SUMMARY REPORT

Elizabeth Glaser Pediatric AIDS Foundation
Fighting for an AIDS-free generation

epicentre

South Africa Infection Prevention and Control Study

Disruptions in Health Services Delivery Due to IPC Limitations in the Context of COVID-19

The coronavirus disease 2019 (COVID-19) pandemic, caused by the transmission of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus, has disrupted the delivery of health services worldwide. This health emergency has reinforced the need for infection prevention and control (IPC) processes and procedures, which seek to prevent patient and health workers from being harmed by hospital-acquired infections, antimicrobial resistance, and infectious disease outbreaks. Examples of IPC measures include hand washing, environmental cleaning, social distancing, and wearing personal protective equipment (PPE), such as masks and gloves. While IPC processes and procedures aim to reduce virus transmission and mortality, the extent to which IPC limitations or commitments may contribute to health service disruptions is largely unknown. The COVID-19 pandemic overwhelmed many health systems and led to a variety of disruptions in services from provision of essential care to surveillance systems and processes for antimicrobial resistance (AMR) - another important, global threat. Understanding the role of IPC in health emergencies will help public health specialists to develop more effective IPC protocols and trainings, improve access to supplies and trained professionals, strengthen AMR activities, and prevent potential disruptions during future crises.

STUDY OBJECTIVES

The IPC Study aimed to quantify the type and extent of health service disruptions and to assess the extent to which IPC processes and limitations may have contributed to those disruptions between March 2020 and February 2021. Key study questions included:

- **DISRUPTIONS:** How many and what types of health service disruptions occurred? How severe were the disruptions and how often were services disrupted? Which service points were most disrupted? What plans were put into place to prevent future disruptions?
- **IPC LIMITATIONS OR COMMITMENTS:** How many disruptions were related to IPC limitations or commitments, such as policies, resources, PPE and other supplies, training, staff availability, and exposure procedures?
- **FACILITY ATTENDANCE BY SERVICE POINT:** What effect did the COVID-19 pandemic have on facility attendance across different service delivery points, such as inpatient and outpatient services?
- **AMR SURVEILLANCE AND LABORATORY SYSTEMS:** To what extent were AMR activities and laboratory operations disrupted during the COVID-19 pandemic?

STUDY DESIGN

Participating Facilities by Level

The study was conducted in **43 health facilities** in Gauteng and KwaZulu-Natal provinces, which had the highest numbers of cumulative COVID-19 cases in June 2021. The study was conducted in all central, provincial, and district hospitals and randomly-selected health centers and clinics.

METHODS

Data were collected across multiple sources for the period of March 2020 to February 2021.

Interviews were held with **IPC Focal Points** using a **structured questionnaire** to capture information on disruptions, IPC-related reasons for disruptions, and IPC guidelines and procedures, with open ended questions to gather **qualitative data.**

Interviews were held with **Facility Directors** using a **structured questionnaire** to capture information about disruptions and changes in patient admission and staffing, with open ended questions to gather **qualitative data.**

Interviews were held with **Pharmacists** using a **structured questionnaire** to capture changes in the use of antibiotics.

