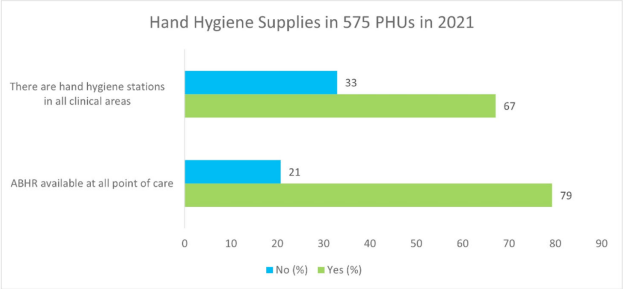

Fig. 2.

COVID-19 era (2019) to the COVID-19 era (2021) was performed based on the WHO IPC Assessment Framework (IPCAF) indicator. **Results:** With an average monthly production of 3,482 L, a total of 41,780 L ABHR was produced and packaged in branded 500-mL containers for distribution to healthcare facilities. This quantity exceeded the estimated demand for ABHR during the COVID-19 pandemic. The data show a considerable increase (from 25% to 44%) in the number of available and functioning HH stations with mainly locally produced ABHR. Results from the monitoring of 575 peripheral health units (PHUs) in 2021 also showed that >67% of PHUs had HH facilities in all clinical areas and that the locally produced ABHR was used in 79% of these HH stations. **Conclusions:** Locally produced ABHR has shown to be a cost-effective and evidence-based intervention to optimize HH at the point of care. Therefore, localities are encouraged to undertake this realistic and sustainable approach to address issues of acute shortage of ABHR, especially during a global pandemic.

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Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Hand Hygiene

A pilot study of using thermal imaging to assess hand hygiene technique

John Boyce and Richard Martinello

Background: Although substantial efforts have been made to improve hand hygiene (HH) compliance among healthcare personnel (HCP), much less attention has been devoted to improving HH technique. To date, no standard method for assessing HH technique has been widely adopted by hospitals. Because applying an alcohol-based hand sanitizer (ABHS) transiently reduces adjacent skin temperature, we explored the feasibility of using thermal imaging to determine whether ABHS has been applied to fingertips and thumbs, areas often missed by HCP. **Methods:** A convenience sample of 12 Quality and Safety staff volunteered for the study. A FLIR One Pro thermal camera attached to an iPhone was used to obtain thermal images of the palmar aspect of each volunteer's dominant hand before applying ~1.8 mL ABHS gel, immediately after hands felt dry, and at 1 minute and 2 minutes later. Spot temperature readings of the mid-palm area and middle finger were recorded at each time point. The sex and estimated hand surface area (HSA in cm^2) of each volunteer were recorded. **Results:** In 11 of 12 volunteers, thermal imaging showed a significant decrease in mid-palm and middle finger skin temperatures after performing HH (paired t test $P < .01$ for both), especially for the fingers and thumb, indicating that ABHS was applied to these areas (Fig. 1). When HH was performed with ABHS and the thumb was purposefully excluded, the lack of colorimetric change in the thumb was visible (Fig. 2). The palmar area showed the least drop in temperature and reverted to normal temperature more quickly. Immediate post-HH mid-palm temperature change ranged from +0.5 to −2.7°C, with a significantly greater mean temperature drop with small or medium hands than with large hands (Mann-Whitney

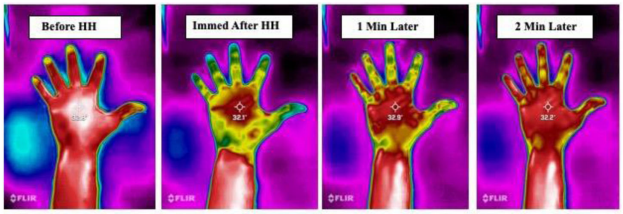

Figure 1. Thermal images of a volunteer's hand before, immediately after HH, and 1 and 2 minutes later

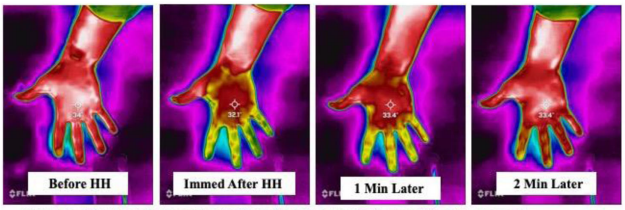

Figure 2. Thermal images illustrating HH using ABHS where the thumb was purposefully excluded

