Maternal Mortality

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Outline

Definition of a maternal death
Maternal mortality surveillance & response system – Sri Lanka
Organization structure of MMSRS – Sri Lanka
Maternal mortality surveillance at institutional level
Maternal mortality surveillance at field level
District maternal mortality reviews
National maternal mortality reviews
Our achievements

Maternal Death

- The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. *(Ninth version of the International Classification of Diseases)*

Maternal Death Surveillance & Response System – Sri Lanka

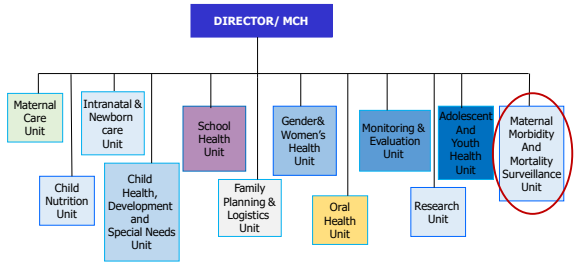
- Family Health Bureau (FHB) has set up a single island-wide surveillance system to capture maternal deaths occurring throughout the country since 1987.

National Family Health Programme

- Mother
  - Maternal care
  - Women's health services
- Child
  - Child health
  - School health
  - Adolescent health
- Family
  - Family Planning
  - Gender equity
  - Health of Migrants

❖ **Maternal Death Surveillance & Response System – Sri Lanka** is a component of comprehensive package of family care services of the **National Family Health Programme of Sri Lanka**

Family Health Bureau



Maternal Death Surveillance & Response System – Sri Lanka

- Surveillance of maternal deaths involves the systematic collection, collation, analysis, interpretation and dissemination of all information related to maternal deaths.

Maternal Death Surveillance & Response System – Sri Lanka

Measures Used in the System

- Urgent notification
- Early investigations
- Immediate actions on lessons learned
- Early reporting
- Reviews

Maternal Death Surveillance & Response System – Sri Lanka

Approaches in the Review Process

❖Sri Lanka adopts following approaches (based on the WHO guidelines)

- Verbal autopsy – Field level investigation
- Facility based review – Institutional level review
- Clinical audit – District and national reviews

Maternal Death Surveillance & Response System – Sri Lanka

Components of the System

- Institutional level surveillance and response
- Field level surveillance and response
- District maternal mortality reviews (DMMR)
- National maternal mortality review (NMMR)

Maternal Death Surveillance & Response System – Sri Lanka

No-fault Finding Concept

- A no-name no-blame with total confidentiality strategy is adopted in all the steps of maternal mortality surveillance in the country.
- All the healthcare workers are assured of non-revelation of information included in investigation formats or district and national mortality reviews to third parties.

Classification of Maternal Deaths and Some Definitions

Maternal deaths are subdivided into two groups as;

- **Direct maternal deaths**

and

- **Indirect maternal deaths**

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Classification of Maternal Deaths and Some Definitions

Direct Maternal Deaths

- Deaths resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above.

Eg: Deaths due to septic abortions, post partum haemorrhage, pregnancy induced hypertension, amniotic fluid embolism and suicide due to post partum psychosis etc.

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Classification of Maternal Deaths and Some Definitions

Indirect Maternal Deaths

- Deaths resulting from previous existing disease or disease that developed during pregnancy and not due to direct obstetric causes, but aggravated by the physiologic effects of pregnancy are classified as

Eg. Deaths due to pregnancy complicated with medical disorders such as heart disease, anaemia, pneumonia, hepatic diseases etc.

Maternal Death Surveillance & Response System – Sri Lanka

Classification of Maternal Deaths and Some Definitions

Late Maternal Death

- Death of a woman between 42 days and one year after termination of pregnancy, following direct or indirect maternal causes.

  Eg: Death of a mother on the 90th day due to renal failure following eclampsia.

Pregnancy Related Death

- Death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the cause of death.
- This category includes all maternal deaths, incidental deaths and accidental deaths.

  Eg: Deaths due to food poisoning during pregnancy, murder during pregnancy.