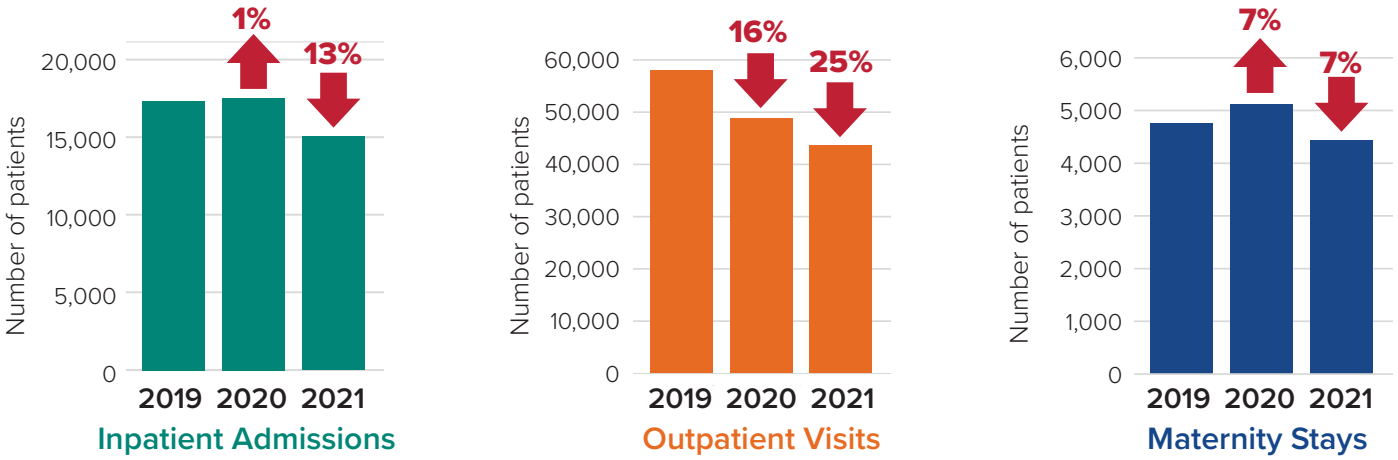
Interviews were held with **Laboratory Directors** using a **structured questionnaire** to capture changes in laboratory supplies, training, and AMR activities.

Aggregate patient attendance data was extracted for pre- and post-pandemic periods at various service points.

KEY RESULTS

Significant decreases were seen in attendance at inpatient, outpatient, and maternity services.

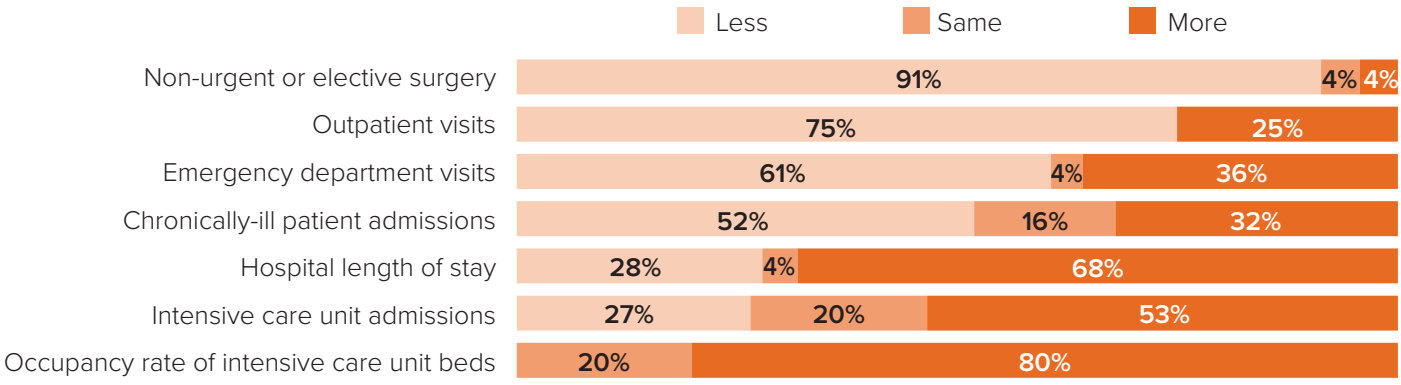
Cumulative numbers of patients served at the participating facilities by type of service.



Patient attendance decreased after the pandemic began in 2020 and continued to decrease in 2021.

Compared to 2019, Facility Directors reported having fewer elective surgeries, outpatient and emergency visits, and chronically-ill patient admissions at their facilities in 2020 but longer hospital stays and sicker patients.