U test $P = .048$). With some volunteers, the color changes lasted 1 minute or longer. However, for persons with "cold" fingers at baseline, it was more difficult to draw conclusions from the gross assessment for colorimetric change. **Conclusions:** Thermal imaging of HH performance shows promise as an HH assessment technique and may be useful to determine whether HCP have applied ABHS to their fingertips and thumbs. Additional studies involving a much larger number of HCP under varying conditions are needed to determine whether thermal imaging can be a practical modality for teaching HH technique, for routinely monitoring HH technique, or as a research tool for studying the dynamics of HH using ABHS.

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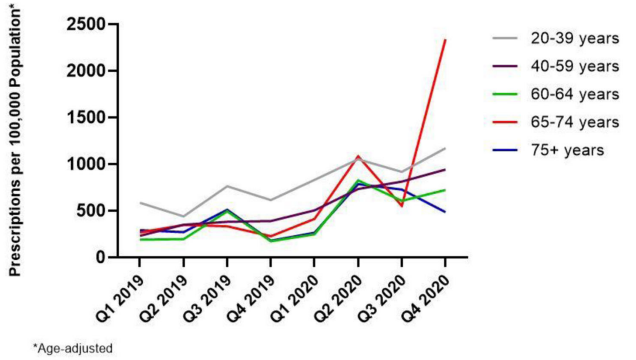
Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Infection Control in Low- and Middle-Income Countries

Prescribing of common outpatient antibiotics for respiratory infections in adults amid the COVID-19 pandemic in Brazil

Dipesh Solanky; Olivia McGovern; Fernanda Lessa; Lauri Hicks; Sharon Tsay and Payal Patel

Background: Inappropriate antibiotic use for SARS-CoV-2 infection has the potential to increase the burden of antibiotic resistance. Brazil experienced spread of a new SARS-CoV-2 variant in the fourth quarter (Q4) of 2020, resulting in the highest case counts in Latin America, raising concerns of antibiotic overuse. To better understand antibiotic use during the COVID-19 pandemic, we evaluated prescribing changes in antibiotics commonly used for outpatient respiratory infections (amoxicillin-clavulanate, azithromycin, and levofloxacin or moxifloxacin [AALM]) among adults aged ≥20 years in Brazil in 2020 versus 2019. **Methods:** We analyzed the IQVIA MIDAS medical data set for AALM prescribing by age group (20–39, 40–59, 60–64, 65–74, ≥75 years), comparing Q4 2020 rates to those in Q4 2019. We estimated crude rate ratios and 95% CIs using prescription number as the numerator (assuming Poisson counts) and age-adjusted population as the denominator. We also determined the most common prescribing specialties for each antibiotic across both time points. **Results:** Compared to Q4 2019, Q4 2020 azithromycin prescribing increased among all ages, ranging from 90.7% (95% CI, 90.0%–91.4%) in those aged 20–39 years to 927.2% (95% CI, 912.9%–941.7%) in those aged 65–74 years (Fig. 1). Amoxicillin-clavulanate prescribing decreased for most ages, ranging from −78.4% (95% CI, −78.7% to −78.1%) in those aged 60–64 years to −25.8% (95% CI, −26.6% to −25.0%) in those

