AFRICAN CITIES RESEARCH CONSORTIUM

covid collective
SOCIAL SCIENCE RESEARCH FOR COVID-19 ACTION

Data portraits: Covid-19 vaccine rollout in informal settlements in Harare, Kampala, Lilongwe and Mumbai

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Abstract

The joint issues of access to, and uptake of, Covid-19 vaccines are still very much alive in the global South. While the pandemic's health effects for low-income urban communities have not been insignificant, the results of state responses, carried out without full consideration of poverty consequences, have been very serious. Vaccination in this context is one – among many – ways in which people can reduce risk of further exclusion. This paper reports on a study from Harare, Kampala, Lilongwe and Mumbai by national affiliates of Slum Dwellers International (SDI). Drawing on a series of surveys, our findings provide a snapshot of how global vaccine inequalities played out locally in 21 informal settlements across these cities. Aiming to understand the challenges communities have faced in accessing vaccines, we look at the health context in these settlements, the economic consequences of control measures, the vaccine programmes, residents' attitudes and hesitancy, and access to information.

Keywords: Covid-19 vaccines, informal settlements, inequality, health, community data, Uganda, Zimbabwe, Malawi, India

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Supported by the UK Foreign Commonwealth and Development Office (FCDO), the Covid Collective is based at the Institute of Development Studies (IDS). The Collective brings together the expertise of, UK and Southern based research partner organisations and offers a rapid social science research response to inform decision-making on some of the most pressing Covid-19 related development challenges.

This report was funded by the UK Government's Foreign, Commonwealth and Development Office (FCDO) through the Covid Collective.

1. Introduction

This comparative data report illustrates, visually and in narrative form, findings from a study contributing grassroots perspectives on the Covid-19 vaccine rollout. The research was carried out in Harare, Kampala, Lilongwe and Mumbai by the national Slum Dwellers International (SDI) affiliates in each city, with survey design, coordination and administrative support from the Global Development Institute at The University of Manchester.

The study's purpose is to contribute to understanding the challenges faced by low-income residents in informal settlements in accessing Covid-19 vaccines and official vaccination programmes, and their perceptions of those challenges. By exploring how global vaccine inequalities – a significant topic of debate – play out at the local level, with specific focus on the experiences of residents in 21 informal settlements across the four cities, the data findings aim to help uncover real-time trends around vaccination rollout within informal settlements of particularly vulnerable cities.

This report focuses on the survey data (see Methodology section below), presenting mainly descriptive statistics as well as some qualitative evidence. In this way, we capture a visual snapshot of the situation in the study locations during the survey window, that is, between August and November 2021. In the following sections, we organise our findings under five broad questions:

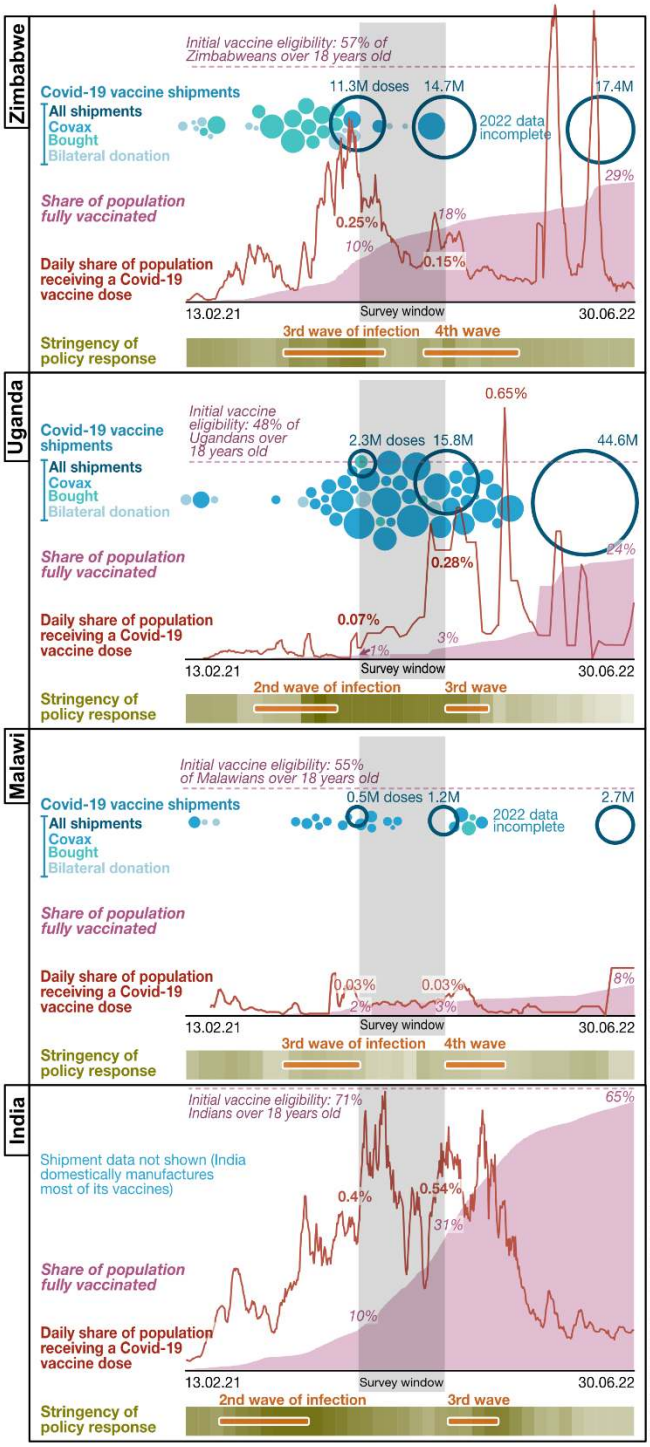
1. What is the Covid-19 health context in the 21 study locations?
2. What pandemic control measures are currently in place and, in general, what have been the economic consequences for communities of pandemic control measures?
3. What does each city's Covid-19 vaccination programme look like, from the viewpoint of informal settlement communities?
4. What can we say about people's attitudes to vaccines and the level/nature of vaccine hesitancy?
5. What does the information landscape look like on the ground and are people getting the information they need?

The report also provides a brief outline of the Covid-19 vaccine context in each location, summarises the study methodology and concludes with reflections on what we have learnt. A more extensive discussion of our understanding of the dimensions of global and local vaccine inequality can be found in the resources linked below.

2. The Covid-19 vaccine context in each country/city

For broader discussion of how we understand global and local Covid-19 vaccine inequalities, please refer to Lines et al. (2022).

Figure 1: National Covid-19 vaccine context



Sources:
Vaccination rates (daily & cumulative): official data collated by Our World in Data, as at 20 June 2022 (alternative definitions of a full vaccination, eg having been infected with SARS-CoV-2 or having one dose of a two-dose protocol, are ignored to maximise comparability between countries).
Population over 18: UN Population Data Portal (latest year available).
Vaccine shipments: Africa Data Hub/Media Hack Collective, June 2022.
Infection waves: media reports (various); Our World in Data.
Relative stringency: Oxford Covid-19 Government Response Tracker Stringency Index, based on nine metrics: school closures; workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls.

2.1. Harare, Zimbabwe

Zimbabwe is among only 15 African countries to meet the WHO target to fully vaccinate 10% of its population by October 2021 (see Figure 1). As our survey in Harare began in late August 2021, 10% of Zimbabwe's 15.1 million population had completed a first, full vaccination protocol, rising to 18% by the time of our final survey in late November 2021. At the time of writing, in late June 2022, the figure is 29%.[1] There is little publicly available Covid-19 vaccination data for Harare city.

Zimbabwe has stronger international relations with China than with Western governments, and geopolitics has clearly contributed to Zimbabwe's choice of Covid-19 vaccines. The country has purchased (and later received through COVAX) almost exclusively Chinese-made vaccines (our survey respondents likewise reported Sinovac and Sinopharm as the main types available in their communities). Consequently, barring a few distribution hitches and surges in demand, vaccines have continued to be available in Harare. During the survey period, ongoing government campaigns encouraged uptake.

Lockdowns and other control measures have been among the more heavy-handed of the African study cities. Vaccinations are officially voluntary, but the many vaccine mandates in place during the study period meant that this is not necessarily how it has been experienced on the ground. Survey respondents from Harare reported vaccine certificates were necessary for state employees (including health workers), visiting government offices, travelling on public buses, market trading, attending church and many other areas of life.

2.2. Kampala, Uganda

Uganda's vaccination drive began in earnest towards the end of our survey window. In late August 2021, only 1% of the country's 47.1 million population had been fully vaccinated, rising to 3% in late November 2021 (see Figure 1). The figure as at end June 2022 is 24%.

All the cities in our study exemplify, in different ways, that vaccine availability (or its lack) and how doses are supplied influence and constrain the room countries have to make good policy decisions about low-income communities within a Covid-19 vaccination programme. Uganda's late start was largely due to a lack of supply, constraining the establishment of distribution centres or infrastructure, even in Kampala, the capital city, and undermining political will to back the vaccine drive. Uganda has been very reliant on COVAX, receiving at least six different types of vaccine, with many different shipments apparently arriving at around the same time. Indeed, our Kampala survey responses contain clear expressions of confusion about, and preference for, different types of Covid-19 vaccines. Vaccines were publicly administered in Uganda during our survey period, although, as supply improved, the

[1] Our World in Data (nd), ourworldindata.org (accessed 23 August 2022).

country was reportedly considering options for involving the private sector in distribution.

Global geopolitical connections are also evident in Uganda's Covid-19 vaccine response. Media reports also mention shipments of several million doses of Sinovac[2] (unverified, so not shown in Figure 1), as well as plans to establish a vaccine manufacturing plant by Sinovac Biotech, a Chinese company authorised by the World Health Organization to manufacture and distribute Covid-19 vaccines.[3]

Uganda is the only study country that had yet to announce universal eligibility for adults at the time the survey began. This was probably related to supply issues. Particular groups considered vulnerable or high-risk were still prioritised, including the military, healthcare workers, over-50s and those with underlying health conditions. In our survey, community leaders reported that in Kampala it was necessary to have vaccine certificates to work as civil servants, public school teachers and some market vendors.

2.3. Lilongwe, Malawi

Like Uganda, Malawi's heavy reliance on COVAX for supply of Covid-19 vaccines has hugely constrained its rollout, among other factors. Types received have been more consistent than Uganda (largely three types: AstraZeneca, Johnson & Johnson and Pfizer). However, shipments have been small and appear sporadic (see Figure 1). In late August 2021, as our survey began, the country had fully vaccinated 2% of its 18.6 million population, rising to 3% by late November 2021. Uptake continues to be low, at only 8% by late June 2022.

Barring the early weeks of the pandemic, lockdown measures in Malawi have been relatively few. During the survey window, community leaders in Lilongwe reported that any restrictions were only loosely enforced or observed and that vaccine mandates were not widespread. Cases and deaths from Covid-19 also appear to have been relatively low in the country, although a lack of testing and other data limit an accurate picture. A consequence of this for many people in the informal settlements in Lilongwe that we spoke to has been that getting vaccinated is not seen as high priority, either to protect health or to get around vaccine mandates. People are more concerned with weathering the economic crisis associated with the pandemic, which has been severe; and unless the object is international travel, the contribution Covid-19 vaccination makes to communities' economic recovery is less clear.

Vaccine hesitancy due to misinformation and myths appears to be a particularly prominent issue in Malawi and was much discussed by the Lilongwe communities we spoke to. Indeed, Malawi gained some media attention early in the global vaccine rollout for incinerating 20,000 AstraZeneca doses that had expired before they could be

[2] See: twitter.com/JanetMuseveni/status/1535187856385355778 (accessed 10 October 2022).

[3] See: africa.cgtn.com/2022/05/24/sinovac-to-establish-vaccine-manufacturing-plant-in-uganda-president-museveni/ (accessed 10 October 2022).

administered, due to low demand, in a move aimed at reassuring the public that the vaccines they do get are safe.

Factors are perhaps linked to the country's low vaccine supply, compounded by perceived lower risks to health. A growing body of literature is calling for closer attention to the particular reasons behind Covid vaccine hesitancy in African contexts, including particular belief systems but also the historical colonial-era medical abuses and loss of trust rooted in vaccine nationalism and the international community's poor response to global vaccine inequalities (Leach et al. 2022, Mutombo et al. 2022).

2.4. Mumbai, India

Mumbai is the only study city for which reliable city-level vaccination data could be found, through verified media reports and a municipal vaccination data dashboard (now defunct). However, the city's vaccination picture is very different to India's national rates (see Figure 1): by late August 2021, Mumbai had fully immunised 67% of its adult[4] population, rising to 70% by late November (that is, around 300,000 people during the survey window). In April 2022, it claimed to have fully vaccinated all of its adult (over 18 years of age) population and rollout to school-age children and booster programmes are underway. At the height of its rollout, the city had over 400 vaccination centres, including the private sector; many were located in informal settlements.

Mumbai's inclusion in the study makes possible comparison with a relatively more advanced and successful vaccine rollout, while still in a city context where half the population lives in informal settlements. However, it is in many ways a very different case – including in terms of the scale of vaccine challenge, with a metropolitan region population of over 20 million people. Also distinct is that efforts to make Mumbai's vaccine rollout fairer have been driven at least in part by political motivations, since political representation and the voice of low-income communities in the city is strong. This has been underpinned by reliable availability of vaccines, albeit at times with demand exceeding supply, since India is the only country in our study to manufacture vaccines. Most doses from Indian manufacturers are claimed by the federal government and centrally allocated to states. A smaller proportion is permitted to be sold on the (Indian) private market and, when demand has exceeded supply, wealthy state governments, including Mumbai's state of Maharashtra, have been known to top up stocks by purchasing doses in competition with other agencies, including private health providers, philanthropists and Indian companies fulfilling mandated corporate social responsibility obligations. At the time our survey took place, privately administered vaccines were available to Mumbai residents for a capped fee, and this was even a route to vaccination for some informal settlement residents in the areas we surveyed – often paid for by their employers, as a way to avoid queues and get staff quickly protected.

[4] Note: different unit of measurement used to the country statistics above.

3. Methodology

3.1. Study locations

The survey cities – Harare, Kampala, Lilongwe and Mumbai – were selected in consultation with SDI secretariat. The three main criteria for selection were:

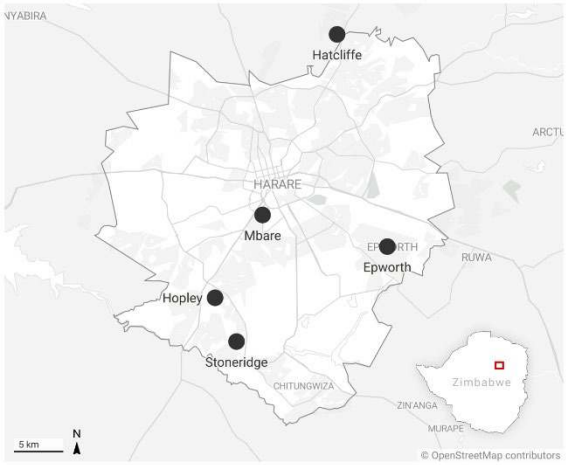
- All were major global South cities with large informal settlement populations, in countries which had begun Covid-19 vaccine rollout.
- They collectively represent a diversity of geographical regions, city types and country income classification.
- City-based research partner organisations (all SDI country affiliates) were keen to take part and considered the study useful to their ongoing work, such as tackling the pandemic's impacts on low-income urban communities. Through each, we had the opportunity of going directly to trusted community leaders who were familiar with the research process.

The study was designed as a pilot, which, if valuable, could be replicated in other cities or extended over a longer time frame. The picture is, of course, likely to differ in low-income communities in other areas (even within the study cities), depending on many considerations, such as national vaccination rates, local distributional capacities or specific pre-existing healthcare inequalities over which Covid vaccine inequalities are mapped.

Each of the four research partners selected five to six informal settlements in their city as study areas (see Figure 2). This was done in consultation with grassroot leaders and members of national federations of informal settlement and low-income urban residents in each city ("federations"), who were also instrumental in linking the research teams to the survey respondents. In each area, there is a strong SDI federation presence or relationship with the neighbourhood.

The 21 settlements selected represent a geographic spread within each city and a context-specific range of settlement types. The Mumbai research team's selection identifies different settlement types, including some "formal" neighbourhoods where they worked and to which informal settlement communities had earlier been relocated (known as "colonies"). In Kampala, respondents were drawn from one or more informal settlements in each of the city's five divisions. In Harare, the research team identified three inner-city settlements and two on the urban periphery, enabling some comparison of experiences along these lines.

Figure 2: Maps showing survey areas



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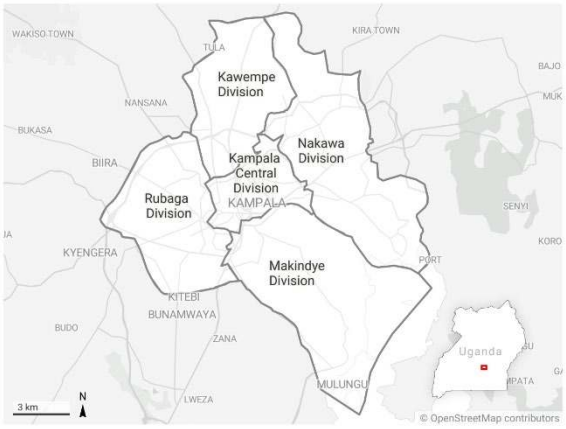

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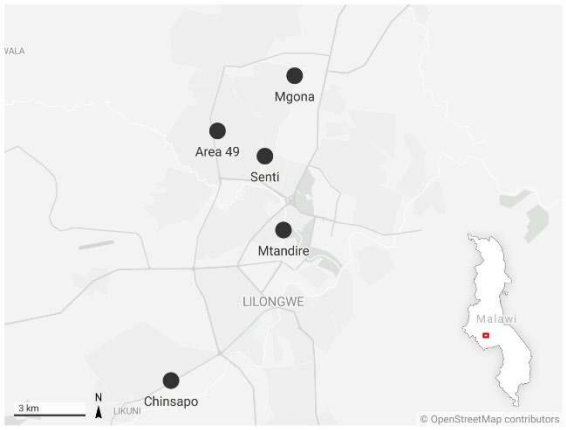

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3.2. Survey participants

With the support of federation leaders, research teams then recruited around 15 residents from each settlement (totalling 75 per city or 300 over the entire study), who were willing to be survey respondents across all six fortnightly iterations of data collection. All respondents were identified by federations to be “community leaders”, which in this study we define broadly to cover, among other groups, traditional leaders, youth leaders, community healthcare workers, religious leaders and SDI federation leaders – both male and female and across a range of ages (see Appendix 1). Respondents were not selected at random and we did not seek statistical validity with this sample size or sampling methodology. Rather, the purpose was to support SDI affiliates in tracking the situation in several settlements, for which they identified a range of trusted local leaders who could be expected to have a good sense of what is going on in their communities. Sample size also relates to partners’ earlier experiences of dropout due to the scale of pandemic-related disruption, and we planned for some turnover (see Appendix 2).

3.3. Data collection

The data presented in this paper was collected concurrently in the four global South cities over three months, between 26 August and 29 November 2021, using a rolling fortnightly semi-structured questionnaire (in six survey iterations – see Table 1). In the fast-changing context of the pandemic, we considered that there was potential for tracking change every two weeks – to capture, for example, changes in vaccination policy or availability – but that more frequently would not be cost-effective.

Table 1: Data collection iterations

Survey	Start of data collection window	End of data collection window
Survey 1	26 August 2021	3 September 2021*
Survey 2	12 September 2021	26 September 2021
Survey 3	27 September 2021	10 October 2021
Survey 4	10 October 2021	24 October 2021
Survey 5	25 October 2021	7 November 2021
Survey 6	9 November 2021	29 November 2021**

* Followed by a gap during which the city teams met to identify a few process issues, such as how the online survey was set up, and to correct these.
** Survey 6 contained several new questions. The longer survey window therefore cushioned knock-on implications to the data collection process.

Survey respondents were interviewed individually by local professionals or community-based federation data collection experts, using either hard-copy questionnaires or handheld devices. Final data entry was done online using the Qualtrics platform.

During the period of data collection, we also held occasional group calls to capture and compile the local research teams' observations about changes and developments in their local vaccine rollout efforts. This helped situate the survey data in context. This was not an exhaustive effort: with limited project resources, however, we largely relied for context and analytical framing on other (emerging) studies as well as documentation such as news articles.

3.4. Survey design

A draft questionnaire was circulated for comment within partner organisations and to federation leaders, the feedback process ensuring that phrasing and terminology were locally appropriate and that data collection objectives aligned with affiliates' own. The Mumbai team translated the questionnaire into Marathi; all others were in English. We used open and closed questions to capture both qualitative and quantitative

information. Respondents were asked some questions about themselves and some about their community.

Before launch, the survey questionnaire and participant consent processes were tested by a handful of community leaders in each city. They provided valuable feedback, leading to some adjustments.

3.5. Covid-19 special circumstances and ethical considerations

Building on experiences in pandemic data collection by the SDI affiliate in Kenya, the study was designed such that interviews could be carried out by phone if necessitated by Covid-19 restrictions. Our data collection happened to take place in a relative lull between recorded waves of infection in all four the study countries (see Figure 6 below), so in the end it was possible for all four research partners to conduct interviews face-to-face, while observing local protocols, such as social distancing and mask wearing. This was preferred: the research teams considered that face-to-face interviews resulted in greater trust between data collection teams and communities, resulting in higher quality data. Since most researchers chose to travel to where the community leaders lived and then use printed questionnaires followed by online data entry back in the office, following the pilot survey and first survey, it quickly became clear that the process of data entry was going to be more time-consuming than anticipated. Therefore, after team reflections, the window for each iteration of data collection was expanded from ten days to two weeks.

Given the fast-changing context, both in terms of vaccine rollout and the wider pandemic, we were also prepared to have to add or adjust the survey questions as the data collection progressed, which would have limited the potential for time-series analysis. In the end, it was only necessary to add a small number of follow-up or “wrap up” questions to the last survey iteration (see Appendix 3). Relatedly, a number of questions were only asked twice, in surveys 1 and 6; particularly as related to the longer-term socioeconomic impacts of the pandemic on communities and other areas where it did not make sense to try to track changes fortnightly.

3.6. Reflections on the methodology

In future research, we hope to add value by combining this survey data with other research approaches, including in-depth stakeholder interviews and focus group discussions, continuing to work in partnership with grassroots federations in each city.

This was a small study, with a research budget of under £30,000. Inasmuch as the data collected can be seen as a snapshot of the situation in a given time period within a volatile context, we are pursuing further funding opportunities to allow us to improve our findings, by presenting our data (a) to community groups for validation and analysis, as well as (b) to local authority stakeholders (in healthcare and urban management). The joint issues of unequal access and low uptake of Covid-19 vaccines are still very live in low- and lower-income countries.

3.7. How to read the data visualisations

Each full-page data visualisation contains the following information to help the reader.

- Top left: the survey questions to which the data relates (see Appendix 3 for full questionnaire).
- Top middle: the data analysed and how it is disaggregated. All visualisations disaggregate by city and some by settlement and survey.
- Top right: legend.

In some visualisations, survey dates are shown (rather than survey number 1, 2, 3, and so on). For visual simplicity, where survey dates are shown, these are labelled with the midpoint of each of the six survey windows, as shown in Table 2 below:

Table 2: Presentation of survey dates by midpoint

Survey	Real data collection window	Indicative midpoint (2021)
1	26.08.21–08.09.21	02.09.21
2	12.09.21–26.09.21	19.09.21
3	27.09.21–10.10.21	04.10.21
4	10.10.21–24.10.21	17.10.21
5	25.10.21–07.11.21	31.10.21
6	09.11.21–29.11.21	19.11.21

4. What is the Covid-19 health context in the 21 study locations?

We asked community leaders what they knew about characteristics of the recent[5] Covid-19 disease burden in their areas (confirmed cases and deaths), and from where they got their information. We also asked if it was possible to get tested locally, where and by whom.

A lot of people [in our area] might have died of Covid but the numbers are not published – Hopley, Harare (S1)

4.1. Recent cases and deaths

People reported few Covid-19 cases and deaths in their areas during the survey period (see Figure 3). By city, Harare had the most respondents reporting recent cases (average 13% of respondents), deaths (11%) and testing (see Figure 4). In Kampala and Mumbai, fewer than 5% of respondents said there had been any recent cases or deaths in their area, and in Lilongwe these figures were only slightly higher. In all cities, reports varied considerably across settlements and survey iterations. Where the disease was known to be present, numbers were low and varied by survey – between 1–21 cases and 1–5 deaths in a two-week period (all cities).

I am a health worker and I know how dangerous this disease is – Mtandire, Lilongwe (S2)

It was just a [symptoms] screening check for Covid, malaria and dengue ... by a local NGO – Relocation Colonies, Mumbai (S3)

There will of course be different reasons for the generally low figures in different contexts, including, for example, one or a combination of: limited testing, lack of reliable information, or an actually low disease rate. In terms of confidence in their own knowledge of the situation, people in Harare and Lilongwe were more likely to say they did not know about the recent health burden in their settlement or local testing situation; those in Kampala and Mumbai were more confident.

[We knew about a recent Covid-19 death in the settlement] from seeing the deceased person not being allowed to be put in the house for a night as per tradition – Hatcliffe Extension, Harare (S1)

4.2. Recent testing

Limited testing and an associated lack of data have played a key part in the lower recorded Covid case and death rates in many low- and middle-income countries, obscuring our understanding of how the disease burden differs in, for example, locations with a younger demographic. Excess death studies estimate Covid deaths to be between nine and 16 times higher than official figures in the four study countries.[6] Reliable information about cases and deaths helps local authorities to prioritise resources and communities to understand the risks they face, motivating people to take protective measures and get vaccinated. For example, Lilongwe respondents linked declining vaccine uptake among their communities during the survey window to decreases in reported cases in their areas.

I was notified by the deceased's family because I am a block leader – Senti, Lilongwe (S3)

[5] During the two weeks before they took the survey.
[6] See: economist.com/graphic-detail/coronavirus-excess-deaths-estimates (paywall).

In informal settlements, communities live and work in high-risk conditions: at high densities in underserviced areas lacking or sharing basic services such as water and sanitation. Lack of provisions for Covid-19 testing, screening and treatment means that outbreaks are less likely to be picked up at an early stage and can spread rapidly. In general, we found little testing taking place in communities (see Figure 4).[7] The highest rates were in Harare, where 30% of respondents said testing was taking place in their area; the lowest in Lilongwe (5%). However, all cities showed fluctuations across survey iterations and between settlements, with many areas reporting no testing provision, despite having a local health centre. Where testing *was* locally available, some further detail was provided by respondents (see Figure 5). Harare communities could access PCR tests carried out at government clinics, and Mumbai communities could access screening for symptoms at hospital or special camps run by NGOs. Lilongwe and Kampala respondents mentioned a range of testing venues, from hospitals and local health centres to markets and mosques, usually run by government health bodies; they gave little information about the type of testing available.

People do not like to disclose Covid deaths – Senti, Lilongwe (S3)

In case of any case we [have] a village health team in the settlement – Kampala Central Division, Kampala (S2)

I have noticed that… people have slacked [precautions] with the reduction in cases. People are telling each other that during the hot weather Covid19 is powerless – Chinsapo, Lilongwe (S6)

Notwithstanding low rates of testing, all four countries appear to have been in a relative lull between waves of infection during the survey window (see Figure 6) and this is likely to also make up part of the picture reflected in our data – providing context to respondents' experiences of the scale of community uptake and government efforts around vaccine distribution and information campaigns.

Informally employed people [cannot] observe precautions because they sell their stuff in crowded areas – Hopley, Harare (S1)

Apart from results of testing, other sources of information for cases and deaths varied between communities (see Figure 7), with some common threads, including community rumours and direct information from the family of the infected person (all cities), local leaders and community health workers (Harare, Kampala and Lilongwe), and observing that burial procedures that differed from the norm (Harare, Lilongwe).

Most people see Covid as a gone case, so they have dropped precautions – Kampala Central Division, Kampala (S1)

[7] We only asked respondents about the availability of nearby testing.

