDSR is something relatively new and not many countries have embarked on it. In this regard, any platform to promote and advocate for the MDSR (which is more established having been started with MDR,) can be used as an opportunity for CDSR to be made more known. Visibility will be easier to achieve once the impact of CDSR becomes apparent, which will take a long time. Besides contributing to staff commitment, visibility of CDSR will facilitate efforts to increase resources to CDSR, including manpower, especially to strengthen the public health structure at district level.

11.11. Consider making policy on stillbirth/perinatal death review

As discussed earlier, the attempt in Myanmar, counting stillbirths as part of CDSR, can be used as an opportunity for a policy on review of stillbirths/perinatal/neonatal deaths. This policy needs to be made jointly by the Maternal Health and Child Health Divisions in the MOHS. The concerned departments/

divisions in the MOHS need to decide on the review of stillbirths, along with early neonatal deaths (as perinatal mortality review). For this, it is recommended that the two documents referred to earlier – the guideline form WHO on review of stillbirths and neonatal deaths, and the report of the meeting in Maldives in 2015 on strengthening MPDSR. It is also recommended that the policy makes it clear as to "what" is to be reviewed, recognising that while there are universally accepted definitions of stillbirths, and of perinatal and neonatal period, Myanmar will have to decide what the review is needed for, and how comprehensive the review shall begin with – for instance, all deaths or only deaths in hospitals.

12. The Next Steps

12.1. Immediate

The immediate next step for the Child Health Division (in consultation with relevant parties) is to look at the above recommendations, to:

(1) Develop Policy Briefs that will enhance visibility of CDSR, and facilitate advocacy and dissemination to senior officials and high level policy makers in the MOHS, and other agencies/sectors and other stakeholders, who are required to take up some of the recommendations.

(2) Make a decision on whether to conduct the child death review at District or at Township level (the arguments for and against the two options have been described in Section 11.5).

(3) Make a decision, jointly with the Maternal Health Division, whether to conduct review of stillbirths/perinatal/neonatal deaths, and if so, what approach/modality to use for this review, and how to introduce it (eg pilot project).

(4) A plan of action to identify the inputs and activities that are required for each of these recommendations, with details of *what* to do, and *how*, *who* and *when* to do them.

12.2. Longer term – next assessment of CDSR

There is need to make plans for the next assessment of CDSR implementation; for four reasons:

(1) To see how the current weaknesses will be reduced/eliminated in the near future, therefore the next assessment will be used to compare the findings of two assessments.

(2) To take into consideration aspects that were not assessed completely or accurately in this first assessment. Three aspects were inadequate

- the quantitative measurement of burden of death (methodology 3) which for pragmatic reasons, had to be derived from CDSR-4 forms, whereas ideally this analysis should use the spreadsheet derived from CDSR-1 forms (or using the CDSR-1 forms itself, which however will be tedious); the spreadsheet will be introduced soon
- the caretaker interview which was carried out using an approach which was not robust, but instead was carried out based on convenience and ease; a focus group discussion (FGD) can be considered
- the CDSR-5 form (supervision checklist) was not used

(3) Taking into consideration that some activities will take longer than 12 months, and could not be assessed in this first assessment

- the small number of child deaths notified did not necessitate sampling of forms to be reviewed by the District Review Team, which is one process that is expected to be difficult, and therefore needs to be critically assessed
- advocacy, dissemination to stakeholders) require a more comprehensive and reliable information which needs a longer implementation to be meaningful

(4) If a decision is made to move the child death review and the team from the district to the township, this will need to be assessed as to its effectiveness

ANNEXES

Annex 1: Content outline of Proposal for Assessment of CDSR

1. **Background**
2. **Rationale and Purpose**
3. **Who Is This Plan For?**
4. **Definition Of Terms**
5. **General Principles**
6. **Scheme of Implementation – A Phased Implementation**
7. **Why Is An Operational (Roll-Out) Plan Necessary?**
8. **Assumptions**
9. **Key Steps In Preparing The Roll-Out**

   Key step 1: Selecting the sites/townships
   Key step 2: Deciding on duration of roll-out
   Key step 3: Assessing readiness of operational sites, and possible risks
   Key step 4: Establishing Child Death Review Teams at the different levels
   Key step 5: Getting the tools ready
   Key step 6: Preparing for advocacy
   Key step 7: Conduct training and briefing sessions

10. **Processes In The Conduct Of CDSR**

    Process 1: Notification of a child death
    Process 2: Reporting and basic investigation the death using CDSR-1
    Process 3: Carrying out a verbal autopsy using CDSR-2
    Process 4: Review of child deaths by the Child Death Review Teams
    Process 5: Responding to the findings of the review
    Process 6: Tracking and monitoring the roll-out
    Process 7: Surveillance
    Process 8: Feedback and dissemination of findings

11. **Conducting The Processes At The Levels Of Implementation**

    Level 1a: Basic health facility
    Level 1b: Hospital
    Level 2: Township Health Office
    Level 3: District Health Office (with District CD Review team)
    Level 4: Region/state Health Office (with Region/state CD Review Team)
    Level 5: National/ Division of Child Health, MoHS (with National CD Review Team)

12. **Assessment Using Information From Ongoing Processes**

    12.1. Information from tracking and monitoring
    12.2. Information from surveillance data

13. **Assessment Using The M&E Framework Of CDSR**

    13.1. Indicators for evaluation of CDSR – brief overview
    13.2. Selected indicators for evaluation of roll-out

14. **Assessment Using Other (Specific) Measures**

    14.1. Relevance of CDSR
    14.2. Feasibility of conducting CDSR
    14.3. Cost-effectiveness, efficiency and affordability of CDSR
    14.4. Sustainability of CDSR

15. **The Next Steps**

Annex 2a: Form REV-1 (Feedback tool – midwife)

Name of midwife .... Name of Health Centre ....

