Impact of an evidence-based intervention on urinary catheter utilization in Switzerland

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Background

- In acute care hospitals, urinary catheters are often inserted and kept without proper indication, and may lead to catheter-associated urinary tract infection (CAUTI) and various non-infectious complications.
- In this pilot study, we attempted to decrease urinary catheterization via an awareness campaign and an intervention bundle, consisting of 1) an indication list for urinary catheterization, 2) daily evaluation of the need for ongoing catheterization, and 3) education on proper catheter insertion and maintenance.

Methods

- We conducted a before/after intervention study in 7 (small, mid-size and academic) hospitals distributed across Switzerland.
- After a 3-month pre-intervention (2016) surveillance, the intervention period started with a workshop for local project leaders who then implemented the intervention bundle.
- During the 3-month post-intervention surveillance (2017), the primary outcome was catheter utilization; secondary outcomes were CAUTI, non-infectious outcomes, and process indicators (proportion of indicated catheters, frequency of catheter evaluation).

Results

- We analyzed data on 25,880 mostly general medical or surgical patients, 13,171 of which pre-intervention (Aug-Oct 2016) and 12,709 post-intervention (Aug-Oct 2017).
- Average age was 61 years, and 53% were female patients.
- Average duration of catheterization was 4.8 days before and 4.1 after the intervention.
- Catheter utilization dropped from 23.7% to 21.0% [adjusted Odds Ratio 0.9 (95% confidence interval, CI, 0.84-0.96); p=0.001].
- There were 1.02 CAUTI per 1,000 catheter-days (before) and 1.33 (after) [aOR 1.2 (0.6-2.4); p=0.6]. Non-infectious complications decreased slightly from 39.4 to 35.4 events per 1,000 catheter-days [aOR 0.9 (0.77-1.07); p=0.2].
- The proportion of catheters with a documented proper indication went from 74.5% to 90.0% [aOR 4.1 (3.35-4.95); p<0.001].
- Reevaluations increased from 167 to 623 per 1,000 catheter-days [aOR 3.12 (2.92-3.36); p<0.001].

Conclusions

- In this before/after intervention study, a straightforward bundle of 3 evidence-based measures reduced catheter utilization and led to increases in indicated urinary catheters and daily evaluations.
- The intervention had a small impact on non-infectious complications, whereas the CAUTI rate remained on a low level.
- The next step is planning the national rollout of both the surveillance module and the intervention bundle.

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Figure 1: Participating hospitals and specialties

Figure 2: Catheterization, infectious and non-infectious complications

Figure 3: Indicated catheters, daily reevaluation of catheterization

Schematic 1: Intervention bundle

- Evidence-based indication list
- Reminder re: daily evaluation
- Educational tools for insertion

Less catheterization
Shorter duration
Safer insertion