

11<sup>th</sup> June 2021

# Understanding the mortality impact of COVID-19 from a population-based survey in Kilifi County

## Policy Brief



### Key Messages

- We conducted a survey among residents of Kilifi Health and Demographic Surveillance System to compare mortality in 2020 with historical data.
- Annual incidence of mortality among Kilifi Health and Demographic Surveillance System (KHDSS) residents was no higher in 2020 compared with previous years.
- Acute Respiratory Infection (ARI) increased between 2012 and 2016 (for reasons unknown) but no further increase was noted after 2016 and in particular no increase in 2020.
- Surveys may not detect slight increases in mortality, and further surveillance is needed as the COVID epidemic progresses.

### Introduction

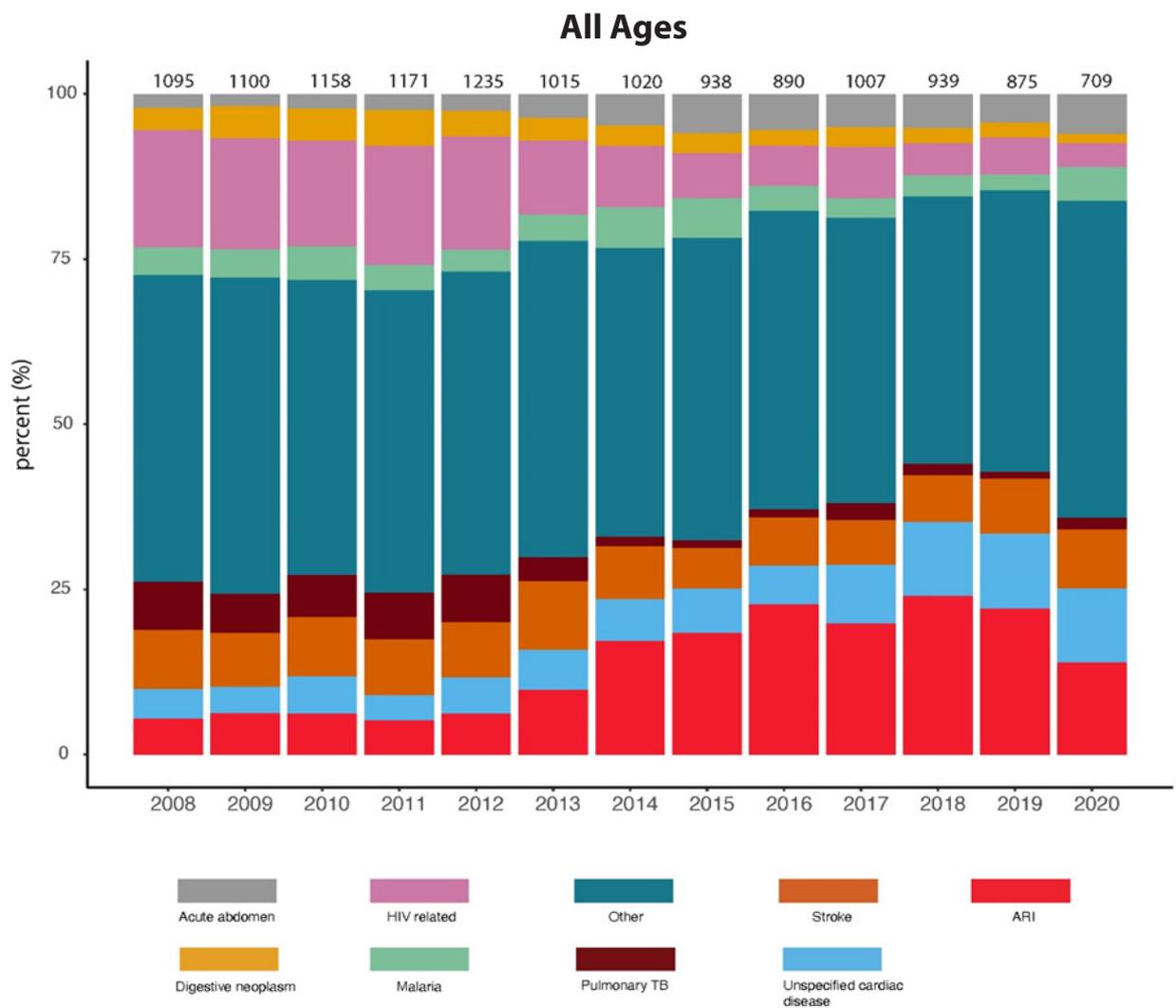
- The primary means of monitoring the toll of the COVID-19 pandemic has been through counts of cases and deaths.
- Kenya has data on cases and deaths, limited testing capacity leads to underestimates of case numbers and may also lead to underestimates of the death rate.
- Unreliable Civil Registration data and the negative impact of pandemic control measures on utilisation of health services further limit the accuracy of routine data for monitoring deaths.
- Population-based surveys may complement these data for determining mortality during the COVID-19 pandemic.
- Since 2000, KEMRI-Wellcome Trust Research Programme has supported a Health and Demographic and Surveillance System (KHDSS) with regular surveys to capture vital events among 300,000 residents of Kilifi County, linked to morbidity and mortality surveillance at Kilifi County Hospital.
- We have analyzed the trends in mortality and causes of death using verbal autopsy from community-based surveys in the KHDSS from 2003 to 2020 to understand the impact of the pandemic on mortality in the KHDSS community.