Date of interview .... time started .... ended ....

Before the interview, the interviewer to take note of the tasks carried out by the midwife which are detailed out in the Technical Guidelines. The facilitator then asks the following questions

Q1: When did you start to implement CDSR? ....

Q2: How many notifications of a child death have you received since the CDSR started until now? How many of these were deaths occurred in hospital ....

Q3: Who is the usual informer when a child death occurs? AMW .... Other health staff .... Hospital .... Family member .... Member of community ....

Q4: What is the usual methods of information? Verbal .... Telephone / mobile by voice or sums ....

Q5: What is the usual (average) duration from time of death to time of notification? .... The shortest .... the longest ....

Q6: What is the average time from time you receive notification to the time you investigate ....

Q7: Do you fill up the CSO Form 201 for every death notified to you? .... Is there any problem that you face in this?........ Do you think this is an important form to be filled? Why? ....

Q8: Has there been occasion that you could not fill up Form CDSR-1, and needed help from another staff? .... Which staff? ....

Q9: Do you think there is a role for AMW in filling up the CDSR form? ....

Q10: Have you received notification of child death in hospital? .... Of the child deaths that happened in hospital, did you get the clinical audit report or any other report from the hospital .... In these reports, is the cause of death always given? ....

Q11: Have there been any notification from a private hospital? .... If "yes", what did you do after receiving the notification? .... If "no", do you know what you should do if a notification is received from a private hospital?

Q12: Has there been occasion that you were instructed by TMO to conduct a verbal autopsy by filling Form CDSR-2? How many times *or* what proportion of all deaths require verbal autopsy ………..

Q13: Have you faced problems in filling up CDSR-1? .... Can you elaborate?

Q14: Have you faced problems in filling up Form CDSR-2 for verbal autopsy? .... Can you elaborate on these problems……………….

Q15: Do you think that all child deaths in your operational area have been notified to you? In other words, is it possible that some deaths were not informed to you? .... If there is any, why do you think these deaths were not notified ....

Q16: Have you found it necessary to carry out public awareness or advocacy to encourage families and the community to notify a child death?.......... If yes, how have you done this?

Q17: Have you been supervised by your supervisor in the carrying out of CDSR? .... If yes, by which supervisor .... How many times …….. Are these supervision exercises useful? ....

Q18: Have mothers/caretakers been able to answer questions in CDSR-1 and CDSR-2? ....

Q19: Has there been cases when the mother or caretaker of the deceased child refuses to be interviewed? .... or shown some hostility and unwillingness to answer your questions? .... If "yes" do you know the reason? ....

Q 20: Were there deaths for which you could identify a cause or contributing factor that had led to the death and which could have been prevented?....... Have you taken any action in response to a finding in a child death ?................

Q21: Do you think the TMO has given you adequate support in carrying out CDSR .... Please elaborate……………….

Q22: Have you undergone formal training on CDSR?...... If "yes", was the training adequate?.........If "not adequate", can you elaborate and suggest for improvement….. If you have not undergone training, is there a reason for this, and what is the reason?..................... Do you think you need training for CDSR?…….

Q23: Are there problems you have faced in carrying out CDSR? Please list these problems and elaborate on them……………………

(if the midwife does not mention that the time needed to fill the CDSR-1 and CDSR-2 is a problem, please ask the question - Specifically do you think that the time needed to fill up CDSR-1 and CDSR-2 is too much?)

Q24: Have you received feedback from the TMO?……If "yes", what mechanism or opportunity was used? Is it the monthly meeting at TMO or during CME?................Do you think this is enough?........

Q25: Overall, do you think CDSR is a good or useful activity? …… Why do you think so?………

Annex 2b: Form REV-2: Feedback tool (Township Health Officer)

Name of Township Health Officer .... Name of Township Health Office ....

Number of basic health units in township ....

Number of midwives positions (number filled) ....

Date of interview .... time started .... ended ....

Before the interview, the facilitator is to take note that there is no CDR Team at the township level. The CDSR functions (described in technical Guidelines0 are carried out by the TMO. The TMO who however may involve the staff at the Township Health Office such as Township Health Nurse (or any other staff) to assist him/her. The facilitator then asks the following questions

Q1: When did CDSR formally start in your township? .... How many child deaths have been reported in the township through the CDSR? ....

Q2: Have you undergone any briefing or training on CDSR? .... When .... How many days was the training or briefing? .... Was it satisfactory or adequate for you .... If "no" can you tell me what are the weaknesses? .... And how can these be corrected or improved? ....

Q3: Is there anyone else in the Township Health Office who needs to be trained in CDSR? ....

Q3: Is the monthly meeting with midwives a suitable occasion for you to receive the CDSR forms from them? .... If not, why? .... Please suggest an alternative ....

Q4: Are all the CDSR-1 forms properly filled and up to your satisfaction? All .... Some .... None ....