Perceived changes in patient admissions/visits occurring in 2020 compared to 2019 as reported by Facility Directors

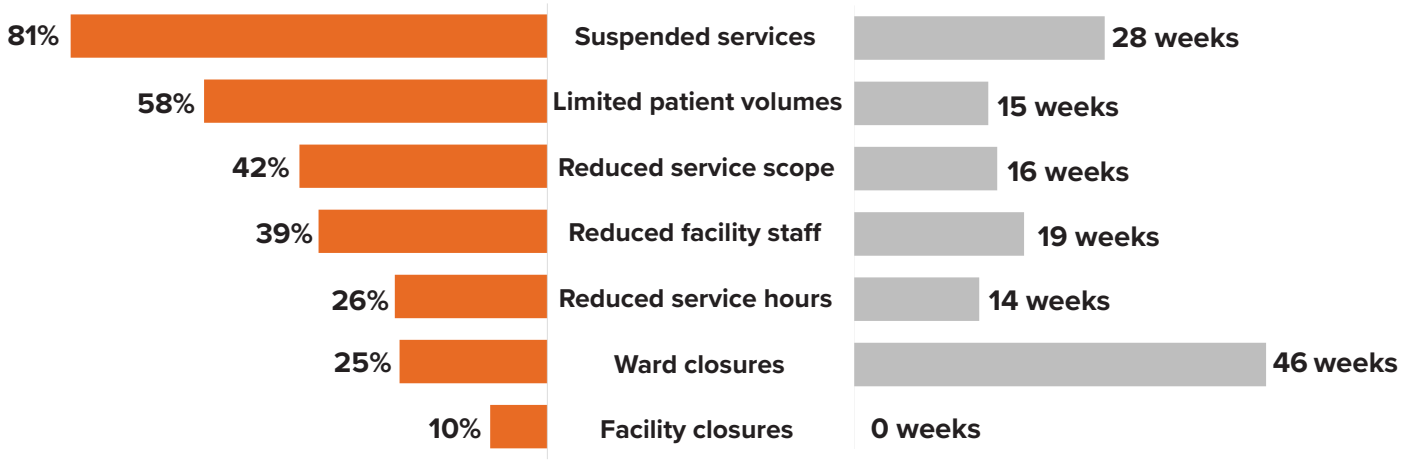


The majority of health facilities reported having at least one service disruption.

74% of health facilities (n=31/42) reported having at least one disruption to essential health services from March 2020 through February 2021. Health service disruptions were defined as an active policy decision enacted by facility administration that led to reduced provisions of essential health services. Of the 31 facilities that reported disruptions, **97% reported that disruptions were related to IPC**.

Service suspensions and limited patient volumes were the most common type of disruptions.

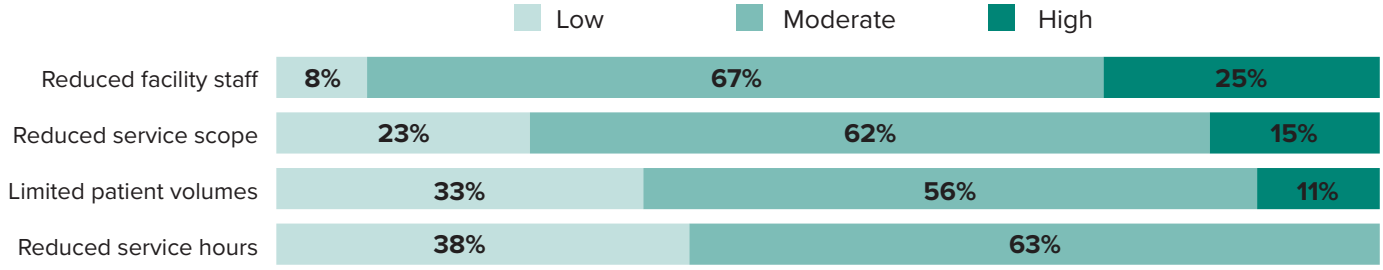
Percentage of disrupted facilities reporting each type of disruption and median weeks of disruption



Disruptions were categorized into seven types: **suspended services** (services stopped or no longer offered), **limited patient volumes** (reduced number of patients served), **reduced facility staff** (fewer staff working), **reduced service scope** (breadth of services decreased), **reduced service hours** (open hours shortened), **ward closures**, and **facility closures**. The extent of disruption was measured by the number of weeks disruptions of that type occurred. Most facilities experienced suspended services and over half limited patient volumes. While ward and facility closures were less common, ward closures led to the most weeks of disruption with a median of 28 weeks.

