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Cost-Effectiveness of Surgical Site Infection Intervention in Ghana

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ABSTRACT

Background: The risk and cost of surgical site infection (SSI) is high in low and middle-income countries (LMIC). Decision makers require empirical prove to invest in SSI interventions but limited published information exists in the context of Africa. Therefore, this study assessed the cost-effectiveness of SSI surveillance-feedback intervention mechanism at a Referral Teaching Hospital in Ghana.

Methods: For methodological accuracy, the study used the consolidated health economic evaluation standard (CHEERS) checklist to assess the costs from the patient and provider perspectives using a pre- and post-intervention approach. The intervention was a 30-day surveillance of inpatients who underwent surgical procedures, followed by post-discharge surveillance using a healthcare personnel-based survey and a patient-based telephone survey and quarterly feedback to surgeons. The costs capture patient direct medical and non-medical expenses and indirect costs i.e. productivity loss due to absenteeism from work. The selection of the overall study participants (pre-intervention; n=446, post-intervention; n=582) was prospective. In both instances, the sampling period lasted four months. The pre-intervention and surveillance studies are published elsewhere. For this study, outcome measures include the avoidable SSI morbidity risk, length of hospital stay (LOS), number of outpatient visits, number of laboratory tests, and the costs.

Results: Pre-intervention SSI risk was 13.9% (62/446) as opposed to 8.4% (49/582) after the intervention. SSI mortality risk decreased by 33.3% post-intervention while SSI attributable LOS, outpatients' visits, and laboratory tests decreased by 32.6%, 34.3%, and 48% respectively. Furthermore, SSI-attributable patient cost of hospitalization declined by 12.1% post-intervention while hospital costs associated with SSI dropped by 19.1%. The intervention led to an estimated incremental cost-effectiveness ratio (ICER) of $3,451 cost savings per SSI episode avoided, equivalent US$ 105,365, 932 societal cost advantage annually.

Conclusion: The intervention was a simple but dominant strategy that can be implemented in resource constraint settings in LMIC.

Keywords: Surgical site infection, Cost-effectiveness, Intervention, Ghana

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