Q5: How many of the CDSR-1 forms that you judge that further investigation on the death is needed, and requires a verbal autopsy (CDSR-2 forms) .... Can you elaborate on the reasons why a verbal autopsy is needed in these deaths? ....

Q6: Have there been occasion when you were instructed by the DMO to conduct a verbal autopsy and fill up CDSR-2 form, based on information in CDSR-1 forms ....

Q7: When a verbal autopsy is needed, who conducts the investigation (CDSR-2 form)? The same midwife who did the CDSR-1 form? .... Other health staff? Have you yourself needed to do the verbal autopsy?

Q8: Are all the CDSR-2 forms properly filled and up to your satisfaction? All .... Some .... None ....

Q9: How many child deaths have been reported from the hospital? .... Which hospitals were these? .... Have the hospitals sent the clinical records including the clinical audit reports? Have you found these clinical audit report easy to understand? .... Is it adequate? .... Do all of them identify the cause of death? ....

Q10: Have there been child deaths notified by a private hospital? .... How many ....

Q11: Do you check these forms (CDSR-1 and CDSR-2) yourself for completeness, clarity and correctness? .... Do you need the help from your staff at the THO to manage the receipt and checking of these forms? ....

Q12: Do you find it easy to do the death register/line listing of child deaths based on CDSR-1 forms .... Who in the Township Health Office is responsible for doing this register? .... Do you use electronic means for this? ....

Q13: Have you received any supervision reports (CDSR-5 form) from the LHV and/or HA? .... Do you think supervision on CDSR functions of the midwife necessary? ....

Q14: Have there been deaths for which you or the midwife could identify the circumstances that surrounded the death for which remedial actions can be taken to prevent similar deaths in future? .... Have you made recommendations for responses? ....

Q15: Have you found any difficulty in filling up the summary Form CDSR3? .... Is there any improvement to be made to this form? ....

Q16: Have you attended any CDSR review meeting at the district level? .... How many times .... Were there times when you were unable to attend? .... Do you think that the review meeting at the District level useful? .... What comments do you have about the periodicity (quarterly) of these meetings? ....

Q17: Has the DMO or District Review Team given you feedback on the forms and report you have submitted?......Has the DMO or District Review Team given you advice on responses or actions that are to be taken based on a child death?................

Q18: Overall, do you think CDSR is good / beneficial and should be continued?........If "yes", can you give some of the benefits?............

Annex 2 c: Form REV-3: Feedback tool (District Health Officer)

Name of District Health Officer .... State/Region ....

Name of District Health Office ....

Number of townships/THO in district …………………. ....

Number of hospitals in district including district hospital ....

Date of feedback session .... time started .... ended ....

Before the feedback session, the facilitator is to take note that the district is the most critical level in conducting CDSR. There is a CDR Team at the district level, chaired by the DMO, with established TORs. The paediatrician is a member of the CDR Team, and he/she along with DMO, carries out the task of sampling the CDSR forms that reach the District, to select the deaths that will undergo the review/audit. It is possible that the number of deaths notified and investigated is small enough not to need sampling – all will be reviewed/audited. The facilitator asks DMO the following questions

Q1: When did CDSR implementation start in this district? .... Have all the XXX townships started to implement CDSR? .... Did they all start at the same time ....

Q2: Have you undergone training or given a briefing on CDSR? .... What about the TMO/THO in your district? ....

Q3: Every quarter you receive CDSR 1 and CDSR 2 forms from all the TMO/THO in the district ....

- Are you satisfied with the way this is done in terms of timeliness ....
- Do all of them submit the CDSR forms according to the two age cohorts? ....
- What about the register of deaths from the townships .... do you receive them .... Is the format good and useful ....
- Have there been verbal autopsy forms (CDSR-2) been submitted by the townships .... Were you surprised by the number that needed verbal autopsy? ....
- Did you request the TMO to carry out verbal autopsy on any child death? .... What were the reasons for your request ....
- Do you think the CDSR-1 and CDSR-2 forms well designed .... are they clear and easy to understand .... do you think they should be improved? .... how ....

Q4: Do TMO/THO submit the CDSR-3 forms .... do you find these to be properly completed .... Is the information in this summary useful? ....

Q5: Have you received any CDSR form-5 from the townships – this is the supervisory checklist filled by LHA or HA on the midwife .... Is the form properly filled up? .... Is it useful ....

Q6: Were there any notification that came from the hospitals .... were they from the District Hospital or other hospitals .... what did you do when notification comes from a hospital?

Q7: Can I get feedback on the CDSR Review Team in the district

- Has the team been established?..........If yes, when was it established
- Do you find the guidelines useful in the formation of this team?............... If "not" why……
- How many members are there?................... Do you think this is enough
- Have you been able to hold review meetings four times a year as given in the Technical Guideline?........ If "no", why……
- Do you think the quarterly schedule appropriate/… if not, can you suggest an alternative….
- How long does a meeting usually last? ….this would be to review how many CDSR-1 forms……
- Is the attendance usually good?....... Does every member attend?

- Who takes down notes/minutes of the meeting?..................
- How soon after the meeting are the notes/minutes disseminated….
- Who receives these notes/minutes …..
- Specifically, do all TMOs receive these notes?..... are there other mechanisms and opportunities by which you provide to TMOs?…..
- Specifically, do you get feedback from the State/Region level following the minutes of review meeting (and other reports) that you submit to them …………...