The severity of disruptions was mostly low to moderate.

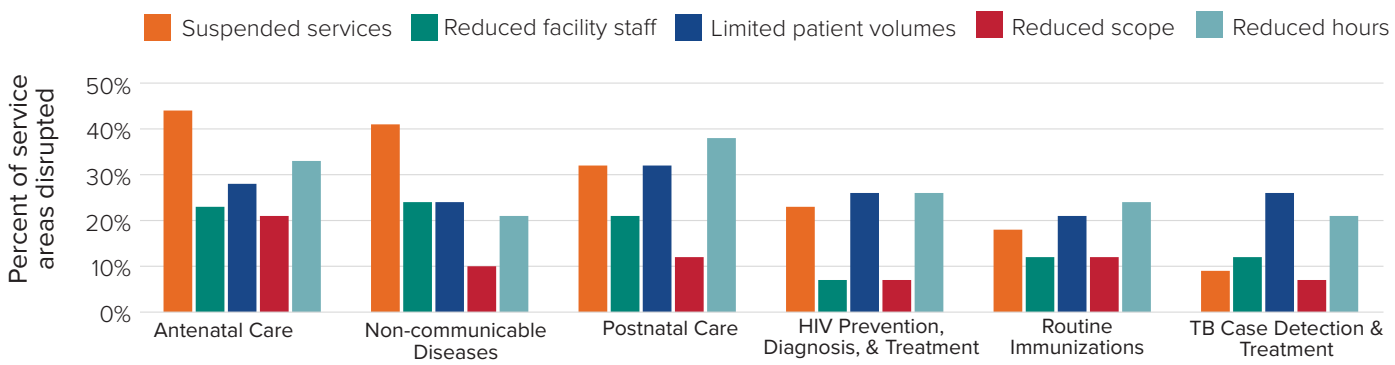
Severity of disruptions as measured by the proportion of service areas affected



Severity of disruption was measured by the proportion of service areas (such as antenatal care or HIV) that experienced disruptions at each facility. Severity was categorized as **low** (less than a quarter of service areas were affected), **moderate** (between one quarter and one half of service areas were affected), or **high** (more than half of all service areas affected). Overall, the severity of disruptions were mostly low to moderate across all disruption types, however, high severity was reported most with disruptions related to reduced facility staff.

Nearly all outpatient and inpatient service areas experienced disruptions.

Percent of service areas disrupted by type of disruption in most frequently disrupted service areas



Maternal, newborn, and child health, non-communicable diseases, HIV, and tuberculosis (TB) services were disrupted most frequently. All five types of service disruptions were reported in nearly all outpatient service areas, most inpatient services areas reported reduced facility staff and limited patient volume disruptions.

