

# Routine sterile glove and instrument change at the time of abdominal wound closure to prevent surgical site infection (ChEETAh): a pragmatic, cluster-randomised trial in seven low-income and middle-income countries

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## Objective

This study was conducted to test whether a routine change of gloves and instruments before wound closure would reduce abdominal SSI.

## Background

Surgical Site Infections (SSI) are the most common complication of surgery globally. Despite this, the World Health Organisation (WHO) does not make recommendations for changing gloves or surgical instruments before wound closure. The hypothesis underpinning this study is that sterile glove and instrument change at closure would reduce the incidence and risk of Surgical Site Infection (SSI).

## Methods

The ChEETAh study was a multicentre, cluster-randomised trial in seven low-income and middle-income countries (Benin, Ghana, India, Mexico, Nigeria, Rwanda and South Africa). Any hospitals (clusters) doing abdominal surgery in participating countries were eligible. Forty-two (42) clusters were randomly assigned to current practice versus 39 in the intervention/active group (which is routine change of gloves and instruments before wound closure for the whole scrub team).

The primary outcome was SSI within 30 days after surgery, assessed by US Centers for Disease Control and Prevention criteria and on the basis of the intention-to-treat principle. The trial has 90% power to detect a minimum reduction in the primary outcome from 16% to 12%, requiring 12,800 participants from at least 64 clusters.

## Results/Conclusions

The current practice/control group had an SSI rate 30 days after surgery of **18.9%**. The intervention/active group had an **SSI rate of 16.1%**, for a **reduction in SSI rate of 2.8% points**. This equates to a **13% reduction in risk of SSI, or the equivalent of 1 in 8 SSIs**. These results are statistically significant with an adjusted risk ratio of 0.87, 95% CI 0.79–0.95,  $p=0.0032$ .

**The trial concluded that there is a benefit to routinely changing gloves and instruments before abdominal wound closure and recommends that this practice be adopted globally.**

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