Figure 3: Recent Covid cases and deaths in the settlements

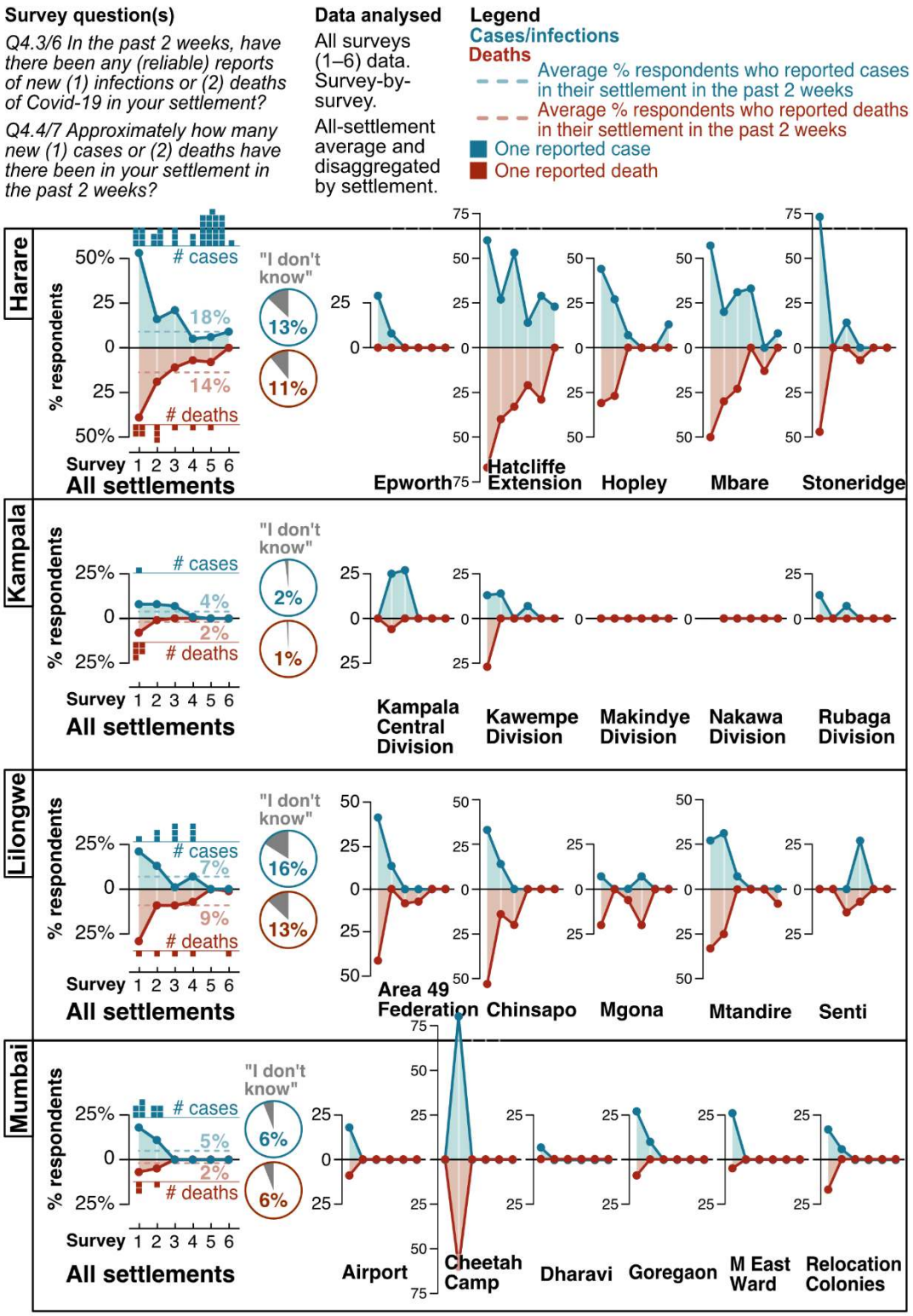


Figure 4: Recent Covid testing in the settlements

Survey question(s)

Q4.1 In the past 2 weeks, has there been testing of any kind for coronavirus in your settlement (by any organisation)?

% respondents who said 'yes'

Data analysed

All surveys (1–6) data. Survey-by-survey.

All-settlement average and disaggregated by settlement.

Legend

All participants

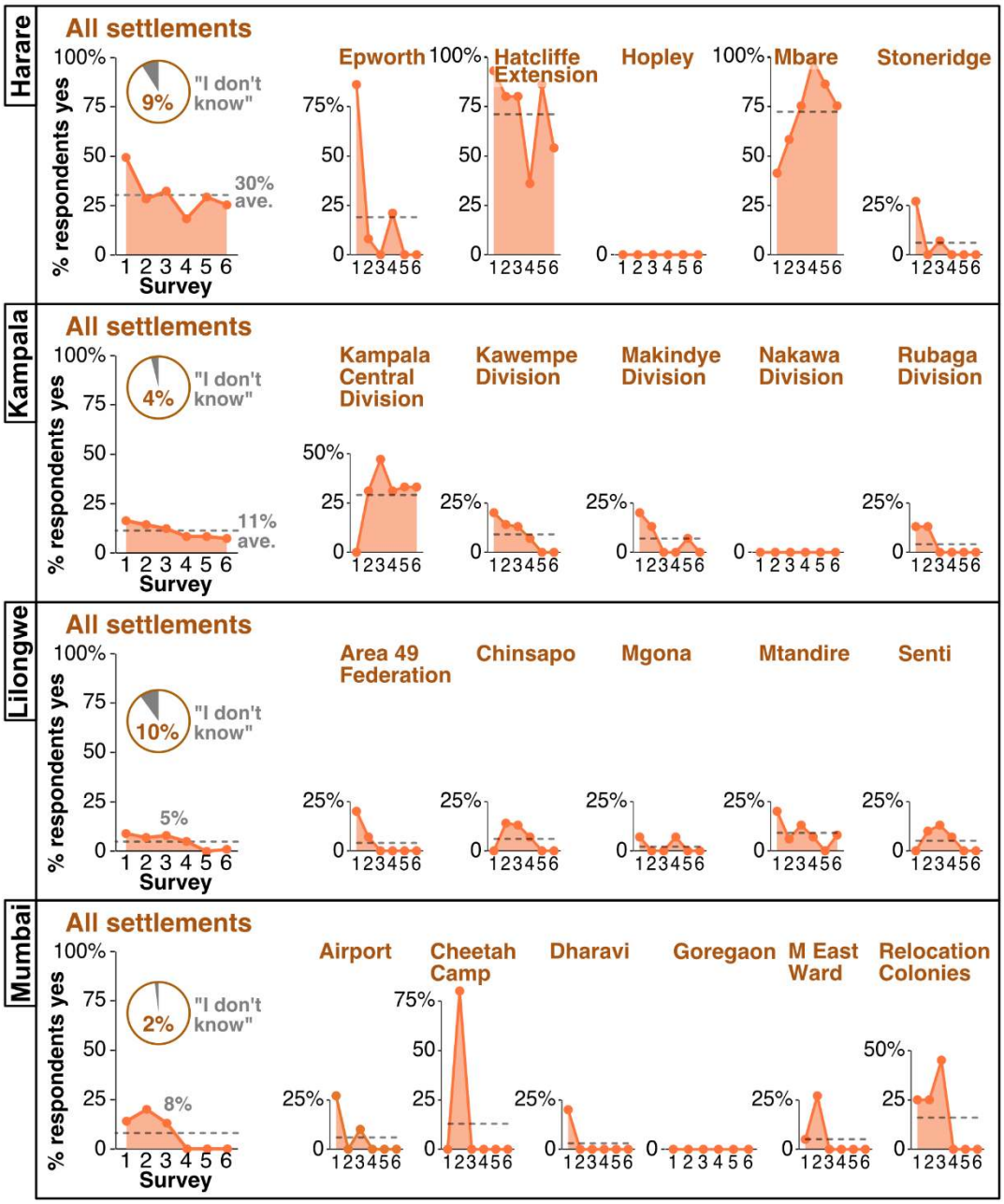


Figure 5: Covid testing: Types, agencies and venues

Survey question(s)

Q4.1 In the past 2 weeks, has there been testing of any kind for Covid-19 in your settlement (by any organisation)?

Q4.2 What kind of testing and by who? Where and at what type of venue?

Data analysed

All surveys (1–6) data.

All-settlement average, by city.

Legend

Yes, recent testing in my settlement

No

Don't know

Test type

Test venue

Test agencies

Number of mentions (size relative across all cities/ responses)

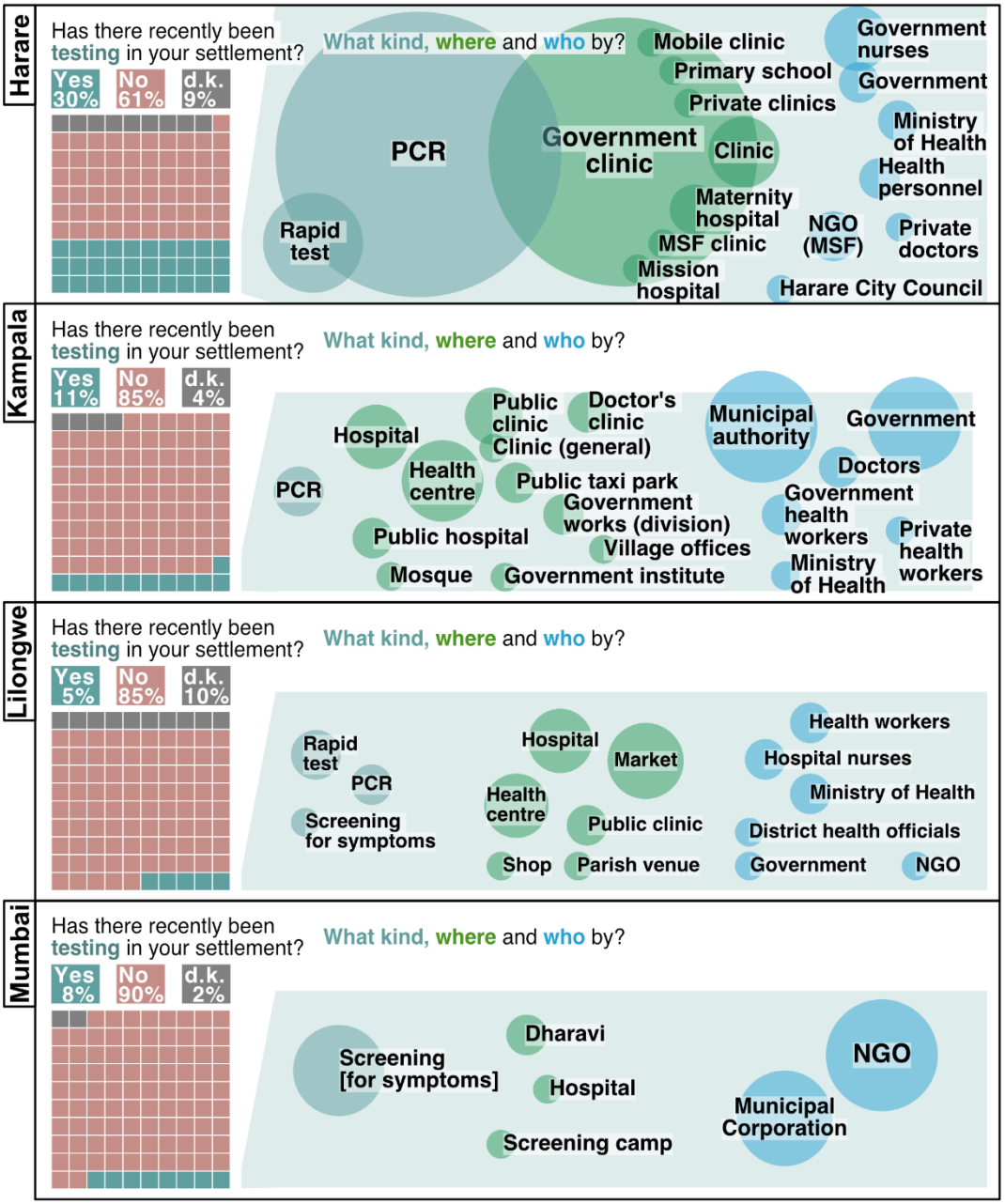
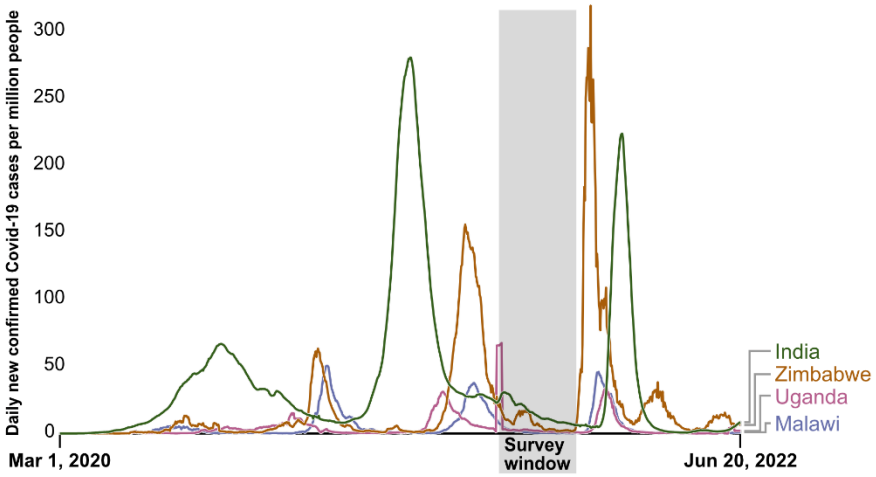


Figure 6: National Covid infection rates, March 2020–June 2022



Daily new confirmed Covid-19 cases per million people (seven-day rolling average). Due to limited testing, the number of confirmed cases is lower than the true number of infections. Source: Johns Hopkins University CSSE Covid-19 Data; Our World in Data.

Figure 7: Sources of information for local cases and deaths

Survey question(s)

Q4.5 If not from testing, what is the source or sources of information for the number of new cases?

Q4.8 What is the source or sources of information for the number of new deaths?

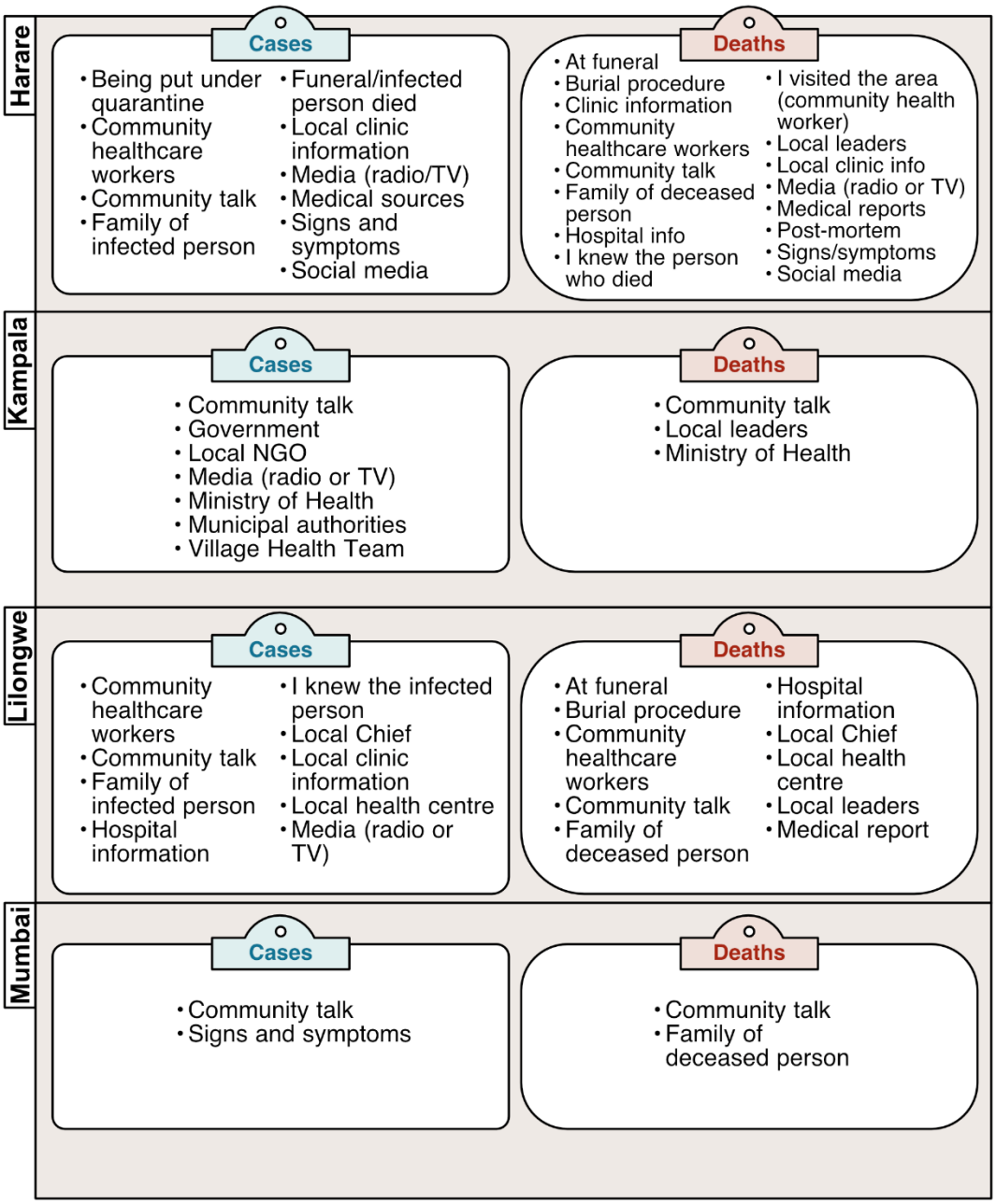
Data analysed

All surveys (1–6) data.

All-settlement aggregation, by city.

Legend

Cases/infections
Deaths



5. What pandemic control measures are currently in place? What have been the economic consequences for communities of pandemic control measures?

This section looks at the wider socioeconomic consequences of the pandemic – on the community leaders, their grassroots networks and their communities. We also asked about control measures in place in the settlements during the survey window.

People are struggling to make ends meet. So while there is much talk about vaccines, there should also be much effort to help people to be [financially] resilient in the face of Covid-19 – Mtandire, Lilongwe (S6)

As many of the community leaders made clear, the pandemic's health impacts on informal settlement communities have not been insignificant. However, the results of state responses and shutdowns – often implemented without adequate consideration of the poverty consequences – have been very serious. First lockdowns in particular brought a huge share of many cities' economic activity to a halt almost overnight, leaving people suddenly without a way to make a living. Lost income and employment, travel restrictions limiting access to markets and earning opportunities, and the rising cost of staples have been major drivers of impoverishment for informal settlement communities during the pandemic (Lenhardt 2022). Livelihoods, education, businesses, relationships and care responsibilities have been severely affected, disproportionately so for young people, women, migrants and informal and self-employed workers (ILO 2021).

Many have [got the vaccine] because now people fear a third lockdown – Rubaga Division, Kampala (S6)

This year, my savings have gone down by over half. My business is not working. My husband was retrenched. The little we are getting every day has to serve the family – Chinsapo, Lilongwe (S6)

Communities living with insecure land tenure have been especially badly hit, being more likely to lack basic services such as water and electricity or to be forced to pay relatively higher prices for these to informal suppliers, further undermining capacities to manage pandemic pressures (Corburn et al. 2021). In undocumented areas, it is harder for authorities to establish impacts and plan responses, and communities with perceived illegal residence may not be factored into formal relief efforts or qualify for social safety nets, where these exist (Cities Alliance 2021). Income loss or demolition can lead to eviction, worsening Covid-19 transmission risks as households resort to sharing even more cramped spaces or migrants return to rural homes (Dupraz-Dobias 2020).

A lot of informally employed people have been affected through demolished workshops, food stalls and markets – Hopley, Harare (S1)

5.1. Employment: Formal and informal workers

Those that are still working do not have as much work as they used to have – Mtandire, Lilongwe (S6)

Figure 8 shows the dramatic loss in earning opportunities in the study areas. While the situation varies between cities and settlements, this is the case for many people who normally work, both informally and formally. However, informal workers are hit harder in almost all settlements.

Initial problems are now resolved, most [people] are back at work – Dharavi, Mumbai (S6)

This is clearly not a static matter, and our data findings show some changes in the situation, even over the relatively short survey period. For formal workers in Harare, Kampala and (to a lesser extent) Lilongwe,

things appear to worsen over time between August and November; for informal workers in these cities, there is little change in an already dire situation. The data from Mumbai is strikingly different, however, with community leaders reporting that by late November almost everyone normally economically active in their settlements was back working; this was in parallel with high rates of vaccination in the city and a relaxing of some restrictions for the fully vaccinated, notably local train travel.

My business challenges are far worse and right now that's the only urgent issue to address. I will go for Covid-19 vaccine later – Mtandire, Lilongwe (S6)

5.2. Community leaders' own experiences

We asked the community leaders about their own occupation types and changes in income over the course of the pandemic (see Figure 9). A vast majority (87%) across all occupation groups said their income had been negatively affected. A smaller number, varying by city (Mumbai 21%, Lilongwe 16%, Kampala 6%, Harare 5%), said their income had not changed or had changed positively over the pandemic. Self-employed people were the largest group and worst affected (n=158 across all cities, of which 93% said their income had been negatively affected), but even 69% of formally employed respondents had been negatively affected.

I am a vendor, but now I sell at my gate because my market stall was demolished – Hopley, Harare (S1)

I used to have two jobs but now I have one – Rubaga Division, Kampala (S1)

[During the pandemic] I have had access to opportunities, working to support the health ministry – Mgona, Lilongwe (S6)

5.3. Savings

Networked neighbourhood-level women-led savings groups are a cornerstone of SDI federations of the urban poor. The existence of savings to fall back on can boost households' ability to meet basic needs while weathering crises. In the face of the pandemic and the multiple existing challenges it has compounded, federations across the global SDI network have demonstrated the central role that organised communities can play in responding to crises and ensuring humanitarian efforts reach those in need (Cities Alliance 2021) – usually in the absence of social protection. Strengthened safety nets through networks of women-led savings groups have been a key component of these efforts, alongside others, such as addressing basic sanitation needs, collecting data to tailor responses, and raising awareness online and in neighbourhoods. However, even though savings constituted a safety net, many groups were badly affected by the pandemic. Research is ongoing to understand both the nature of the pandemic's impact on savings groups and to document the ways in which they have helped households weather the multiple crises aggravated by the pandemic.

Some of our members come from other areas [so] we could not save together Mbare, Harare (S1)

[The group] have not reached half the savings we had this time last year. Members have not been able to borrow enough to invest in [their] businesses – Chinsapo, Lilongwe (S6)

We dropped from [a saving target of] US$2 a week to 50 cents per person – Hopley, Harare (S1)

We asked respondents about the pandemic's effects on their savings activities and those of their savings groups (see Figure 10). In the three African cities, a majority were members of savings groups, and across all cities, nearly all of those who saved in groups reported that both their

and their groups' savings had been negatively affected. Many members of respondents' savings groups, including themselves, were no longer saving because their businesses are down and they had no earnings to save with (Kampala, Lilongwe). Some were still saving, but much less or less frequently (Kampala, Lilongwe), or drawing down on their savings for household basic needs (Harare) or to generally lessen the effects of the pandemic (Lilongwe). Some groups had collapsed, could no longer meet their monthly saving targets, or had had to recruit members from other areas, for lack of active savers nearby (Harare). Others were no longer able to loan money to their members for business investments (Lilongwe).

I had to use some savings for food consumption – Stoneridge, Harare (S6)

We have resorted to not sharing [out] our [group] savings at end of December as usual. We will share in March to give people more time – Chinsapo, Lilongwe (S6)

5.4. Measures and restrictions during the survey period

We asked about controls in place during the survey period itself, to understand ongoing challenges communities are facing (see Figure 11). Policy responses like curfews, school/workplace closures and other measures meant to limit public exposure to disease are aimed at restricting movement and force people to stay at home. Curfews in particular can pose challenges to people whose employment or income strategies require work or travel outside of "normal" hours or for long hours, such as food stall vendors, informal traders and domestic workers.

There is a curfew but it is not taken seriously. Many young people just keep moving the whole night – Area 49 Federation, Lilongwe (S1)

[Curfew] has done more harm than good … it has caused a lot of theft and poverty – Rubaga Division, Kampala (S6)

In Kampala, a curfew remained in place throughout the survey window, to be lifted two months later, in January 2022. All Harare community leaders reported lockdowns and/or curfews in August but by November these had been lifted in many settlements (curfews in Zimbabwe were later re-imposed, with the latest controls relaxed in June 2022). Control measures were largely absent in Lilongwe and Mumbai during the survey window.

There is an intense transport challenge in our settlement. People end up getting transport after 6pm and get home [after curfew] 8pm – Hopley, Harare (S1)

To further understand the official pandemic response picture at that time, we also asked respondents about any kind of emergency assistance being provided during the survey window to some or all residents in their settlements, for example by the government or NGOs. Here, the findings are both incomplete and inconclusive: in Harare, Lilongwe and Kampala, many community leaders said they did not know if or what support measures were still in place in their areas, and those who did mostly said not much was happening. Mumbai community leaders were more certain (see Figure 12), with a clear change between survey 1 in August, when three areas had a range of humanitarian assistance being provided, and November, when all areas reported no crisis assistance.

[Some] organisations helped with food aid in 2020, but they are no longer in our community – Hopley, Harare (S1)

No support now, only during lockdowns – Mumbai M East Ward (S6)

Figure 8: Impact on work and employment (informal and formal)

Survey question(s)

Q7.9/10 Of those people who are normally working (a) formally and (b) informally in your settlement, how many are no longer working?

Data analysed

Survey 1 and 6

All-settlement average and disaggregated by settlement.

"I don't know" survey ave.

Legend

- Nearly all are no longer working
- Most people are no longer working
- About half of people are no longer working
- Most people are working
- Nearly everyone is working

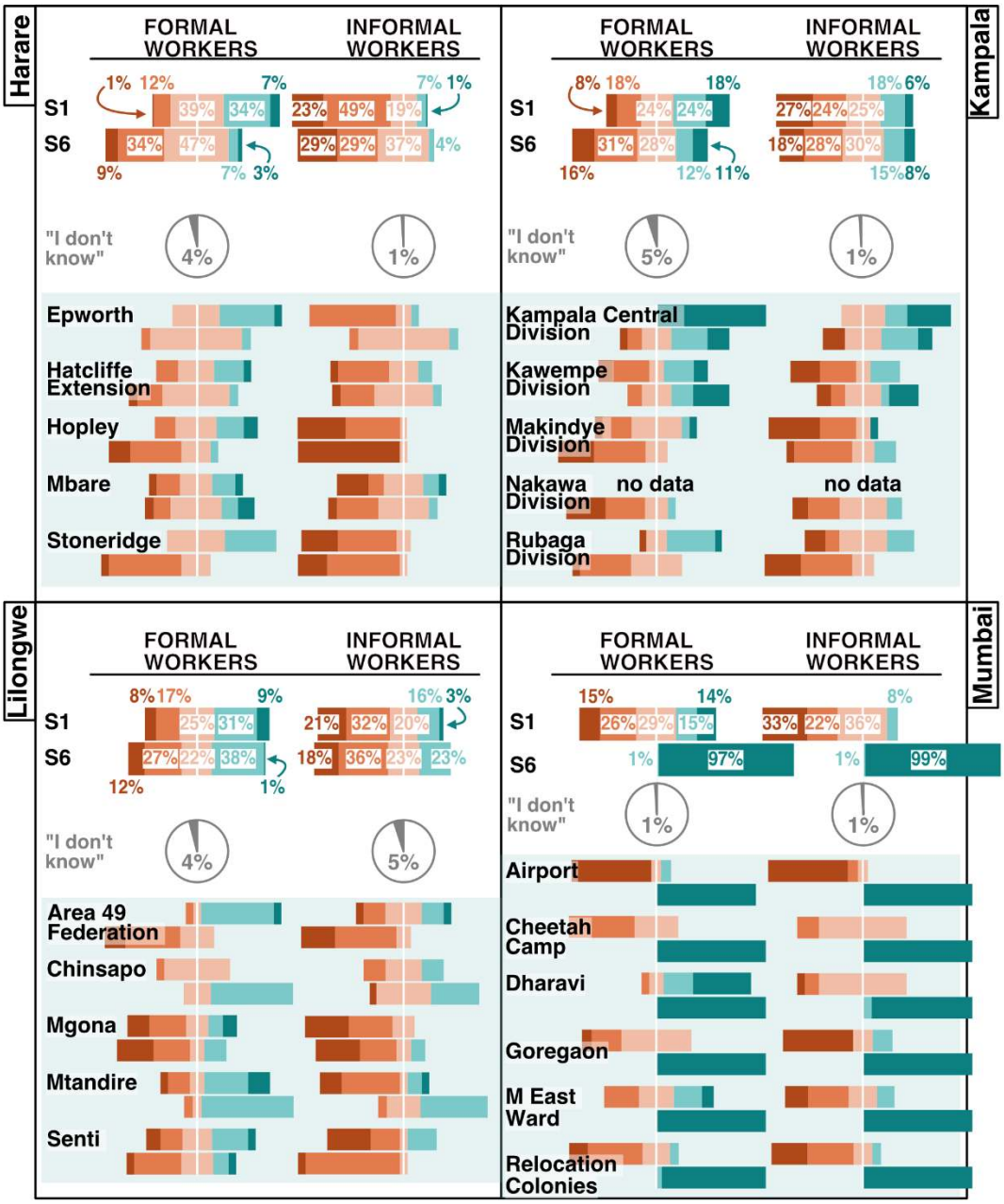


Figure 9: Respondents' occupations and income impact

Survey question(s)

Q7.11 About you: are you formally / casually / self-employed / prefer not to say? (Select all that apply)

Q7.12 Has your income been affected either positively or negatively, by and during the pandemic?

Data analysed

Survey 6 data.

All-settlement average, by city.