Q8: One critical procedure in CDSR which we do not need to do in MDSR is the sampling of deaths that are reported to be reviewed/audited, because of the large number of child deaths compared to maternal deaths. In this district, have the number of deaths been large to need sampling?......

- Did you review all deaths submitted by all townships?
- What is your opinion of the sampling scheme provided, namely selecting 3 deaths from each of the top 5 leading cause of death……………. (*this feedback is expected to take some time)*
- Is the sampling done by the paediatrician only, or do you also participate in this?..........

Q9: One of the most difficult things about CDSR is to assign the cause of death….

- Do you have any opinion on the way we have listed and classified the causes of deaths?................ (*this feedback is expected to take some time)*
- Does the mortality review process ever result in a change to the cause of death as compared to the cause of death recorded by the midwife or TMO?

Q10: How you find the excel spread sheet in which the variables from CDSR1 and CDSR2 are captured – is it useful…. It is easy to fill……which staff member is responsible for this….. Is it done completely by electronic means? (assuming you do have computers) ....

Q11: How do you find the questions that try to find out about the three delays..

- Is it useful….. Is the information submitted satisfactory in your opinion?.... Are the deaths assigned to one type of delay, or are there deaths with combination of delays?.......Were the findings on the three delays as you expected? Or were you surprised at the findings?

Q12: About responses, shall we discuss a bit on this

iv. From the information in all these forms, CDSR1, CDSR2, CDSR 3 and CDSR 5 – do you think it is enough to find out preventable factors that can be avoided?
v. Has there been responses taken by the midwife herself or by the TMO/THO…. Do you think these were appropriate? ….. Have you or the District Review Team made recommendations on responses and remedial actions?............
vi. How are modifiable factors linked to solutions in your CDSR process?
vii. How does the mortality review team identify and prioritize recommendations
viii. Is an action plan developed as part of the review process?
ix. Are individuals assigned to follow up on specific recommendations?
x. Is there a system for tracking the follow-up on specific recommendations? …. If "yes" please describe the system……………………
xi. In your opinion, what are some barriers to ensuring recommendations are implemented following mortality review

Q13: Have you had the need and opportunity to share the findings of CDSR with other stakeholders at the district level?... who are these stakeholders?........ is there any feedback from them…..

Q14: Overall, do you think CDSR is good / beneficial and should be continued?........If "yes", can you give some of the benefits?............

Q15: What are / were some of the barriers / obstacles to the implementation of CDSR? Wat about opportunities and strengths?

Annex 2d: Form REV-4: Feedback tool (Paediatrician)

Name of paediatrician...Name of hospital...

Name of District Health Office ....

Date/time of feedback session .... started .... ended ....

The facilitator is to take note that the paediatrician is a member of the CDR Team, and he/she along with DMO, carries out the task of sampling the CDSR forms that reach the District, to select the deaths that will undergo the review/audit. It is possible that the number of deaths notified and investigated is not small enough not to need sampling – all will be reviewed/audited. The facilitator asks the following questions

Q1: The cause of death in CDSR-1 form is based on signs and symptoms filled by the midwife. We have recommended a standardized categorization of cause of death, and for this we have had input from several paediatricians. Do you think this categorization is appropriate?....... If "no", please explain and let us discuss some suggestions…………… (*this feedback is expected to take some time)*

Q2: From the causes found in the CDSR1 and CDSR2 forms, are you surprised at the frequency of the causes?... in other words, did you expect the numbers and frequency reported?............Have you seen any unusual cause of death?...........

Q3: One critical procedure in CDSR which we do not need to do in MDSR is the sampling of deaths that are reported to be reviewed because of the large number of child deaths compared to maternal deaths. In this district, has the number of child deaths notified been large to need sampling?......

- What is your opinion of the sampling scheme provided, namely selecting 3 deaths from each of the top 5 leading cause of death…………… (this feedback is expected to take some time)
- Is the sampling done by you only, or does the DMO you also participate in this?.........
- Is it possible to ensure representativeness by township in doing this sampling while following the rule of 5 top leading causes and 3 deaths in each cause……

Q4: Besides the deaths reported in CDSR submitted to the district from the townships (which had received them from midwives), has there been any child death that was reported directly from the hospital? ………….. are there many such deaths?...... Does the death report contain a clinical audit?

Q5: Have there been occasions when you have had to refer to the midwife or the hospital staff (through the respective TMO) to find out more details and to seek clarification on the clinical aspects of the death?..... If "yes" how often did this happen?.......

Q6: At the meeting of District CDR Team, held quarterly, you as a member will submit the notification and verbal autopsy (if any) of 30 sampled deaths for members of the Team to review. Have your experience been "easy" and effective in imparting clinical information and details to members?........

Q7: If there were responses carried out by midwife, or hospital, or TMO, especially clinical in nature, did you find them appropriate?.......

Q8: A possible and very important aspect is a disagreement among members on assigning cause of death. Has this happened ……………..If "yes" was it easily resolved?

Q9: Finally Dr xxxxx, may I know if this task of CDSR been an extra burden to you?....... Do you find your role important……and satisfactory ……….

Annex 2e: Form REV-5: Feedback tool – State/Region focal point for Child Health

Name of focal point .... Name of State/Region Health Office ....

Number of districts in State/Region ....

Date/time of feedback session .... started .... ended ....

