STRATIFYING DATA REVEALS IMPROVEMENT IN SURGICAL SITE INFECTIONS IN RURAL MPUMALANGA

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1. Mediclinic Highveld 2. Mediclinic Southern Africa 3. Best Care Always!

1. CONTEXT

Mediclinic Highveld is a 182-bed private hospital in Trichardt, Mpumalanga, South Africa, with 77 surgical beds. The hospital introduced the Surgical Site Infection (SSI) care bundle[1,2] in the orthopaedic, obstetric and surgical wards. The project started in July 2012. The aim was to reduce surgical infections by 50%, from a baseline median rate of six SSI/1,000 surgical cases/month in a 12-month period. Clinicians were informed, checklists were developed to support implementation and to measure the process, and retrospective audits were done by examining documentation and conducting patient interviews.

2. PROBLEM

Seven months into the project there was no real statistical improvement. Surgical patients were still at risk of acquiring Healthcare Associated Infections.

3. ASSESSMENT OF PROBLEM AND ANALYSIS OF ITS CAUSES

During an analysis of infection-causing organisms it was found that, in many instances, common skin contaminants were cultured from septic wounds post-operatively. We singled out three main reasons for this, namely: i) poor compliance to pre-operative Hibiscrub baths (an adapted element of the standard antiseptic prophylaxis element in the SSI bundle in our setting); ii) poor swab taking practices; iii) poor application of wound care principles. Underlying causes were identified as patients failing to use the Hibiscrub soap from the pre-admissions clinic before admission to hospital, and staff not having the scientific knowledge and skill to apply bundle elements to prevent infection.

4. INTERVENTION

It was decided that patients would take a Hibiscrub shower in the hospital before going to theatre. Additional interventions were aimed at establishing the knowledge base of nurses performing wound care and improving swab taking. A clinical facilitator reassessed all nurses doing wound care in the three different wards, including the practice of taking wound swabs.

5. STUDY DESIGN

Prospective, observational, implementation study.

6. STRATEGY FOR CHANGE

Interventions were continuously improved as needed. In-hospital pre-operative Hibiscrub showers commenced in November 2012 in the three participating units. At first it resulted in many complaints from doctors as patients arrived late for theatre. Patients were informed during their pre-admission visit that they have to arrive earlier as they will be expected to take a shower in the ward. Wards were issued with bottles containing 50ml of Hibiscrub and showering was later standardised for all surgical patients. The clinical facilitator commenced evaluation of nurses doing wound care concurrently.

7. MEASUREMENT OF IMPROVEMENT STRATEGY

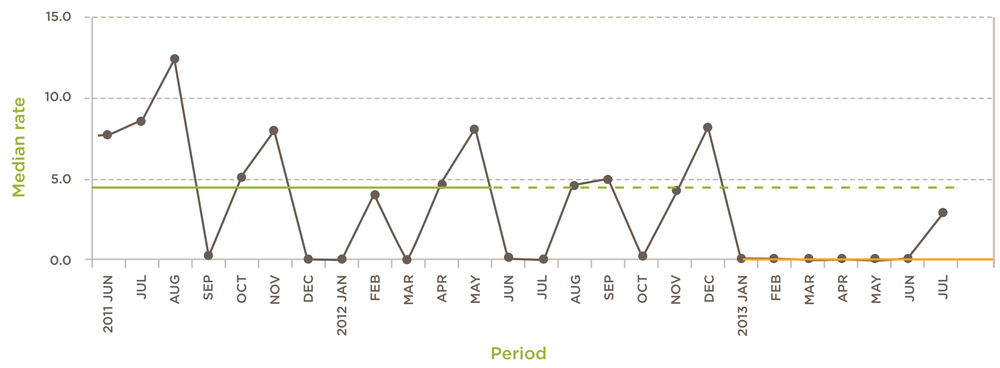
Monthly measures included SSI rate/1,000 operative procedures and compliance with individual bundle elements using daily audits in the ward, including patient interviews. Line graphs were used to track progress over time and Run Chart rules[3] were used to assess improvement.

8. EFFECTS OF CHANGES

Despite all our efforts, aggregated data for surgical cases did not show significant improvement in SSIs. Yet, process measures were improving and there was a sense that improvement was happening. However, by retrospectively stratifying the data into the three surgical sub-groups, we demonstrated a significant reduction in SSIs in general surgical cases, but not in orthopaedic or obstetric cases. Median rates of SSI/1,000 general surgery cases from 4.7 to 0 SSI/1,000 at baseline to 0/1,000 from January 2013 (figure 1), including a period of 235 days without infections.

WARD C: SEPTIC SURGICAL CASES/1,000 SURGICAL CASES

Figure 1: Run Chart analysis showed a significant reduction in SSIs in general surgical cases from the beginning of 2013.



9. LESSONS LEARNT

Improvement takes time and effort, and new changes tested must be monitored against the data. However, the way one looks at the data is important. Aggregated data masked our areas of improvement but stratifying the data showed our strengths and weaknesses, which will allow us to direct our efforts more effectively.

10. MESSAGE FOR OTHERS

SSI bundle seemed straightforward at first, but to really establish sustainable improvement requires a multidisciplinary approach with attention to many elements, including the way one looks at the data.

1. Best Care Always! http:www.bestcare.org.za
2. Getting Started Kit: Prevent Surgical Site Infections – www.saferhealthcarenow.ca
3. R. J. Perla, L. P. Provost and S. K. Murray. The run chart: a simple analytical tool variation for learning from variation in healthcare processes BMJ Qual Saf 2011 20: 46-51. Downloaded from qualitysafety.bmj.com on January 31, 2011.

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