### Findings

- The annual incidence of mortality among KHDSS residents did not increase in 2020 compared with previous years (Figures 1 and 3).
- Acute Respiratory Infection (ARI) increased between 2012 and 2016 (for reasons unknown) but no further increase was noted after 2016 and in particular no increase in 2020.
- There was an apparent reduction in deaths due to acute respiratory illness in the 5-14 age group in 2020, but the significance of this one variation among the many trends examined is unclear.
- There was no obvious change in pattern of the causes of death in any other age groups.
- Surveys from other Demographic and Surveillance platforms and population-based studies will help to validate the results of this report.



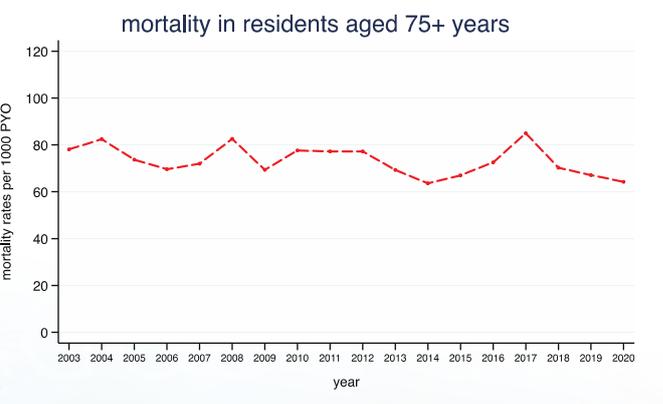
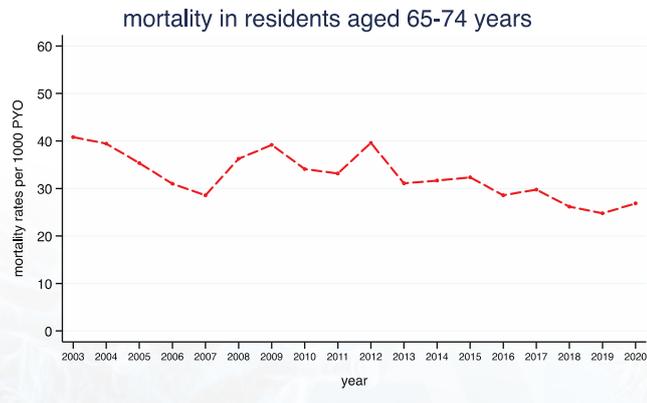
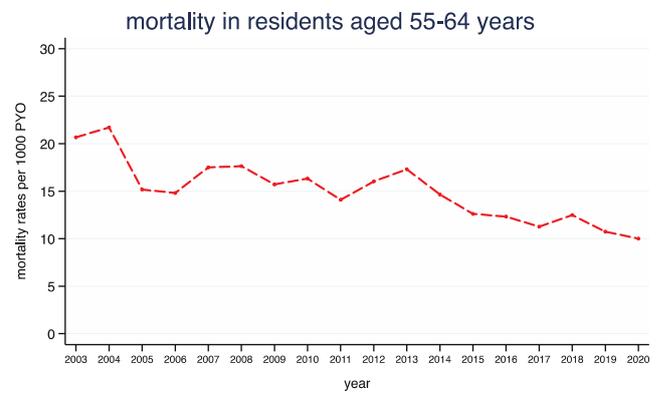
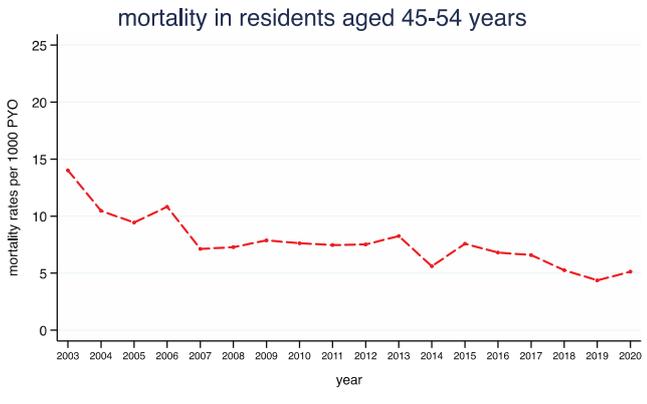
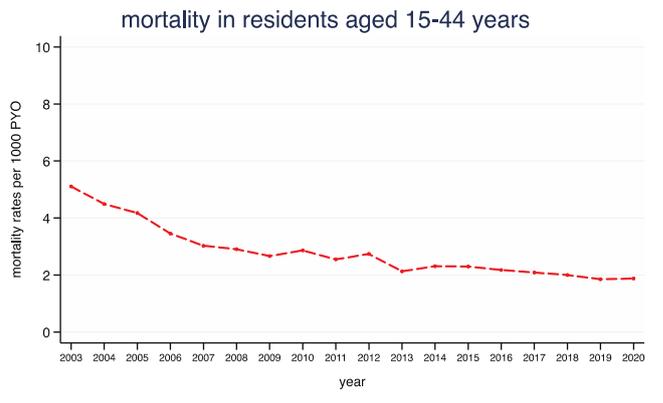
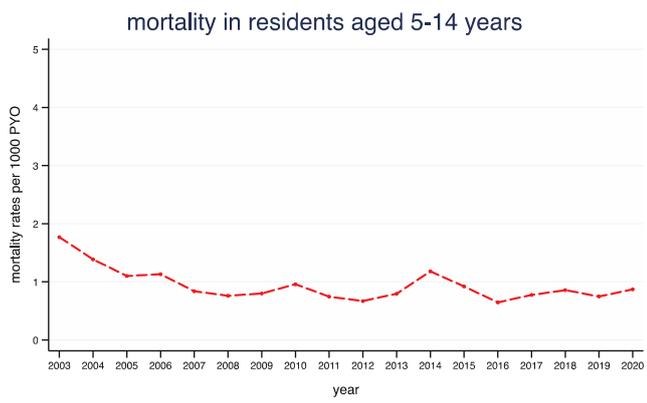
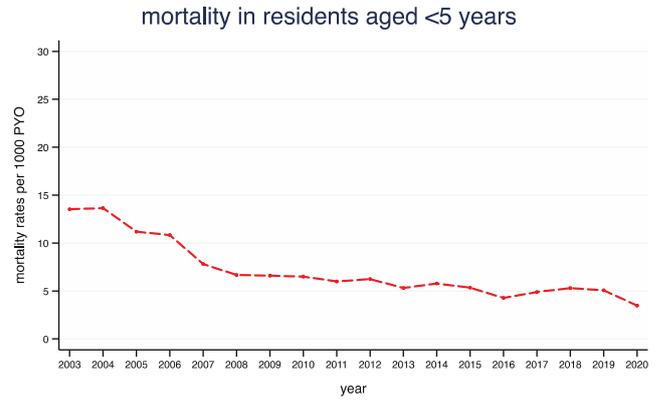
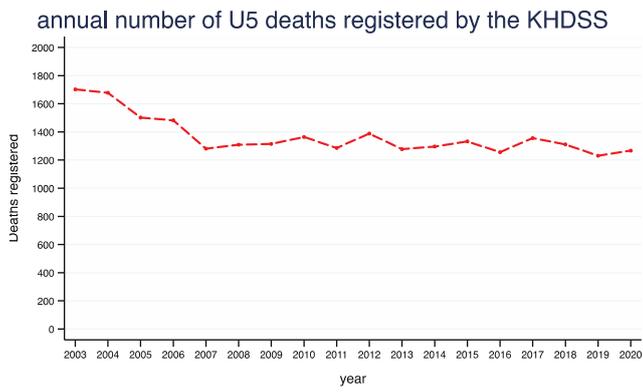
**Figure 1.** Annual mortality rates in KHDSS from 2003 – 2020 (all ages).