The facilitator is to take note that the function of the Region/State Child Death Review Team the collation and analysis of the findings of the Review Team at district. The facilitator asks the following questions

Q1: Your main responsibility is to receive and collate all reports submitted by the DMO in the CDSR-4 form, which is a summary by the DMO after he/she has convened a review meeting of the District Review Team/Committee.

- May I ask you if this function is easily done, and that all districts do send in these forms on time each quarter?....................
- Are these forms properly filled up, containing all relevant information for you to compile at state/region level?........

Q2: You also receive the registry/line listing of all child deaths from the districts that incorporates the basic variables; and from these you are supposed to collate them to make a child death registry for the state/region.

- Is this easily done?... I assume you have electronic means with full functioning hardware and software to do this…….
- Do you do it yourself, or do you need (and have) staff to assist you?....

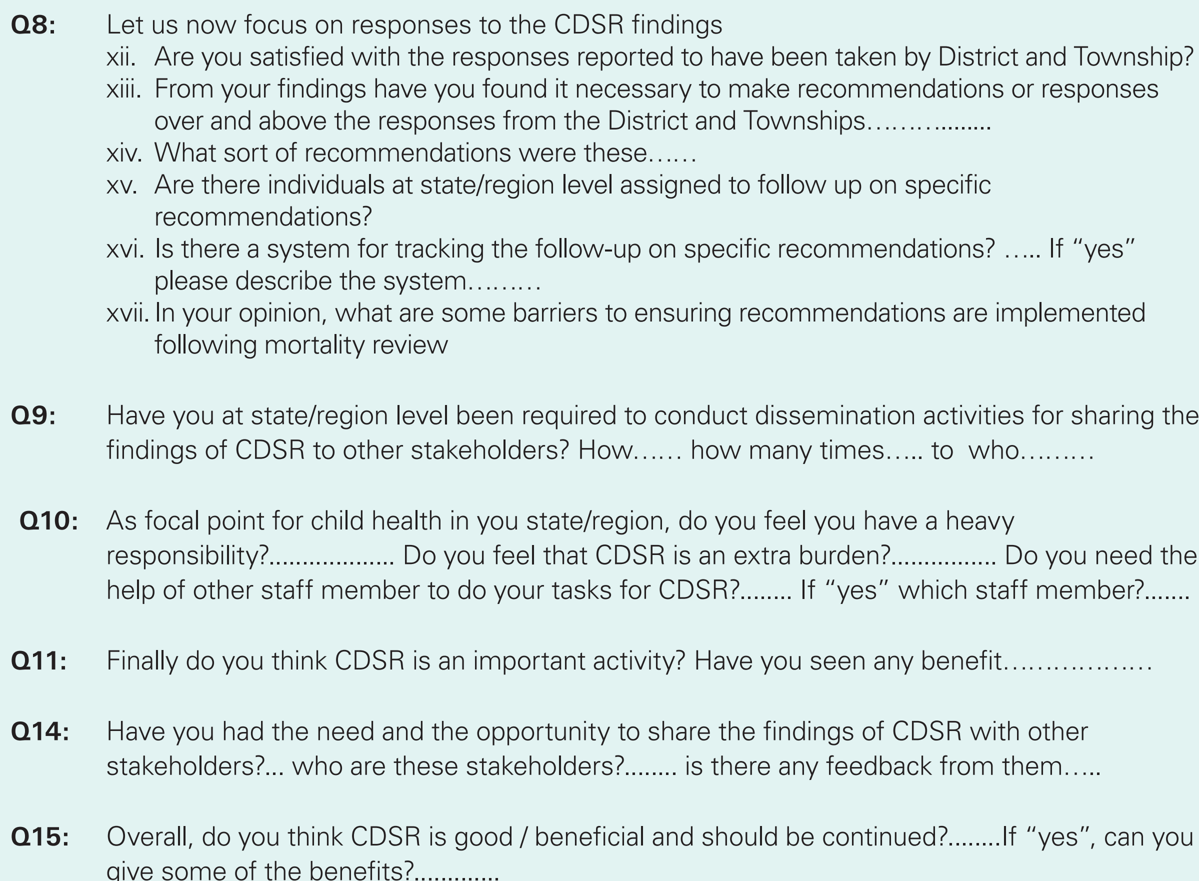
Q3: You also receive the spreadsheet of profile of child deaths from all districts that has all the relevant variables obtained from the CDSR1 and CDSR2 forms, and you collate them for the state/region. Is this task easy to do? … have you encountered any difficulty? ….Do you do it yourself, or do you need (and have) staff to assist you?....

Q4: From these reports and your collation, has it been possible for you to identify any epidemiological trends of child death in the state/region? If "no" why………. If "yes" has this epidemiological profile been useful and lead to meaningful actions?......

Q5: From what you have analysed and observed, do you think this information will contribute to surveillance of child deaths for the states/regions, and for the whole country?.......

Q6: Do you provide feedback to the districts on the findings from the above actions ?.......

Q7: You are required to submit the collated report to national level every 6 months. Do you think this is a realistic and appropriate frequency?........If "no" why, can you suggest any other schedule?........



