Maternal Mortality in health facilities at national and county levels, Kenya, 2011-2022

Rose Muthee
Ministry of Health

Supervisors: Prof Ties Boerma, Dr. Martin Mutua
Background

• What can the routine health facility data reporting system (KHIS) tell us about?
  - Aggregate level reporting on a monthly basis in the KHIS, discrete data
• Levels and trend in maternal mortality ratio (MMR) and stillbirth rates in health facilities
  – in Kenya nationally
  – In the 47 counties
• Are the data good enough to assess levels and trends?
Maternal mortality ratio (MMR) in health facilities, national

• Institutional MMR: 104 per 100,000 live births in 2022
• Decline until 2011-15 but not after 2015
• MMR adjusted for extreme outliers in counties (defined as more than 2 times higher or lower from the 5 year median) is close unadjusted trends
Maternal mortality ratio (MMR) in health facilities, 47 counties, 2012-2022

- Good consistency of trends over time for most counties but not all

- By 2019-22: 7 counties low MMR <70; some plausible (e.g., Kiambu), some likely underreporting (e.g., Nandi)

- By 2019-22: 5 counties high MMR >150; cities (Mombasa, Kisumu), some remote (e.g., Garissa)
Did the COVID pandemic cause an increase in institutional MMR?

- Major global predictions of increases in MMR
- But in Kenya: Only a small increase in national MMR in 2020: 117 versus 99 in 2018-19, and none in 2021 (99)
- No clear pattern of increase in counties
Is the Maternal Death Surveillance System (MDSR) improving maternal death reporting?

- M(P)DSR started in 2017—individual level reporting, continuous data
- First years lower numbers than KHIS
- Since 2020, about 10% more deaths are reported through MDSR than KDHS
Can the institutional MMR help improve the population estimates of MMR in Kenya?

• In Kenya in 2022, almost 9 out of 10 women delivered in a health facility (KDHS 2022: 88%). This means that the institutional MMR corrected for underreporting must be close to the MMR in the population

• Population estimates by the UN (MMR 530, lower bound 328) and results of the 2019 Kenya census (MMR 355) are challenged by the Ministry of Health as being too high

• Institutional MMR is about 100 per 100,000 live births; underreporting is an issue but it is not likely that high (e.g., more than half) of the deaths are missed
Conclusions

• Health facility reporting of maternal deaths can produce useful time series of the MMR (and stillbirth rates) at national and county levels
• Underreporting of deaths is an issue which can be quantified
• The introduction of MDSR will lead to more complete reporting
• The facility data should become the main basis for estimation of population MMR at national and county levels
Thank You