Maternal Death Surveillance & Response System – Sri Lanka

Classification of Maternal Deaths and Some Definitions

Maternal Suicide

- All suicidal deaths of women in reproductive age group (15 to 49 years) during the pregnancy period and until one year after termination of pregnancy

Maternal Death Surveillance & Response System – Sri Lanka

Notification of Maternal Deaths

- A legal requirement by a gazette notification
- All practitioners providing care to women in the country, both at institutional and field levels, are legally bound to notify maternal death events to **Family Health Bureau** – the focal point in maternal death surveillance.
- Notification involves informing of all deaths which fulfill the notification criteria to the relevant authorities, in a uniform manner and without delay for necessary action.

- Gazzerts

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Notification of Maternal Deaths

Notification Criteria

- All deaths *(irrespective of the cause)* of women in reproductive age group (15 – 49 years) during the pregnancy period and until one year after termination of pregnancy
- This includes;
  all
  - confirmed maternal deaths,
  - late maternal deaths,
  - pregnancy related deaths and
  - other reproductive age group female deaths.
- Such a wider notification range will ensure that all probable maternal deaths are captured by the surveillance system.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

❖Once a maternal death occurs in an institution (Government or private hospital),

- The Head of the institution should take the custody of the bed head ticket (BHT) and all the documentation of management details of the deceased mother.
- All the pages should be numbered and the original document should be made available for relevant officers /review meetings for investigation procedure.
- The BHT should not be reproduced. BHT should not be taken out of the office of the Head of the Institution and extraction of information from the BHT should be done within the office premises only.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

- A copy of the BHT and other relevant documents should be sent to **Family Health Bureau** when requested.
- **Conducting a post mortem** in all cases of maternal deaths is compulsory (as per the circular issued by the Secretary to the Ministry of Justice and Law Reforms dated 02.10.2008 to all coroners and letter issued by director general of health services (DGHS) on 12.01.2011)
- A representative (VOG / VP or Registrar / SHO) from the relevant unit of the hospital should participate at the post-mortem examination. Relevant JMO should inform the index unit the time of the post-mortem examination through the head of the institute.
- A copy of the post mortem report should be issued by JMO to DGHS, Director – FHB and Head of the hospital where maternal death occurred

- Circular
- letter

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Notification Procedure at Institutional Level

- Immediately after the occurrence of a death, which fulfils the notification criteria, the relevant staff should report it to the head of the institution.
- JMO should also notify such deaths to the head of the institution after the post mortem.
- Coroners should also be requested to notify such deaths to the RDHS and the head of the institution after inquiry into sudden deaths.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Notification Procedure at Institutional Level

- The head of the institution should then notify the death within 24 hours by telephone, telegram, fax or email to the following officers;
  - Director – MCH (Family Health Bureau) Tel/Fax: 0112692745
  - PDHS and RDHS (where the institution located)
  - PDHS and RDHS (deceased residence)
  - MOH (deceased residence)
  - Head/s of the previously managed institution/s
- Whenever the death of such a mother transferred from another institution occurs, the receiving institution should notify the head of the previously managed institution of the death.

- - A sample format of **Intimation of Maternal Deaths** can be downloaded from the FHB website: *www.familyhealth.gov.lk/* under submenu "Forms".

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Institutional Investigation Procedure of a Maternal Death

- Separate institutional investigations should be performed by each institution involved in the management of the deceased mother.
- The investigation should be conducted within 14 days of occurrence of a maternal death as this would enable to identify precisely the circumstances that led to the death with fresh information.
- The circumstances of the death should be discussed in detail with the intention of identifying preventive measures.
- The institutional investigation is the responsibility of the Head of the Institution.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Institutional Investigation Procedure of a Maternal Death

- Investigation should be carried out as a team which should comprise of the following officers;
  - Head of the Institution (Director/MS/MO-IC) as the team leader
  - Consultant Obstetrician and Gynaecologist or the relevant Specialist of the hospital unit in which the death occurred (acting consultant in his/her absence) and all other relevant consultants who managed the mother (Physician, Surgeon, Anaesthetist, Psychiatrist etc)
  - Medical officer/s who attended the deceased mother (MO/IC, senior house officer, house officer etc.)
  - Judicial Medical Officer
  - Medical officer – blood bank – when relevant
  - Grade I Nursing Officer /Nursing Officer In Charge of the ward/ labour room - when relevant
  - Head of the Institution of hospitals where the patient was managed before transfer
  - Medical Officers Maternal and Child Health (of the districts where the mother is resident and where the hospital is situated)
  - Medical Officer of Health from the mother's area of residence
  - Public Health Midwife from the mother's area of residence
- The institutional investigation should be coordinated by the medical officer (preventive health) on behalf of the head of the institution.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Immediate Response to Identified Service Deficiencies

