

# MATERNAL MORTALITY AUDIT

CAHO Conference

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*We care. We cure.*

# CHINESE AIR CRASH



# THE CHINESE INVESTIGATORS RECOVERING THE BLACK BOX OF THE BOEING AIR CRAFT THAT RECENTLY CRASHED IN SOUTHERN CHINA



- The black box is essential to find the cause of the crash.



Every day about 800 mothers die globally in child birth.



To know why they die we need the black box of those maternal deaths.



Audit, especially Confidential Review of Maternal Deaths, is that black box.



- Only with knowledge of the cause of death, we can work out solutions.





# FOUR TYPES OF AUDIT

Verbal autopsy

Facility based audit

Near miss audit

Confidential review of maternal deaths (CRMD)



- **In Kerala we have been doing CRMD.**



# CRMD KERALA, PLANNING MEETING WITH WHO SUPPORT



Participants of the workshop at Thiruvananthapuram  
that started off the CRMD



- Finding the reason for maternal deaths is not enough, we have to take **remedial actions as well.**



# WHO

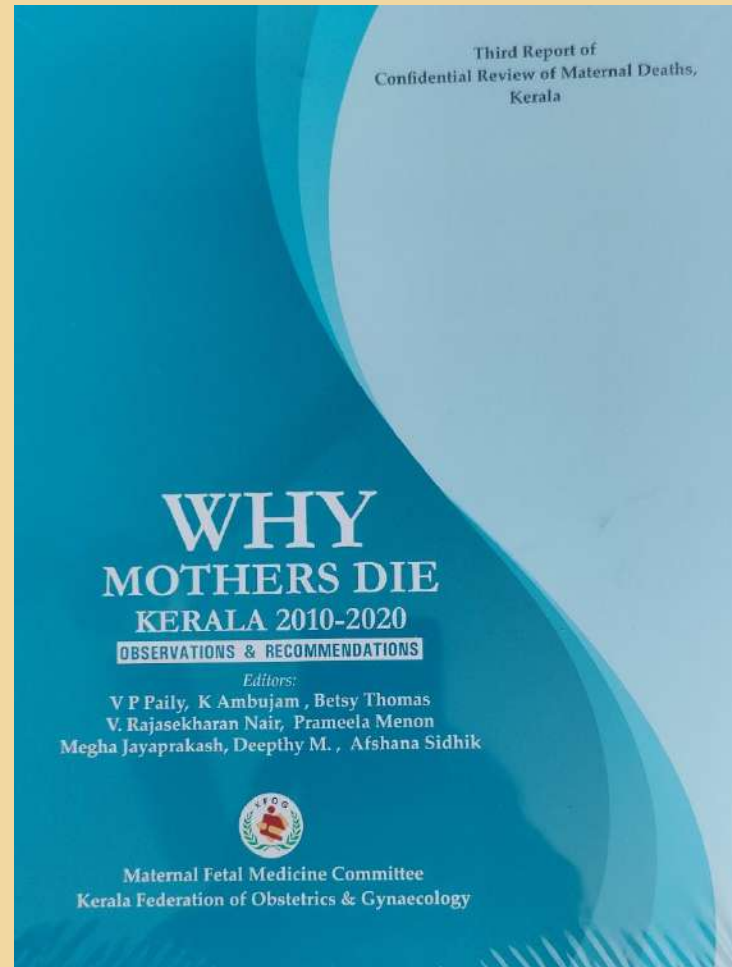
- MDSR - Maternal Death Surveillance and Response



- This is what we did in Kerala.
- Found the causes of death and worked out solutions.