Legend

Positive | No effect | Negative

Casually employed
Formally employed
Self-employed
Prefer not to say/Other

#% - proportion of all city respondents

#%, #% etc - proportion of each city occupation group

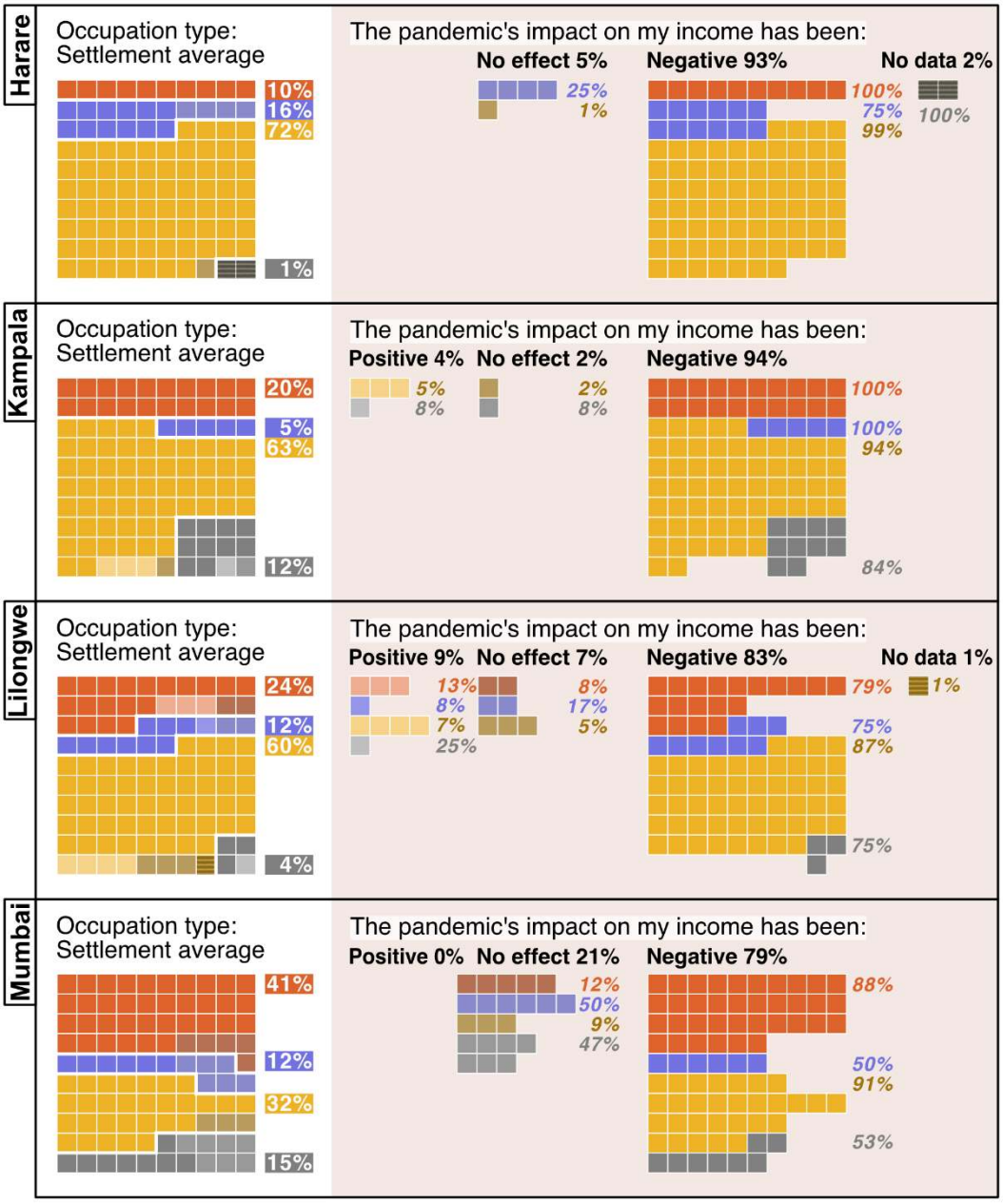


Figure 10: Respondents' savings and savings groups

Survey question(s)

Q7.13 Are you a member of a savings group?

Q7.14 Do you save?

Q7.15 How have your own savings been affected by the pandemic?

Q7.16 How have your savings group's savings been affected by the pandemic?

Data analysed

Survey 6 data.

All-settlement average, by city.

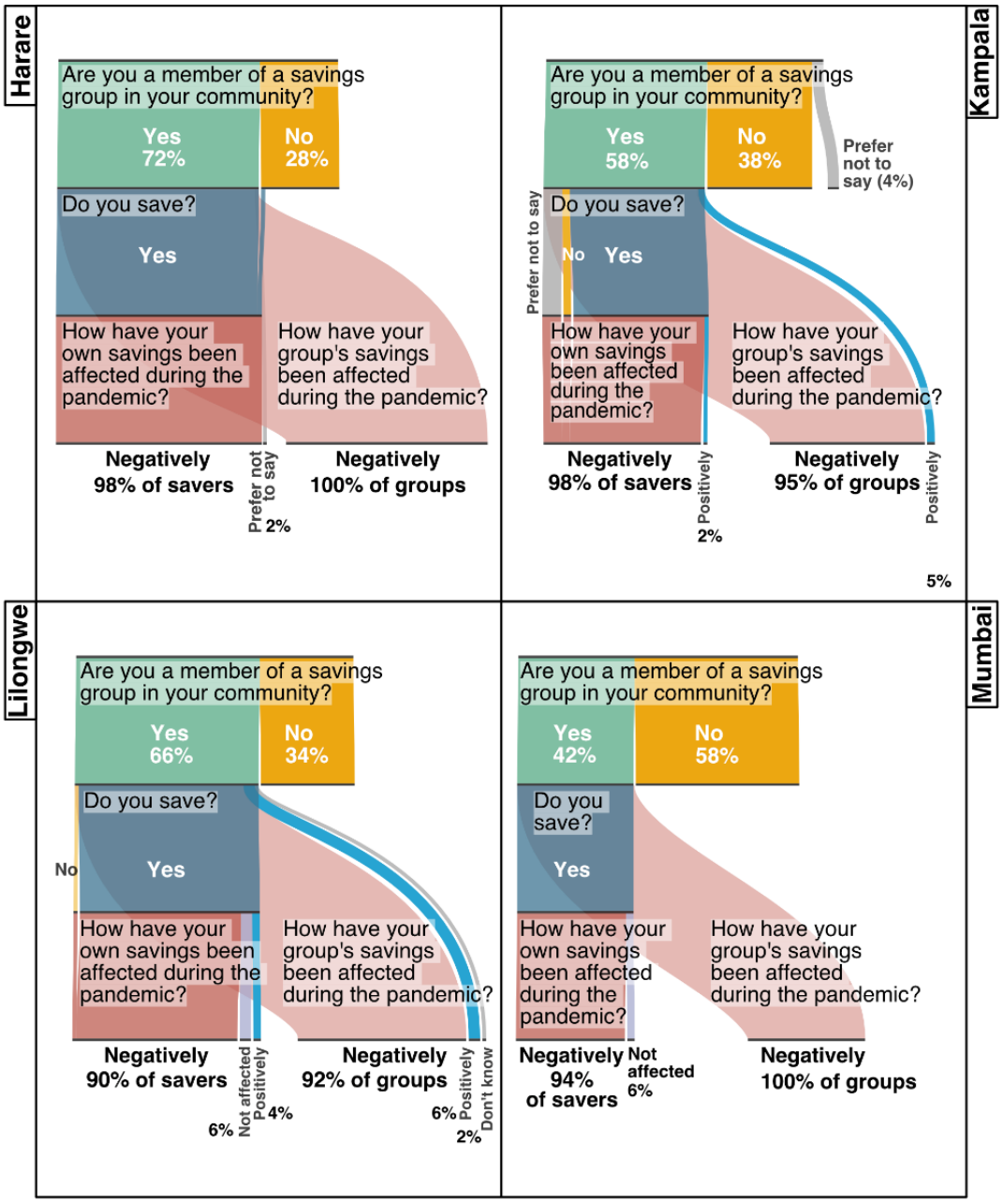


Figure 11: Current lockdown and curfew situation

Survey question(s)

Q7.4 In the past week, has there been an enforced lockdown or curfew in your settlement?

Q7.5 What time does the curfew start and end?

Data analysed

Survey 1 and 6

All-settlement average and disaggregated by settlement.

Legend

- Lockdown
- Both lockdown and curfew
- Curfew
- Neither lockdown nor curfew
- Don't know

Curfew times show median response. Curfew times only shown when a majority of respondents reported curfew

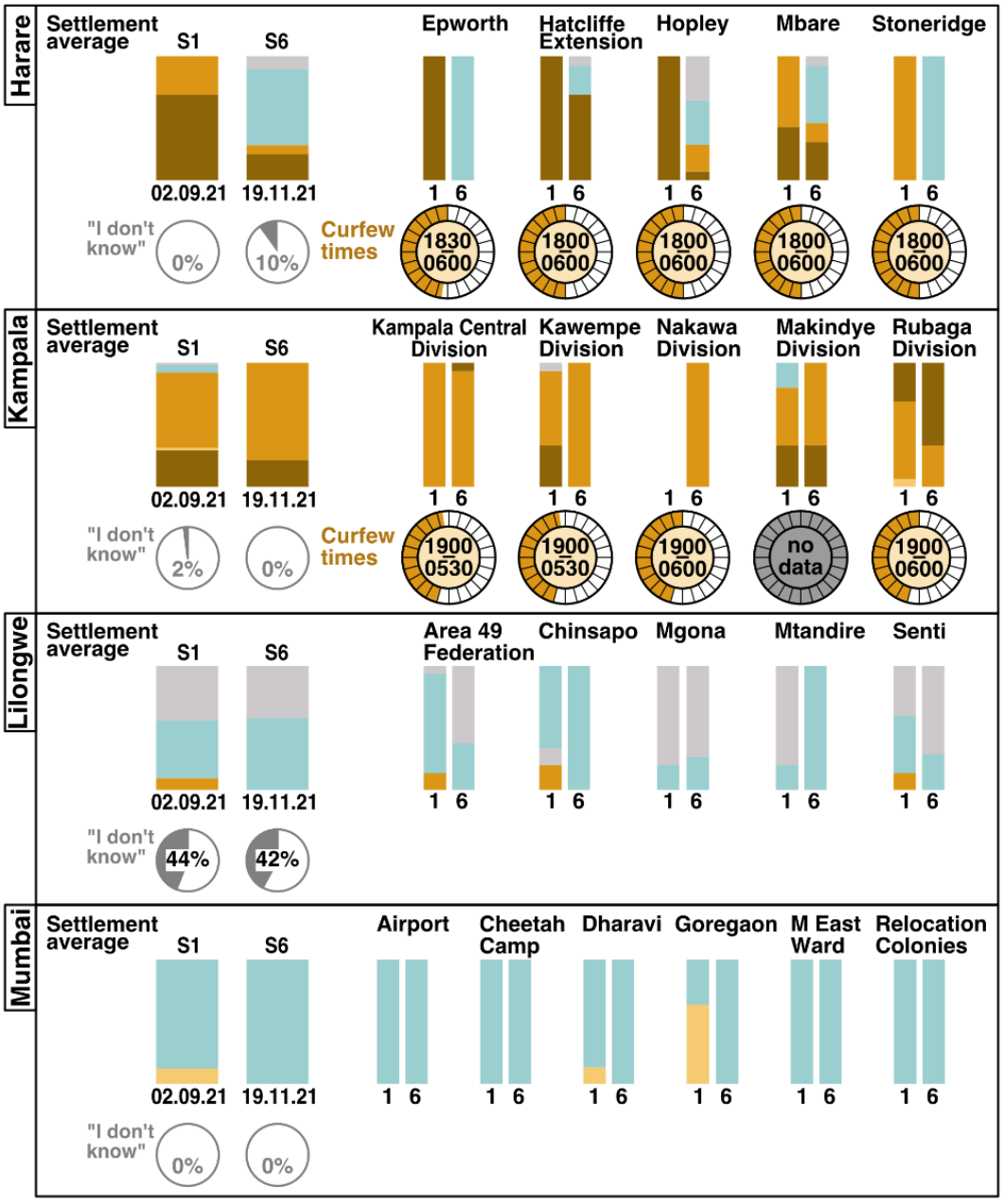


Figure 12: Current emergency assistance

Survey question(s)

Q7.6 In the past week, were any activities happening in your settlement, aimed at helping to deal with the pandemic-related economic emergency? (Select all that apply) (Petal length indicates % respondents who said a type of assistance was taking place in their settlement)

Data analysed

Survey 1 and 6

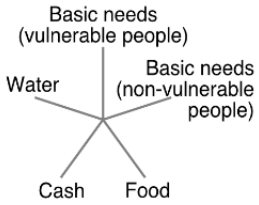
All-settlement average and disaggregated by settlement.

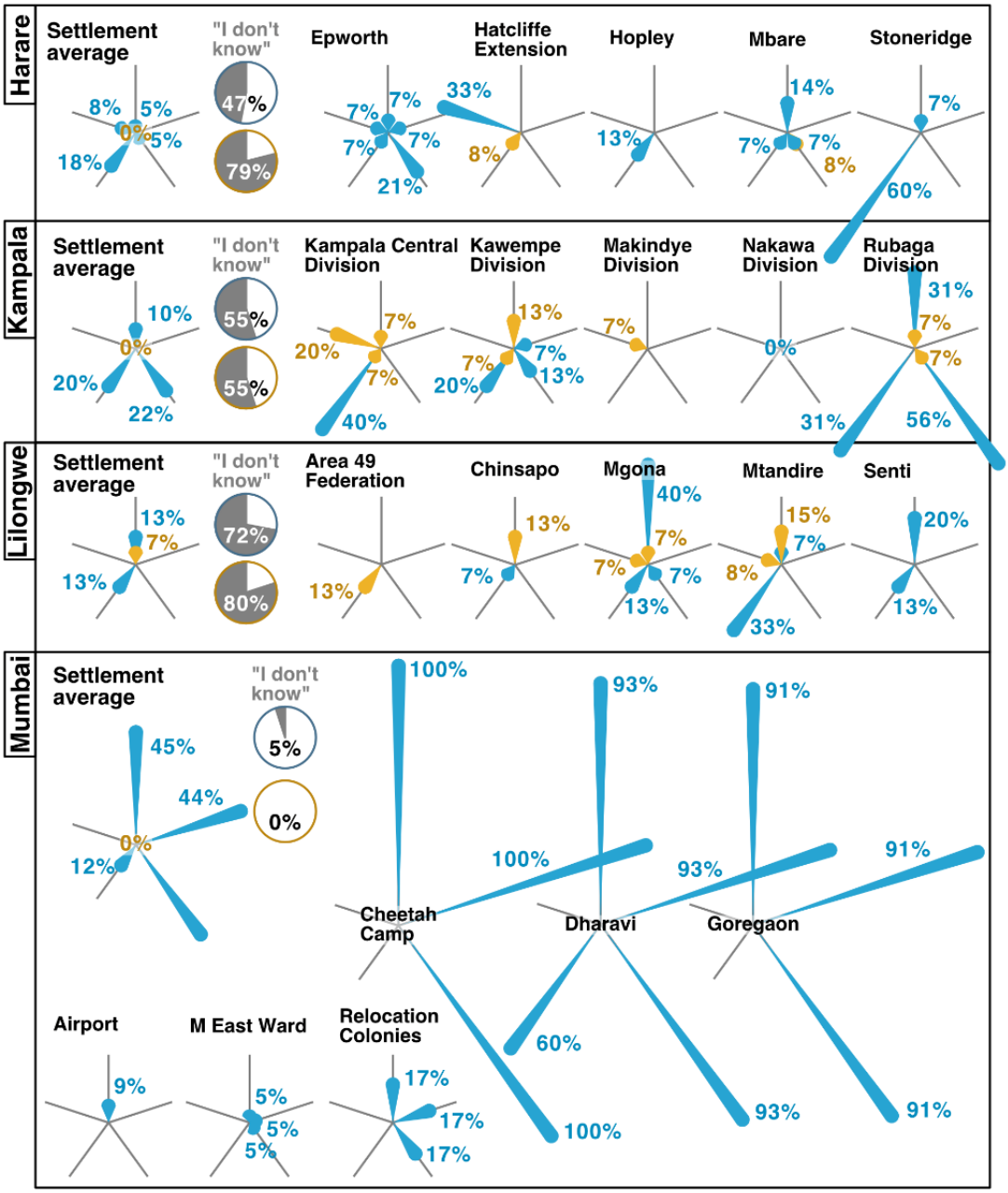
Legend

Survey 1: 02.09.21

Survey 6: 19.11.21

Responses only displayed when over 5% of settlement respondents reported an assistance activity





6. What does the Covid-19 vaccination programme look like from the viewpoint of informal settlement communities?

Here we document how the Covid-19 vaccination programme was being implemented in each city during the survey period, from the perspective of informal settlement communities. Are vaccines accessible to informal settlement communities in terms of venue type/proximity, eligibility and other factors? What are the specific details of the rollout: vaccine types; cost to the individual; and the process for getting a second dose, if this is needed to be fully immunised?

[The centre] is always crowded and many return without getting vaccinated – Mumbai M East Ward (S3)

[We] need a vaccination centre in the settlement to … avoid travelling long distances – Stoneridge, Harare (S6)

[It] is taking place inside the settlement, so many people have got vaccinated – Kampala Central Division, Kampala (S4)

Last time I went, the vaccine was finished. I will go again soon – Chinsapo, Lilongwe (S1)

Many people prefer going to other big hospitals because some days there is no vaccine at [the local clinic] – Mtandire Lilongwe (S5)

The nearest [vaccination] centres have been closed. The available centres are far away from our settlement – Area 49 Federation, Lilongwe (S5)

With a centre within our locality coordinated by the local leadership, most get it here – Relocation Colonies, Mumbai (S3)

6.1. The rollout

We asked if an official Covid-19 vaccination programme was happening in each city and, as a follow-up question, whether it was "available and accessible" to communities (see Figure 13). In Harare and Mumbai, almost all community leaders said public vaccination programmes were in place and accessible to their communities. However, some settlements in both cities experienced short-term issues of no/low availability of doses at local centres across one or more survey iterations. In Kampala and Lilongwe, reports of a functioning and accessible vaccine rollout vary more, by settlement and by survey, suggesting patchier vaccine distribution and/or sparser public information. In Kampala, an average of 13% of respondents said no rollout at all was happening and a further 5% that the existing rollout was inaccessible to their communities; the latter group were largely from one area (Makindye Division). In Lilongwe, 29% of respondents to the first survey said no rollout was happening in their city at all, decreasing to an average of 6% across the remaining surveys.

As mentioned in Section 4, Zimbabwe's and India's vaccine supplies have been relatively consistent and abundant –albeit at times still insufficient to meet demand – when compared to Uganda and Malawi. Our findings in this study are that a low and/or unreliable supply of doses limits both a rollout and policymakers' willingness to invest resources or political capital in public vaccination campaigns.

6.2. Where are people getting vaccinated?

Figures 14a and 14b dig further into vaccination accessibility, looking at type of venues and proximity to communities. Can people get vaccinated in/near their settlement or do they have to – or choose to – go elsewhere?

In general, types and diversity of venues point to different distribution strategies. In Kampala and Mumbai, a range of venues were adapted to

be government vaccination centres, including schools and churches. In Harare, the vaccination programme maps more closely onto existing healthcare sites; and this is also to some extent the case in Lilongwe, with mobile vaccination vehicles later beginning to be introduced in some informal and underserved areas.

People have to move to a different parish in order to seek vaccination – Makindye Division, Kampala (S3)

Unsurprisingly, there are big differences between settlements within a city. For example, one Harare settlement in the survey (Stoneridge) is without a health centre and residents had to travel greater distances to be vaccinated. In Lilongwe, two settlements (Chinsapo and Mtandire) are situated near to vaccinating public hospitals, while residents in other areas who wanted to be vaccinated had to walk or otherwise travel often discouragingly long distances.

Two of my friends decided to have the vaccination faraway because they did not want people [here] to know they had it – Chinsapo, Lilongwe (S3)

Soldiers and nurses from our neighbourhood are vaccinated at their workplaces – Stoneridge Harare (S4)

Figure 15 looks into people's reasons for getting vaccinated outside their local area. Many people have been vaccinated at their workplace or for work-related reasons (Harare, Kampala, Mumbai), or near to their workplaces for convenience (Lilongwe). Low local availability or long, off-putting queues at centres nearer to home were also frequently cited reasons why people went further afield (all cities).

My neighbours do their businesses outside Mtandire and so prefer to get vaccinated where they spend most of their time – Mtandire, Lilongwe (S3)

To further understand how established the rollout was, we asked respondents *when* vaccination in/near their settlements first began (see Figures 14a and 14b). This was uneven in all cities, with centres in some settlements starting many months earlier than others, perhaps as low stocks limited early distribution efforts, even in the major cities. In Mumbai and Kampala, vaccination had not begun in/near any of survey settlements by March 2021, at the start of both countries' second waves and with severe impacts felt in urban populations. Uganda's rollout reached the surveyed Kampala settlements between July and September 2021, at the same time as supply began to improve and eligibility was extended to more groups in the population.

[I] got vaccinated at a clinic outside our settlement … avoiding the long queues – Hopley, Harare (S1)

The process started last week – Kawempe Division, Kampala (S1)

Over the course of the survey window, we found signs that some city authorities were beginning to try to address inaccessibility issues, for example introducing some mobile clinics in Lilongwe, and establishing more centres nearer to communities in Kampala (see section below on changes during survey window). Again, this was happening in parallel with improvements in national vaccine supply.

Before, vaccines were not available for everyone but now everyone is entitled – Kampala Central Division, Kampala (S6)

6.3. Eligibility and accessibility

Shopkeepers, street vendors are ever so busy. They don't have time to go for vaccination – Nakawa Division, Kampala (S6)

By early September 2021, all adults in India, Malawi and Zimbabwe were eligible for Covid vaccines (see Figure 16). At the start of the survey window, Uganda's policy was less clear and respondents reported that, in a context of limited and irregular supply, particular groups were still

being prioritised, including over-50s, the military, healthcare workers and teachers; but by the final survey, most said that all adults were now eligible.

Centres do not vaccinate those without identity cards – S6 Harare Stoneridge

We also asked respondents if there were particular groups in their community who were eligible and willing but had difficulty accessing vaccines (see Figure 17), beyond generally identified accessibility challenges (see Figures 14a and 14b). Many said that disabled people and elderly people faced mobility challenges accessing clinics (Harare, Kampala and Lilongwe), which were exacerbated if centres were not nearby. Working people also struggled to make time (all cities; in Mumbai only in the early days of the rollout when centres were not close by, and with the increase in centres this was no longer seen to be a problem). Other limiting factors for particular groups included: peer pressure on those belonging to anti-vaccine churches (Lilongwe); people lacking national ID cards (Harare and Kampala); and women whose husbands do not want them to be vaccinated (Lilongwe).

There are people who come early at the market to sell products from dawn and sometimes end their day after 5pm. They do not have the time. Due to problems with businesses nowadays, it is hard to leave – Chinsapo, Lilongwe (S6)

I know a lady who really wants to be vaccinated but is afraid of being judged by people [from her] church – Chinsapo, Lilongwe (S6)

6.4. Vaccine types

The data about which vaccine types are available to communities (see Figure 18) is less of a routine line of enquiry than might be apparent, because it intersects with issues around misinformation and (lack) of understanding about how vaccines work. For example, tendencies to prefer or reject particular vaccine types were evident in the Kampala and Lilongwe communities. Uganda and Malawi are dependent on COVAX, with perhaps less influence on which vaccines they receive from the international community, at least in the early stages of the global rollout. Malawi has been recipient to two main vaccine types, AstraZeneca and Johnson & Johnson, both of which were at one stage portrayed as especially controversial by Western media, contributing to already high levels of vaccine mistrust and misinformation. As mentioned in Section 2, Uganda has received an unusually large number of different types of vaccine.

The many vaccines on the market have scared people on which one to choose – Kampala Central Division, Kampala (S1)

People are looking for Sputnik. They believe it is very strong – Mbare, Harare (S3)

6.5. Second doses

Where these were needed to complete an initial course, we sought to understand the process around second vaccines (see Figures 19a and 19b). (Future research plans are to follow this up by exploring rollout of booster programmes.) We asked respondents what they knew about availability, the appointment process and community uptake of second vaccines.

A friend … went to a clinic in [the next Area] because he wanted Johnson & Johnson, not AstraZeneca – Chinsapo, Lilongwe (S4)

Of late the second dose has been scarce – Mbare, Harare (S6)

In Mumbai, Harare and Kampala, second vaccines were largely available to communities, although some respondents mentioned instances where

second doses became unavailable in particular centres for a few weeks (Harare). In Lilongwe, Johnson & Johnson was the most popular and common vaccine type in use during the survey window, requiring only one dose.

Common practices for arranging second vaccines included: second dates set at first vaccination and written on a card (Harare, Kampala, Lilongwe); flexibility around (public) venue and/or both doses available at the same centres (all cities); SMS reminders (Lilongwe); mobile clinic returns to the same settlement timed with second-dose window (Lilongwe); and scheduled clinic days just for second doses (Kampala). The time required between doses varied with vaccine type, from two to three weeks in Harare for Sinovac and Sinopharm, to 12 weeks in Mumbai for Covidshield. In Harare and Kampala, respondents flagged the need to bring ID, a potential barrier to those without it.

In general, community leaders reported that people in their areas were willing to get second vaccinations. In Mumbai, vaccine restrictions on local train travel were only lifted with two-dose protection – a strong motivation to get fully covered as quickly as possible. In Lilongwe, however, many respondents said people were getting "relaxed" and going back many weeks later than the advised time. Where respondents said second dose uptake was low/declining, contributing factors were thought to include publicly available statistics about low infection levels (Harare, Lilongwe) and misinformation about second dose side-effects (Lilongwe).

Some are willing, while others have relaxed. I know people who have spent over three months after getting their first dose but have [still] not gone for the second dose – Chinsapo, Lilongwe (S6)

Some bribe so that they are catered for immediately – Kawempe Division, Kampala (S1)

My daughter went to pay a private hospital to get vaccinated, trying to avoid long queues – Hopley, Harare (S1)

People travelling outside the country who do not want to get vaccinated are bribing hospital personnel to give them vaccination certificates – Chinsapo, Lilongwe (S3)

6.6. Alternatives and cost to the individual

In all cities, Covid-19 vaccines available to residents in the study areas through government-run facilities were free to the individual at point of service. A very small percentage of respondents in Harare, Kampala and Lilongwe also said that vaccines were available in alternative ways to the official rollout – for a fee, either privately or illegally (Harare 5%, Kampala 4%, Lilongwe 2%) (see Figure 20). In Harare during the survey window, vaccines were available in private hospitals for a capped fee of up to US$5, a newly introduced option intended to alleviate crowding at public centres. Only a few respondents were aware of this option – unsurprising, since all study settlements are predominantly served by government healthcare facilities. One or two Harare respondents also mentioned churches vaccinating their members for a small fee. In Lilongwe, vaccine certificates appeared to be quite widely available to the unvaccinated, on the black market.

In Mumbai the situation was different (see Figures 20a, 20b, 21a and 21b). During the study, vaccines were widely available privately and for a

People who do care work, their employers want them back to work and fully vaccinated, so they are paying for them to get vaccinated [privately] – Goregaon, Mumbai (S3)

Private hospital, clinics, [vaccine drives] by trusts … there are many [ways] other than those set up by the municipal ward office – Relocation Colonies, Mumbai (S3)

It is really hard to get the data, even from medical personnel who are also friends or neighbours. The Covid-19 vaccination

capped cost. Indian manufacturers could sell up to 10% of their product on the domestic private market and the remainder to the federal government at a reduced price, which then made allocations to states in a process widely seen to be politically motivated. Demand still often outstripped supply, and the survey data contains many complaints of long queues at public centres. Many respondents knew people in their community who had been vaccinated privately, usually paid for by employers. An emerging trend in Mumbai during the survey window was for charitable donors, philanthropists or companies fulfilling their state-mandated CSR responsibilities to purchase private market vaccines and donate them to local government or NGOs, for free or discounted distribution in low-income areas.

is being treated like a secret, even by those who are going for vaccination. They do not want others to know that they have had the Jab – Chinsapo, Lilongwe (S4)

Almost 500 people get vaccinated per day at the local clinic – Hopley, Harare (S1)

At [our local] centre about 200 doses are given every day – Airport, Mumbai (S4)

6.7. Uptake numbers are inconclusive

When asked, many respondents, including community health workers, were unable to estimate rates of vaccinate uptake in their communities (see Figure 22). The percentage of respondents who said “I don’t know” were: Lilongwe, 76%; Kampala, 70%; Mumbai 55%; Harare 30%. This reveals a clear lack of publicly available locally specific statistics (although Mumbai community leaders mentioned local vaccination numbers posted on health centres.) If we just look at those settlements where over half of respondents were willing to estimate recent rates of uptake, numbers given ranged widely between and within settlements: from 30to 500 people vaccinated in Harare, and 350–3,000 in Mumbai (number of residents vaccinated in the past two weeks, median response per settlement across all survey iterations). Due to the high levels of uncertainty among respondents, the data was not adequate for tracking change over the course of the study (but see below for a discussion of the qualitative data on uptake changes during the survey window).

