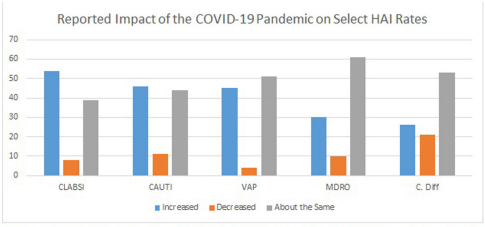

Figure. Reported Impact of the COVID-19 Pandemic on Select HAI Rates during the First Two Years of the Pandemic

infections (54%), catheter-associated urinary tract infections (46%) and ventilator associated pneumonia (45%). When asked to identify the top three contributors to increased HAI rates in their facility, respondents cited the following factors: staffing shortages (70%), patient acuity (69%), use of travel nurses (48%), increased device utilization (37%), and reduced bedside acuity (31%). Respondents reported that their department utilized the following actions to decrease these HAI rates: increased rounding and monitoring of IPC procedures (81%), reeducation of frontline staff on IPC policies and procedures (77%), environmental care rounds (69%), monitoring of isolation compliance (66%), HAI Task Force/Committee (57%), nurse-driven catheter removal protocols (53%), and insertion prevention protocols (53%). When asked if the department experienced applied pressure or attempts to influence HAI reporting due to the increase in HAI rates in the facility experienced in the wake of the pandemic, 19% of respondents reported increased pressure from management/C-suite and 7% reported increased pressure from providers. **Conclusion:** The COVID-19 pandemic had a substantial impact on IPC departments in acute care hospitals and had a profound effect on IPC staffing, resources and routine IPC activities. Future work needs to identify best practices and lessons learned from the pandemic to inform future pandemic preparedness.

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Temporal decreases in pathogen colonization and infection among hospitalized neonates following routine skin antisepsis with chlorhexidine gluconate: Botswana 2022 – 2023

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Background: Multidrug-resistant Gram-negative bacteria are a major cause of sepsis among hospitalized neonates globally. Aqueous chlorhexidine gluconate (CHG) skin antisepsis has been shown to be safe for use in infants; however, its sustained effectiveness in preventing Gram-negative pathogen colonization, bloodstream infection (BSI), and mortality is unclear. **Methods:** We conducted a period prevalence survey, with 26 sampling events over 12 months (18 October 2022 – 31 October 2023) at a 33-bed neonatal unit in a tertiary public hospital in Botswana where ESBL-producing Klebsiella pneumoniae and carbapenem-resistant Acinetobacter baumannii are leading causes of BSI. Perirectal and periumbilical skin swabs were collected every two weeks from all inpatients. Swabs were inoculated onto chromogenic media selective and differential for extended-spectrum beta-lactamase producing Enterobacterales (ESBL-E) and Acinetobacter spp. (CHROMagar™ ESBL, Acinetobacter). Colonization status was determined based on culture growth and colony morphology. Contemporaneous data on all-cause mortality and BSI were abstracted from routine surveillance records. Pre- and post-CHG prevalences were compared using a simple Chi-square test. During the surveillance period, an outbreak of K. pneumoniae linked to contaminated multi-use vials was detected, thus BSIs and deaths during the outbreak period (2 February–6 April, 2023) were excluded. In February 2023, the hospital infection prevention and control (IPC) team introduced twice-weekly whole-body cleansing with commercially available 2% aqueous CHG, performed by caregivers and healthcare workers on neonates >24 hours old and weighing ≥1 kg until discharge. **Results:** There were significant decreases in ESBL-E and Acinetobacter skin and perirectal colonization following the CHG intervention (Table 1; Figure 1). After the CHG intervention, the incidence of Acinetobacter BSIs declined significantly and there was a trend toward a decline in other BSIs and mortality. No adverse events associated with CHG were reported. **Conclusions:** Twice-weekly CHG application was temporally associated with significant reductions in neonatal ESBL-E and Actinetobacter skin and perirectal colonization and Acinetobacter BSI. This analysis was limited by a short pre-intervention surveillance period and thus may have been influenced by confounders such as seasonality, and intensified IPC efforts following the outbreak. Analysis of the routine CHG use in other settings and over longer surveillance periods are needed to better understand its effectiveness as an IPC strategy in settings where neonatal sepsis incidence is high. Table 1. Colonization prevalence, BSI incidence, and mortality surrounding introduction of CHG skin cleansing in a neonatal unit, 18 October 2022 – 31 October 2023.

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Table 1. Colonization prevalence, BSI incidence, and mortality surrounding introduction of CHG skin cleansing in a neonatal unit, 18 October 2022 – 31 October 2023"

	Pre-CHG**, % (n) (n=229)	Post-CHG, % (n) (n=578)	OR (95%CI)
Colonization prevalence (skin or peri-rectal)†			
ESBL-E: Skin or perirectal	63% (145)	45% (262)	**0.43 (0.31-0.60)**
ESBL KEC: Skin or perirectal	55% (126)	37% (215)	**0.48 (0.35-0.66)**
Acinetobacter: Skin or perirectal	29% (66)	12% (68)	**0.33 (0.22-0.49)**
BSI incidence & Mortality*	(n=229)	(n=467)	
Any BSI	11% (26)	7% (32)	0.57 (0.32-1.03)
Acinetobacter spp. BSI	3% (7)	0.4% (2)	**0.14 (0.01-0.72)**
KEC BSI	4% (9)	2% (8)	0.42 (0.14-1.26)
All-cause mortality	30%(68)	22%(103)	0.67 (0.46-0.98)

†Peri-rectal and skin colonization decreased significantly in all stratified analyses (data not presented here)
*BSIs and deaths during outbreak period excluded
**Twice-weekly CHG introduced February 2023
ESBL-E=Extended spectrum beta-lactamase producing Enterobacterales; KEC= *Klebsiella*, *Enterobacter*, or *Citrobacter* spp.

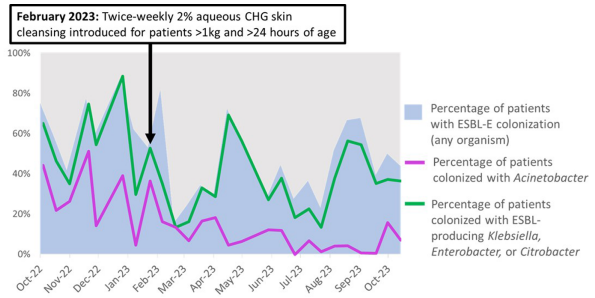

Figure 1. Prevalence of colonization (skin or perirectal) among hospitalized neonates (October 2022 – October 2023)