Formative evaluation of an environmental cleaning implementation toolkit in a tertiary hospital in Lagos, Nigeria

Matthew J Hudson, MD, **Damilola Adeniyi, MBBS, MPH**, Cori Dennison, MPH, Hanako Osuka, MD, MPH, Folasade Ogunsola, MBBS, Paul Malpiedi, MPH, **Molly Patrick, MEng**

The environmental cleaning program implementation toolkit was successfully executed at LUTH over the 6-month period and deemed feasible, acceptable, and appropriate among users.

BACKGROUND & CHALLENGES TO IMPLEMENTATION

Environmental cleaning (EC) in healthcare facilities is a fundamental infection prevention and control (IPC) intervention.[1]

- Resources like the CDC/ICAN *Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings* (2019) offer guidance on best practices for EC.[2]

CDC and ICAN created a novel cleaning program implementation toolkit ("toolkit") to support the progressive implementation of best practices.

- The toolkit process follows a 5-step approach to incremental program improvement as shown in *Figure 1* below.
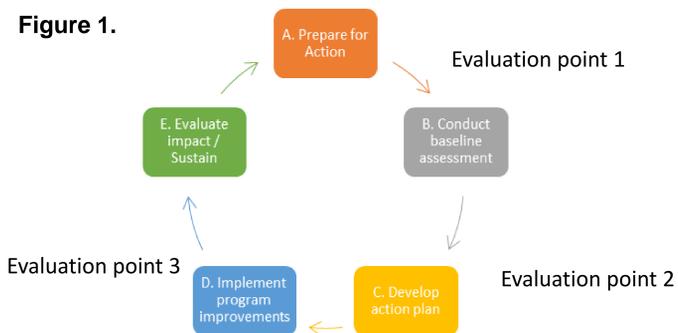
We piloted the toolkit at Lagos University Teaching Hospital (LUTH, Lagos, Nigeria) from March to Sept 2021.

This formative evaluation describes the performance of the first pilot of the toolkit in a neonatal ward at LUTH with respect to its effectiveness, appropriateness, and acceptability.

METHODS / ACTIVITY

The evaluation utilized a mixed methods approach to evaluate the toolkit after completion of defined steps during the 6-month implementation period:
1. Step A: After preparing for action within the facility.
2. Steps B & C: After baseline assessment of EC at the facility and development of an action plan.
3. Step D: After implementation of planned action

Figure 1.

Evaluation point 1
Evaluation point 2
Evaluation point 3

A. Prepare for Action
B. Conduct baseline assessment
C. Develop action plan
D. Implement program improvements
E. Evaluate impact / Sustain

- Monitoring checklists were developed to assess feasibility of completing toolkit process and evaluate outputs over time.
- Cross-sectional surveys and key informant interviews with the facility-based team members were performed to assess:
  ✓ **Effectiveness**: Ability of the toolkit to meet EC goals.
  ✓ **Appropriateness**: Compatibility of the toolkit with the operations and values of the facility.
  ✓ **Acceptability**: Extent to which users consider the toolkit suitable to meet EC objectives.

RESULTS

➢ All specified steps and outputs from the toolkit process were completed within designated time intervals as determined from the structured monitoring checklists.

➢ At each toolkit step, respondents noted that the toolkit worked well in the facility and was conducive to: identifying areas for improvement in cleaning at the facility, developing an action plan for such improvements, and translating these plans into action (*Table I*).

➢ Mixed perceptions were reported regarding the acceptability of the time requirement needed to implement the toolkit activities (*Fig 2*). Additional challenges included adapting policies, processes, and procedures recommended by the toolkit to meet facility resources and local dialects (Table I).

➢ Most respondents indicated favorable personal experiences with the toolkit (*Fig 3*).

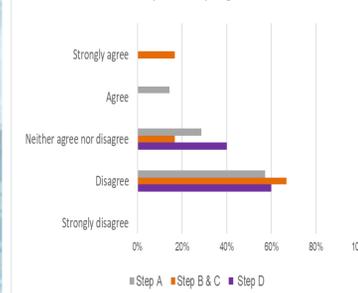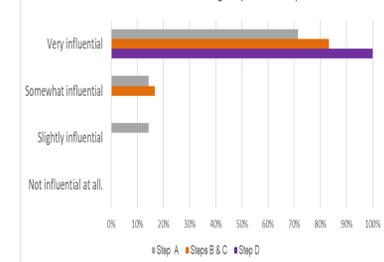Figure 2. This section of the Toolkit demanded too much time away from my regular work duties.