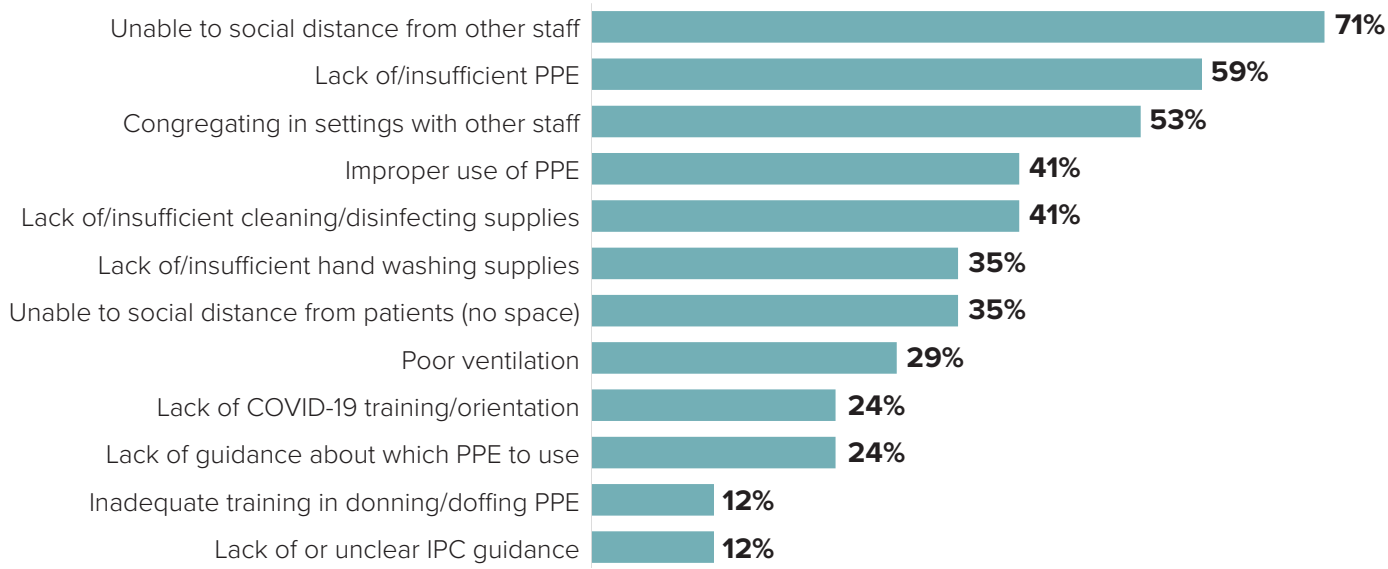
The primary IPC-related reasons for disruptions were COVID-19 illness among patients and staff and IPC directives.

Most frequently reported reasons for service disruptions among facilities reporting IPC-related service disruptions

Of the health facilities experiencing IPC-related disruptions, **half reported taking actions to mitigate IPC-related service disruptions** including prioritizing services for high-risk patients (73%), extending multi-month prescriptions for chronic illnesses such as HIV and non-communicable diseases (60%), supporting self-care initiatives (60%), providing home-based care for certain patients (47%), and redirecting patients to other health facilities (40%).

Health personnel shortages due to COVID-19 illness or fear of illness were reported in 57% of health facilities with IPC-related disruptions, with a median disruption time of 12 weeks.

Ways health personnel may have been exposed to COVID-19 while working prior to disruption



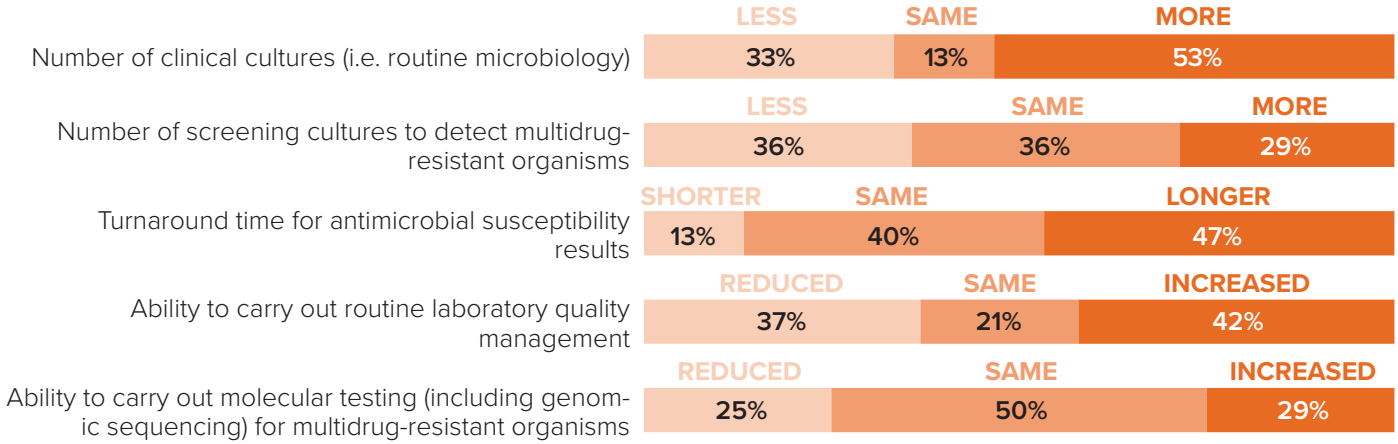
Over half of interview participants noted that **being unable to social distance from other staff and congregating with other staff** were key ways that health personnel were likely exposed to COVID-19. Participants reported that confusion and panic about COVID-19 among staff as well as guideline changes may have led staff to seek support from each other without social distancing. Participants reported that at the beginning of the pandemic, COVID-19 guidelines were not clear, including which PPE to use. While only one health facility reported PPE shortage as a reason for disruption, as highlighted above, **lack of or insufficient PPE, improper use of PPE, and lack of guidance and training in using PPE were all challenges in protecting health personnel**. Participants also described some staff not adhering to COVID-19 protocols as a likely reason staff became ill. Facilities faced critical challenges when a number of health personnel tested positive for COVID-19 at the same time, requiring a 14-day quarantine for themselves and their contacts. Most facilities faced personnel shortages among professional nursing staff, office staff (such as administrators and clerks), cleaners, and auxiliary nursing staff. More than 80% of health facilities reported deploying staff from their usual units to other facility units to keep services running normally.