At [my local clinic] there were at least 20 people getting vaccinated on days vaccines were available – Mtandire, Lilongwe (S6)

Many people are willing to be vaccinated than before after seeing that there's no side effects – Nakawa Division, Kampala (S6)

6.8. Observed changes during the three-month survey window

In the final survey iteration, we asked respondents about any trends they had observed over the survey period (see Figures 23a and 23b). Their reflections largely revolve around changes in uptake, accessibility and availability. Overall, uptake appeared to have improved in all cities. Queues were reducing in the places where this was the biggest issue (Harare, Mumbai), with more and nearer centres (Lilongwe, Kampala) improving accessibility for marginalised communities. However, many respondents also observed instances where fewer people were getting vaccinated, because with falling cases and deaths, the threat from Covid-19 became less of a priority.

There is an increase in the uptake and availability of the vaccine, but it’s difficult to access it, as centres are overcrowded – Stoneridge, Harare (S6)

We had different information about the vaccine but as time moved, we now have clear information – Kampala Central Division, Kampala (S6)

In Harare, availability appeared to have improved together with accessibility. Respondents reported that queues had become shorter and crowds reduced at centres, and more centres were established. Uptake had correspondingly improved in four of the five settlements; however, in Hopley, respondents said that fewer people were getting vaccinated and it was not being taken as seriously.

Most people are getting vaccinated right in the settlement, this has helped improve uptake – Mgona, Lilongwe (S6)

In Kampala, the opening of more centres, nearer to communities had improved accessibility during the survey window. Uptake also improved in many areas and community leaders observed that people were less reluctant as they began to see evidence that the vaccine was safe. However, Kawempe respondents said uptake had declined. Availability improvements were noted in some areas, alongside availability issues, due to rising demand in other areas. There had also been changes in the type of vaccines available to communities.

Despite accessibility improving, vaccine uptake is reducing. Due to the decrease in deaths and new cases, people are no longer scared – Senti, Lilongwe (S6)

In Lilongwe, three major changes dominated the survey window: improvements in accessibility through more centres, including mobile clinics; improved uptake in many areas by bringing vaccines closer to communities; and the uptake uptick may also relate to the rollout of a new vaccine type, Johnson & Johnson, easier to get because only one dose is required and preferred over AstraZeneca, the other main vaccine type available in Lilongwe and which has more misinformation and stigma attached to it. At the same time, many Lilongwe respondents noticed vaccination rates reducing in their communities (especially Area 49 and Mgona), reporting that people were no longer taking the need for Covid-19 vaccines seriously and associating this with sharp declines in officially recorded Covid-19 cases and deaths.

First shortage, then more vaccines were available, and now most are vaccinated – Relocation Colonies, Mumbai (S6)

I am grateful for the opportunity to take part in [this] survey. Our talk every two weeks helped me to be alert and observant of issues about Covid-19 disease and the vaccine. I was motivated to reach out to many people from various backgrounds, informing them about the vaccine, encouraging them to go for it and to not just believe any negative information – Mtandire, Lilongwe (S6)

Changes observed in Mumbai were fairly straightforward and in line with data elsewhere in this report. Crowds had reduced at vaccination centres with improvements in vaccine availability and because so many people were now vaccinated.

Figure 13: Is a rollout happening?

Survey question(s)

Q5.1 In the last 2 weeks, has any kind of official Covid-19 vaccine rollout been taking place in your town/city?

Q5.2 Is the rollout available and accessible to people living in your settlement (regardless of where vaccination is taking place)?

Data analysed

All surveys (1–6).

Disaggregated by settlement.

Legend

- No rollout is happening
- Rollout in city, unaccessible to my community
- Rollout but don't know if accessible or not
- Rollout that is accessible to my community
- Don't know if there is a rollout

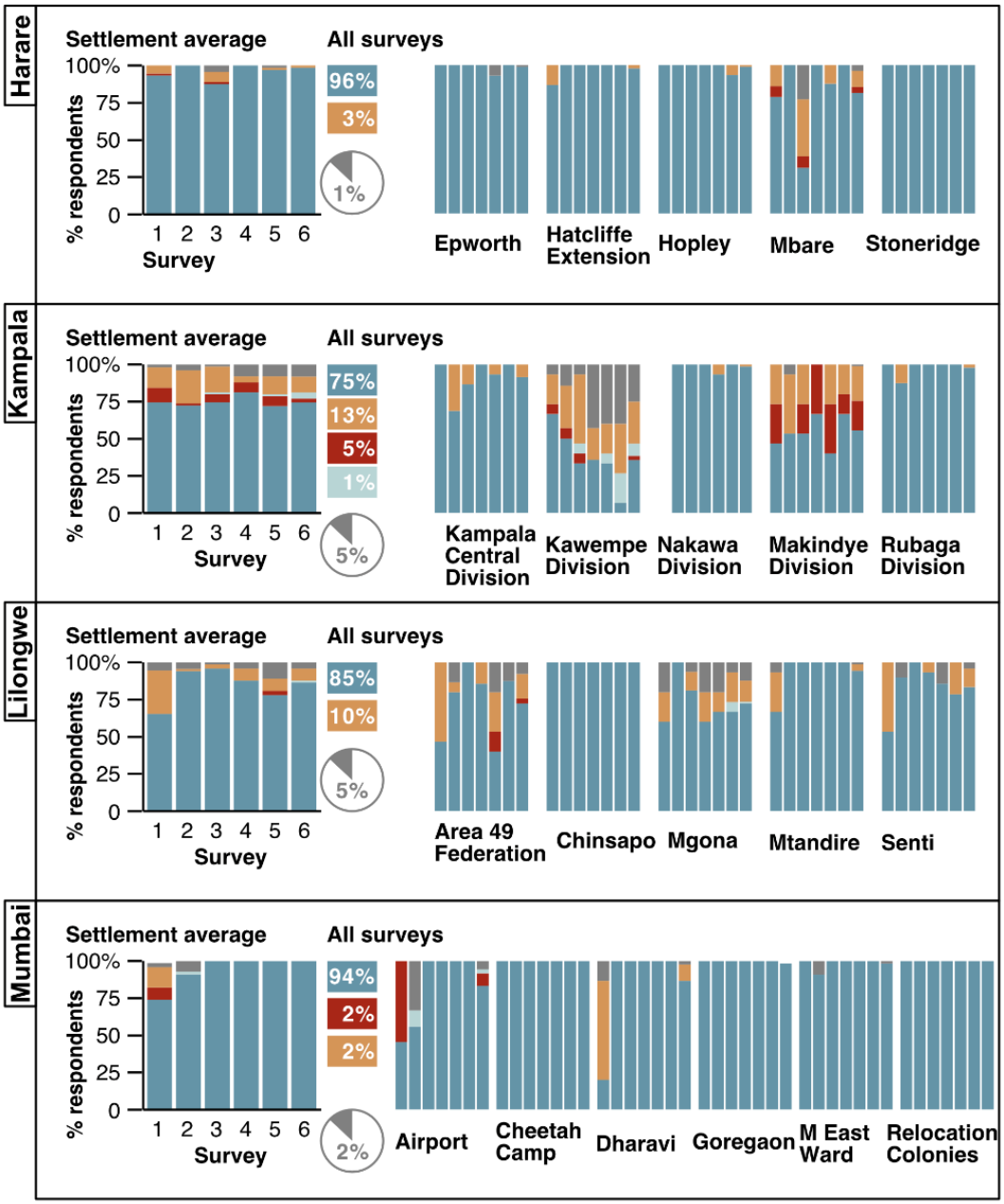


Figure 14a: Location and venues (Harare and Kampala)

Survey question(s)

Q5.5 In the past 2 weeks, where is the official Covid-19 vaccination taking place?

Q5.6 Since when?

Q5.7 In the past 2 weeks, where and at what type of venue are people in your settlement getting vaccinated?

Data analysed

All surveys (1–6) data.

All-settlement average, by city.

Legend

In or near my settlement

Only outside this local area

A49 Mg Se (etc) Settlement names (shortened)

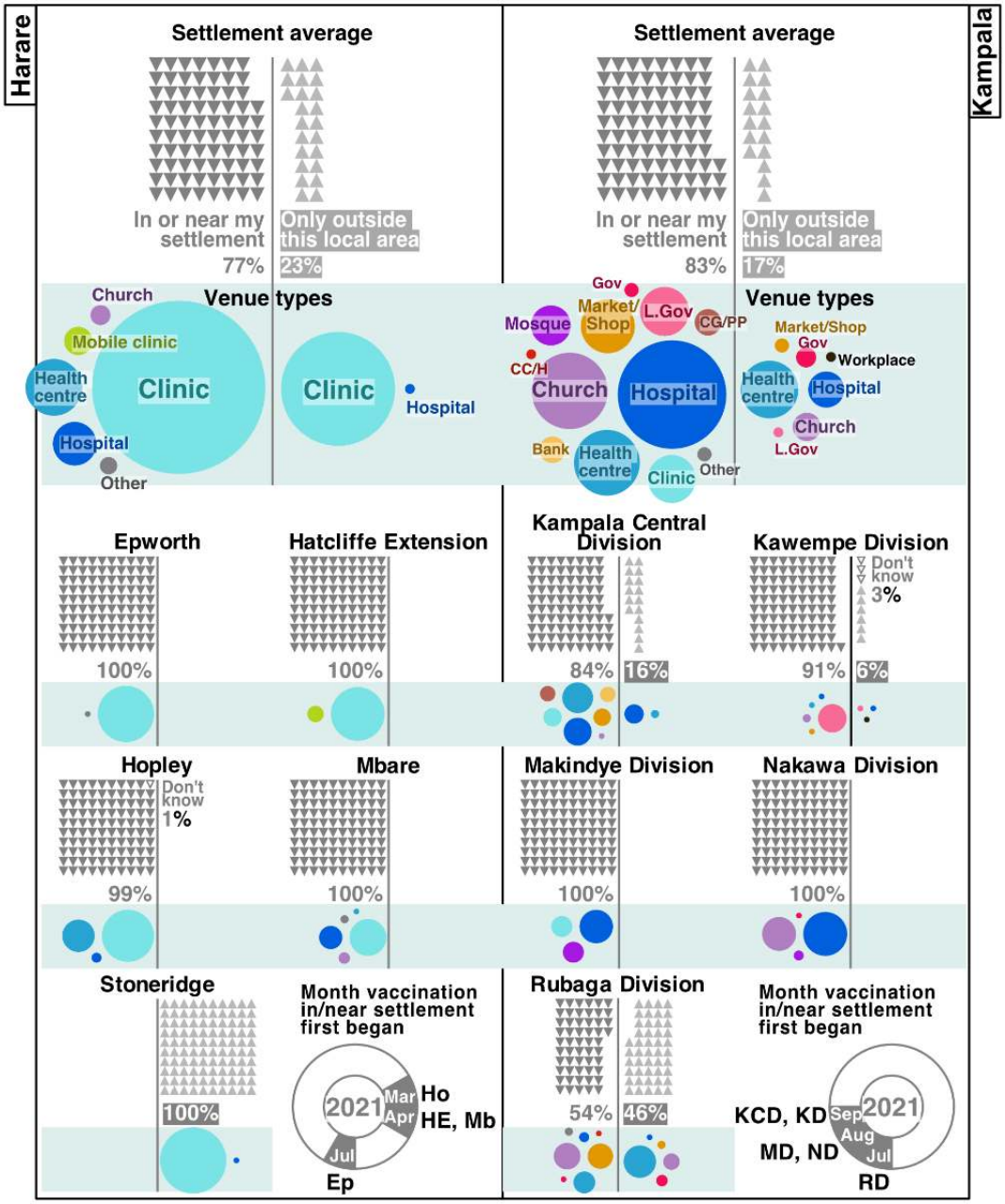


Figure 14b: Location and venues (Lilongwe and Mumbai)

Survey question(s)

Q5.5 In the past 2 weeks, where is the official Covid-19 vaccination taking place?

Q5.6 Since when?

Q5.7 In the past 2 weeks, where and at what type of venue are people in your settlement getting vaccinated?

Data analysed

All surveys (1–6) data.

All-settlement average, by city.

Legend

In or near my settlement

Only outside this local area

A49 Mg Se (etc) Settlement names (shortened)

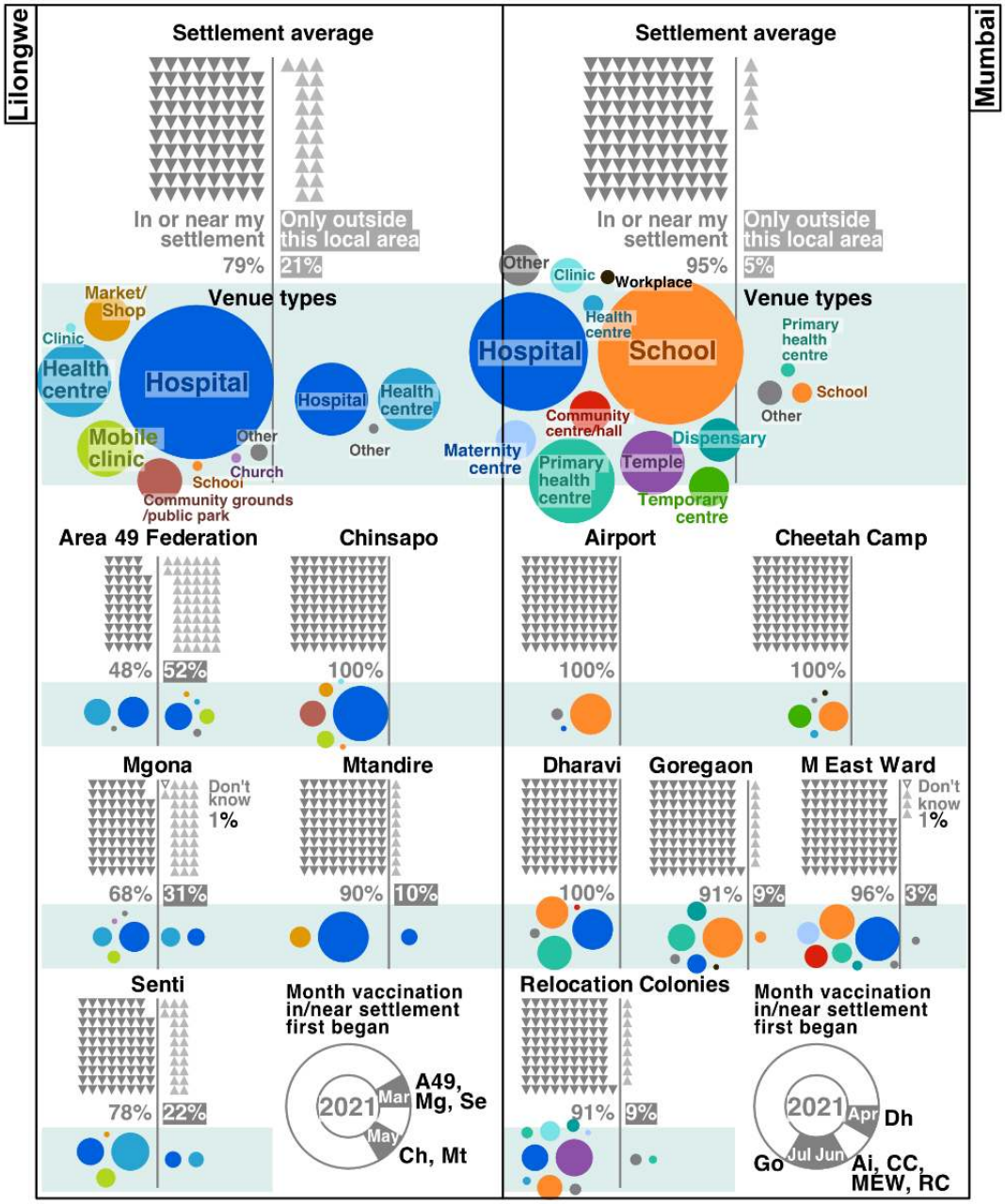


Figure 15: Vaccination outside settlement

Survey question(s)

Q5.9 In the past 2 weeks, do you know of anyone living in your settlement who has received a vaccine outside of the local area, for example at their place of work?

Q5.10 Can you tell us about them and their vaccination(s)?

Data analysed

All surveys (1–6) data.

All-settlement average/ aggregation, by city.

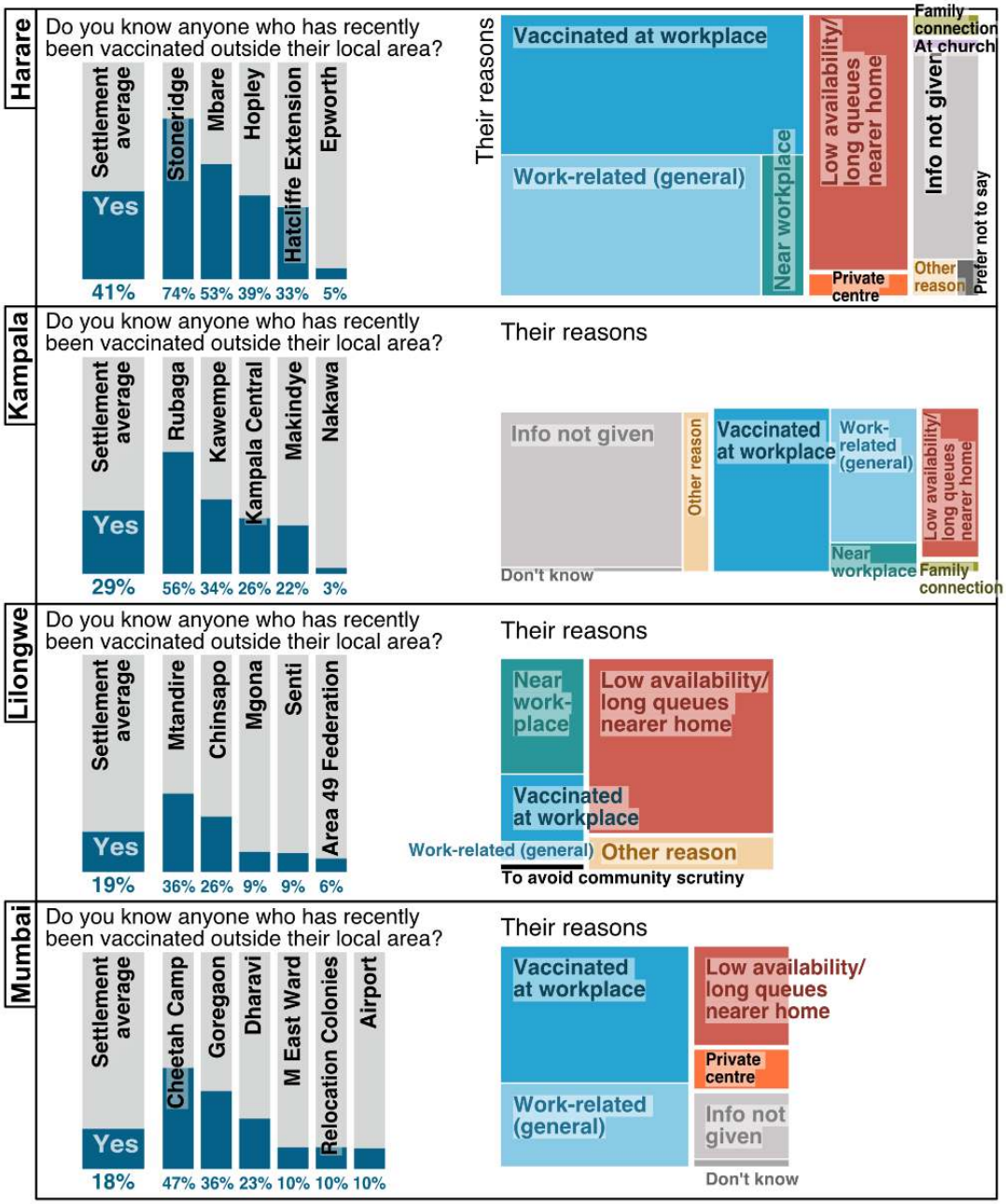


Figure 16: Eligibility

Survey question(s)

Q5.4 In the last 2 weeks, which groups of people in your settlement have been eligible to access vaccines? (Select all that apply)

Petal length indicates % of respondents who selected this option.

Data analysed

Surveys 1 & 6.

All-settlement average.

Legend

Survey 1 data

Survey 6 data

Other responses discounted if respondents selected "All adults" or "Everyone".
"All adults" discounted if respondents selected "Everyone".

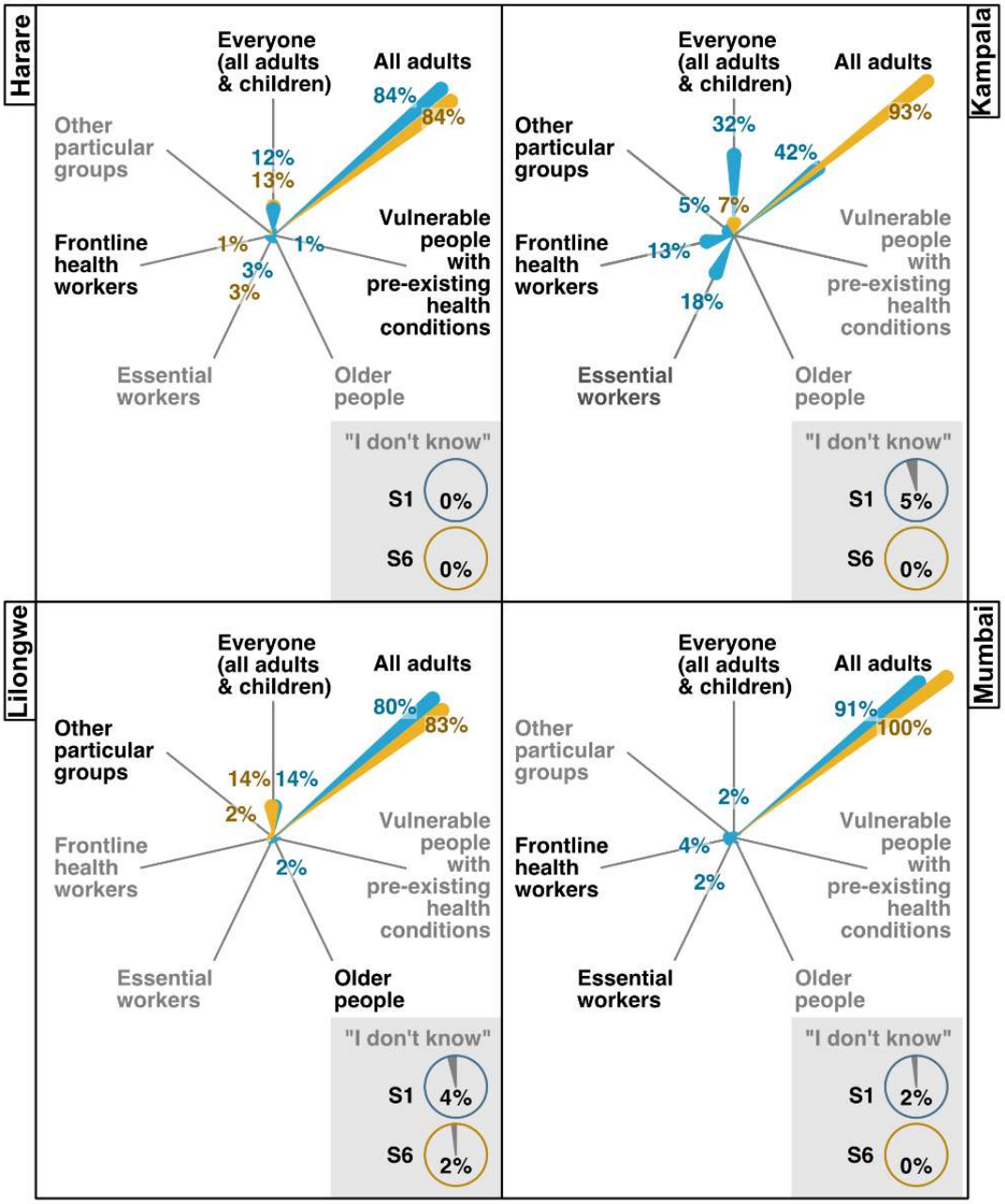


Figure 17: Excluded groups

Survey question(s)

Q5.4 pt 2 Are there any groups or types of people who want to get a vaccine but can't, or who find it difficult to access vaccines? Who and why?

Data analysed

All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

Yes, there are excluded groups in my community

No

Don't know

Number of mentions (size relative across all cities/ responses)

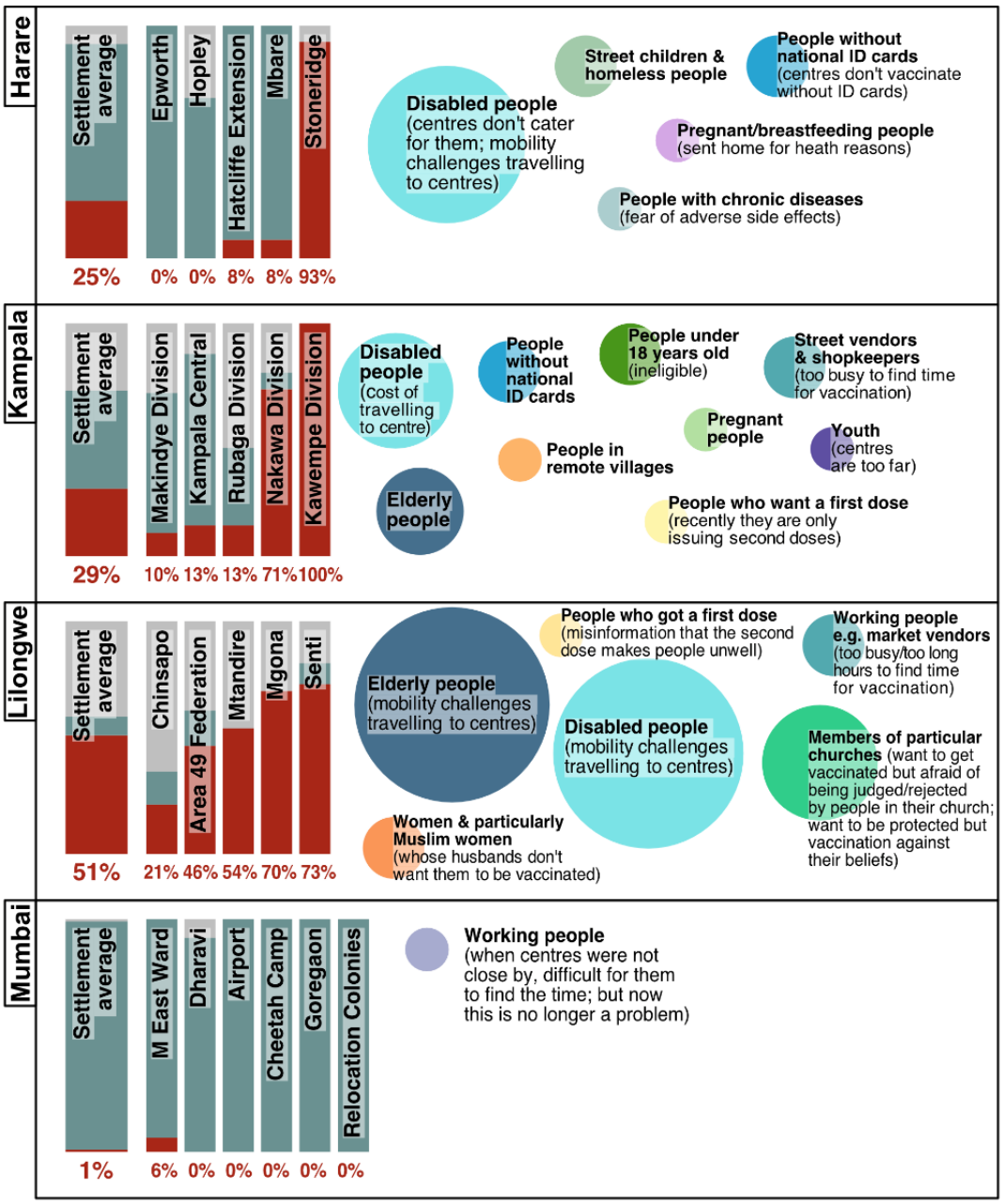


Figure 18: Vaccine types available

Survey question(s)

Q5.11. In the last 2 weeks, which vaccines are people who live in your settlement being offered? (Select all that apply.)

% respondents mentioning a particular vaccine type.

Data analysed

All surveys (1–6) data. Survey-by-survey & average.

All-settlement average.

% respondents mentioning a vaccine type

90% 50% 1% 0%

Weighted average by mentions of type per respondent (excluding "don't knows").