- The Head of the Institution is responsible for the immediate implementation of the corrective actions within the institution without delay as decided at the institutional review.
- All the actions taken should be included in the H677.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Reporting the Institutional Investigation

- The information obtained during the investigation should be entered in form H 677 in triplicate.
- Consultant Obstetrician and Gynaecologist or the relevant Specialist of the hospital unit in which the death occurred and Head of the Institution should ensure the completeness of the format.
- The completed format (H 677) should be sent to the following institutions within 14 days of occurrence of the maternal death.
  - The director, maternal and child health
  - RDHS

- A copy of the latest version of H677 should be obtained from the MOMCH or downloaded from the FHB website: *www.familyhealth.gov.lk/* under submenu "Forms".

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Institutional Level

Reporting the Institutional Investigation

- Head of the institution should also ensure that these deaths are reported through,
  - H830 (Monthly Report on Maternal Statistics) and
  - Quarterly Indoor Morbidity and Mortality Returns
- He/she should also ensure that pregnancy and/or childbirth should be mentioned as an underlying cause of death when the death declaration is given.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Notification Procedure at Field Level

- The area PHM should immediately notify it to the MOH, when a notifiable death occurs in her area.
- Notification by the PHMM can be considered as the single most important step in maternal death surveillance as this is the means which could have the highest notification rate.
- The MOH may receive a maternal death notification directly from the head of the institution at which the death occurred or from the RDHS/MOMCH of the district to whom the death was notified.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Notification Procedure at Field Level

- MOH should notify such a death to the following places by telephone, telegram, fax or email
  - The Dierector-MCH
  - PDHS
  - RDHS
- The telegram or telephone message should be confirmed by a letter **(Intimation of Maternal Deaths)** containing the following information:
  - Name of the deceased mother and the address
  - PHM area, MOH area and RDHS area
  - Date and place death
  - Tentative cause of death
  - Name and designation of the informant
  - Date informed

- A sample format of **Intimation of Maternal Deaths** can be downloaded from the FHB website: *www.familyhealth.gov.lk/* under submenu “Forms”.
- -

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Notification Procedure at Field Level

- In case of the death of a mother who is temporarily resident in a MOH area, the area MOH should notify the death to the MOH of the area from where the mother came (& where she was registered as an eligible female)
- MOH should also ensure that all deaths are reported through H 509 (Quarterly Maternal and Child Health Return).

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Field Investigation Procedure for Maternal Deaths

- Investigation should commence as early as possible and should be completed within fourteen (14) days of occurrence of the maternal death.
- MOH (of the area where the mother is registered in the eligible family register) is the responsible officer for the field investigation.
- In case of an absence of the relevant MOH the acting MOH or MO-MCH should take the responsibility of carrying out the field investigation.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Field Investigation Procedure for Maternal Deaths

- Investigation should be done as a team comprising of
  - MO-MCH,
  - MOH and all AMOH,
  - All PHNS
  - SPHM
  - PHM of the area.
- MO-MCH and MOH should jointly investigate the maternal death.
- In case of the death of a mother who is temporarily resident in another MOH area, the MOH of that area should also investigate the case as a team comprising of PHNS and PHM and send that report to the MOH of the area of mother's residence (i.e. where the mother was registered in the eligible couple register) who will then prepare the final investigation report.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Field Investigation Procedure for Maternal Deaths

- The team should visit the office of the PHM and examine all the relevant documents.
- Start with the eligible family register
- Special attention should be paid to
  - promotion of Family Planning and relevant documents
  - Supervisions carried out by different supervising officers
- The care received by the mother (antenatal, postnatal) prior to the admission to the hospital should be assessed.
- The family members should be interviewed by the investigation team in order to obtain relevant information.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Field Investigation Procedure for Maternal Deaths