Implementation of social distancing was a reported reason for disruption in over one-third of facilities with IPC-related disruptions, with a median disruption time of 92 weeks.

Interview participants reported that **insufficient indoor space** was the main challenge in implementing social distancing. Participants also noted that **patients did not have a good understanding of social distancing**. Reorganizing patient flow, using more outdoor space, and using/converting underutilized space were key activities taken by facilities to mitigate social distancing challenges.

Laboratory Directors reported an increase in routine microbiology workload and longer turn-around times for antimicrobial susceptibility results.

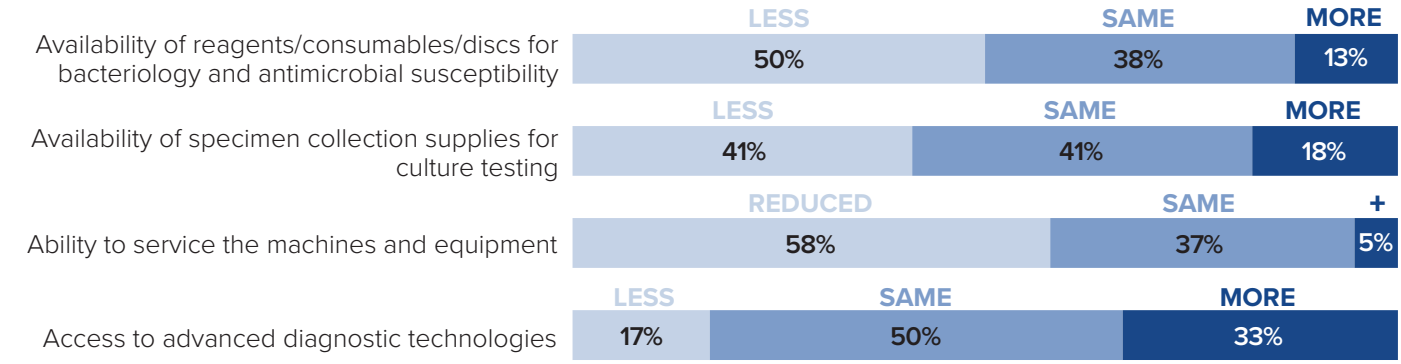
Perceived changes in AMR activities as reported by Laboratory Directors



Over 50% of Lab Directors reported an **increased number of clinical cultures processed** in their lab, while over 40% reported **increased capacity to carry out routine lab quality management**. However, nearly half reported a **longer turnaround time** for antimicrobial susceptibility results.

Laboratory Directors reported a decrease in the availability of reagents and supplies and a reduced ability to service equipment and machines.

