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Letter to the Editor

Beyond the hospital doors: challenges and insights from a multi-state healthcare system outpatient infection prevention program

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Introduction

The complexity and breadth of outpatient healthcare services have grown tremendously in recent decades. In 2019, there were over 1 billion outpatient physician visits in the United States. Additionally, traditional inpatient procedures are increasingly being shifted to the outpatient setting,[1] a movement that only accelerated during the COVID-19 pandemic.[2] This trend will continue, with outpatient volumes anticipated to rise 16% over the next decade.[3] Despite the increasing volume and complexity of care in the outpatient setting, dedicated infection prevention (IP) resources and oversight remain limited.[4,5]

While data on patient harm due to lapses in IP in the outpatient setting are limited, outbreaks and patient notifications of possible bloodborne pathogen exposures have been linked to these sites of care.[6] The Centers for Disease Prevention and Control (CDC) released guidelines on minimum expectations for safe care in the ambulatory setting in 2011, emphasizing routine use of standard precautions, hand hygiene, injection safety, environmental cleaning, and attention to instrument reprocessing.[7]

In the limited ambulatory settings where IP gaps have been assessed, lapses have been found in up to 67% of sites assessed.[8,9] Data on frequency of IP gaps in non-accredited settings are lacking but likely equal to or worse than those reported from data collated through regulatory or state survey activity.[8–10]

The ongoing melding of hospitals and associated clinics into healthcare systems poses challenges and opportunities for IP programs. We share our experience with a centralized outpatient IP program across a large, multi-state healthcare system, highlighting key barriers, lessons learned, and common opportunities for improvement.

Methods

An outpatient IP program was implemented in a staggered manner across over 1900 clinic sites in 5 states, beginning in 2017. Dedicated outpatient infection preventionists and sterile processing specialists reported to the regional IP department.

A risk assessment was performed to categorize clinics into three levels: high-risk (on-site sterilization or high-level disinfection [HLD]), medium risk (injections or other invasive procedures but no on-site sterilization or HLD), and low risk (all others). This initial risk categorization was completed through either an online survey (Supplementary Table S1) distributed by outpatient leadership or in-person visits by infection preventionists.

High-risk clinics were targeted for initial IP on-site assessments. Assessments occurred at least annually, and more frequently if remediation was needed. Standardized tools (Supplementary Table S2) were developed to assess clinic IP practices over time, and these tools could be used by either infection preventionists or for site self-assessment.

A trained infection preventionist performed an in-person visit to identify initial IP opportunities in high-risk sites. Standard elements of the on-site assessment were aligned across geographic markets. The results of IP site visits were collated and reported back to the site and regional clinical and quality leaders. When gaps were identified, remediation plans were co-created with clinic staff and IP representatives.

Data on high-level disinfection (HLD) and sterilization practices as well as gaps identified by the IP assessment were collated and trended over time. Barriers to program implementation and sustainability were also monitored.

Results

Over 90% (463/513) of responding clinics performed one or more procedures, with the most frequent being injections, point of care testing, phlebotomy, invasive procedures, and wound care. Data on sterilization and HLD were collected from 1,962 distinct clinics with 9.4% performing sterilization and 11.1% performing HLD (Supplementary Figure 1).

The most common gaps noted on the assessment of high-risk clinics included: failure to adhere to instructions for use of instruments or chemicals (46%), incomplete logs (35%), failure to separate clean and dirty equipment in reprocessing areas (34%), gaps in preparation of instruments for reprocessing at the point of use (ie spraying with enzymatic cleaner or ensuring instruments are in the open position) (34%), and lack of appropriate use of brushes for channeled scopes or instruments (25%). For sites performing sterilization, failure to use dust covers was common (61%). (Supplementary Figure 1). During the implementation

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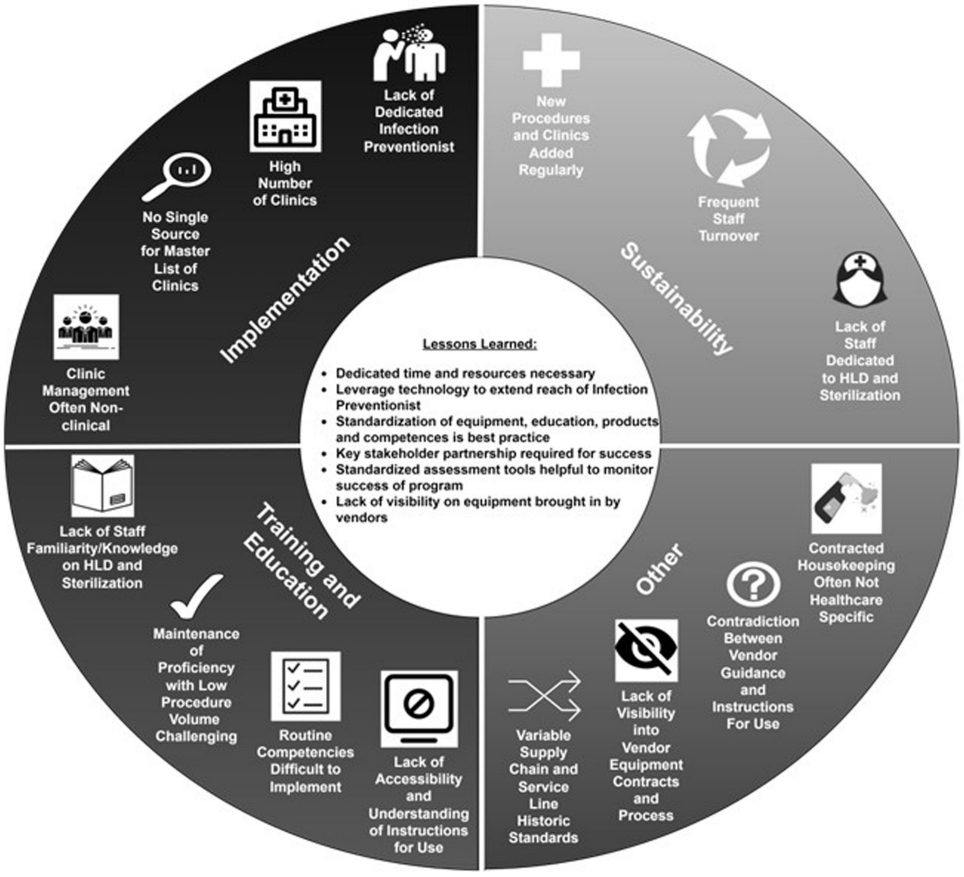

