Improving Notification of Sexually Transmitted Infections: A Quality Improvement Project and Planned Experiment.

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Background:
The prevalence of STIs in the CCHMC ED is high: About 25% of women ages 14-21 who are tested are positive for at least one treatable STI (chlamydia, gonorrhea, or trichomoniasis). Because follow up of teens is difficult, overtreatment is common. The policy had been: if a teen was positive for an STI, but had been empirically treated in the ED, she was not notified of her infection status.

Methods
Design: This was an Interventional quality improvement project:
Phase 1: Plan-Do-Study-Act cycles to test interventions such as provider education and system changes.
Phase 2: Planned experiment studying 2 interventions (study cell phone and patient activation card) using a 2 x 2 factorial design with one background variable and two replications.

Setting: An urban pediatric ED

Outcomes:
The % of women ages 14-21 with STI testing whose confidential phone number was documented in the electronic medical record (EMR)
The % of STI-positive women successfully contacted within 7 days or lost to follow-up (not contacted within 30 days).

Analyses: utilized standard QI Shewhart control charts and graphical displays.

Results
Phase 1 interventions increased the proportion of records with a confidential phone number from 25% to 58%. Simultaneously, the proportion successfully contacted increased from 45% to 65%, and loss to follow up decreased from 40% to 24%.

In phase 2, there was an interaction between replications and successful contact that coincided with a change in EMR systems and decreased recording of the confidential phone number. In addition to the confidential number, two interventions improved contact success: giving a patient activation card and using a designated cell phone for follow-up calls. These interventions had a synergistic effect on successful contact, especially when confidential numbers were less reliably documented.

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The Gap: Inadequate follow-up of positive sexually transmitted infection (STI) test results is a gap in health care quality that contributes to the epidemic of STIs in adolescent women.

Objective: To improve our ability to contact adolescent women with a positive STI test result following an ED visit.

Phase 1

Outcomes:
The % of women ages 14-21 with STI testing whose confidential phone number was documented in the electronic medical record (EMR)
The % of STI-positive women successfully contacted within 7 days or lost to follow-up (not contacted within 30 days).

Analyses: utilized standard QI Shewhart control charts and graphical displays.

Phase 2

Conclusion:
Low-cost, system level interventions are feasible and sustainable in a busy ED, and work together to improve our ability to contact adolescent women with their STI results in a timely fashion.

Implications for Programs, Policy, and Research:
Post-visit interventions may decrease the risk of reinfection and disrupt STI transmission.

Figure 1: Key driver diagram: This QI tool starts by identifying our aim (left side of the diagram). We use qualitative interviews and clinical experience to identify the key drivers (center) that affect this aim. Then, we brainstormed design changes that might be implemented as interventions (right side).

Figure 2: Learning from Plan-Do-Study-Act cycles to increase our ability to make suboptimal contact with adolescent women who have a positive STI result. (N=814 index visits, 7% intervention, 5% learning).

Figure 3: Key driver diagram: This QI tool starts by identifying our aim (left side of the diagram). We use qualitative interviews and clinical experience to identify the key drivers (center) that affect this aim. Then, we brainstormed design changes that might be implemented as interventions (right side).

Figure 4: Shewhart P-Chart: Percent of charts with confidential number documented in the EMR for women with STI testing, overall, over number of charts/interval. Solid line: mean percentage. Dotted lines: control limits. Initial intervention (Box 1): Email ED staff reminders to collect confidential number whenever STI tests ordered. Arrows indicate subsequent interventions.

Figure 5: Shewhart P-Chart: Percent of women with an STI who were successfully contacted within 7 days of their ED visit, overall, over number of infections/woman/interval. The vertical axis is the percent of women contacted. Solid line: mean percentage. Dotted lines: control limits. Arrows indicate interventions.