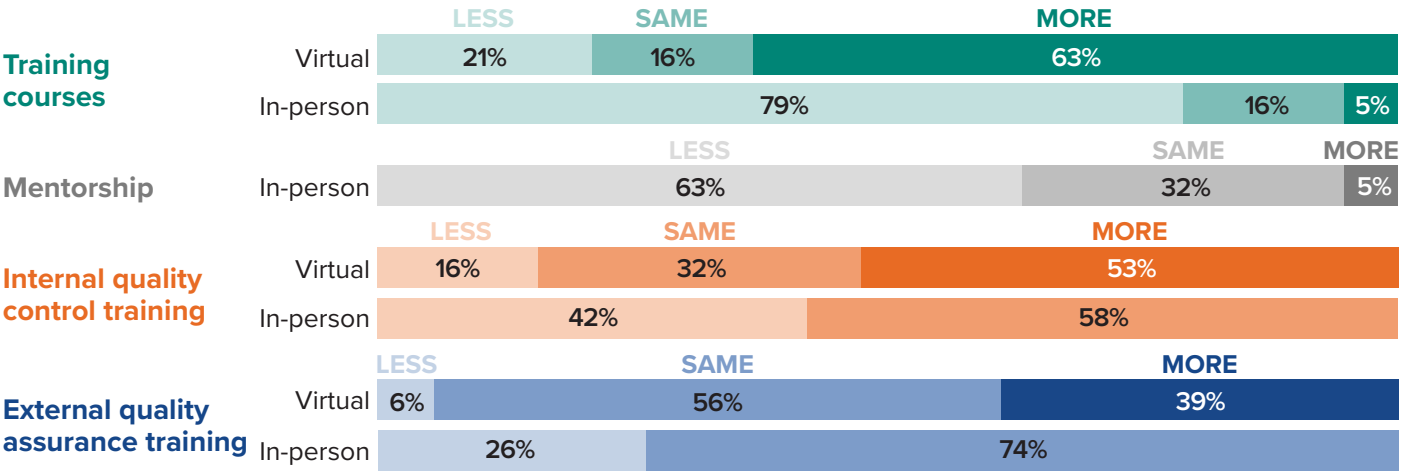
Perceived changes in the availability of laboratory supplies and equipment as reported by Laboratory Directors



Half of Laboratory Directors reported **less availability of reagents, consumables, and discs** for bacteriology and antimicrobial susceptibility and nearly 60% reported a **reduced ability to have machines and equipment serviced**.

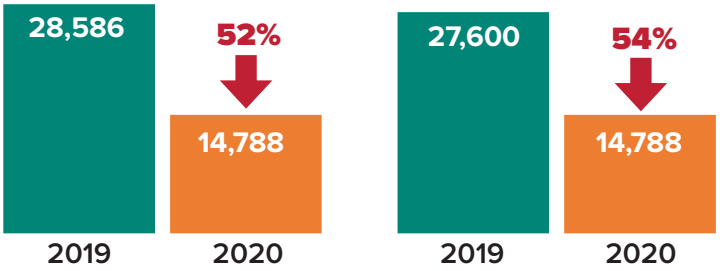
Lab Directors reported that overall training and mentorship activities shifted to virtual platform rather than occurring in-person.

Perceived changes in the availability of laboratory supplies and equipment as reported by Laboratory Directors



The median number of laboratory samples collected and sent for testing dropped by more than 50% from 2019 to 2020.