Q8: Let us now focus on responses to the CDSR findings

xii. Are you satisfied with the responses reported to have been taken by District and Township?
xiii. From your findings have you found it necessary to make recommendations or responses over and above the responses from the District and Townships……….........
xiv. What sort of recommendations were these……
xv. Are there individuals at state/region level assigned to follow up on specific recommendations?
xvi. Is there a system for tracking the follow-up on specific recommendations? ….. If "yes" please describe the system………
xvii. In your opinion, what are some barriers to ensuring recommendations are implemented following mortality review

Q9: Have you at state/region level been required to conduct dissemination activities for sharing the findings of CDSR to other stakeholders? How…… how many times….. to who………

Q10: As focal point for child health in you state/region, do you feel you have a heavy responsibility?.................. Do you feel that CDSR is an extra burden?............... Do you need the help of other staff member to do your tasks for CDSR?........ If "yes" which staff member?.......

Q11: Finally do you think CDSR is an important activity? Have you seen any benefit………………

Q14: Have you had the need and the opportunity to share the findings of CDSR with other stakeholders?... who are these stakeholders?........ is there any feedback from them…..

Q15: Overall, do you think CDSR is good / beneficial and should be continued?........If "yes", can you give some of the benefits?............

Annex 2f – Instructions to facilitators for applying tools in assessment of CDSR

1. Please use separate forms for each individual respondent.

2. Ask the respondent what language he/she prefers for the feedback to be conducted

3. For the TMO/THO, the form REV-2 is designed to elicit information as it pertains to him/her, but the TMO/THO may involve other relevant staff in giving this feedback. The facilitator is to ensure that this is noted down in writing, with all respondents /observers identified

4. For the District level, it is to be noted that the feedback tool for the DMO (REV-3) elicits information on his/her own capacity as DMO, as well as his/her position as Chair of the District Review Committee. Some of the feedback from the DMO and paediatrician will overlap; but it is preferable that the feedback is obtained in separate session

5. Be sure to probe about what deaths are captured - stillbirth, perinatal, and child (under-5) death

6. If copies of documents are desired, the facilitator should request the relevant officer for making photocopies or for taking images/photos of the documents. Be sensitive to ethical issues and patient privacy. If you need to photograph a document with identifying details, take necessary actions to keep information confidential

7. Pictures of staff members are only to be taken if they also give their verbal consent

8. Mark each of the documents you take away with a date and the name of the facility

9. In terms of filling up the feedback tools, please take note
   - For close-ended questions, tick the applicable boxes.
   - For open-ended questions, record the response as accurately as possible
   - For questions that need more time, be patient and obtain all information given, with as little interruption as possible; although some questions/topics may need a "conversational" style of feedback
   - Where possible and needed do not hesitate to use terms like , "specify", "describe", "explain" and "elaborate"

10. After completion, team shall submit forms to coordinator from UNICEF office

Annex 2g: Form REV-6 (Feedback from caretaker of deceased child)

Name of caretaker .... Relationship with deceased child ....

Age.................Sex.................Occupation................................Educationlevelachieved...................................

Height .... Weight .... BMI ....

Address ....

Nearesthealthcentre.............distancefromhome............Nearesthospital...........distancefromhome..........

Category of death .... 0 - 27 days .... 28 days – 5 years

Cause of death ....

Notes to the facilitator

1. This feedback is obtained from the caretaker of the deceased child, and each team will obtain feedback from caretaker of three children who died
2. The feedback session is conducted individually and separately with the three caretakers.
3. The aims of the feedback is to find out the overall health literacy of the caretaker, and the causes for the three delays, which are
4. Awareness of danger of the illness and need to seek care (Delay 1)
5. Barriers to seeking care - geographical/transport, financial, socio-cultural including influence of traditional healers (Delay 2)
6. Expectation and experience, and opinion with the health system, which includes many factors such as communication and information giving by health provider, quality of services such as availability of a health facility, medicines and other supplies, behavior of health provider (Delay 3)
7. The feedback does not cover the aspects related to the cause of death, for example it does not aim to find out what knowledge the caretaker has to prevent URTI, pneumonia, diarrhea etc

Introduction before interview: We are aware of the tragedy that this family had lost a child. And we share your sadness. We would like to thank you for giving information to Midwife…(name) when she investigated the death of your child. This information on a child is very important for the health authority to prevent similar deaths in future. Your kind contribution to this is very useful

Q1: What is your relationship to the deceased child? ……*Depending on this answer the facilitator will ask the next questions accordingly*

Q2: Did the midwife come to enquire about death of your child?..... How long after the death……

Q3: When the midwife came to enquire, was the time OK/right for you?........ If "no" why…………

Q4: Did you seek care for your child before he/she died? …….YES….. NO…….
If NO why? ……………If YES, where did you take your child?........................... Who attended to your child…………………..Were you satisfied with the care given?
When you took your child to get care, in your opinion, was it too late to save your child's life

Q5: Did you decide on your own to seek care, or is there someone else who decides for you?........

Q6: If you had sought care from a health care provider, did you follow the advice given by them…………..YES………NO……If "NO" why?.................

Q7: How far is the nearest health centre and the nearest hospital for you?.......How much time is needed for you to reach that facility?........(*may indicate time for different modes of transport)*

Q8: Is there any language barrier between you and the health provider?...........

Q9: Whenever you come to the health facility, do you have to wait for a long time before the health provider attends to you?...........

Annex 3: Data collection - obtaining feedback from staff using REV-1 to REV-5 tools

Mandalay, Kachin, Yangon – Child Health focal points

The feedback was from the CH focal points at region/state level of Mandalay, Yangon and Kachin, these three regions/states were not in the selected sites for the assessment, so no feedback was obtained from them at the lower levels of the health system (district, township, health centres).