# WHY MOTHERS DIE, KERALA, 2010-20





# CAUSES OF MATERNAL DEATHS, CRMD, KERALA





| Causes of death     | 2010-11                    | 2011-12                    | 2012-13                    | 2013-14                    | 2014-15                    | 2015-16                    | 2016-17                    | 2017-18                    | 2018-19                    | 19/20                      | Total      |
|---------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------|
| <b>Hemorrhage</b>   | <b>23</b><br><b>(20.3)</b> | <b>20</b><br><b>(23.5)</b> | <b>24</b><br><b>(23.7)</b> | <b>17</b><br><b>(15.1)</b> | <b>19</b><br><b>(16.2)</b> | <b>10</b><br><b>(9.4)</b>  | <b>14</b><br><b>(16.3)</b> | <b>24</b><br><b>(17.3)</b> | <b>21</b><br><b>(17.2)</b> | <b>17</b><br><b>(16.6)</b> | <b>189</b> |
| <b>Hypertension</b> | <b>16</b><br><b>(14.1)</b> | <b>14</b><br><b>(16.4)</b> | <b>14</b><br><b>(13.8)</b> | <b>8</b><br><b>(7.1)</b>   | <b>8</b><br><b>(6.8)</b>   | <b>13</b><br><b>(12.3)</b> | <b>9</b><br><b>(11.2)</b>  | <b>12</b><br><b>(8.7)</b>  | <b>7</b><br><b>(5.7)</b>   | <b>5</b><br><b>(4.9)</b>   | <b>106</b> |
| Sepsis              | 6                          | 8                          | 9                          | 17                         | 10                         | 5                          | 10                         | 13                         | 13                         | 5                          | 96         |
| Heart diseases      | 8                          | 6                          | 5                          | 9                          | 7                          | 5                          | 6                          | 13                         | 12                         | 5                          | 76         |
| AFE                 | 7                          | 4                          | 5                          | 4                          | 9                          | 10                         | 4                          | 10                         | 5                          |                            | 58         |
| Pul. embolis        | 4                          | 6                          | 2                          | 7                          | 11                         | 10                         | 3                          | 3                          | 7                          |                            | 54         |



# HEMORRHAGE

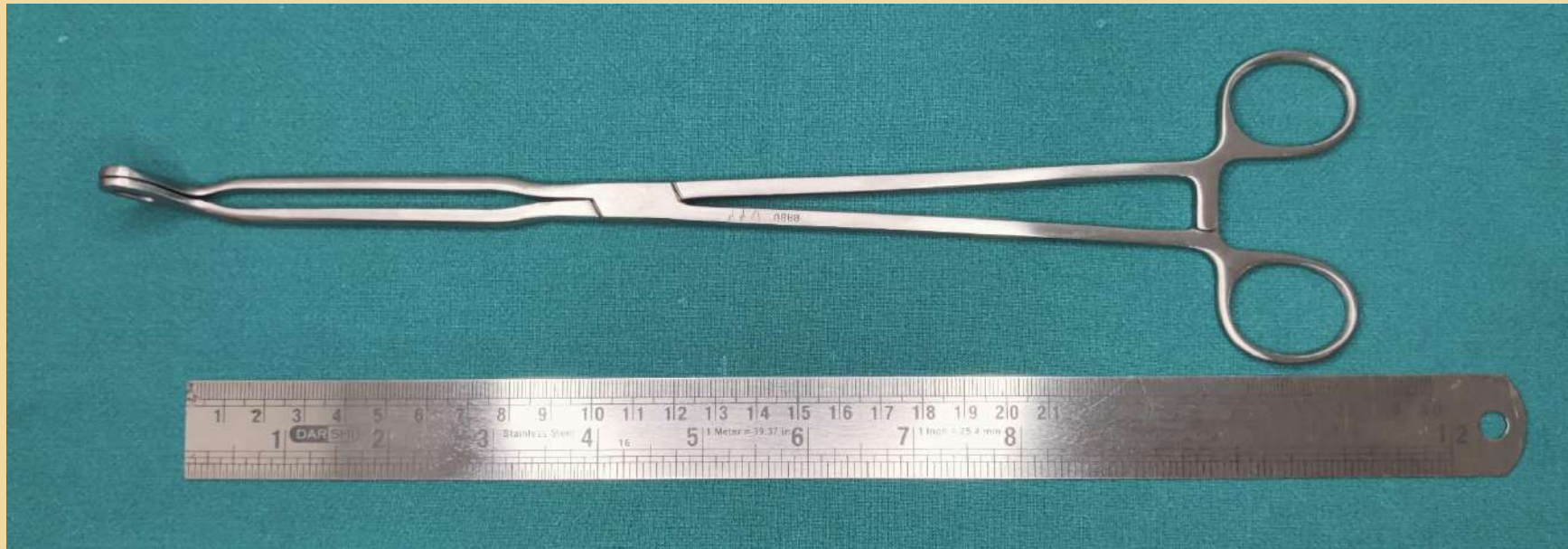
- Leading cause
- Solutions identified - **Suction Cannula**  
**TVUAC**