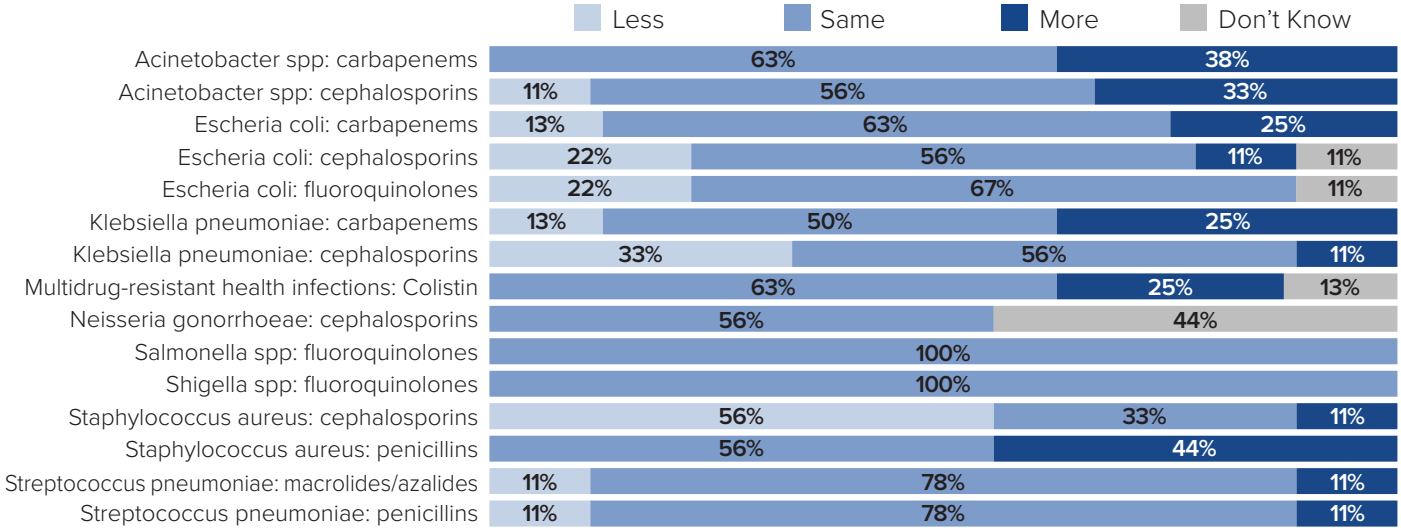
Median numbers of lab samples collected and sent out for testing



Eight laboratories provided information about the numbers of lab samples collected and sent out for testing. A considerable decrease is seen in the median numbers when comparing 2019 and 2020.

Laboratory Directors reported that AMR rates stayed about the same.

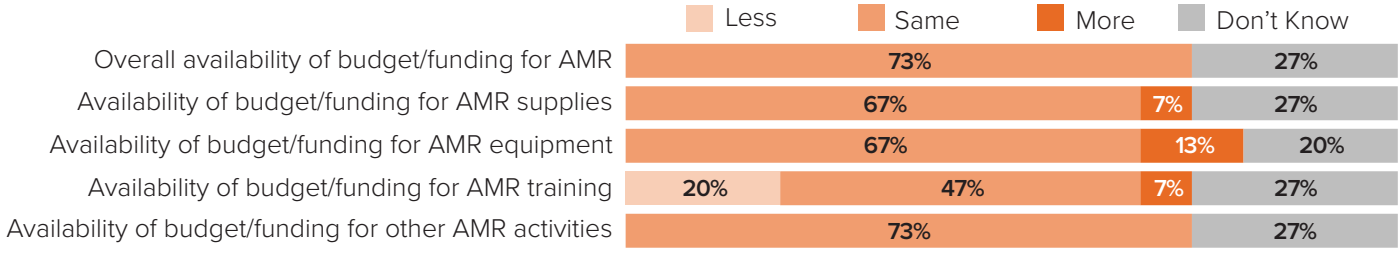
Perceived changes in the antimicrobial resistance rates as reported by Laboratory Directors



Nine laboratories calculated overall AMR rates with no major changes reported across pathogens.

There were no major changes reported in the availability of budget/funding for antimicrobial resistance activities.

Perceived changes in availability of budget/funding for antimicrobial resistance (AMR) activities



The 15 Lab Directors who responded reported that AMR budget/funding availability remained about the same.

OVERALL CONCLUSIONS

- About three in four facilities faced disruptions to essential health services.
- Primary reasons for disruptions included COVID-19 illness among patients and/or staff and IPC directives.
- Protecting health care personnel must be a priority to prevent staff shortages and absences.
- Health facility attendance decreased substantially from March 2020 to February 2021.
- While there were no major shifts in AMR rates, surveillance efforts may have been impacted by fewer lab samples collected and sent for testing, longer turnaround times for results, and shortages of reagents and supplies.

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