Ayeyarwady

Region level – At Reginal Health Office, the team interacted with the Deputy Director of the Regional Health Department and the Child Health focal point. The feedback (REV-5) was mainly from the latter. Both these officers have recently been posted to their positions here, having been transferred from another posting. The focal person has not undergone training in CDSR, but his predecessor the previous focal person had undergone the master training. The region has six districts

District level – The two districts selected were Labutta and Pyapon, and feedback was obtained from DMO (REV-3 form) and paediatrician (REV-4 form)

- Labutta although a fairly big district has only two townships – Labutta township and Mawlymine Gyun township. In Labutta District the DMO of the District is also the TMO of Labutta Township as well as Medical Superintendant of the District Hospital.
- Pyapon has 4 townships – Kayik Latt, Pyapon, Dedaye (assessment site) and Bogalay. In Pyapon district, the DMO is also the Medical Superintendant of the District Hospital. The Feedback was obtained from Acting TMO of Pyapon township (whose office in the same District Hospital and DMO premises) and he is the coordinator for CDSR for the district (besides being responsible for the Pyapon township also).

Township level – The townships in Ayeyarwady for the assessment were Labutta Township (in Labutta District), and Dedaye (in Pyapon District) (REV-2 forms)

- In Labutta Township Health Office, feedback was provided by a team – a team leader for CH, 2 hospital assistants (HA) and a midwife
- In Dedaye Township, feedback was provided by the TMO who is also the MO in charge of the 50-bedded Township Hospital, and one of the three station medical officers in the township *the THN was away on leave)

Health centre level – The health centres selected where midwives gave feedback were

- Kyaut Pyu Subcentre in Labutta (the HA and PHSII were attended the feedback)
- Mway Hauk Subcentre in Labutta
- MCH clinic in Dedaye – feedback was from a team – the LHV and four midwives serving the four wards in the township, the station MO was also in attendance
- Lay Ean Kone Subcentre in Dedaye

Magway Region

Regional level – Feedback was obtained from the CH focal person (using REV-5 form) There are 5 districts in the Region, Magway, Pakkoku (assessment site), Minbu (assessment site), Thayet and Gangaw, with 25 townships

District level – The two districts selected were Pakkoku and Minbu, feedback was from DMO (REV-3) and paediatrician (REV-4 form)

- Pakokku District has 5 townships – Myaing (sample for assessment), Pakokku, Pauk, Seik Pyu, and Yesagyo. CDSR matters are managed and handled by the team leader for CH, who provided the feedback.
- Minbu District has 5 townships – Minbu, Pwintbyu, Nagpe (sample for assessment, Salin and Sidoktaya. There is no DMO and the post is covered by the MS who was on leave. The feedback was obtained from the Deputy MS who was assisted (on the phone) by Health Assistant of Minbu township. The District Paediatrian is the temporary District Paediatric focal person, starting from end of Feburary 2018, after the transfer of the paediatric focal person

Township level – The townships for the assessment were Myaing township (in Pakokku District) and Ngape Township (in Minbu District) (REV-2 form)

- In Myaing township, the Township medical officer (TMO) provided the feedback. The township has 10 RHCs and 43 SRHCs, with 65 sanctioned posts of midwives – of which 61 are filled
- In Ngape township, feedback was provided by the TMO. The township has one station health unit, 3 RHCs and 19 SHRC. There are 31 posts of midwives sanctioned, with 29 of them filled

Health centre level – The two health centres where feedback was obtained form the midwives were

- Kangyitaw Subcentre in Minbu
- Kyauk Sauk RHC in Minbu
- Pankaulay Subcentre in Ngape
- Min Lwin Subcentre in Ngape

Shan South State

State level – Feedback was provided by the CH focal person. He holds a diploma in Child Health. There are three districts in Shan South, Taunggyi, Langkho and …... However there is no District Health structure, therefore the State receives CDSR forms directly from the townships. There are …… townships in the three districts

District level – Unlike Ayeyarwaddy and Magway, there is as yet no district health structure. District health administration is assumed by the state health authorities. For the purpose of this assessment, townships were selected from two districts – Taunggyi and Langkho. Therefore the feedback was obtained from the State health department

Township level – The townships for the assessment were Hsiseng in Taunggyi District and Maukmai in Langkho District (REV-2 form)

- In Hsiseng, there are 6 RHCs and 26 Subcentres. There are 44 sanctioned midwife posts, with 42 filled. Feedback was given by TMO.
- In Maukmai township, there are 3 RHCs and 12 Subcentres, feedback was given by TMO

Health centre level – The two health centres selected in Hsiseng township

- Saik Kyaung RHC in Hsisneg
- Lwae Put RH in Hsiseng
- Phar San RHC in Maukmai
- Htee War Poh RHC in Maukmai

ANNEX 4: Status of activities supported by 3MDG Fund

1. Information from 3MDG Fund Team during discussion on 23 March 2018

Chin state

- The CDSR reporting systems at the townships is functioning well, with the BHS submitting CDSR reports to the township health office at the prescribed frequency of monthly
- CDSR trainings to BHS have been conducted as planned.
- State Health Department organized CDSR review meeting in Jan 2018 and issued a letter to respective THD to do death review meeting and analysis and action plans during 2018.
- Many child deaths occurred in areas where health staff were not presenting at the assigned villages at the time of deaths
- There is no information about CDSR review meeting taken place at the district level.
- Although CDSR forms are reported quarterly to district level
- Place of child deaths: mostly at home

Ayeyarwady

- IP supported CDSR trainings to BHS – conducted in Bogalae and Mawlamyaingyun.
- Review meeting are going well at townships
- Place of child death: mostly at hospital followed by home

Magway

- CDSR training was conducted to all BHS in township
- Review at township level was conducted at monthly township meeting and necessary responses like CME sessions to BHS, HE sessions to community member and IYCF counselling to pregnant women.