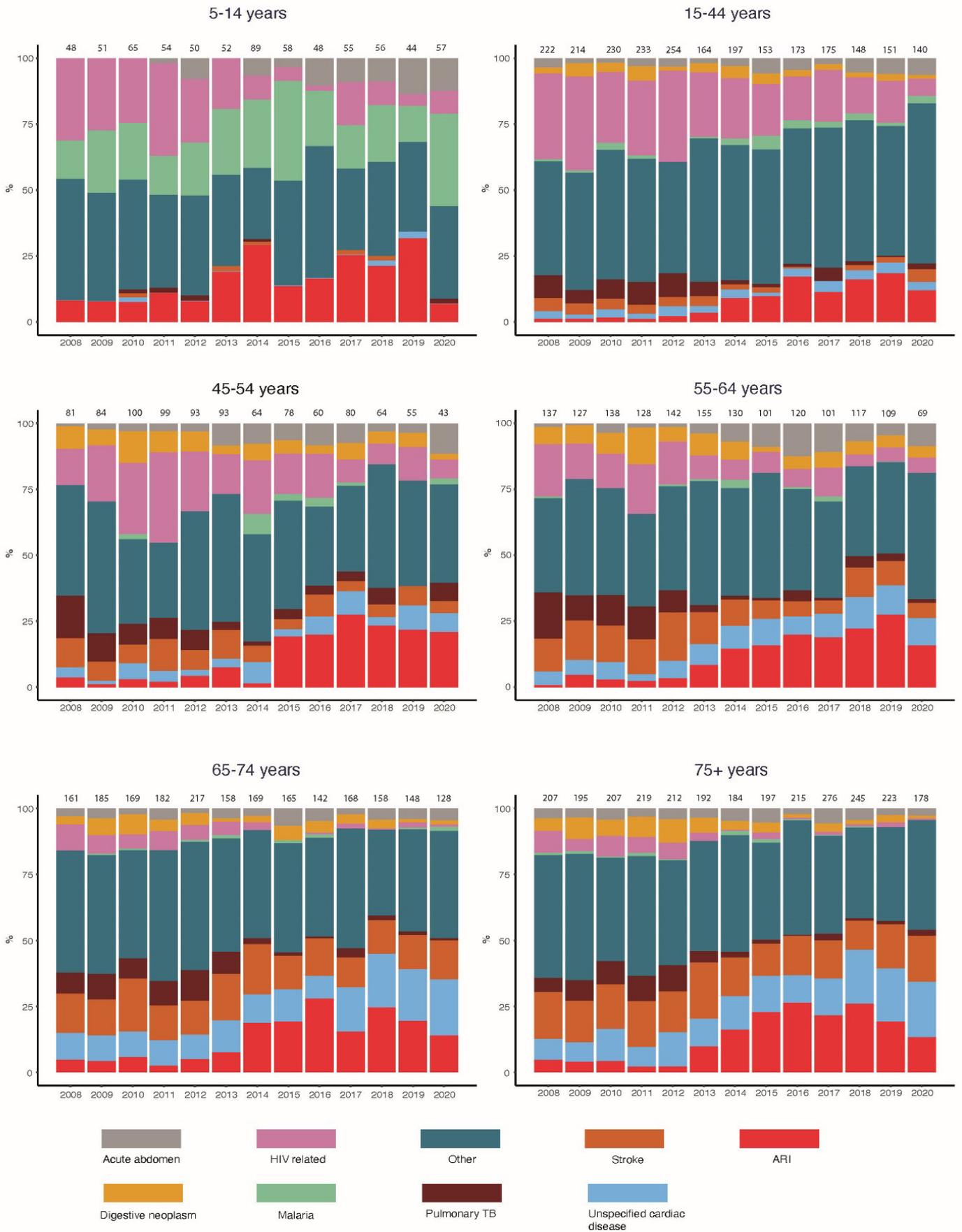
ARI – acute respiratory illness

Absolute numbers of deaths are given in figures over each bar

**Figure 2.** Stacked bar graphs of mortality fractions for leading causes of death (all ages)



**Figure 3.** Annual mortality rates in KHDSS for seven age groups from 2003 – 2020.



ARI – acute respiratory illnesses

Absolute numbers of deaths are given in figures over each bar

**Figure 4.** Stacked bar graphs showing mortality fractions for leading causes of death by age group

## Assumptions and Implications

- We have assumed that all 2020 deaths have been recorded.
- Based on observations from previous years, we anticipate a small number of unregistered deaths that occurred in 2020 to be captured in forthcoming survey rounds. However, this is not expected to alter the results that we have reported.
- Approximately 80% of all deaths are typically followed up for verbal autopsy but for 2020 verbal autopsy coverage was 60% due to increased difficulties in conducting fieldwork with COVID related restrictions. We do not think this will affect the representativeness of the findings because of the random assignment of interviews across the KHDSS reducing the potential for selection bias.
- The KHDSS community is predominantly rural. The trends should therefore not be generalized to urban settings where the virus had spread more extensively at the time of the survey.
- Surveys from other DSSs and population-based studies will help to validate the results of this report.

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