- All the relevant records (H512, H512 B, FP records and other relevant documents) should be taken over & kept safely in the MOH office till the investigations & review meetings are over.
- In the case of a hospital death, MOH should participate as a member in the hospital investigation team. If the institutional investigation is delayed, the MOH should visit the hospital and obtain relevant information from the hospital (from health care staff and the BHT) with permission of the head of the institution, which information should go into H 677a.
- Mothers treated by GP –MOH should visit concerned GP and obtain necessary information
- Obtain also details of care received from Traditional healers

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Field Investigation Procedure for Maternal Deaths

- Collect coroner information and death registration –Obtain a copy of the Death Certificate issued by the death registrar from the relatives
- Evaluate for social circumstances –Please obtain a client perspective from the relatives
- Field team should decide on a tentative underlying cause of death considering the details they obtained.
- Identify deficiencies –contemplate corrective actions / forward suggestions for higher authorities

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Immediate Response to Identified Service Deficiencies:

- After the maternal death investigation the MOH should implement the necessary corrective actions at field level, and the implementation of these should be discussed at the next monthly conference.
- The relevant area PHM should be supervised by SPHM / PHNS /MOH consecutively for 3- 6 months
- All the actions should be included in H677a.

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Reporting the Field Investigation

- The information obtained during the investigation should be entered in form H 677a in triplicate. MOMCH of the district should ensure the completeness of the format.
- The completed format (H 677a) should be sent to the following institutions within 14 days of occurrence of the maternal death.
  - The Director-MCH
  - RDHS

Maternal Death Surveillance & Response System – Sri Lanka

Maternal Death Surveillance at Field Level

Reporting the Field Investigation

- For deaths occurring in the field (intra partum / post partum home death) MOH should fill the H 677 format (institutional format) which includes the details regarding the delivery.
- For the field investigation the same procedure should be adhered and H 677a format should be filled by the MOH.
- Copies of the H512, H512B, FP records, copy of the page of eligible family register, death certificate (issued by the death registrar) and other relevant documents related to the care of the index case should be sent to **Family Health Bureau** along with field investigation report.

Maternal Death Surveillance & Response System – Sri Lanka

District Maternal Mortality Reviews (DMMR)

- A forum to discuss and learn lessons out of maternal deaths at the district level.
- Gives an opportunity to identify service deficiencies and to formulate preventive strategies to further reduce maternal deaths taking local contexts of the district in to consideration.
- Data gaps with regard to each death could be filled at DMMRs.

Maternal Death Surveillance & Response System – Sri Lanka

District Maternal Mortality Reviews (DMMR)

- District Maternal Mortality Review Team should comprise of the following officers
  - PDHS/ RDHS (chairperson)
  - Provincial or District Consultant Community Physician/s
  - All Head/s of the Institution/s (where labour rooms are available)
  - MO-MCH
  - All MOOH, all AMOOH, all PHNS, SPHM, relevant area PHMM
  - All VOGG and other relevant consultants
  - Judicial Medical Officers
  - Senior registrars / SHOO / MOO –who were involved in the management of the deceased from the hospital where the death occurred.

Maternal Death Surveillance & Response System – Sri Lanka

District Maternal Mortality Reviews (DMMR)

- The presentation of field part should be done by the MOH
- Institutional part by the VOG or the relevant Specialist from the hospital where the death occurred.
- It is the responsibility of the head of the institution and the specialist of the unit where mother was managed to ensure that a detailed presentation is made at the DMMR.

Maternal Death Surveillance & Response System – Sri Lanka

National Maternal Mortality Review (NMMR)

- Annual reviews on district basis to review all the deaths occurred in a particular district in previous year with the participation of experts from the national level.
- Organized by the Director/MCH in collaboration with the Provincial Director of Health Services with the participation of representatives from professional colleges including
  - Sri Lanka College of Obstetricians & Gynaecologists
  - Sri Lanka College of Anaesthetists
  - Sri Lanka College of Physicians
  - Sri Lanka College of Community Physicians
- The responsibility of organization of the meeting lies with the RDHS / MOMCH of the district with instructions from FHB.
- DGHS or in his absence the PDHS will chair this meeting. In the absence of the DGHS a ministry official nominated by the DGHS should participate at the NMMR to represent the DGHS.