Figure 3. How would you describe the Toolkit's influence on your own ability to identify areas for improvement in environmental cleaning at your facility?

Table 1. Thematic depiction of key informant interview responses regarding the pilot implementation of an environmental cleaning toolkit at a hospital, Lagos, Nigeria.

Effectiveness: whether the toolkit achieved its intended purpose.
- "The toolkit has been really good at focusing attention on seeing that environmental cleaning is a major part of breaking the chain of infection. It brought to light to see that there is a problem somewhere, and it was very helpful to finding the solution to that problem."
- "But **sustainability** is very important--we need to monitor and evaluate this project and improve it going forward."

Appropriate strategies and objectives: whether the toolkit strategies are compatible with the operations and values of the facility.
- "In terms of these projects [the priority ward staff] has been **very receptive**. They are very appreciative of the trainings in environmental cleaning we've developed and there's been no pushback from my own perspective. The unit's been very receptive."
- "Yes, cleaners' attitudes and motivation are now changed, and, yes, the toolkit served as a source of change. We now have more cleaners coming in to say, **I want to be part of it** and get it right so, we achieved that."

Experience: Successes and challenges encountered while conducting the toolkit
- "You cannot take away the role of having a systemic process in place—with this toolkit there is already a structure in place. So it made it easy."
- "Looking at the project cycle from the initiation to the baseline assessment to choosing the key action plan and then implementation of the project it's been a wonderful experience, because the skill and the knowledge coming with the experience can be applied to a wide variety of IPC interventions. The principles are still the same and can be applied elsewhere—that is a very strong to take away from this.
- Challenge: "We **had to adapt tools** to some degree at practically every level, because, like I said, we are in a resource limited setting. So, yeah, that was a challenge. But we adapted it, we just looked at it and adapted it to our setting."
- Challenge: "**Communicating protocols** to [the cleaning staff] and trying to break it down to where you can communicate at the level of the participants was a challenge. We had to translate into local languages and all that, so I'll call that a little bit challenging with a particular situation, so we adapted to that."

Burden: The amount of effort required to complete the toolkit
- Challenge: "Time. Time. Time. Because of the multiple roles we play in the facility, the [toolkit process] has taken time out to be able to do all this work and combine it with the other work we're doing. That for me is the biggest challenge--finding dedicated time to do these activities."

Affective attitude: Users' feelings about applying/implementing the toolkit
- "It was a beautiful moment; it was a **strong teamwork**. Because the team was able to fill in the gap. That felt good."
- "And for my own side I see people coming back to me, because I'm infection control, to say thank you, come back to say 'I changed this.' It is a **good feeling**."

Opportunity costs: Time and resources perceived as lost by the facility due to the toolkit
- "So **budgets for implementing programs**—that's one of the challenges that we're going to have going forward is for the hospital to be able to budget for that going forward. Well, we'll take each one as it comes along. Because we have so much limited resources and the hospital has to prioritize something."

CONCLUSIONS

- The environmental cleaning program implementation toolkit was successfully executed at LUTH over the 6-month period.
- Review of survey data and key informant interviews conducted with users of the toolkit speaks to its feasibility, acceptability, appropriateness, and effectiveness.
- Several tools and processes suggested by the toolkit may be adapted to better match local resources and time constraints.
- Time commitments were a main burden cited by users of the toolkit. Simplification of processes may help to address this limitation of the toolkit.
- Next steps at LUTH will be to monitor and evaluate whether the interventions implemented during the pilot result in sustained improvements to cleaning processes and practices.

REFERENCES

1. Otter JA, Yezlli S, Salkeld J, French G. 2013. Evidence that contaminated surfaces contribute to the transmission of hospital pathogens and an overview of strategies to address contaminated surfaces in hospital settings. American Journal of Infection Control; 41: S6-S11.

2. CDC and ICAN. Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings. Atlanta, GA: US Department of Health and Human Services, CDC; Cape Town, South Africa: Infection Control Africa Network; 2019. Available at: https://www.cdc.gov/hai/prevent/resource-limited/index.html and http://www.icanetwork.co.za/icanguideline2019/

CONTACT

Damilola Adeniyi, MBBS, MPH
Email: drdamilola.Adeniyi@gmail.com
Molly Patrick, Meng
Email: vej7@cdc.gov

Infection Control Africa Network

Presented at the 8th ICAN Congress

23 – 25 November 2021

sbs.co.za/ICAN2021

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