Average no. vaccine types mentioned:
Harare = **1.9** vaccine types per respondent
Kampala = **1.6**
Lilongwe = **1.4**
Mumbai = **1.1**

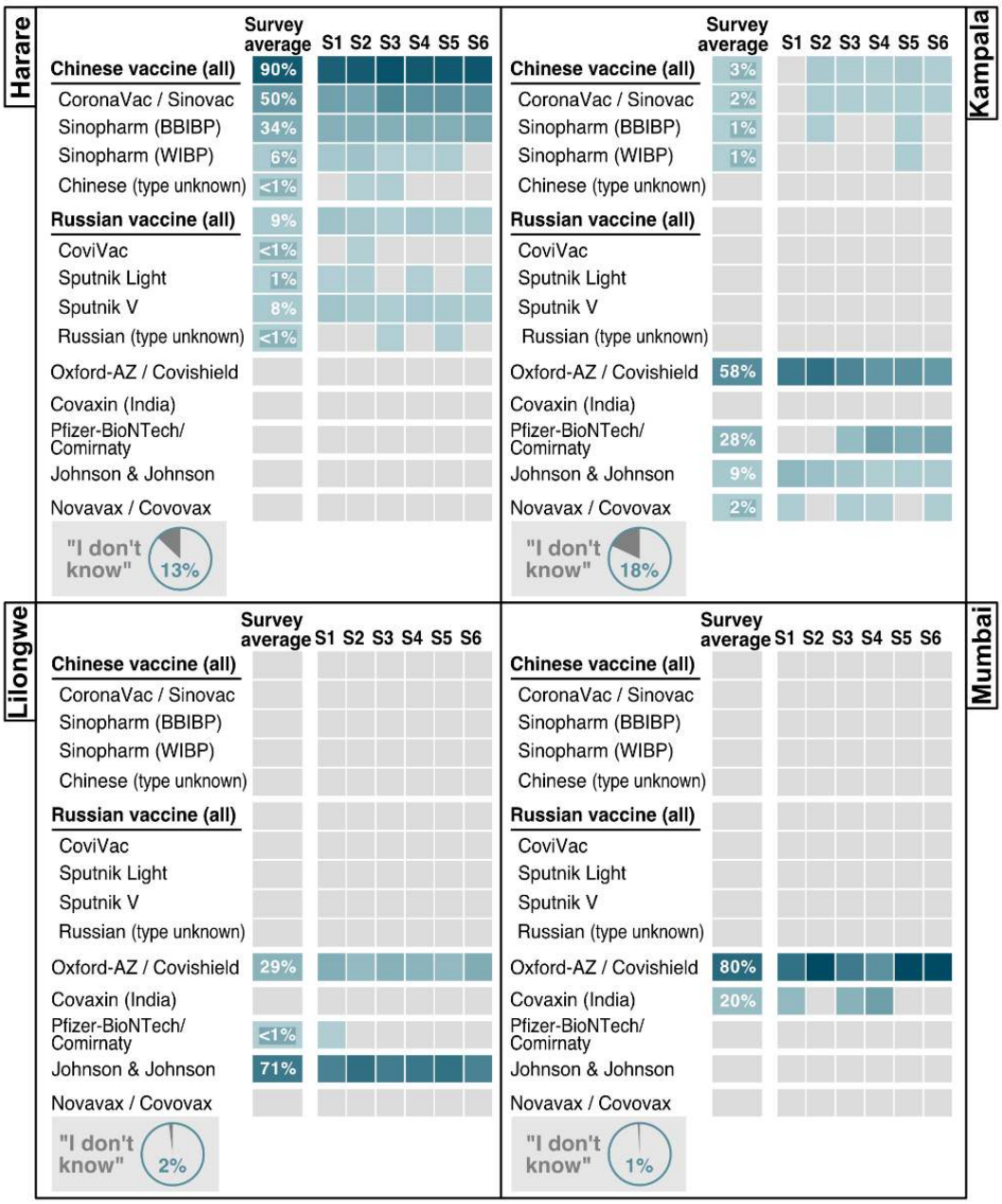


Figure 19a: Second doses (Harare and Kampala)

Survey question(s)

Q5.12 Do the available vaccines need a second vaccination?

Q5.13 Is the process arranged as part of the official rollout?

Q5.14 How is/will it be arranged?

Q5.14 pt 2. Are people willing and able to get second vaccines?

Data analysed

All surveys (1–6) data (Q5.12–14). Survey 6 data (Q5.14pt2).

All-settlement average/ aggregation, by city.

Legend:

Yes
No
Don't know
No data

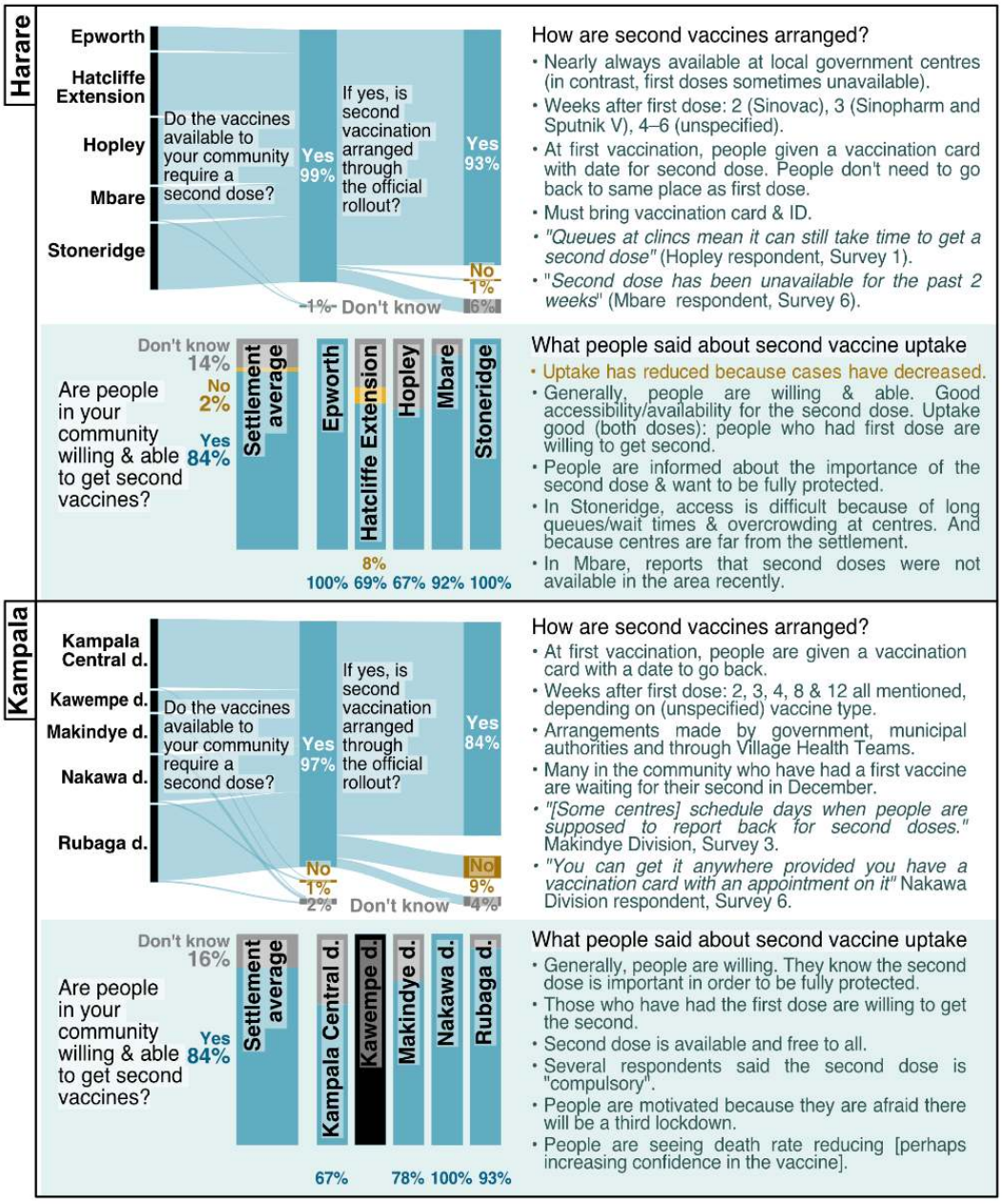


Figure 19b: Second doses (Lilongwe and Mumbai)

Survey question(s)

Q5.12 Do the available vaccines need a second vaccination?

Q5.13 Is the process arranged as part of the official rollout?

Q5.14 How is/will it be arranged?

Q5.14 pt 2. Are people willing and able to get second vaccines?

Data analysed

All surveys (1–6) data (Q5.12–14). Survey 6 data (Q5.14pt2).

All-settlement average/ aggregation, by city.

Legend:

Yes
No
Don't know
No data

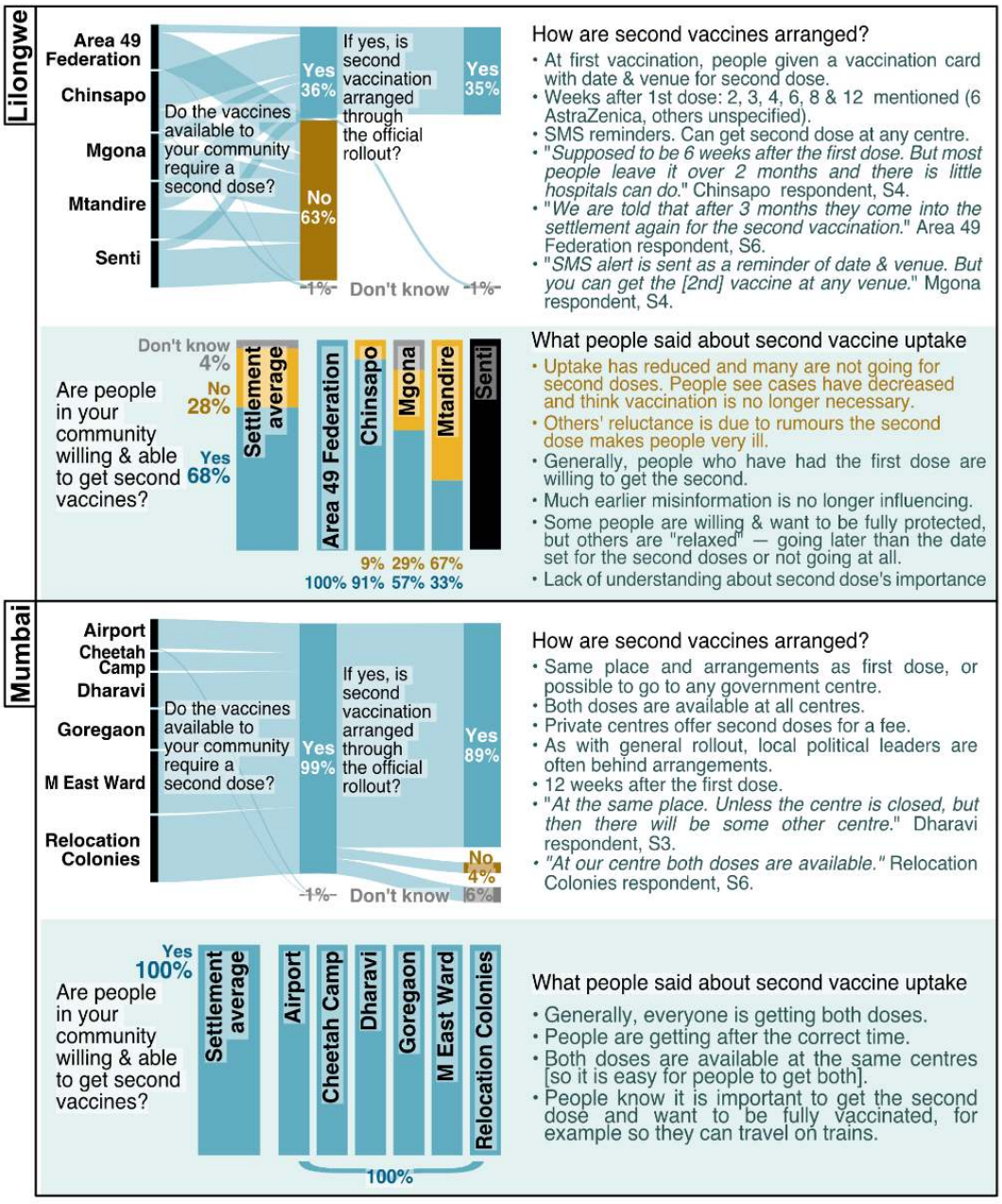


Figure 20a: Cost to the individual (Harare and Kampala)

Survey question(s)

Q5.15 Is there cost to individuals?

Q5.16 What payments do people have to make?

Q5.17 To whom are payments made?

Q5.18 Is a receipt provided?

Data analysed

All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

Yes

No

Don't know

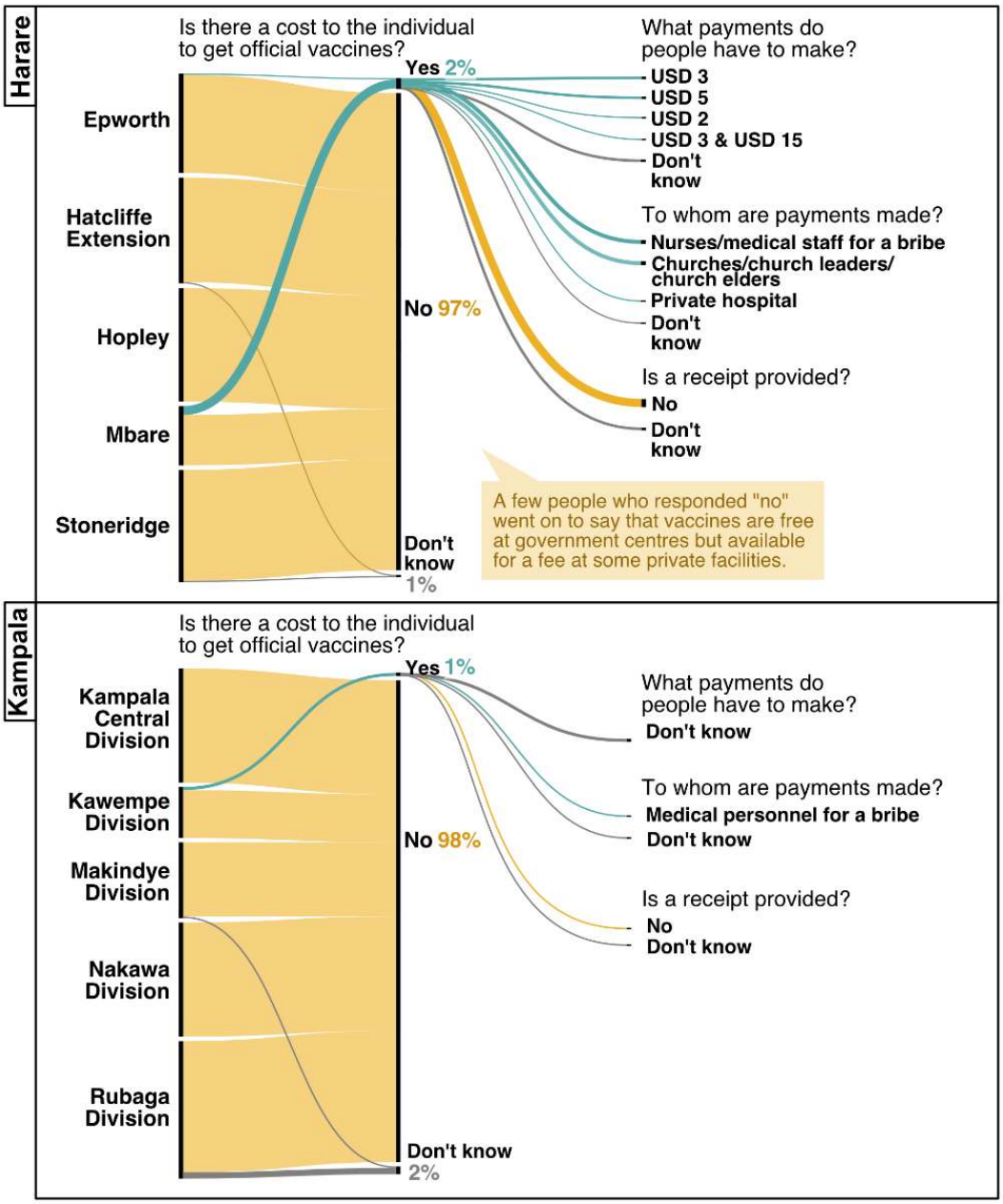


Figure 20b: Cost to the individual (Lilongwe and Mumbai)

Survey question(s)

Q5.15 Is there cost to individuals?

Q5.16 What payments do people have to make?

Q5.17 To whom are payments made?

Q5.18 Is a receipt provided?

Data analysed

All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

Yes
No
Don't know

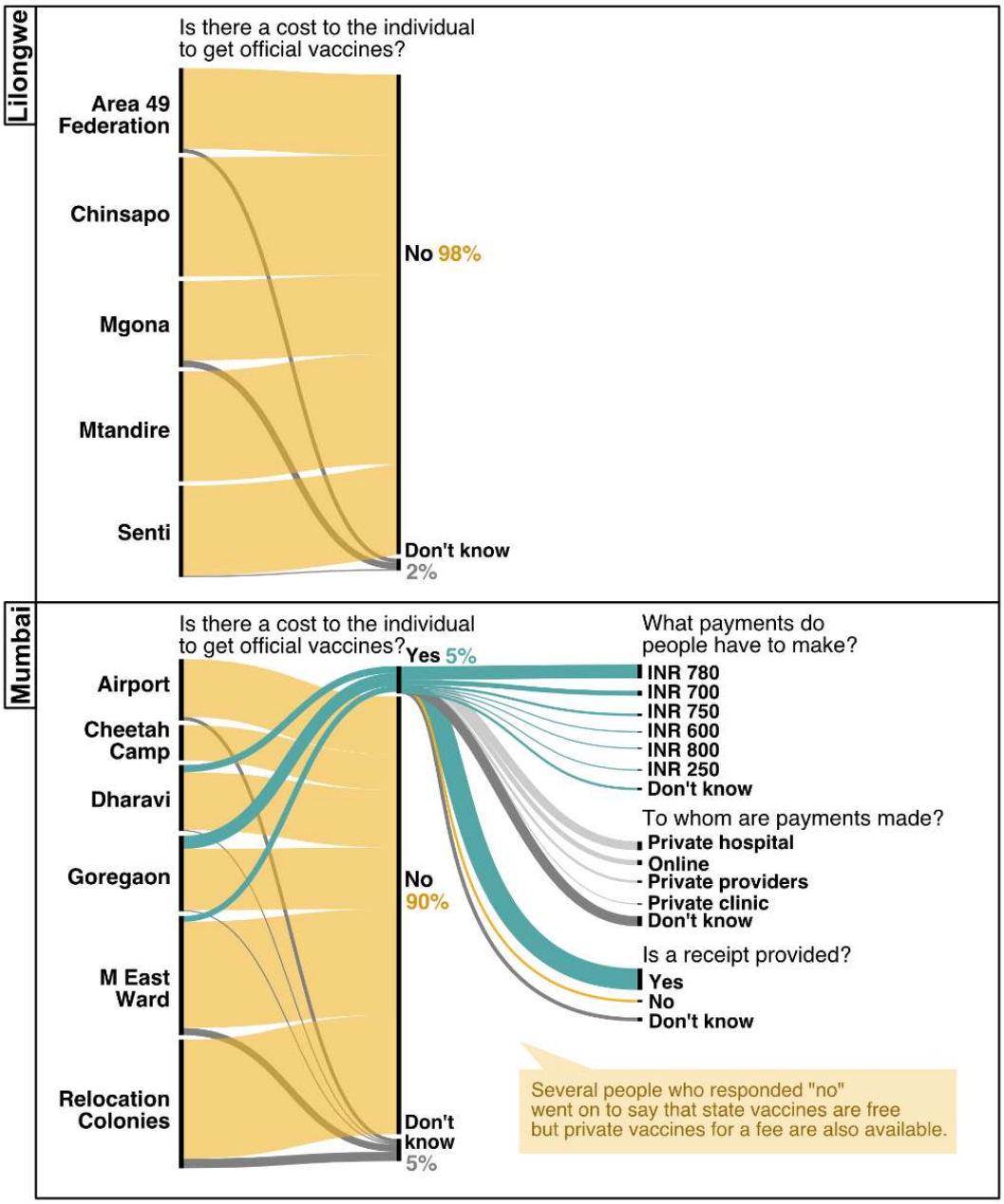


Figure 21a: Alternatives (Harare and Kampala)

Survey question(s)

Q5.19 In the past 2 weeks, are vaccines available to people who live in your settlement in alternative ways than through the official government rollout (whether these ways are legitimate or not)?

(Others: see visualisation)

Data analysed

All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

Yes
No
Don't know

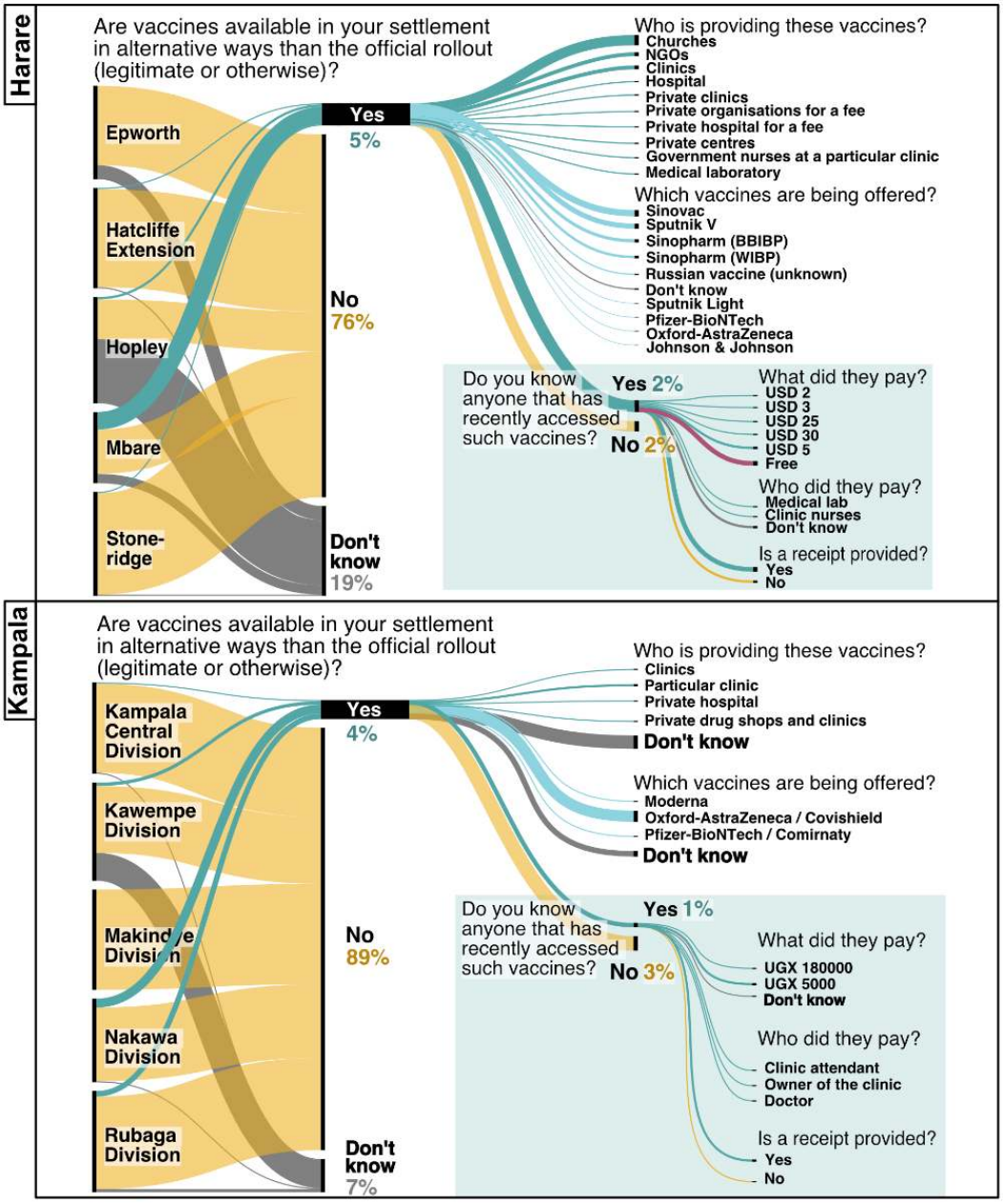


Figure 21b: Alternatives (Lilongwe and Mumbai)

Survey question(s)

Q5.19 In the past 2 weeks, are vaccines available to people who live in your settlement in alternative ways than through the official government rollout (whether these ways are legitimate or not)?

(Others: see visualisation)

Data analysed

All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

Yes
No
Don't know

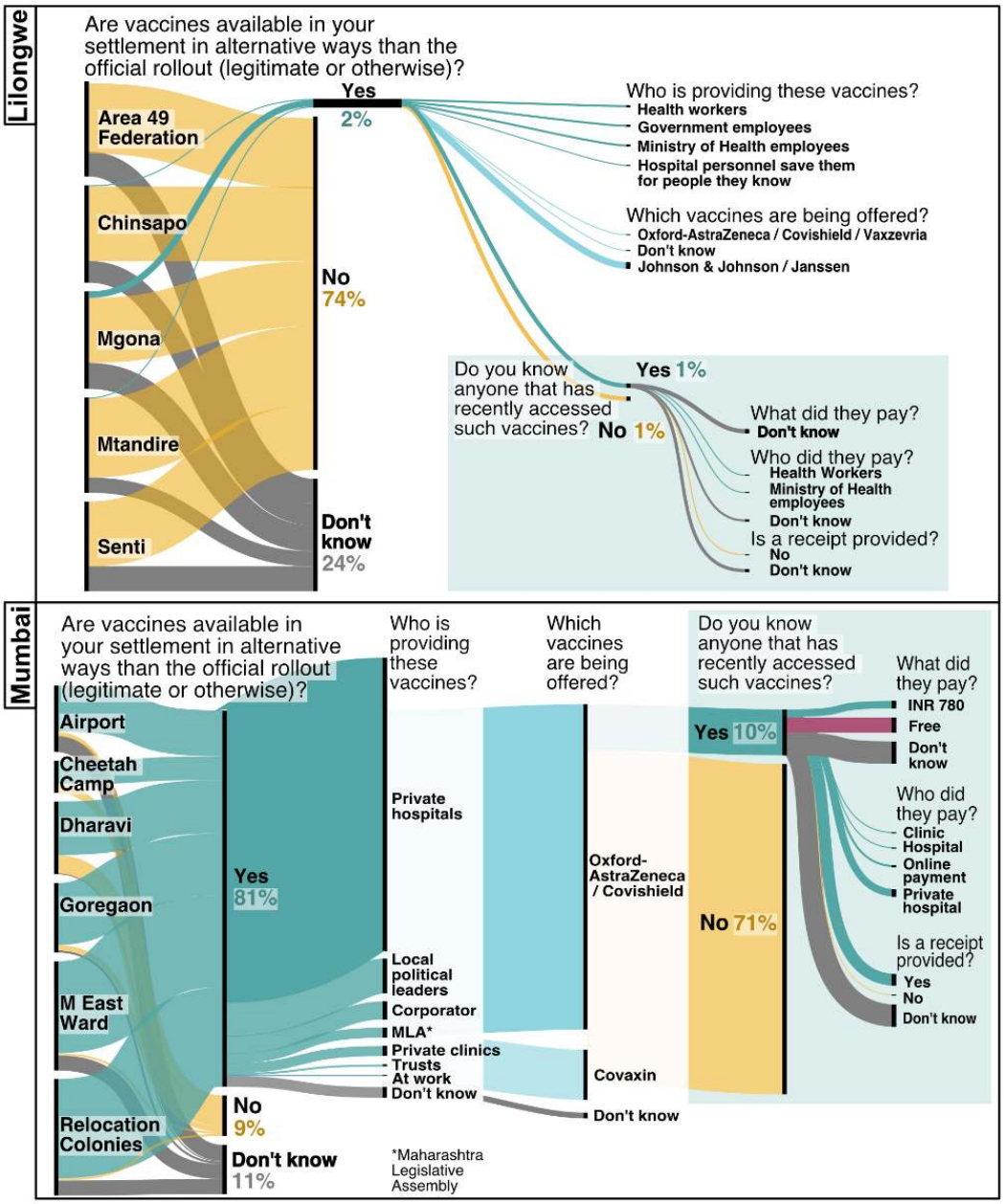


Figure 22: Numbers getting vaccinated

Survey question(s)

Q5.8 Over the last 2 weeks, roughly how many people who live in your settlement have got a Covid-19 vaccine?

Data analysed

All surveys (1–6) data.

All-settlement median and interquartile range, by city.

Insufficient data to track change over time.

Note many people said "I don't know".

India visualised at 50% scale relative to other cities.

Ordered by median response, largest to smallest.