Figure 1. Barriers to implementation and sustainability of a healthcare system outpatient infection prevention program.

process, multiple barriers were identified in creating a sustainable outpatient IP program (Figure 1).

Discussion

The ever-increasing complexity of care in outpatient clinics requires rethinking traditional IP approaches. Historically, the perceived IP risks in outpatient care have been thought to be minimal due to a healthier population and lower risk procedures. However, our data add to the growing body of evidence suggesting this may be a misperception. Although we offer some tools to facilitate outpatient IP assessment in a standardized manner, there were, and continue to be, numerous challenges in implementing a meaningful IP program in this area. Ongoing attention, support, and improvement efforts are needed.

Key challenges in addressing outpatient IP, particularly within large or expanding healthcare systems, are the sheer volume of clinics, geographic dispersion of sites, and the variability in administrative oversight. Prioritization and outreach can be difficult. Additionally, the rapid expansion of procedures offered at these sites necessitates strong relationships with key stakeholders and robust multimodal communication pathways. In our experience, utilization of electronically distributed surveys to obtain baseline information followed by use of standardized tools for assessment and feedback of opportunities have been helpful extending reach of trained infection preventionists, sharing lessons learned, and focusing improvement efforts.

Second, invasive procedures are very common in outpatient settings with 90% of sites in our system performing some type of procedure. Despite some of the procedures using disposable equipment and attempts to consolidate device reprocessing to larger acute care facilities where expertise is often more focused, hundreds of clinics in our footprint were found to be performing on-site reprocessing. Our data, consistent with prior studies, suggest that on-site opportunities in both sterilization and HLD processes are common in the outpatient setting (Supplementary Figure 1).

Finally training and support to ensure adequate knowledge of IP recommendations in the outpatient setting is frequently lacking. While the CDC recommends someone in all ambulatory settings have training in IP, that training is often minimal and one of many clinic responsibilities[7]. Beyond that recommendation, standards for IP staffing in an outpatient setting, especially in a health system, are lacking. Clinic staff often receive limited training in IP and in many systems trained infection preventionists are only available for consultation in response to urgent situations, leading to reactive rather than preventive measures. In addition to difficulty maintaining baseline education, ensuring competency, particularly with complex processes like sterilization or HLD, poses additional challenges. Given that a majority of outpatient sites are not under

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the purview of any accrediting agencies, knowledge of and ability to adhere to standards or guidelines can be variable setting the stage for differential care.

We describe our experience to date with a centralized outpatient IP team in a large healthcare system, highlighting the most common IP gaps found on initial assessment and barriers to program implementation. Building support for these programs requires increasing awareness and socializing the benefits to health system administration. National benchmarking is needed for the necessary IP support in the outpatient setting, which incorporates the complexity of these sites and the number of clinics. An infection prevention program with access to trained infection preventionists has allowed for the (gradual) advancement of IP in ambulatory setting for our large, multi-state healthcare system. Our experience emphasizes the scale of this problem and why addressing it poses a challenge without coordinated effort and oversight.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/ice.2024.232

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Response to "Healthcare worker attitudes on routine non-urological preoperative urine cultures: a qualitative assessment"

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Dear Editor,

I recently read the article titled "Healthcare Worker Attitudes on Routine Non-Urological Preoperative Urine Cultures: A Qualitative Assessment" by Friberg Walhof *et al.* (2024) with great interest.[1] The study provides valuable insights into the persistent use of preoperative urine cultures for asymptomatic bacteriuria (ASB), despite evidence-based guidelines recommending against their routine use in non-urological surgeries.[2,3]

The authors effectively highlight the influence of perceived risks on clinical decision-making. However, I would like to contribute additional perspectives, particularly concerning the long-term implications of over-testing and overtreatment of ASB in surgical settings. The overprescription of antibiotics for ASB significantly contributes to the global challenge of antimicrobial resistance (AMR).[4] Although the study touches on this issue, a stronger emphasis on diagnostic stewardship is crucial.[5] Clinicians, particularly in high-risk surgeries like orthopedics and cardiothoracic procedures, need targeted education to distinguish between true infection risks and unnecessary prophylactic treatments.[6]

The study also notes surgeons' reluctance to discontinue urine cultures due to concerns about postoperative infections. In this context, multidisciplinary teams, including infection control specialists and antimicrobial stewardship pharmacists, could play a pivotal role in supporting the de-implementation process. These teams can provide peer-supported education, clarify current evidence, and emphasize the low risk of ASB-related complications in non-urological surgeries.[2]

Additionally, the psychological barriers to changing practice patterns, as outlined through the Dual Process Model, are well explored in the article. However, future interventions may benefit from incorporating behavioral science strategies to address cognitive biases that hinder guideline adherence.[7] Personalized feedback and case-based discussions, focused on evidence-based outcomes, could offer an effective way to address these barriers within clinical practice.

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