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Malaria Death Audits: A Tool to Help Improve Severe Malaria Case Management and Prevent Malaria-Related Deaths in Mashonaland East, Zimbabwe (2017)

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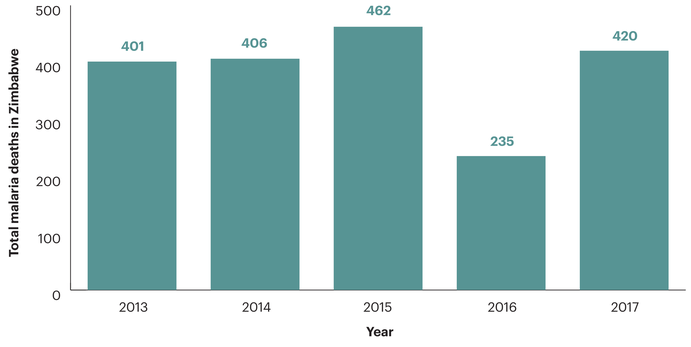
Background: Malaria Death Audits

- 50% of the Zimbabwean population is at risk for malaria.
- The National Malaria Control Program (NMCP) aims to reduce malaria-related deaths by 90% by 2020.
- With the exception of 2016, malaria deaths have plateaued since 2013.
- The country already had a facility-based malaria death reporting system, but there were no analyses of the deaths. The President's Malaria Initiative (PMI), in conjunction with the NMCP, established malaria death audits in 2016 in PMI-supported provinces.

Sources: National Malaria Strategic Plan, 2016–2020; Zimbabwe HMIS data, 2017.

Figure 1. Malaria deaths in Zimbabwe, 2013–2017



Source: Zimbabwe HMIS data, 2017

Figure 2. Malaria death reporting and investigation in Zimbabwe

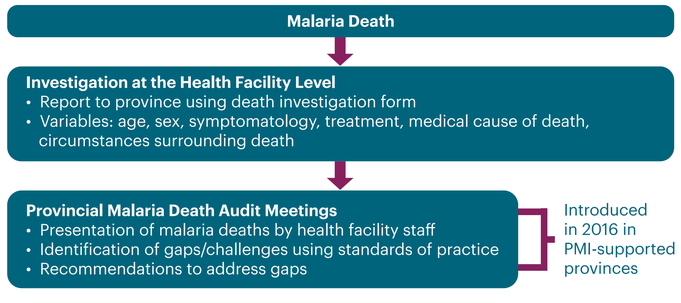


Table 1. Demographic characteristics of malaria deaths: Mashonaland East, 2017 (n=54)

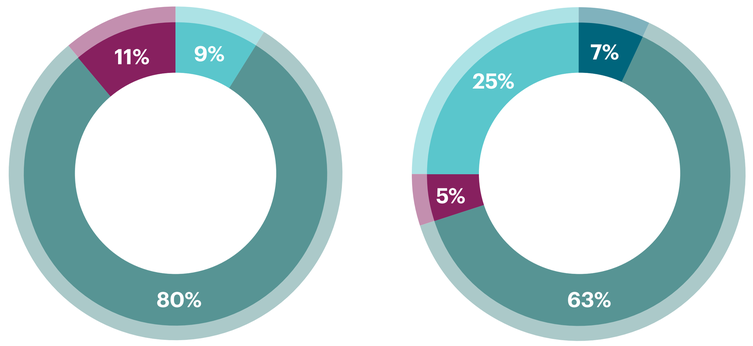
Variable	Category	Frequency, n (%)
Sex	Male	28 (52%)
	Female	26 (48%)
Age	< 5	16 (30%)
	5–14	14 (26%)
	> 15	24 (44%)
District	Mutoko	18 (33%)
	Mudzi	14 (26%)
	Uzumba-Maramba-Pfungwe (UMP)*	11 (20%)
	Murehwa	8 (15%)
	Goromonzi	3 (6%)

*Seven out of 11 deaths in UMP were among children under 5.

Figure 3. Malaria death audits unmask the third delay in care (Mashonaland East, 2017)

Delays as indicated in malaria death investigation forms (n=54)

Delays as discussed during malaria death audit meetings (n=43)

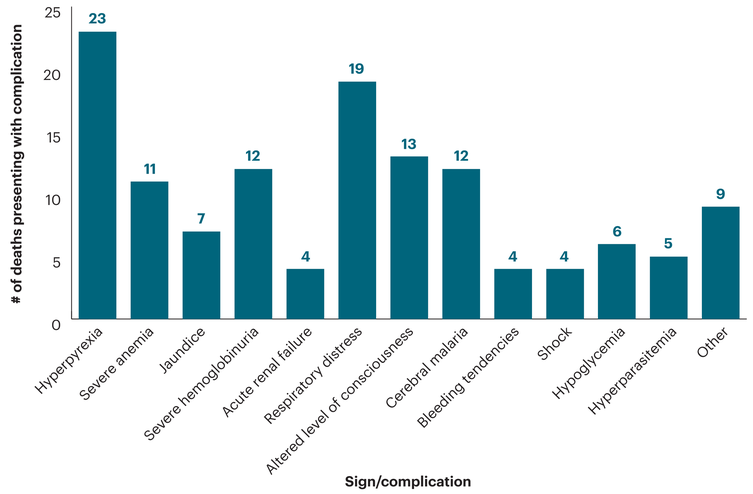


"We always blame late care-seeking behavior as a cause of malaria death. Coming late should not be a death sentence."
—Health care provider

"Manage the patient as a whole. Don't just treat malaria."
—Senior malaria case management specialist

"Discussing these deaths is not enough. What is more important is to implement what we have discussed."
—Provincial epidemiology and disease control officer

Figure 4. Frequency of signs/complications among malaria deaths, Mashonaland East, 2017 (n=54)



Source: Malaria death investigation forms

Malaria Death Audit: Root Causes of Malaria Deaths

Gaps identified during malaria death audits	• Inadequate follow-up of patient progress • Inadequate management of complications: shock, cerebral malaria, renal failure • Inadequate management of comorbidities • Delayed presentation at health facilities • Unavailability of blood for transfusion (10% were eligible but did not get one) • Unavailability of supportive investigations: glucose levels, full blood count, urea and electrolytes, etc. • Poor documentation
Other findings	• Comorbidities (25%) • Severe malaria cases misclassified as uncomplicated (10%)

Recommendations from Malaria Death Audit Meetings

- Institutionalize malaria death audits so they are completed at the facility level.
- Improve assessment and documentation of malaria cases through mentorship and supportive supervision, prioritizing districts with more malaria deaths.
- Involve health center committees and community leaders to address late health-seeking behavior and harmful behaviors.
- Prioritize procurement of supportive supplies, such as glucometer strips and blood for the severely anemic patients.

What Has Changed

- Social and behavior change communication messaging addresses the first care-seeking delay.
- Death audits helped justify a malaria clinical mentorship program.
- The development of standard operating procedures addresses issues identified through death audits, such as coma management.
- Supportive supplies, such as glucometer strips and blood for severely anemic patients, are now procured.
- There has been an improvement in documentation of cases in case notes and registers.

Conclusions

- Most deaths are of children under 5 (30%) and those over 15 (44%).
- Death audits:
  - Provide additional and useful information.
  - Reapportioned delays (the third delay increased from 9% to 25%).
  - Provided opportunities for identification and discussion of health system challenges.
  - Identified some rectifiable challenges, thus mitigating deaths.
  - Suggested the importance of holistic patient care. Identification and management of comorbidities is critical.