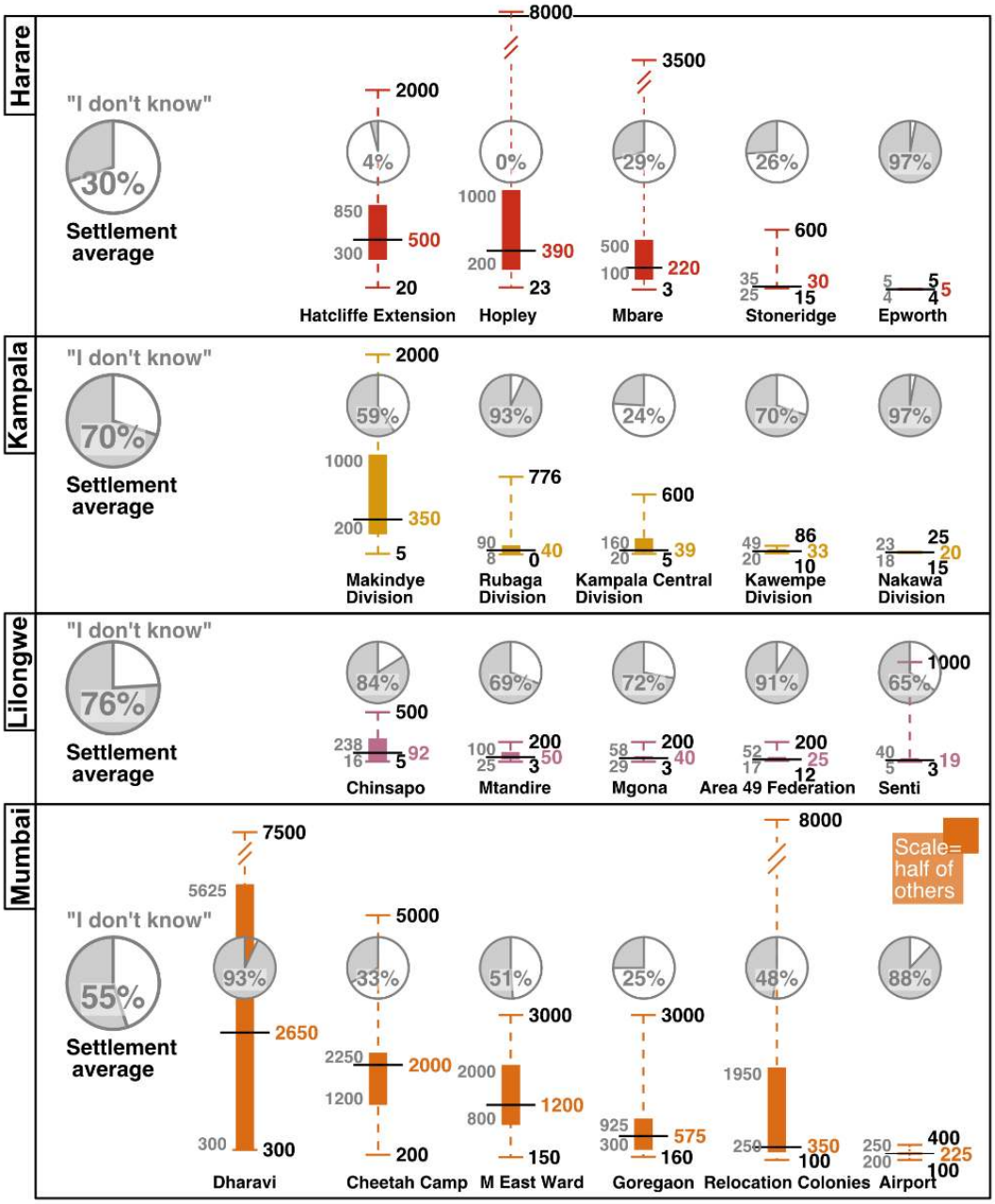


Figure 23a: Changes over survey period (Harare and Kampala)

Survey question(s)

Q5.27 Since September 2021 when this survey began, have you observed any changes in the vaccine rollout in your city and settlement? What and why?

Data analysed

Survey 6 data.

All-settlement aggregation, by city.

Order: frequency of mention, A–Z. Excludes single-mention issues (for visual clarity).

Legend

- Positive change: Uptake-related
- Positive change: Access-related
- Positive change: Availability-related
- Negative changes (all)
- Changes not clearly positive or negative
- No change observed
- General changes in Covid situation (all)

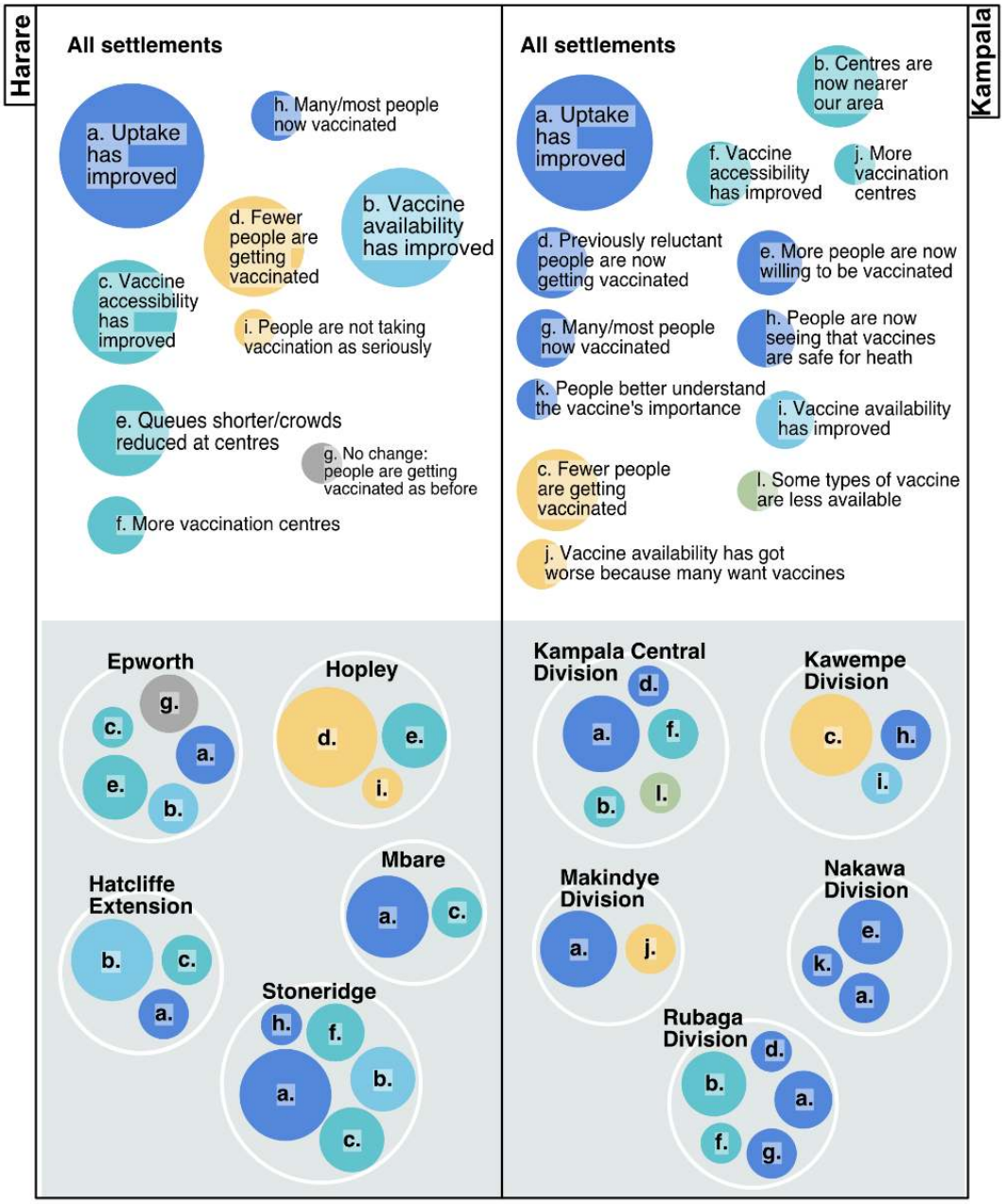
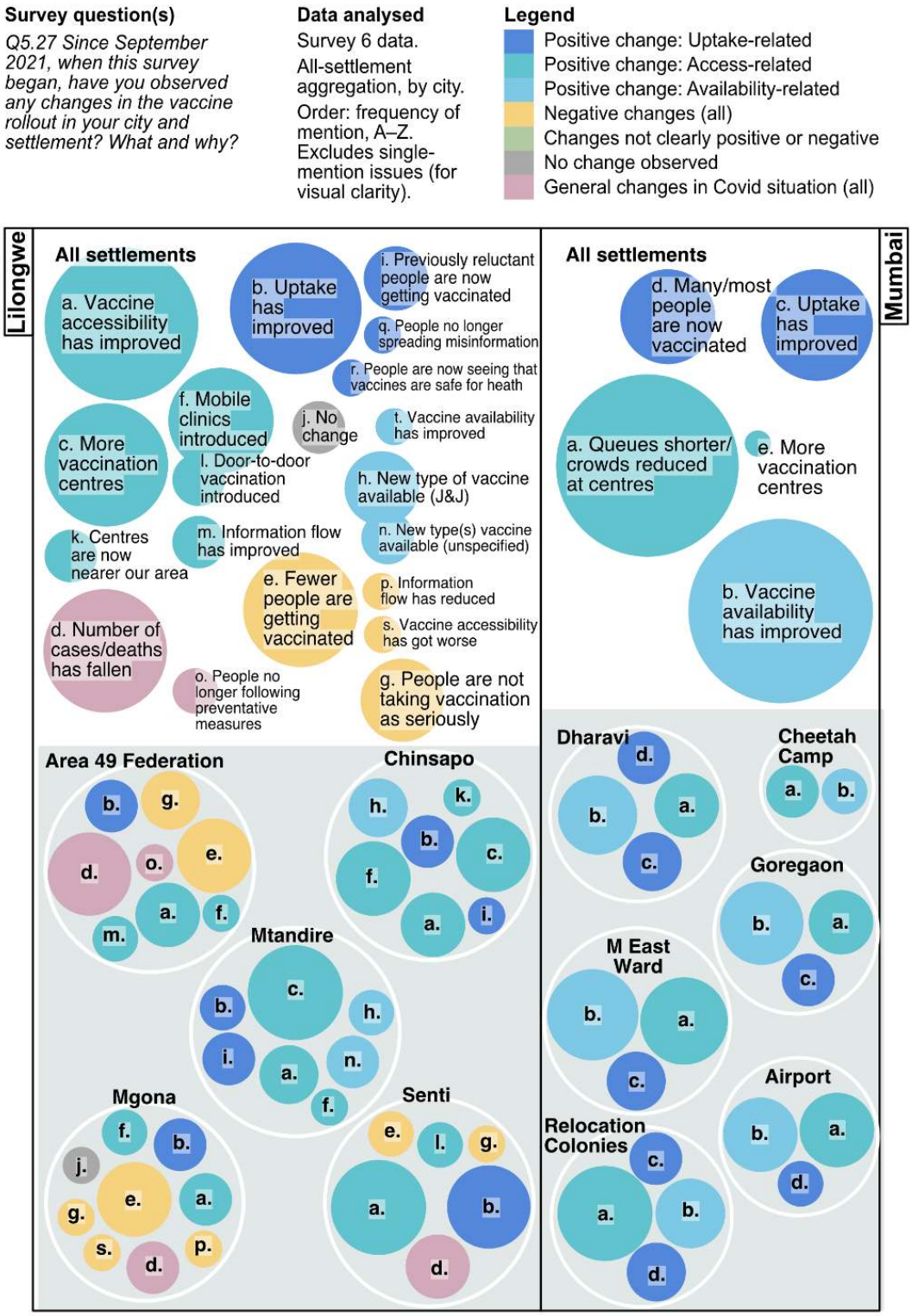


Figure 23b: Changes over survey period (Lilongwe and Mumbai)



7. What can we say about people's attitudes to vaccines and the level/nature of vaccine hesitancy?

This section presents the data findings relating to attitudes to Covid-19 vaccines, both among the local leaders surveyed and the communities they represent, including through a gendered lens.

In many low- and lower-middle-income countries, initial issues with supply of vaccines have gradually improved, notably after late 2021, when India began to relax its export ban and amid efforts to tackle underlying issues such as patent restrictions and the need to diversify vaccine manufacture (Schiffling 2021). However, in many contexts this has happened without proportionate rises in vaccination rates (see Figure 1). Even other countries less exposed to global vaccine nationalism (for example, because they were less reliant on COVAX), such as Zimbabwe, have likewise seen a levelling off in uptake. While concerns around equitable access to the vaccines and country preparedness persist, vaccine confidence is another key issue (African CDC 2021, Samarasekera 2021). Nuanced, culturally informed understanding of what is behind vaccine hesitancy and misinformation – in context – is needed (Mutombo et al. 2022). Some factors connecting to vaccine hesitancy are well documented, while still varying by context – for example, under-resourced government information campaigns communicating risk, and the influence of social media. Others might also tap into underlying historical currents (such as colonial-era medical abuses), local-level responses to injustices at the global level (such as public perceptions of the duplicity of international community statements about universal vaccine coverage in the face of continued vaccine nationalism and inadequate commitments) or political dynamics at the national level (such as lack of trust in government, politically motivated disinformation, or politicised choice of vaccine supply).

In the discussion below, we draw on a vaccine anxieties framework (Leach et al. 2022). This defines "vaccine anxieties" as a spectrum from positive perspectives (confidence, focused desire to get vaccinated) to negative (hesitancy, concern). It encompasses three interconnected and overlapping dimensions of vaccine anxieties: bodily dimensions of vaccine anxieties; social dimensions, including communities and health systems; and wider political experiences, for example relating to inter/national institutions or the broader, historical context.

It's not that they don't want it. They go to the centre and wait and waste several hours in the queue and don't get it. They get irritated and then don't want it – Airport, Mumbai (S3)

Everyone can get it easily, so many centres and it is free. Only people who don't want to take won't take – Airport, Mumbai (S6)

My two kids, who are 32 and 35, do not want to get the vaccine because they have watched video clips on what will happen to people who have been vaccinated. They say they will turn into monsters – Area 49 Federation, Lilongwe (S1)

A lot of my friends still think the vaccine is not necessary. When they see the numbers of deaths and cases dropping, they are no longer interested in the vaccine – Area 49 Federation, Lilongwe (S6)

I will feel safe to be in public spaces and there are many opportunities for vaccinated people – Mbare, Harare (S1)

I am a teacher and I want schools to reopen – Makindye Division, Kampala (S1)

I have ambitions as a young person and to achieve them I need to have a healthy body. Vaccines can help – Chinsapo, Lilongwe (S2)

7.1. Positive vaccine perspectives

Among the community leader survey respondents, attitudes to vaccines were overwhelmingly positive – alongside a vocal, hesitant minority (see Figure 24). Citywide, an average of between 85% (Kampala, Lilongwe,

Mumbai) and 91% (Harare) either definitely wanted a vaccine or were already fully vaccinated; a further 5–10% were somewhat positive but still had concerns about the vaccine.

Bodily dimensions of positive vaccine anxieties were articulated in terms of personal safety (all cities) and confidence in how vaccine technology works to strengthen the immune system. Social dimensions included: respondents knew people who had died of Covid (Harare); a desire to protect the health of families and communities (all cities); the importance of community leaders setting example (Harare, Kampala, Lilongwe); and understanding the Covid vaccination programme as a means to speed up reopening of society and avoid further lockdowns (Kampala, Mumbai) – allowing people to return to or access job opportunities (Kampala, Lilongwe) or access areas of life controlled by vaccine mandates (public transport in Mumbai; church in Harare). In terms of wider political perspectives, a small number reflected on the influence of political leaders (Kampala) and the general importance of following government advice (Harare, Kampala, Lilongwe).

I wanted to protect myself and others, especially the elderly. Being a healthcare worker, I know I am vulnerable – Senti, Lilongwe (S5)

I want to get vaccinated soon so I can travel on public transport easily – Dharavi, Mumbai (S3)

Two of my friends were open enough to say that they went for vaccination. Most people are going … in secret because of the conspiracy theories. At the same time, they want to be secretly protected – Mtandire, Lilongwe (S2)

I am young and have a healthy body. I am not rushing to get something I am still understanding – Mtandire, Lilongwe (S4)

A friend of mine refused the vaccine because of his religious beliefs … He was offered a chance to get vaccinated by his employers – Mbare, Harare (S2)

Many don't trust the government, hence even the vaccine provided by it – Rubaga Division, Kampala (S2)

There are some in the locality who are still scared of the side effects … but they will eventually take as it makes movement easier

7.2. Negative vaccine perspectives

Here we draw on respondents' reports of hesitancy among their wider communities (see Figure 25) as well as the few community leaders who said they were somewhat or strongly against personally getting vaccinated (see Figure 24).

Bodily dimensions of negative vaccine anxieties were dominated by concerns about vaccine safety – adverse side effects in general (Harare, Kampala) and for those with comorbidities (Harare, Kampala) and breastfeeding or pregnant[8] (Kampala, Lilongwe). Social dimensions of hesitancy are driven by apathy or belief in "misinformation" – often heard from religious leaders or via social media – and there was a religious basis to many vaccine hesitancies (Lilongwe and Harare), ranging from belief that the vaccine is "satanic" to membership of churches that take an anti-vax position (whether general or Covid-19-specific). Wider political dimensions of hesitancy connected to international conspiracy theories (Lilongwe, Kampala), general vaccine scepticism (Lilongwe) and fundamental expressions of mistrust in government (Kampala).

Attitudes can change. In all cities, respondents' attitudes towards vaccines became notably more positive between the first and final surveys (see Figure 24), and we can speculate this may reflect both the wider context

[8] These concerns are not necessarily related to consumption of misinformation. Initially, many countries only recommended Covid vaccination for pregnant women who were "clinically vulnerable". At the time our study took place, scientific evidence and official advice on safety for pregnant and breastfeeding women was still evolving.

of maturing vaccination drives in their cities as well as perhaps the effects of having their attention drawn, fortnightly, to the issue. Reflecting on the relatively more advanced vaccine programme in their city, Mumbai respondents mentioned that many initial misconceptions and hesitancies in the community began to dissolve once incentives in the form of vaccine mandates and improvements availability/eligibility meant that a critical mass of people had been vaccinated, providing communities with enough first-hand evidence with their own eyes of the magnitude of side effects, and the (un)reality of many misconceptions.

7.3. Gender lens on vaccine uptake and anxieties

Responses to the survey question, "*have you noticed any significant difference in uptake between men and women in your settlement, and what do you think might be the reasons?"* varied by city and settlement (see Figure 26). Most Mumbai respondents (88%) said there was no difference in uptake by gender, despite a gender gap in India's gender-disaggregated data on vaccine rates (at the time the study took place). Such data was not available for the three African countries in the study, although elsewhere on the continent official South African data has found fewer men than women getting vaccinated.[9] Fewer respondents in the African cities thought there was no difference (38–47%) and a greater percentage said that more women than men were getting vaccinated (27–38%) than those who said more men than women were going (15–21%).

We can also apply the vaccine anxieties framework to gendered perspectives on vaccine uptake. The data findings on positive vaccine anxieties focus on how gender differences in livelihood strategies connect with differences in men's and women's motivations to seek vaccination. In all contexts, men are more likely to be formally employed and required by employers to be vaccinated. Men may travel further for work (on trains, in Mumbai) or to public places (Kampala motorcycle taxi drivers), both requiring vaccine certificates. In Harare, women are more likely to work as informal traders and vendors, facing high risks of infection through contact with the public and the need to travel – and in this way motivated both in order to protect their heath and by reason of being subject to vaccine mandates. Women's social roles were also seen to put them at greater risk of infection (and consequently motivate them to protect themselves) as they move around the community and participate in larger social gatherings (Harare, Kampala). Some respondents thought that gendered family and domestic responsibilities tend to make women more aware of the need to protect their and their family's health (all cities), to need to

– M East Ward, Mumbai (S3)

I used to believe that vaccines are an evil agenda ... But I have realised that Covid-19 vaccine is only meant to protect people from a dangerous disease – Chinsapo, Lilongwe (S6)

I think the biggest problem in Malawi is failure by many people to change their mindset. People are stuck [in] their religious or traditional beliefs, to the extent that when some new information comes which may help them transform, they do not receive it. People need to start using reasoning and not just believe anything they hear – Chinsapo, Lilongwe (S6)

Uptake is now almost equal, since most people need to travel, go to work and tertiary institutions. Without vaccination cards they cannot do so – Hatcliffe Extension, Harare (S1)

Many men have lost their jobs and are searching for one. To strategically position themselves, they must get vaccinated, since potential employers [want] to see their vaccination certificate – Chinsapo, Lilongwe (S4)

Women in my community are into vegetable marketing, so they got vaccinated as they move a lot buying and selling vegetables ... women

[9] See: theconversation.com/men-are-slower-to-get-covid-19-vaccines-in-south-africa-lessons-from-hiv-research-166800 (accessed 11 October 2022).

access government or public facilities that require a vaccine certificate (Harare) and to be more familiar/comfortable in healthcare settings (Lilongwe[10]).

Respondents also discussed how gender differences translate to different opportunities to access vaccines – in particular, as related to characteristics of vaccine distribution and the proximity of vaccine centres to where people live. Where vaccination is available in or near settlements, respondents said that women's more "flexible" time mean they have more opportunity to go to centres, even if there are queues (Lilongwe, Kampala) – but that men, who are likely to work formally, have less flexible time to stand in long queues or access centres which may only operate during working hours. In contrast, men may find it easier to travel to be vaccinated further from home, for example, when vaccines are only available in major hospitals (Lilongwe).

In terms of negative vaccine anxieties, both men and women were seen to be more easily put off by misinformation, for different reasons. Hesitancy was linked to men's greater tendency to political engagement, where politicians were an influential source of vaccine misinformation (Kampala). Women were thought to be concerned about side effects on breastfeeding and pregnancy (Lilongwe), and respondents knew both men and women worried by misinformation relating to the vaccines' effect on fertility.

are more in the market than men – Mbare, Harare (S1)

Women … know how difficult it is to take care of someone who is sick. They know that protecting themselves means protecting the entire household and community – Area 49 Federation, Lilongwe (S1)

These [past] two weeks there were no mobile clinics, which allow women at home to go for vaccines and come back without using taxi or walking long distances. Men are usually outside the home and [can] go to the hospital – Chinsapo, Lilongwe (S4)

Women are not so much engaged into politics. Politics has hindered the vaccination process – Rubaga Division, Kampala (S1)

[10] This has also been observed in research in South Africa.

Figure 24: Respondents' attitudes

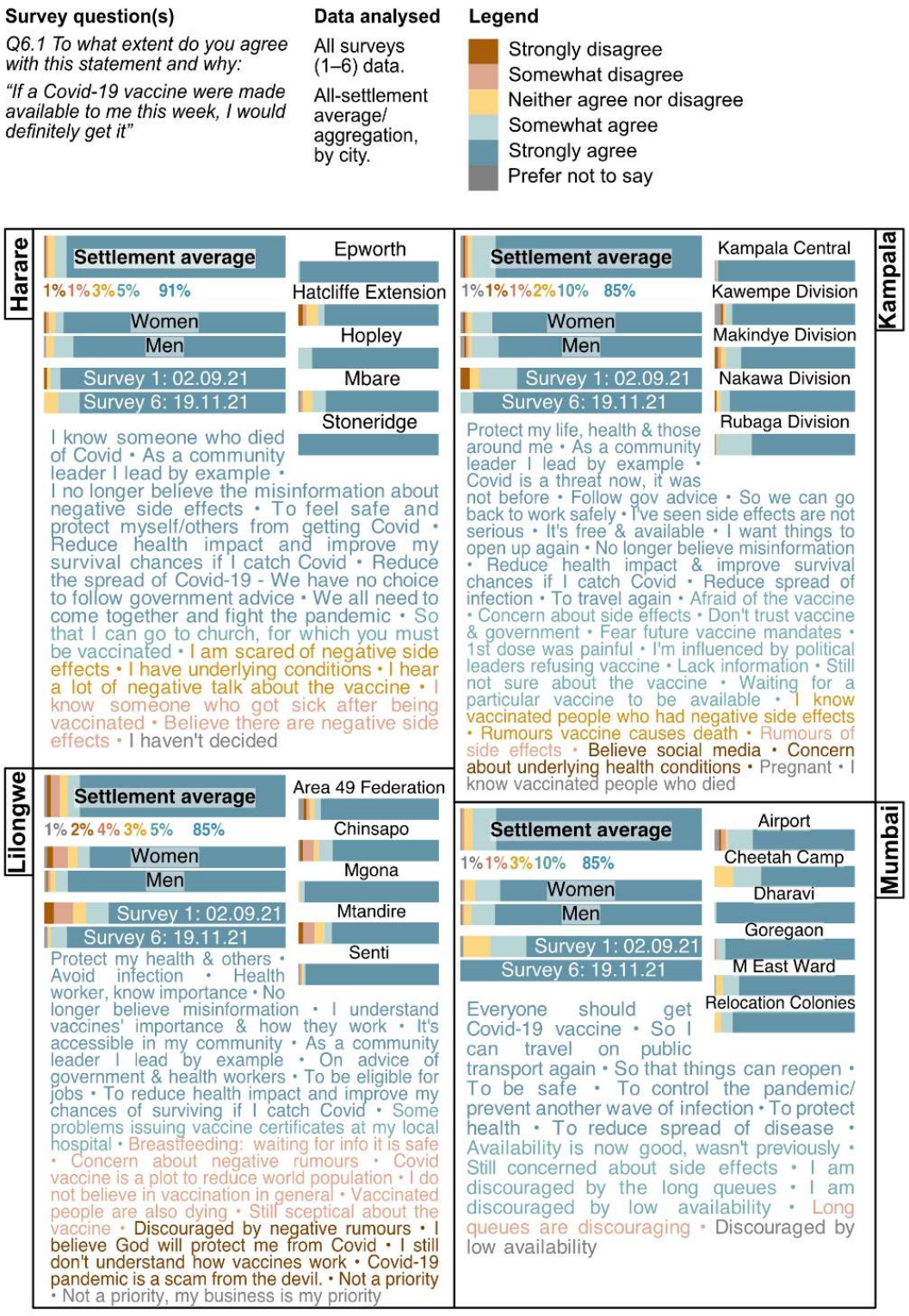


Figure 25: Hesitancy

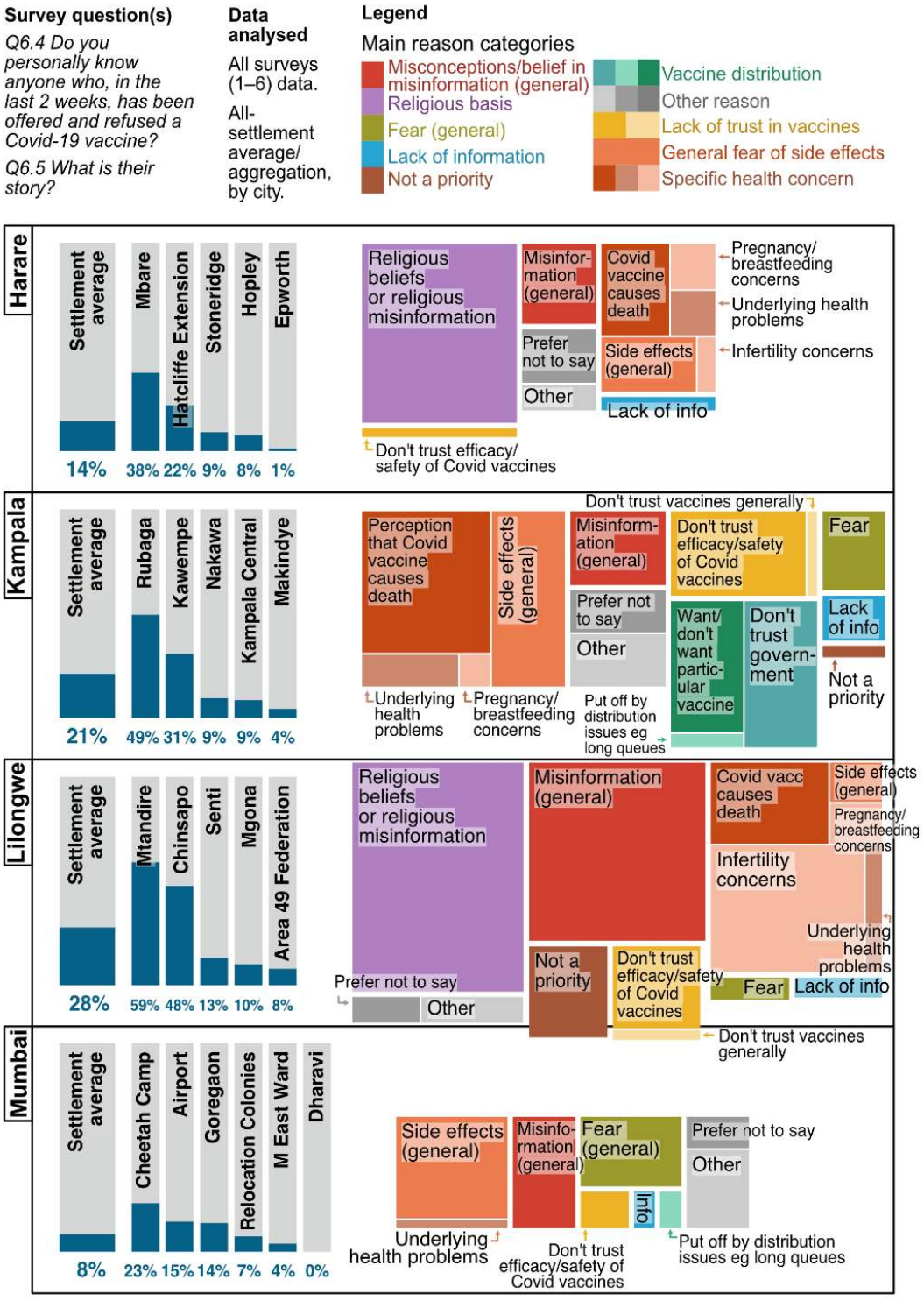


Figure 26. Gender differences in uptake

Survey question(s)

Q5.26 Have you noticed any significant difference in vaccine uptake between men and women who live in your settlement?