# SUCTION CANNULA DEvised BY DR.SAMARTHARAM AND DR.VASUDEVA PANICKER



# TRANSVAGINAL UT. ARTERY CLAMP DEVISED BY PAILY



## PLACENTA ACCRETA SPECTRUM

- A consequence of large number of caesarean deliveries
- Leads to torrential bleeding while doing delivery



- We developed a clamp to block *Aorta* or *Common iliac artery*.



# PAILY AORTA CLAMP





- **Hypertension is the 2<sup>nd</sup> commonest cause.**
- **Solution worked out by KFOG.**



- **But the causes may change, we have to adapt accordingly.**



# MATERNAL DEATHS , KERALA, DURING COVID TIMES

|                          | April2020 to<br>March2021<br>(CRMD) | April 2021 to<br>Dec 2021(DHS) |
|--------------------------|-------------------------------------|--------------------------------|
| Covid                    | 9                                   | 93                             |
| PPH + APH                | 19                                  | 17                             |
| Suicide                  | 11                                  | 11                             |
| AFE                      | 8                                   | 7                              |
| Hypertension             | 8                                   | 5                              |
| Sepsis                   | 11                                  | 4                              |
| Resp infection Non covid | 1                                   | 5                              |
| Pul.Embolism             | 5                                   | 3                              |
| Heart Dis                | 10                                  | 3                              |
| Neuro                    | 2                                   | 2                              |
| Unclassifiable           | 11                                  | 17                             |
| Miscellaneous            | 10                                  | 17                             |
| Total                    | 105                                 | 184                            |



# COVID AS A CAUSE OF MAT.DEATH

- Was the leading cause in 2021 - 22.



# SUICIDE

- After Covid, suicide will turn out to be the leading cause.



# SUICIDE AS A CAUSE OF MAT.MORTALITY

- Obstetricians or health department alone cannot find solution for this. It needs coordinated action of different ministries – health, home, social welfare, education, local self government etc.



## AUDIT AT COMMUNITY LEVEL

- In settings where health care is not hospital based, we have to go to the community, to the family and neighbours of the deceased.



- This is achieved by Verbal autopsy
- Specially trained team is required for this





## AUDIT AT THE HOSPITAL

- In addition to confidential review, we have to audit at the hospital level – **Facility based Audit**



## NEAR MISS AUDIT

- Once the death rate comes down, we have to **audit near miss cases.**



- Near miss is a case where the condition was so serious that ordinarily it would have led to death but was saved by providence or by timely and adequate interventions by the care givers.



## NEAR MISS AUDIT

- Is preferred over confidential review in some respects because the family will be less aggressive and may even be thankful for saving the life.



- Whatever is the type of audit - the aim is to learn lessons and take steps to prevent such happenings in future – ie take appropriate action.



- Should we, the health professionals or the community at large, strive to save these maternal lives?
- I can only quote Prof. Mahmoud Fathalla, a past president of International Federation of Obstetrics and Gynecology:



## PROF MAHMOUD FATHALLA

- Maternal death is a human rights issue.
- These women are dying not because the technology to save their lives is not available. They are dying because society is yet to decide whether their lives are worth saving.



EVERY DAY THE EQUIVALENT OF FOUR SUCH AIR CRAFTS  
LOADED WITH PREGNANT WOMEN ARE CRASHING WITH  
NONE OF THE PASSENGERS SURVIVING





WE HAVE TO INVESTIGATE AND FIND THE BLACK BOXES OF THOSE AIRCRAFTS

- Maternal death audit is the way to find out those **black boxes**



THANK YOU