Information from Save The Children during discussion on 11 March 2018

The situation in these townships

- **Ngapudaw township** – Training was completed in January 2017 with 222 trainees in 7 batches. The number of child deaths for 2017 was 102, and all were investigated using CDSR-1 forms; 52% of deaths occurred in hospital while 42% were at home and 55 on the way from home to health facility. One District Review meeting was held in July for the first and second quarters
- **Labutta district** – Training for new midwives was conducted in January and in October 2017, it was conducted at township level with – with 27 trainees in January and 23 in October. Of the child deaths in 2017, 58% were in health facilities, while 34% were at home, 8% on the way.
- **Ngape township** – In 2017, training was conducted for all staff in 39 BHS. All deaths were investigated using CDSR-1 within 7 days of death. There were 21 deaths (13 at home and 8 in hospital). Townships review these forms at the monthly CME meetings, and responses were discussed/recommended – mainly these were CME for staff, health education for community and Infant and young child feeding (IYCF) for pregnant mothers. MDSR??
- **Gangaw township** – Training was conducted for 81 BHS in Feb 2017. There were 43 child deaths – 29 were in hospitals, 11 at home and 3 on the way. It is significant that 13 of these deaths were subjected to verbal autopsy using CDSR-2 form. The township conducts monthly CME meetings at which CDSR is discussed
- **Kut Kai township** – There was training for 3 batches with 94 trainees by April 2017. There was 83

child deaths – 71 were child after age 27 days, and 12 were stillbirths; and 31 were deaths at home, 23 in hospitals and 19 on the way. For the remaining 10, no information was available

- **Chin state (5 townships)** – The situation in 5 townships are shown below

	Hakha	Tedim	Thantlang	Tonzang	Falam
Number trained	27	75	69	34	37
Number child deaths	23	67	38	54	47

CDSR Review Teams/committees have been formed in these townships, but review meetings have not been convened, although reports are sent regularly. In Tedim the review team consists of 6 members – MS, paediatrician, assistant surgeon, THN. LHV and sister in charge of child ward. However the Chin State Health Department held a CDSR review meeting in January 2018, after which the State Health Director sent out a directive to all townships health officers to conduct CDSR, analyse the findings and make an action plan for 2018

ANNEX 5 : Interviewee list

Interviewee from 3 States/Regions at Nay Pyi Taw:

- Dr Khin Zar Moe, Child Health Focal point, **Mandalay**
- Dr Kyu Kyu Moe, Child Health Focal point, **Kachin**
- Dr Moh Moh Aung, Child Health Focal point, **Yangon**

State/Region (Focal points)	District (DMOs, Paediatrician)	Township (TMOs)	Health centres - identified by TMO
Ayeyawady Dr Zayar Min (Dr Thiha Aung, Deputy Director was also present)	**Labutta** DMO : Dr Hnit San Oo Paediatrician: Dr Aye Mya Thida	**Labutta** **Team consisting of** Dr Tin Mar Oo (Team Leader), U Zayar Win, (HA), U Kyaw Naing Oo (HA) and Daw Ei Ei Win (MW)	**Kyaut Pyu Subcentre** Daw San San Myint (MW), with Daw Thet Mar Lwin (PHS2) and Daw Thet Mar Myint (HA) **Mway Hauk Subcentre** Daw Phyu Hnin Khine, MW
	Pyapon Dr Tin Hla (MS/DMO), with acting TMO Dr Thein Tin Win Paediatrician: Dr Khin San Aye	**Dedaye** Dr Zaw Win Naung, with Station MO Dr Tin Hwar Dong	**Dedaye MCH Clinic** Dr Tin Hwar Dong (station MO) with 4 midwives, Daw San Hla, Daw Toe Toe Lwin, Naw Zin May, Daw Zin Myo Thu **Lay Ean Kone Subcentre** Daw Theingi Win
Magway Dr Htet Tun Lwin	**Pakokku** Dr Su Mon Naing, Team Leader, Child Health Paediatrician : Dr Ei Ei Ko	**Myaing** Dr Thura Zaw, TMO	**Kangyi Taw Subcentre** Daw Sandar Win, MW Kyauk Sauk RHC Daw Swe Mar Win, MW
	Minbu THA: U Than Tun Aung (covering for DMO) Paediatrician: Dr Aung Zaw Win	**Ngape** Dr Htin Kyaw	**Paungkalay Subcentre** Daw Aye Khine, MW **Min Lwin Subcentre** Daw Chaw Su
Shan South Dr Aung Thura, Team Leader, Child Health	**Taunggyi –**	**Hsiseng** Dr Than Htut Oo, TMO	**Saik Khaung RHC** Daw Nang Win Htay, LHV **Lwae Put RHC** Daw Hnin, MW
	Langkho –	**Maukmai** Dr Mya Than, TMO	**Phar Son Subcentre** Daw Zar Ni Linn, MW **Htee War Phaut Subcentre** Daw Nang Phoo May, MW

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