Data analysed

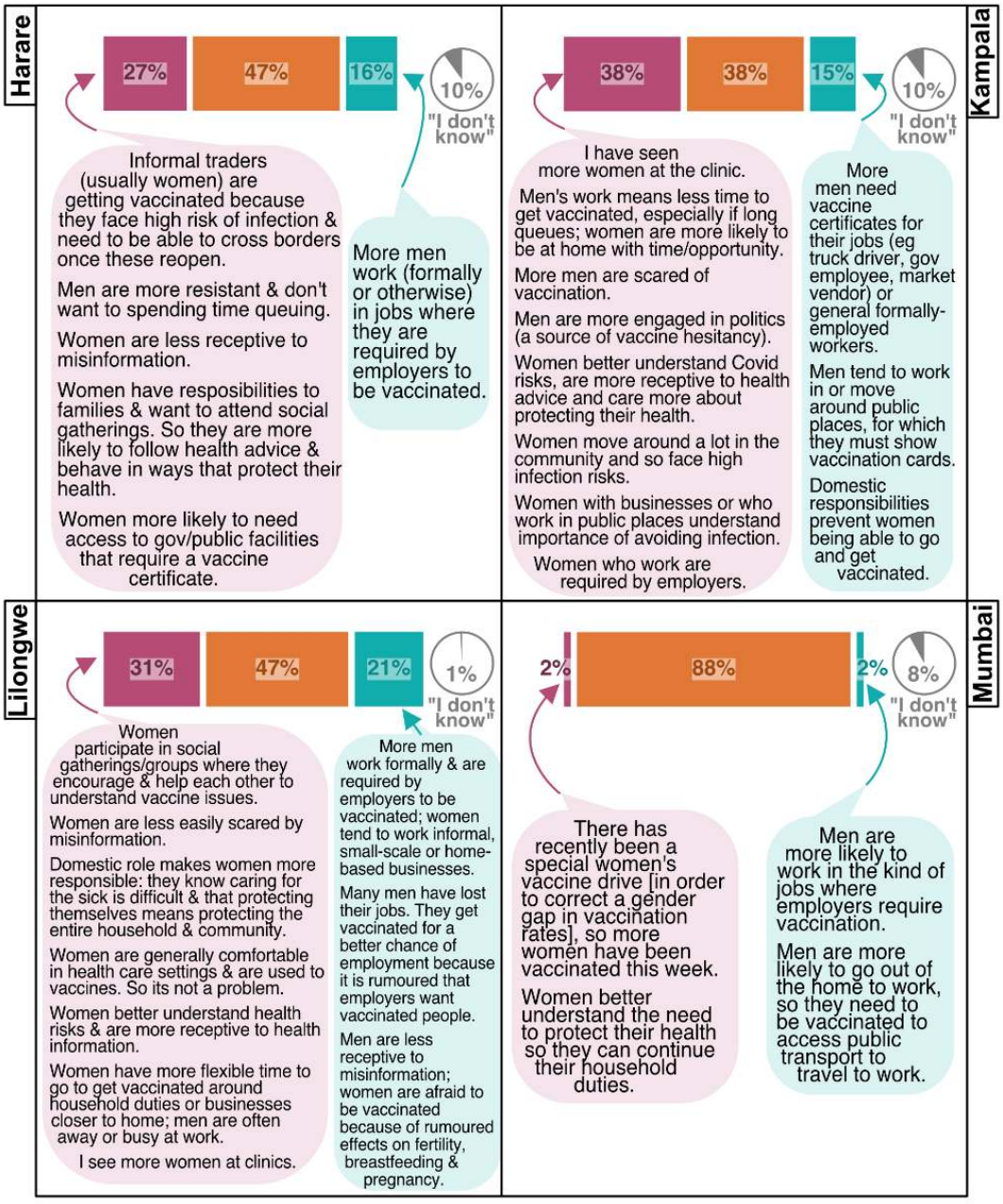
All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

- More women than men are getting vaccinated
- More men than women are getting vaccinated
- No difference observed

Analysis by respondents' gender revealed a very small amount of bias towards their own gender.



8. What does the information landscape look like on the ground and are people getting the information they need?

Many community leaders in the African cities said that Covid-19 vaccine information had recently been disseminated in their settlements (58% Harare, 76% Kampala, 86% Lilongwe). However, fewer thought their communities "had the information they needed" about vaccines and the rollout in their area[11] (41% in Harare, 66% Kampala, 38% in Lilongwe) (see Figures 27a, b, c and d).

Diverse communities living in urban informal settlements represent a range of information needs. For example, Covid-19 vaccine awareness studies have found a strong nexus between information gaps and the digital divide – with uptake lower among marginalised groups, who are less likely to have access to the digital technology needed to access reliable information about availability, venues, safety and side effects, or to book appointments.[12] Good and accessible information about venues' day-to-day vaccine availability can also create trust and save communities time, especially in contexts of low/unreliable national supply or where there are distribution challenges.

But in many survey areas, we found this kind of information lacking. Waiting in long queues or travelling long distances, only to find vaccines unavailable, were intense sources of frustration (all cities), not least because it costs time, bus fare and lost earnings – especially the self-employed and people working late/long hours. In Stoneridge, Harare, where there is no nearby health centre, many respondents flagged the need for better availability information (as well as for a nearer vaccinating centre). Respondents also mentioned the need for information to help people better understand about the types of vaccine available (Harare, Kampala). And in Lilongwe, where the gap was largest between provision of information and its perceived adequacy, many respondents highlighted a need for better provision of good information from (importantly) sources trusted by communities, to counter the prevalence of disinformation and misinformation – including concerns represented in specific myths, for example around fertility.

In Mumbai the picture is quite different. Many fewer respondents said vaccine rollout information had recently been disseminated in their settlement, decreasing over the survey period from 50% to under 20%. However, almost everyone thought communities had the information they needed: most people were now vaccinated, and good uptake was evidence that they had adequate information. Communities were sharing

People need to know when vaccines are and are not available so that they can make a plan. Sometimes they go to hospital twice and come back because there are no vaccines – Mtandire, Lilongwe (S6)

They only have adequate information on the vaccination centres. But the type of vaccine … they don't even know which vaccine they are taking – Stoneridge, Harare (S6)

There is enough information, but the way it is reaching out is not effective … Talking to huge groups gets people easily distracted. Smaller groups provide room for more questions – Chinsapo, Lilongwe (S6)

Young people need information about how vaccines work in a young body. Many are using social media platforms to create fear among themselves. Someone needs to counter-argue the false theories about the vaccine – Youth leader, Chinsapo, Lilongwe (S6)

Covid-19 vaccine [issues] should be talked about among religious people. In such platforms, matters of faith are exercises and people can believe if their influential leaders speak against any false belief … When church leaders talk,

[11] Only asked in survey 6.
[12] See: covid-collective.net/covid-19-vaccination-and-digital-exclusion-at-the-margins/ (accessed 11 October 2022).

experiences and information with each other, centres displayed vaccine availability, and medical workers provided people with information about side effects and medicines that can counter them.

The data shows settlement variations in information dissemination and adequacy, including changes over the course of the survey window. In Harare, respondents in Epworth and Hopley largely thought the public health information being provided was adequate, but not in Hatcliffe Extension, Mbare and Stoneridge. In many Kampala settlements, NGOs and village heath teams are leading awareness-raising campaigns, including by going door to door; in others, respondents flagged the need to better involve local leaders.

In terms of sources of information: local-level sources were seen to be key in Kampala, particularly village health teams, and in Lilongwe, where the Ministry of Health reaches communities via local leaders. In Mumbai, dominant sources during the survey window were municipal authorities and primary healthcare workers, but local leaders had played a key role in early stages of the vaccine rollout. In Harare, community health workers and local clinics were also important sources of information.

people listen and act – Mtandire, Lilongwe (S6)

Once someone takes [the vaccine] they tell others, and because [it's] required for travelling in the trains, many people are finding it themselves – S6 Mumbai Goregaon

We [local leaders] disseminate information using megaphones moving around the village – Rubaga Division, Kampala (S1)

Whenever they are [bringing] mobile clinics, medical personnel announce it using public address systems, mostly at night when it is calm and less noisy – Chinsapo, Lilongwe (S6)

Figure 27a: Information landscape in Harare settlements

Survey question(s)

Q6.6 In the past 2 weeks, was public health info about Covid-19 vaccination disseminated in your settlement? % respondents: yes, no, don't know

Q6.7 What kinds of information? From which agents? How and in what ways is information disseminated?

Q6.9 Do people in your settlements have the information they need about vaccines and the rollout in their area? Please explain. % respondents: yes, no

Data analysed

All surveys data (Q6.6–7). Survey 6 (Q6.9)

All-settlement average and disaggregated by settlement.

Legend

Yes

No

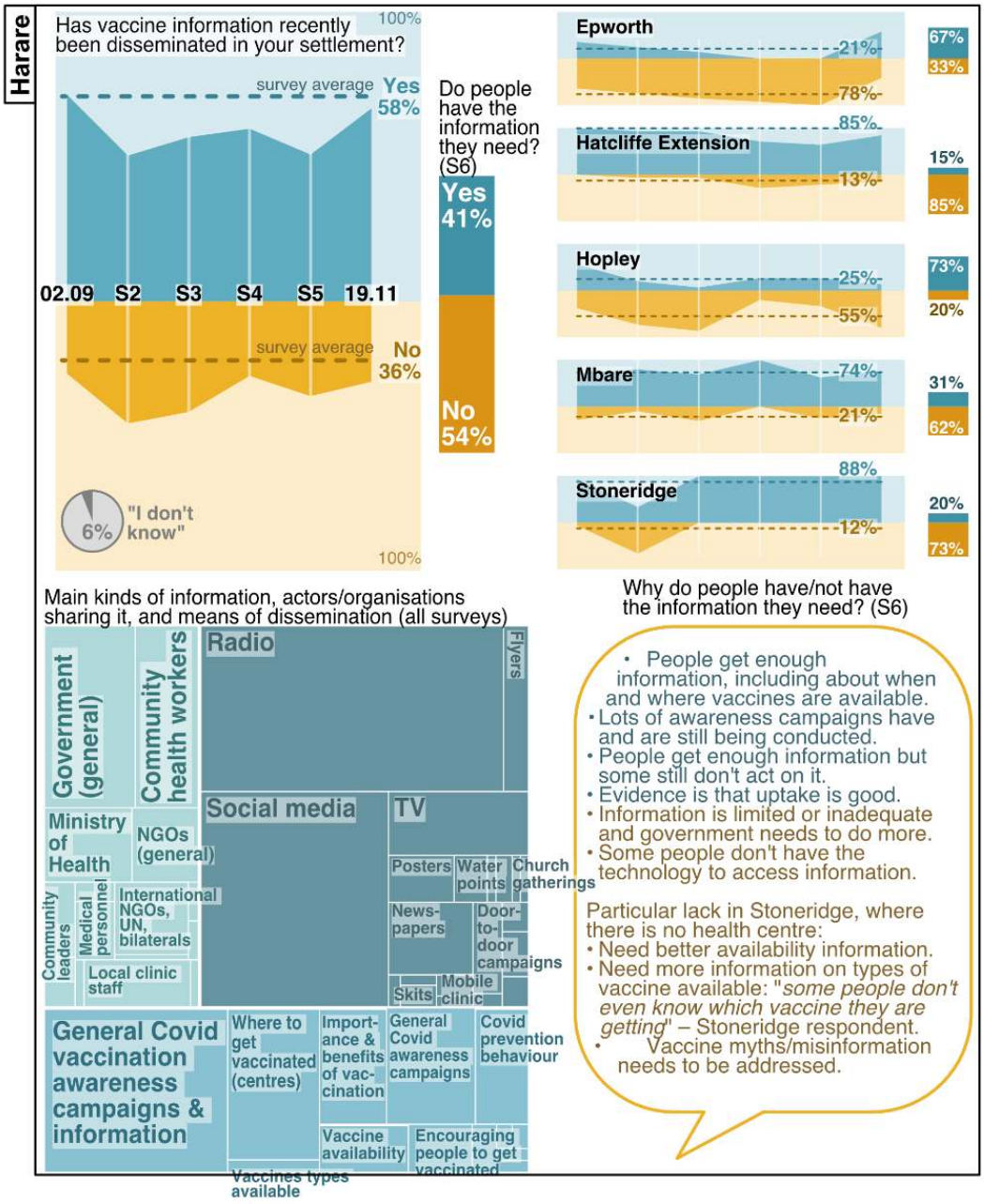


Figure 27b: Information landscape in Kampala settlements

Survey question(s)

Q6.6 In the past 2 weeks, was public health info about Covid-19 vaccination disseminated in your settlement? % respondents: yes, no, don't know

Q6.7 What kinds of information? From which agents? How and in what ways is information disseminated?

Q6.9 Do people in your settlements have the information they need about vaccines and the rollout in their area? Please explain. % respondents: yes, no

Data analysed

All surveys data (Q6.6–7). Survey 6 (Q6.9)

All-settlement average and disaggregated by settlement.

Legend

Yes

No

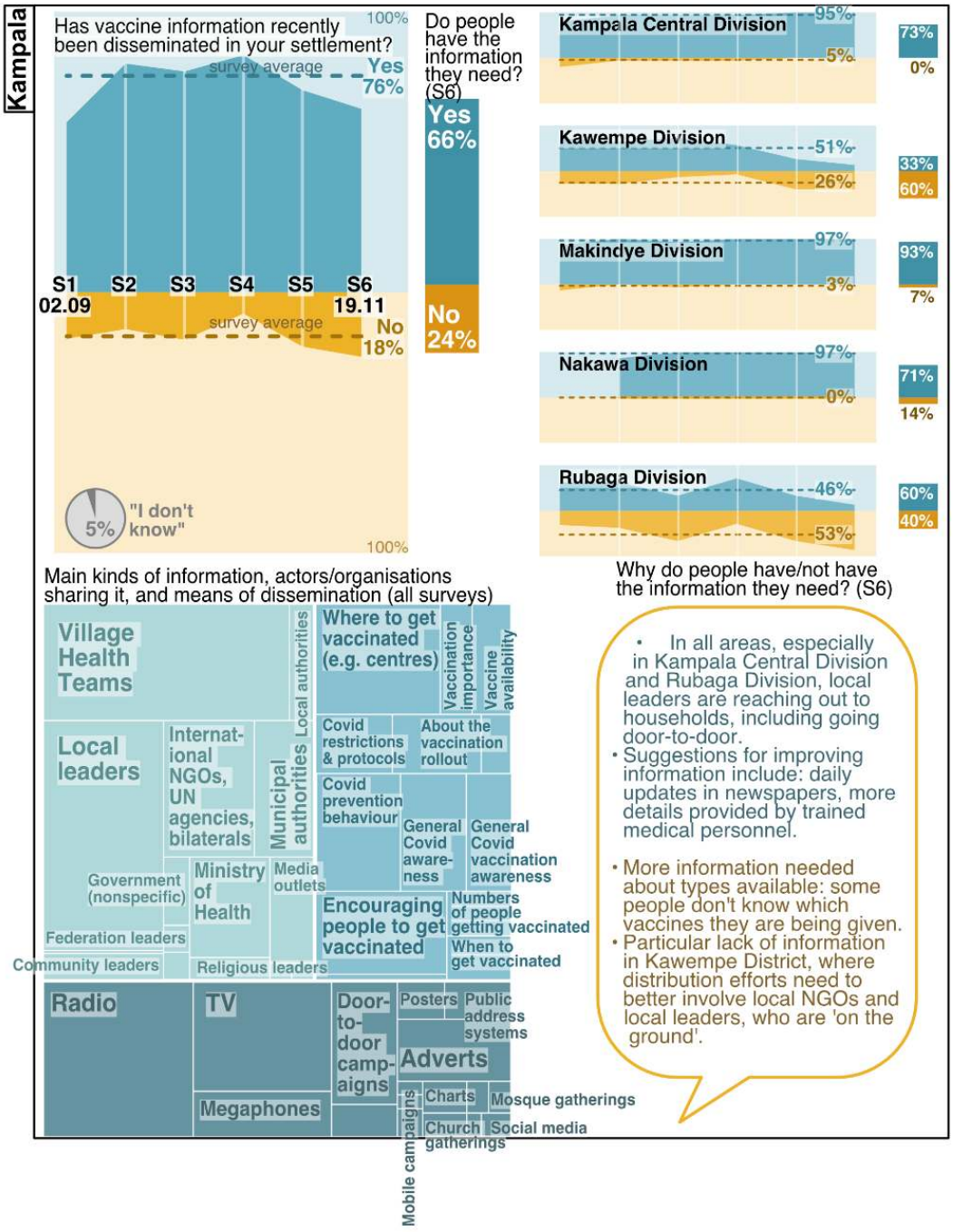


Figure 27c: Information landscape in Lilongwe settlements

Survey question(s)

Q6.6 In the past 2 weeks, was public health info about Covid-19 vaccination disseminated in your settlement? % respondents: yes, no, don't know

Q6.7 What kinds of information? From which agents? How and in what ways is information disseminated?

Q6.9 Do people in your settlements have the information they need about vaccines and the rollout in their area? Please explain. % respondents: yes, no

Data analysed

All surveys data (Q6.6–7). Survey 6 (Q6.9)

All-settlement average and disaggregated by settlement.

Legend

Yes

No

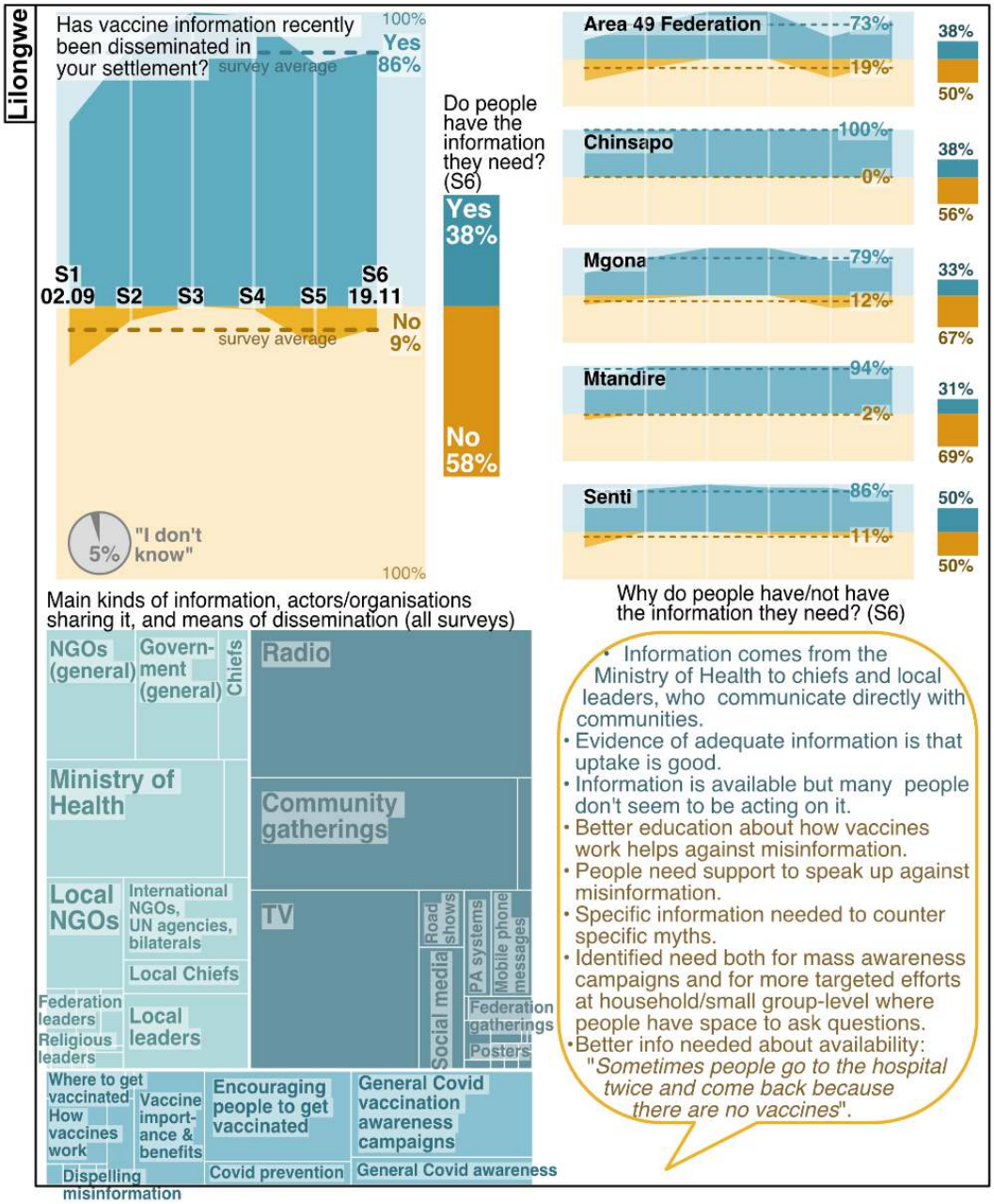


Figure 27d: Information landscape in Mumbai settlements

Survey question(s)

Q6.6 In the past 2 weeks, was public health info about Covid-19 vaccination disseminated in your settlement? % respondents: yes, no, don't know

Q6.7 What kinds of information? From which agents? How and in what ways is information disseminated?

Q6.9 Do people in your settlements have the information they need about vaccines and the rollout in their area? Please explain. % respondents: yes, no

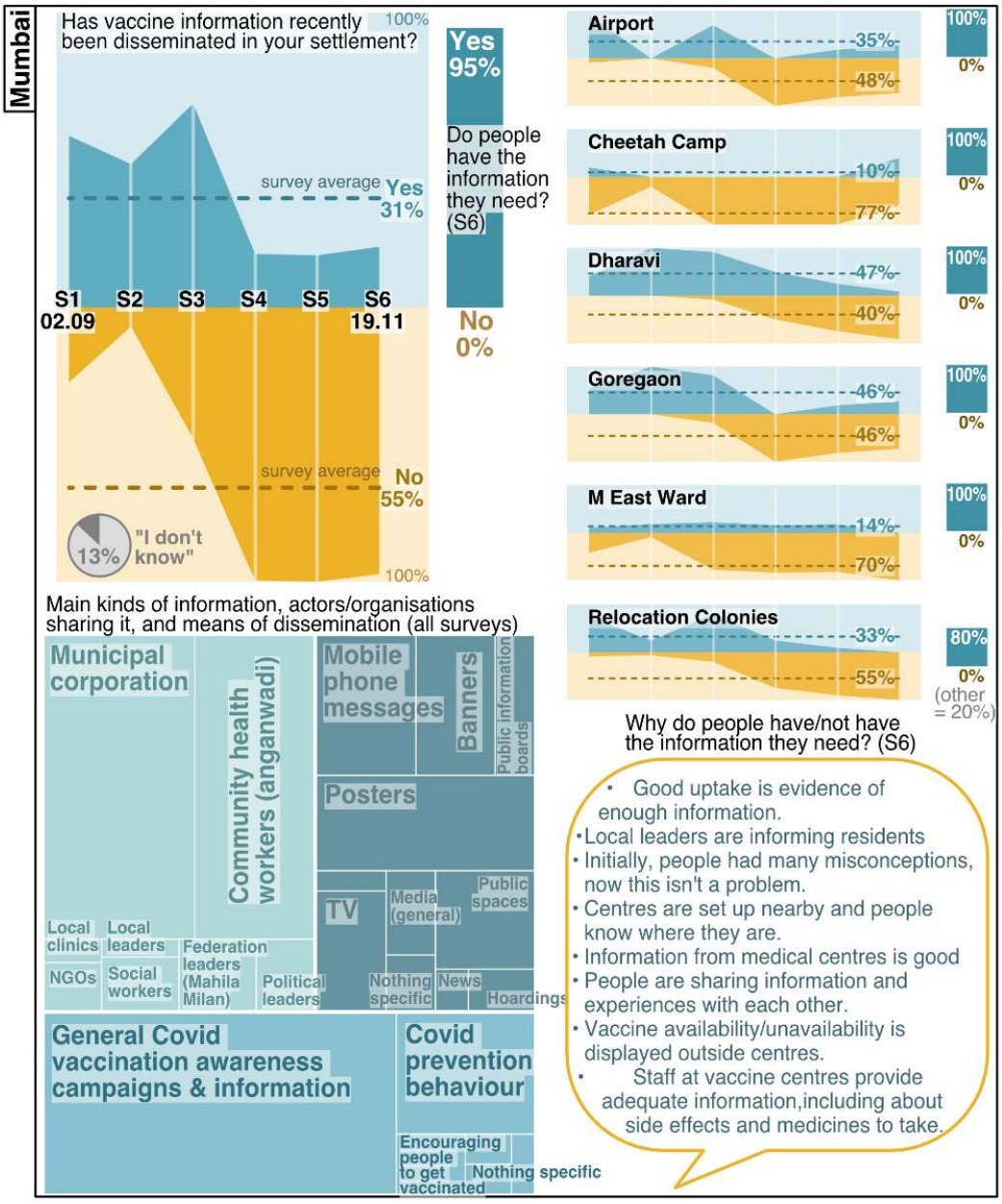
Data analysed

All surveys data (Q6.6–7).
Survey 6 (Q6.9)

All-settlement average and disaggregated by settlement.

Legend

Yes
No



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Appendix 1: Survey respondent demographics

Survey question(s)

Q3.2. Choose up to 2 that best describe your role in your settlement / community

Q3.3. Are you: Female/ Male/ Non-binary or third gender/ Prefer not to say

Q3.4. What is your age?

Data analysed

Survey 6 data.

All-settlement average, by city.

Legend

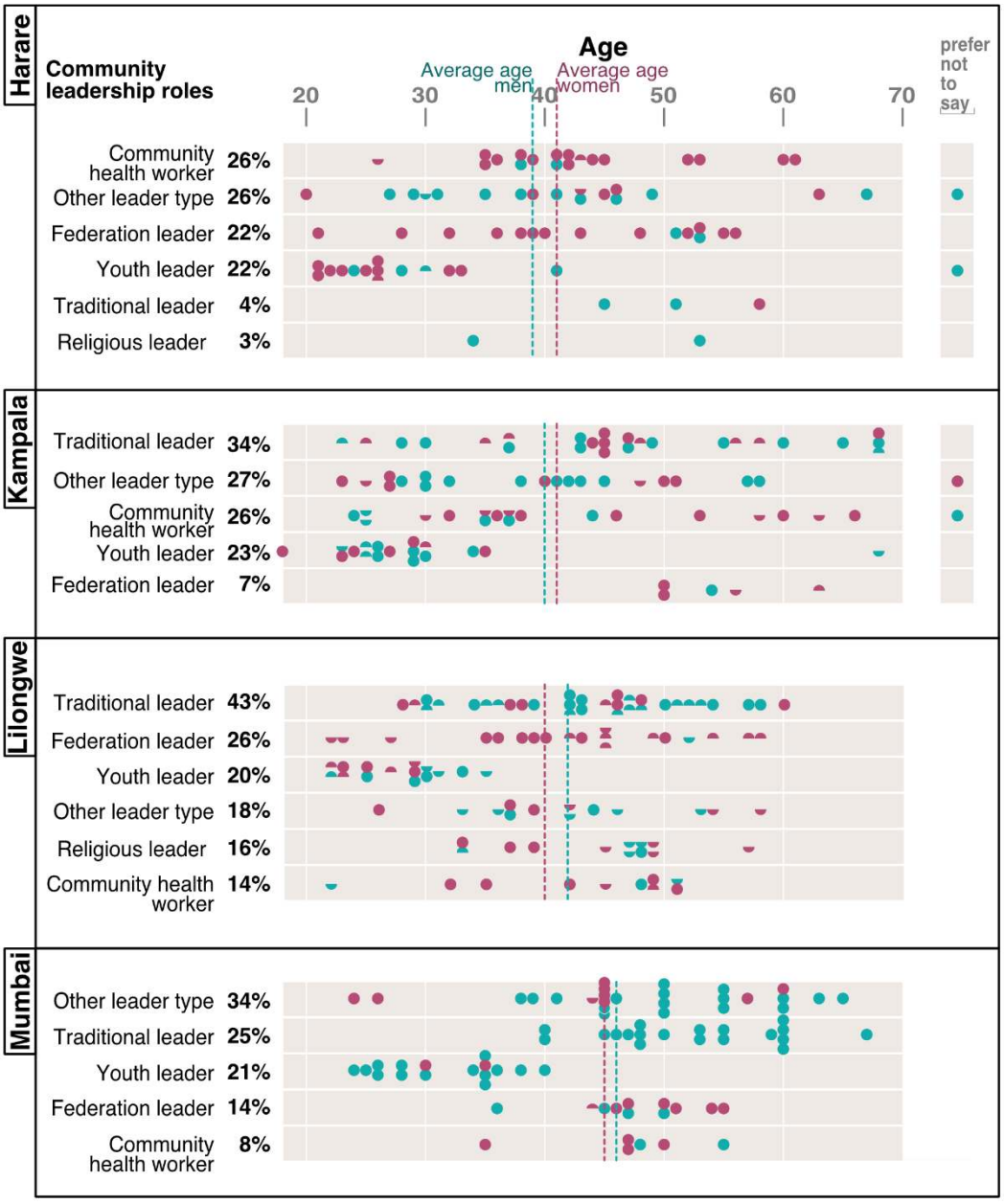
Women

Men

1 respondent identifies with 2 leadership roles

Average age (by gender)

26% % respondents in a particular leadership role



Appendix 2: Respondent numbers and turnover, by survey

Survey question(s)

Q1.1 Is this the first time you have taken this survey?