Maternal Death Surveillance & Response System – Sri Lanka

National Maternal Mortality Review (NMMR)

- The participation of following categories of health care teams is mandatory at the NMMR;
  - PDHS / DPDHS
  - RDHS and Deputy RDHS
  - Provincial and District Consultant Community Physician/s
  - All Head/s of the Institution/s where labour rooms are available (Whether or not maternal deaths occurred)
  - MO-MCH
  - All MOOH and AMOOH (and other relevant members of the MOH team)
  - All VOGG and other relevant consultants
  - Judicial Medical Officers
  - Senior registrars / SHOO / MOO, who were involved in the management of the deceased in the hospital where the death occurred
  - RSPHNO

Maternal Death Surveillance & Response System – Sri Lanka

National Maternal Mortality Review (NMMR)

- MOMCH under the guidance of RDHS should present the situation analysis of MCH care in the district in the index year and the progress of the implementation of the recommendations of NMMR of the previous year.
- The presentation of the field part should be done by the MOH and institutional part by the VOG or the relevant Specialist from the hospital where the death occurred.
- The JMO should present the post-mortem details to facilitate the determination of the cause.
- It is the responsibility of the head of the institution and the specialist of the unit where mother was managed to ensure that a detailed presentation is made at the NMMR.

Maternal Death Surveillance & Response System – Sri Lanka

National Maternal Mortality Review (NMMR)

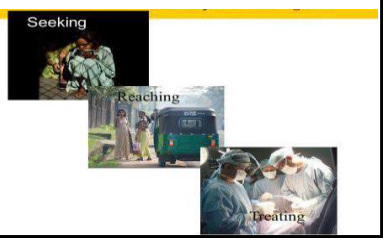
- Final decision on causality and category of maternal deaths are decided at the NMMR.
- Cases are analyzed based on 3 –delay model (whether there is a deficiency in seeking, reaching or treating) and preventability and family planning unmet need are assessed following consensus of the expert team.
- MOMCH should take minutes of the NMMR and note down relevant recommendations for the district for implementation at district level.
- A detailed NMMR minute will be prepared by the MCMMS Unit of FHB and the same will be disseminated to all the stakeholders of maternal care in the country for maximum utilization of the findings.

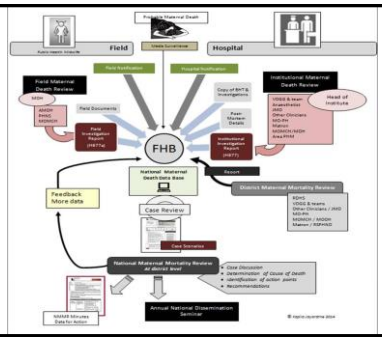
Maternal Death Surveillance & Response System – Sri Lanka

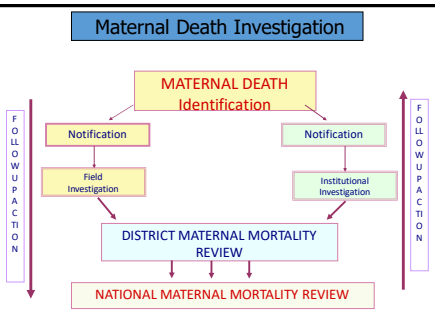
National Maternal Mortality Review (NMMR)

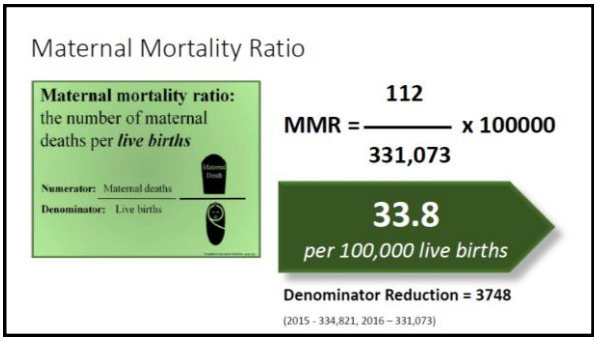
Three Delay Model

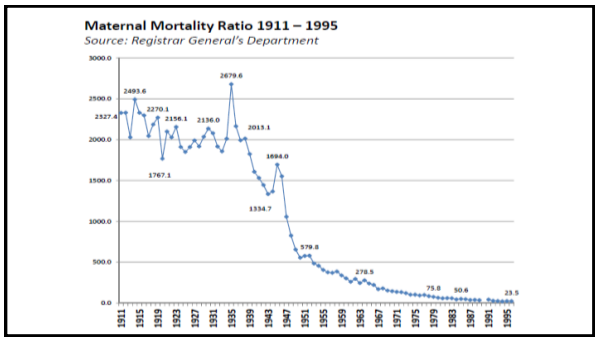
- 1. Delay in seeking care
- 2. Delay in reaching care
- 3. Delay in receiving care