Figure 1: Outpatient Azithromycin Prescriptions in Brazil by Age



aged 65–74 years. Prescribing of levofloxacin or moxifloxacin decreased for most ages, ranging from −39.1% (95% CI, −39.4% to −38.8%) in those aged 20–39 years to −16.9% (95% CI, −18.1% to −15.7%) in those aged 60–64 years. For those aged ≥75 years, prescribing of amoxicillin-clavulanate and levofloxacin or moxifloxacin increased by 13.2% (95% CI, 11.9%–14.5%) and 43.1% (95% CI, 41.7%–44.5%), respectively. In Q4 2019 and Q4 2020, the 2 most common prescribing specialties for azithromycin were general practice (48%–50% of prescriptions) and gynecology (19%–25%). Compared to Q4 2019, infectious disease specialists in Q4 2020 saw the largest decline in percentage of azithromycin prescriptions (10% to 1%) and surgeons saw the largest increase (0% to 7%). General practitioners were also the most common prescribers of the remaining antibiotics (43%–54%), followed by gynecology for levofloxacin or moxifloxacin (25%–29%) and otolaryngology for amoxicillin-clavulanate (14%–20%). **Conclusions:** Despite decreases in prescribing of amoxicillin-clavulanate and respiratory fluoroquinolones for most adults, azithromycin prescribing increased dramatically across all adults during the COVID-19 pandemic. Targeting inappropriate outpatient antibiotic use in Brazil, particularly azithromycin prescribing among general practitioners, gynecologists, and surgeons, may be high-yield targets for antibiotic stewardship.

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Presentation Type:
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Subject Category: Infection Control in Low- and Middle-Income Countries

Virtual assessments of infection prevention and control practices in African neonatal facilities: A pilot study

Irene Frantzis; Jack Huebner; Stephanie Levasseur; Aboubacar Sidiki Nabé; Maitry Mahida; Philip Larussa; Wilmot G. James; Lawrence Stanberry and Lisa Saiman

Background: Evidence-based infection prevention and control (IPC) practices to reduce healthcare-associated infections in low- and middle-income countries may be difficult to implement due to lack of resources. We pilot-tested the feasibility of virtual assessments of IPC practices in African facilities caring for small and/or sick neonates for opportunities to improve IPC. **Methods:** We created a checklist (in English and French) to assess IPC practices in African facilities caring for small and/or sick neonates **Results:** In total, 10 sites participated in this pilot study. Among them, 3 sites had unreliable Internet connections, and all checklist items could be observed and scored in these videos and photos. The lowest scores occurred for kangaroo mother care (KMC) spacing and presence of screens

Table 1. Scores for Checklist Item

Domain	Mean[1]
Crowding	
Crib sharing	1.6
Crib spacing	1.4
KMC spacing	1.1[2]
HH resources	
Running water, disposable towels, soap	1.8[3]
Access to sinks	1.5
Patient-care environment	
Presence of window screens	0.7
Sharps container without overflow	1.4
Rubbish bin access/without overflow	1.9
Procedure area clutter	1.3[4]
Bedside clutter	1.3

[1]Each item scoring range 0-2
[2]N=9 sites
[3]All 3 resources=3, (range 0-3)
[4]N=6 sites

(Table 1). **Conclusions:** This pilot study demonstrated the feasibility of using virtual assessments of IPC practices. We identified several potentially low-cost opportunities to improve IPC. We are recruiting additional sites to confirm the findings of this pilot study.

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Subject Category: Infection Control in Low- and Middle-Income Countries

Disruptions to essential health services in Kenya during the COVID-19 pandemic — February 2020–May 2021

Matthew Hudson; Carolyn Herzig; Godfrey Woelk; Evelyn Wesangula; Rhoderick Machekano; Rose Masaba; Benjamin Park and Elizabeth Bancroft

Background: The COVID-19 pandemic disrupted essential health services (EHS) delivery worldwide; however, there are limited data for healthcare facility (HCF)–level EHS disruptions in low- and middle-income countries. We surveyed HCFs in 3 counties in Kenya to understand the extent of and reasons for EHS disruptions occurring during February 2020–May 2021. **Methods:** We included 3 counties in Kenya with high burden of COVID-19 at the time of study initiation. Stratified sampling of HCFs occurred by HCF level. HCF administrators were interviewed to collect information on types of EHS disruptions that occurred and reasons for disruptions, including those related to infection prevention and control (IPC). Analyses included descriptive statistics with proportions for categorical variables and median with interquartile range (IQR) for continuous variables. **Results:** In total, 59 HCFs in Kenya provided complete data. All 59 HCFs (100%) reported EHS disruptions due to COVID-19. Among all HCFs, limiting patient volumes was the most common disruption reported (97%), while 56% of HCFs reduced staffing of EHS and 52% suspended EHS. Median duration of disruptions ranged from 7 weeks (IQR, 0–15) for inpatient ward closures to 25 weeks (IQR, 14–37) for limiting patient volumes accessing EHS. Among HCFs that reported disruptions, the most