Q3.3. Are you: Female/ Male...

Q3.5 Name of city where you live

Q3.7 Name of settlement where you live

Data analysed

All surveys (1–6) data. Survey-by-survey.

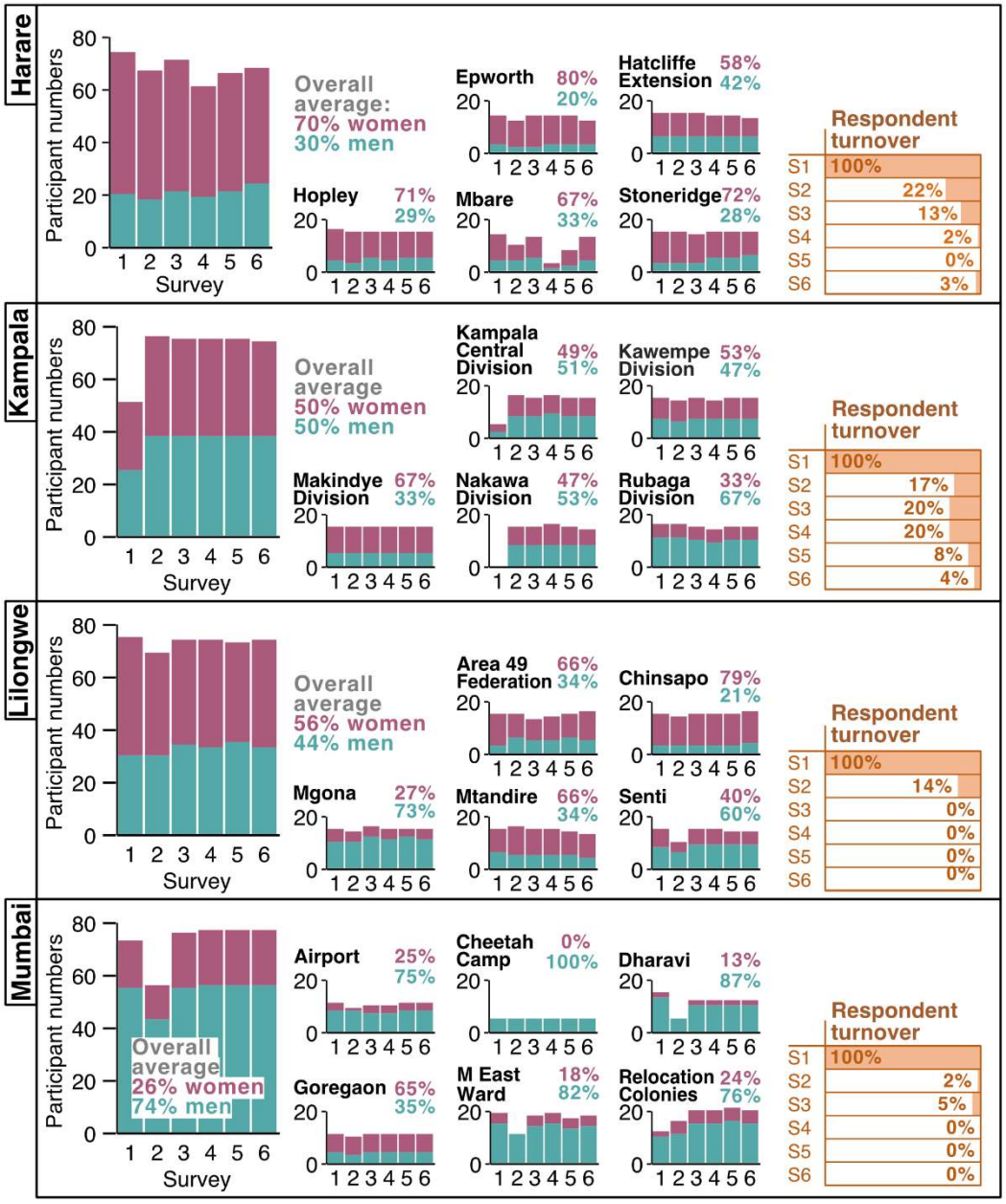
All-settlement average & disaggregated by settlement.

Legend

Women

Men

All participants



Appendix 3: Respondents' reflections on the role of community leaders

Survey question(s)

Q5.28 As a community leader, do you think you or other community leaders have a role to play in the vaccination rollout? If so please explain what that might be.

Data analysed

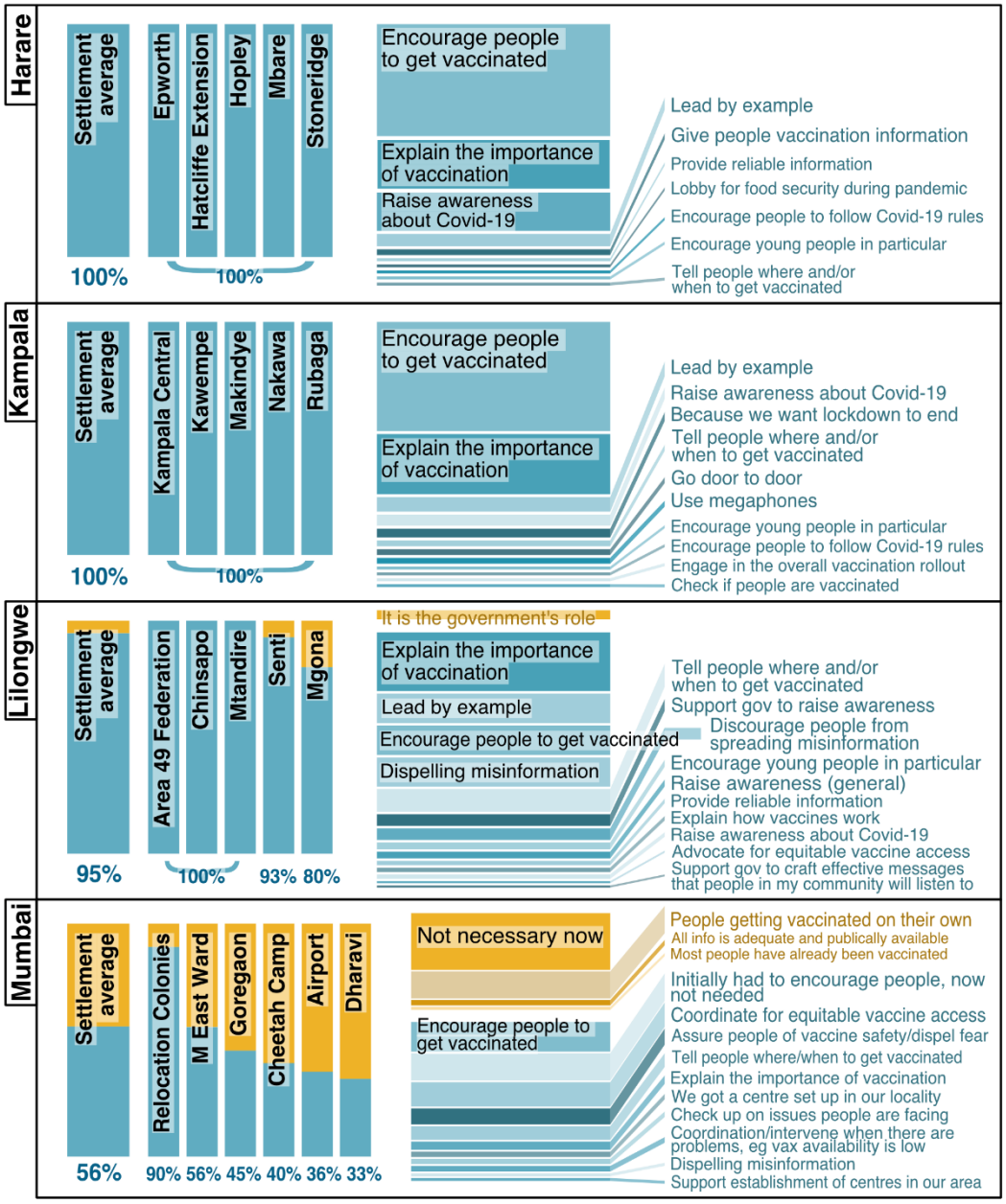
All surveys (1–6) data.

All-settlement average/ aggregation, by city.

Legend

Yes, there is a role for community leaders

No



Appendix 4: Survey questionnaire

SECTION 1: RESEARCH PARTICIPANT CONSENT (omitted)

SECTION 2: WHO IS ASKING THE QUESTIONS? (ABOUT THE INTERVIEWER)

Q2.1 Full name of interviewer

Q2.2 Organisation of interviewer
- Mumbai, India: Mahila Milan & SPARC
- Kampala, Uganda: Slum Dwellers Federation of Uganda & ACTogether
- Lilongwe, Malawi: Malawi Federation of the Rural and Urban Poor & Centre for Community Organisation and Development (CCODE)
- Harare, Zimbabwe: Zimbabwe Homeless Peoples Federation & Dialogue on Shelter

Q2.3 Date of interview

SECTION 3: ABOUT THE INTERVIEWEE / RESEARCH PARTICIPANT

Q3.1 Full name of interviewee

Q3.2 Choose up to 2 that best describe your role in your settlement / community:
- Traditional leader in my community (eg elder, village elder, block leader etc)
- Youth leader in my community
- Federation leader
- Religious leader in my community
- Community health care worker (eg government-authorised community health volunteer, health surveillance officer, etc)
- Other kind of community leader [you must give more information below about what kind of a community leader]

Q3.3 Are you...
- Female
- Male
- Non-binary or third gender
- Prefer not to say

Q3.4 What is your age?

Q3.5 Name of the city/town where you live
- Kampala, Uganda
- Mumbai, India
- Lilongwe, Malawi
- Harare, Zimbabwe

Q3.6 Optional: Name of the ward, parish (or equivalent municipal subdivision) where you live

Q3.7 Name of the settlement where you live

If Q3.5 = Lilongwe, Malawi
- Area 49 Federation
- Chinsapo
- Mtandire
- Mgona
- Senti

If Q3.5 = Harare, Zimbabwe
- Epworth
- Hatcliffe Extension
- Hopley
- Mbare
- Stoneridge

If Q3.5 = Kampala, Uganda
- Tubuyoleka & Mugowa & Lufula (Bwaise II) & Kalimali (Bwaise III), Kawempe Division
- Go Down I & Kasenke (Naguru), Nakawa Division
- Kiwempe & Sankala (Lukuli), Makindye Division
- Kiti Zone & Kiguli Zone (Kisenyi III), Kampala Central Division
- Zone IV(4) & Zone V(5) & Zone VI(6) & Zone VII(7) (Nakulabye), Rubaga Division

If Q3.5 = Mumbai, India
- Area: Goregaon
- Area: Dharavi
- Area: M East Ward
- Area: Cheetah Camp
- Area: Airport
- Area: Relocation Colonies

Q3.8 Optional: Name of the smaller neighbourhood within the settlement where you live (eg village, zone, etc)

SECTION 4: COVID-19 TESTING, INFECTIONS AND DEATHS IN YOUR SETTLEMENT

Q4.1 In the past 2 weeks, has there been testing of any kind for coronavirus in your settlement (by any organisation)?
- Yes
- No
- Don't know

I*f YES: go on to Q 4.2; If NO or DON'T KNOW: skip to Q 4.3*

Q4.2 What kind of testing and by whom? Where and at what type of venue?

Q4.3 In the past 2 weeks, have there been any (reliable) reports of new infections/cases of Covid-19 in your settlement?
- Yes
- No
- Don't know

If YES: go on to Q 4.4; If NO or DON'T KNOW: skip to Q 4.6

Q4.4 Approximately how many new cases have there been in your settlement in the past 2 weeks?
- Approximate number of cases (in whole numbers)
- Don't know
- Comment / other

Q4.5 If not from testing, what is the source or sources of information for the number of new cases?

Q4.6 In the past 2 weeks, have there been any (reliable) reports of new deaths due to Covid-19 in your settlement?
- Yes
- No
- Don't know

If YES: go on to Q 4.7; If NO or DON'T KNOW: skip to SECTION 5

Q4.7 Approximately how many new deaths due to Covid-19 have there been in your settlement in the past 2 weeks?
- Number of deaths (in whole numbers)
- Don't know
- Comment / other

Q4.8 What is the source or sources of information for the number of new deaths?

SECTION 5: COVID-19 VACCINE ROLLOUT IN YOUR SETTLEMENT

Q5.1 In the last 2 weeks, has any kind of official Covid-19 vaccine rollout been taking place in your town/city (eg linked to the national health care system or some other government-authorised health care provider)?
- Yes
- No
- Don't know
- Comment / other

If YES: go on to Q 5.2; If NO or DON'T KNOW: skip to Q 5.19

Q5.2 In the last 2 weeks, has any kind of official Covid-19 vaccine rollout been taking place that is available or accessible to people living in your settlement (regardless of where vaccination is taking place)?
- Yes
- No
- Don't know
- Comment / other

If YES: skip to Q 5.4; If NO or DON'T KNOW: skip to Q 5.19; If NO and answer to Q5.1 was YES: go on to Q5.3

Q5.3 You said that there has been an official vaccination programme in your city. You also said that there is no official vaccination programme that is accessible to people living in your settlement. Can you say more about why the official vaccines are not accessible for people living in your settlement?

Q5.4 In the last 2 weeks, which groups of people in your settlement have been eligible to access vaccines? (Please select all that apply and tell us about any other groups of people who are eligible).
- 'All adults'
- Frontline health workers
- Essential workers
- Older people [please specify above what age people are eligible]
- People with pre-existing health conditions who are vulnerable (ie with comorbidities)
- All adults
- Everyone (all adults and children)
- Don't know
- Other particular groups

Q5.4 pt 2 Are there any groups or types of people who want to get a vaccine but can't, or who find it difficult to access vaccines? Who and why? *<ONLY ASKED ON SURVEY 6>*
- Yes (please explain which groups and the reasons)
- No (optional text entry)
- Don't know

Q5.5 In the past 2 weeks, where is the official Covid-19 vaccination taking place that is available / accessible to people living in your settlement?
- In or near to my settlement
- Only outside this local area (ie not near to my settlement)
- Don't know
- Comment / other

If IN OR NEAR TO MY SETTLEMENT: go on to Q 5.5; If ONLY OUTSIDE THIS LOCAL AREA: skip to Q 5.7; If DON'T KNOW: skip to Q 5.8

Q5.6 You said that there is an official Covid-19 vaccination programme where people can get vaccinated in or near your settlement. Since when this year (2021) has the Covid-19 vaccine rollout been taking place in/near your settlement?
- Approximate date, or month
- Don't know
- Comment / other

Q5.7 In the past 2 weeks, where are people who live in your settlement getting vaccinated? What type of venue is it (eg hospital, church)?

Q5.8 You said that there is an official Covid-19 vaccination programme that is available or accessible to people living in your settlement. Over the last 2 weeks, roughly how many people who live in your settlement have got a Covid-19 vaccine?
- Number of people
- Don't know
- Comment / other

Q5.9 In the past 2 weeks, do you know of anyone living in your settlement who has received a vaccine outside of the local area, for example at their place of work?
- Yes
- No, I don't know
- Comment / other

If YES: go on to Q 5.10; If NO: skip to Q 5.11

Q5.10 Can you tell us about them and their vaccination(s)? (For example who they are (eg relationship to you, gender, age, work), why they were offered a vaccination, why they wanted a vaccination, where they got vaccinated and why outside their local area, how was their experience ...?)

•

Q5.11 You said that there is an official Covid-19 vaccination programme that is available or accessible to people living in your settlement. In the last 2 weeks, which vaccines are people who live in your settlement being offered? (You can select all that apply.)

- Johnson & Johnson / Janssen
- Moderna
- Pfizer-BioNTech / Comirnaty
- Oxford-AstraZeneca / Covishield / Vaxzevria
- Novavax / Covovax
- Chinese vaccine (type unknown)
- Russian vaccine (type unknown)
- Sinovac / CoronaVac (from China)
- Sinopharm (BBIBP) (from China)
- Sinopharm (WIBP) / WIBP-CorV (from China)
- Covaxin / BBV152 (from India)
- CoviVac (from Russia)
- EpiVacCorona (from Russia)
- Sputnik V (from Russia)
- Sputnik Light (from Russia)
- ZIFIVAX / ZF2001 / RBD-Dimer (from Russia)
- Don't know
- Comment / other

If DON'T KNOW: skip to Q 5.15; Otherwise go on to Q5.12

Q5.12 Do you know if this vaccine / any of these vaccines need a second vaccination?

- Yes, a second vaccination is needed for some or all of the vaccines available to people in my settlement
- No, a second vaccination isn't needed
- Don't know
- Comment / other

If YES: on to Q 5.13; If NO or DON"T KNOW: skip to Q5.15

Q5.13 Has the process for getting a second vaccination been arranged as part of the official vaccine programme?

- Yes
- No
- Don't know
- Comment / other

Q5.14 How is a second vaccine arranged? If not arranged already, do you know how it will be arranged?

- Please tell us what you know about second vaccine arrangements
- Don't know
- Comment / other

Q5.14 pt 2 Please explain what you know about second vaccine uptake. Are people willing and able to get second vaccines? *<only SURVEY 6>*

- Yes (please explain why)
- No (please explain why)
- Don't know

Q5.15 Is there a cost to the individual to get official vaccines?

- Yes
- No
- Don't know
- Comment / other

If YES: go on to Q 5.16; If NO or DON'T KNOW: skip to Q5.19

Q5.16 What payments do people have to make?

- Below, please give information about what people have to pay
- Don't know
- Comment / other

Q5.17 To whom are payments made?

- Please tell us about the people, groups or organisations that receive the payments for official government vaccines
- Don't know

Q5.18 Is a receipt provided?

- Yes
- No
- Don't know
- Comment / other

Q5.19 In the past 2 weeks, are vaccines available to people who live in your settlement in alternative ways than through the official government rollout (whether these ways are legitimate or not)?

- Yes
- No
- Don't know
- Comment / other

If YES: go on to Q 5.20; If NO or DON'T KNOW: skip to Q5.26

Q5.20 You said that in the past 2 weeks, vaccines are available to people in your settlement in other ways than the official government Covid-19 vaccination rollout. Who is providing these vaccines?

- Below, please tell us which people, groups or organisations are providing vaccines outside of the official government rollout
- Don't know

Q5.21 In the past 2 weeks, do you know anyone that has accessed such vaccines (ie in other ways than through the official government rollout?)

- Yes
- No
- Comment / other

Q5.22 If there was a cost, do you know what they had to pay?

- Below, please tell us about what payments they had to make
- It was free
- Don't know

If PAYMENT INFO: go on to Q 5.23; If IT WAS FREE or DON'T KNOW: skip to Q5.25

Q5.23 To whom did they make the payment?

- Below, please tell us about people, groups or organisations that receive payments for vaccines accessed in alternative ways
- Don't know

Q5.24 Is a receipt provided?

- Yes
- No
- Don't know
- Comment / other

Q5.25 In the past 2 weeks, which vaccines are people who live in your settlement being offered in ways that are outside the official government vaccination programme? (You can select all that apply.)
- Johnson & Johnson / Janssen
- Moderna
- Pfizer-BioNTech / Comirnaty
- Oxford-AstraZeneca / Covishield / Vaxzevria
- Novavax / Covovax
- Chinese vaccine (type unknown)
- Russian vaccine (type unknown)
- Sinovac / CoronaVac (from China)
- Sinopharm (BBIBP) (from China)
- Sinopharm (WIBP) / WIBP-CorV (from China)
- Covaxin / BBV152 (from India)
- CoviVac (from Russia)
- EpiVacCorona (from Russia)
- Sputnik V (from Russia)
- Sputnik Light (from Russia)
- ZIFIVAX / ZF2001 / RBD-Dimer (from Russia)
- Don't know
- Comment / other

Q5.26 Have you noticed any significant difference in vaccine uptake between men and women who live in your settlement?
- Yes, more men than women are getting vaccinated [explain why you think this is]
- Yes, more women than men are getting vaccinated [please explain]
- No difference
- Nobody is getting vaccinated of either sex
- Don't know
- Comment / other

Q5.27 Since September 2021, when this survey began, have you observed any changes in the vaccine rollout in your city and settlement? What and why? (Could be eg changes in uptake or availability or accessibility or something else.) *<ONLY ASKED ON SURVEY 6>*

Q5.28 As a community leader, do you think you or other community leaders have a role to play in the vaccination rollout? If so, please explain what that might be. *<ONLY ASKED ON SURVEY 6>*
- Yes (please explain the reasons)
- No (please explain the reasons)

SECTION 6: ATTITUDES AND INFORMATION ABOUT VACCINATION

Q6.1 To what extent do you agree with this statement: “If a Covid-19 vaccine were made available to me this week, I would definitely get it”?
- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree
- Prefer not to say
- I am already fully vaccinated

Q6.2 Anything you want to add to your answer, for example your reasons?

Q6.4 Do you personally know anyone who, in the last 2 weeks, has been offered and refused a Covid-19 vaccine?
- Yes
- No, don't know

If YES: go on to Q 6.5; If NO: skip to Q6.6

Q6.5 Can you tell us about it?
- Below, please tell us their story (ie information about them and the vaccination offer they refused). Eg you could tell us who they are (relationship to you, gender, age, nature of work), why they were eligible to be offered a vaccination, the reasons why they did not want the vaccination, what were the circumstances, etc.
- Prefer not to say

Q6.6 In the past 2 weeks, is public health information about Covid-19 vaccination or vaccines being shared or disseminated in your settlement?
- Yes
- No
- Don't know

If YES: go on to Q 6.7; If NO or DON’T KNOW: skip to SECTION 7

Q6.7 What kinds of information? From which actors or organisations? How and in what ways is the information being disseminated?

Q6.8 How do people find out how and where they can get a vaccine? What is the source of information and is it adequate? *<ONLY ASKED ON SURVEY 6>*

Q6.9 Do people in your settlements have the information they need about vaccines and vaccination rollout in their area? Please explain your reasons and if you think anything else should be done (and who should be responsible)?*<ONLY ASKED ON SURVEY 6>*

SECTION 7: PUBLIC BEHAVIOUR, ECONOMIC IMPACT & GOVERNMENT PANDEMIC RESPONSE

This section was only asked on the 1st and 6th survey iterations.

Q7.1 Are people in your settlement still observing the recommended precautions against coronavirus infection – eg social distancing, handwashing, wearing a mask etc?
- Not really & hardly any precautions
- Sometimes & some precautions
- Most of the time & most precautions
- Nearly always & nearly all precautions
- Optional: Below, please give any additional information about why you think this is the case

Q7.2 When you are in public spaces in your settlement, do you yourself observe the recommended precautions against coronavirus infection?

- Not really & hardly any precautions
- Sometimes & some precautions
- Most of the time & most precautions
- Nearly always & nearly all precautions
- Prefer not to say
- Optional: below, please give any additional information about why this is the case

Q7.3 When you are in public spaces outside your settlement, do you yourself observe the recommended precautions against coronavirus infection?
- Not really & hardly any precautions
- Sometimes & some precautions
- Most of the time & most precautions
- Nearly always & nearly all precautions
- Prefer not to say
- Optional: Below, please give any additional information about why this is the case

Q7.4 In the past week, has there been an enforced lockdown or curfew in your settlement?
- Lockdown
- Curfew
- Both lockdown and curfew
- Neither lockdown nor curfew
- Don't know
- Comment / other

If CURFEW or LOCKDOWN AND CURFEW: go on to Q 7.5; Otherwise: skip to Q 7.6

Q7.5 What time does the curfew start and end?
- Time the curfew in my settlement STARTS
- Time the curfew in my settlement ENDS
- Don't know

Q7.6 In the past week, were any of the following activities happening in your settlement, aimed at helping deal with the economic emergency related to the pandemic? (Please select all that apply.)
- Support for basic needs to vulnerable people
- Support for basic needs to non-vulnerable
- Food distribution
- Cash support
- Water provided free through kiosks and standpipes
- Don't know
- Optional: please give information about any other activities taking place in your settlement to help your community deal with the economic emergency related to the coronavirus pandemic

If FOOD DISTRIBUTION and/or CASH SUPPORT: go on to Q 7.7 and Q 7.8; Otherwise, skip to Q 7.9

Q7.7 You said that in the past week, food distribution was happening in your settlement?
- If you can, below, please tell us approximately how many people in your settlement are receiving food
- If you can, below, please tell us approximately what proportion of the settlement is receiving food (ie what percentage of the settlement population?)
- Don't know

Q7.8 You said that in the past week, cash support was happening in your settlement?
- If you can, below, please tell us approximately how many people in your settlement are receiving cash support
- If you can, below, please tell us approximately what proportion of the settlement is receiving cash support (ie what percentage of the settlement population?)
- Don't know

Q7.9 Of those people who are normally working informally in your settlement, how many informal workers are no longer working?
- 80-100% (Nearly all are no longer working)
- 60-80% (Most are no longer working)
- 40-60% (Around half are no longer working)
- 20-40% (Most are still working)
- 0-20% (Nearly all are still working)
- Don't know
- Optional: below, please give any additional information about why this is the case

Q7.10 Of those people who are normally working formally in your settlement, how many have been laid off and are no longer working?
- 80-100% (Nearly all are no longer working)
- 60-80% (Most are no longer working)
- 40-60% (Around half are no longer working)
- 20-40% (Most are still working)
- 0-20% (Nearly all are still working)
- Don't know
- Optional: Below, please give any additional information about why this is the case

Q7.11 About you: are you... (please select all that apply)
- Formally employed
- Casually employed
- Self-employed
- Prefer not to say
- Comment / other

Q7.12 Has your income been affected either positively or negatively, by and during the pandemic?
- Positively
- Negatively
- My income has not been affected either way
- Prefer not to say
- Comment / other

Q7.13 Are you a member of a savings group in your community?
- Yes
- No
- Prefer not to say
- Option to give additional information, eg name of group and/or the number of savers

If YES: go on to Q 7.14; If NO or DON'T KNOW: skip to Q 7.16

Q7.14 Do you save?
- Yes
- No
- Prefer not to say

If YES: go on to Q 7.15; If NO or PREFER NOT TO SAY: skip to Q 7.16

Q7.15 How have your own savings been affected by the pandemic?

- Positively
- Negatively
- My savings have not been affected either way
- Prefer not to say
- Optional: below, please give any additional information about why this is the case

Q7.16 Overall, how have your savings group's savings been affected by the pandemic?

- Positively
- Negatively
- The group's savings have not been affected either way
- Prefer not to say
- Don't know
- Optional: below, please give any additional information about why you think this is the case

Q7.17 LAST QUESTION! Is there anything else you would like to say in your response today? About any of the vaccination issues raised or about something different. *<ONLY ASKED ON SURVEY 6>*

END OF SURVEY MESSAGE

You have reached the end of the survey. We thank you for your time. Your response has been recorded.

This is the 6th and final survey in our 3-month study. We have been really grateful for your time and knowledge.

If you have any questions about how we are going to use this data, or would like more information, please speak to your interviewer or contact the people whose names are on the participant information sheet.

Appendix 5: Further reading

Read more about this project. The following resources provide more analysis:

- The Covid Collective: covid-collective.net/project/covid-19-vaccination-roll-out-in-informal-low-income-settlements/
- Lines, K, Sebbanja, JA, Dzimadzi, S, Mitlin, D, Mudimu-Matsangaise, P, Rao, V and Zidana, H (2022). "Covid-19 vaccine rollout: Challenges and insights from informal settlements". *IDS Bulletin* 53(3): 83–110. Available: bulletin.ids.ac.uk/index.php/idsbo/article/view/3170/3218 (accessed 11 October 2022). Some of the narrative text in this report is drawn from this paper.
- Mitlin, D and Lines, K (2022). "Uncovering experiences of Covid-19 vaccination in informal settlements". ACRC blog. Available: african-cities.org/uncovering-experiences-of-covid-19-vaccination-programmes-in-informal-settlements/ (accessed 10 October 2022).
- KYC.TV (2022). "Covid-19 vaccination chat: Film on people's perspectives of the vaccination rollout". Kampala and Harare. Available: youtube.com/watch?v=R8IZPyStqq0 (accessed 11 October 2022).
- Lines, K, Sebbanja, JA, Lubega, E, Dzimadzi, S, Zidana, H, Mudimu-Matsangaise, P, Rao, V, Mitlin, D (forthcoming 2023). "Field note". *Environment & Urbanization.*