Maternal Mortality Ratio 1911 – 1995
Source: Registrar General's Department
3000.0
2500.0
2000.0
1500.0
1000.0
500.0
0.0
2493.6
2527.4
2270.1
2156.1
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2136.0
2679.6
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1694.0
1334.7
579.8
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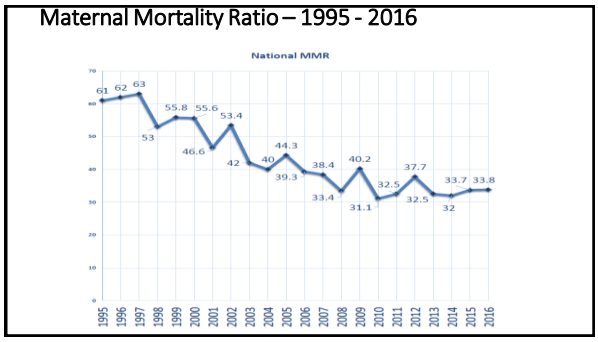
Maternal Mortality Ratio – 1995 - 2016
National MMR
61
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39.3
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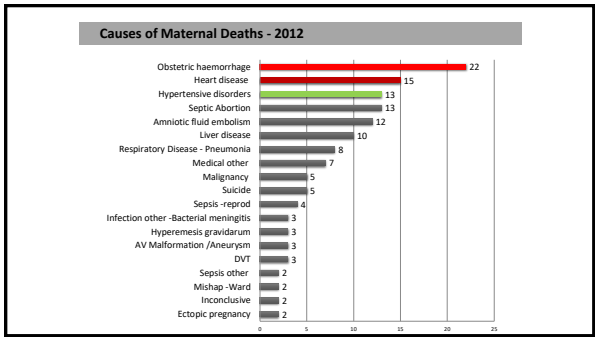
Causes of Maternal Deaths - 2012
Obstetric haemorrhage 22
Heart disease 15
Hypertensive disorders 13
Septic Abortion 13
Amniotic fluid embolism 12
Liver disease 10
Respiratory Disease - Pneumonia 8
Medical other 7
Malignancy 5
Suicide 5
Sepsis -regrod 4
Infection other -Bacterial meningitis 3
Hyperemesis gravidarum 3
AV Malformation /Aneurysm 3
DVT 3
Sepsis other 2
Mishap -Ward 2
Inconclusive 2
Ectopic pregnancy 2
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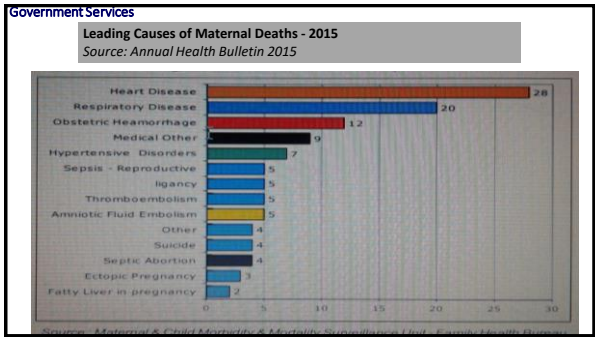
Government Services
Leading Causes of Maternal Deaths - 2015
Source: Annual Health Bulletin 2015
Heart Disease 28
Respiratory Disease 20
Obstetric Heamorrhage 12
Medical Other 9
Hypertensive Disorders 7
Sepsis - Reproductive 5
Igancy 5
Thromboembolism 5
Amniotic Fluid Embolism 5
Other 4
Suicide 4
Septic Abortion 4
Ectopic Pregnancy 3
Fatty Liver in pregnancy 2
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Global Ranking - 2015
Sri Lanka – World Rank 72
MMR 33.7
MMR
Countries(213)
The World bank

Questions?