Colorado Department of Public Health and Environment

Health Facility Acquired Infections Disclosure Initiative
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Colorado Dialysis Infection Prevention Collaborative: Process & Outcomes

Introduction

During 2011 and 2012, the Colorado Department of Public Health and Environment (CDPHE) partnered with the Intermountain End Stage Renal Disease Network (IMESRD) to implement a dialysis infection prevention collaborative. The purpose of the collaborative was to engage outpatient dialysis treatment centers (DTC) to share ideas, data and experiences with the goal of reducing dialysis-related infection rates. Before implementation of Colorado's collaborative, other prevention collaboratives in healthcare settings had demonstrated reductions in blood stream infections in Michigan hospitals[1] and east coast outpatient dialysis centers[2].

Infection prevention collaboratives strive to facilitate interactions among participants to identify and disseminate best practices, and overcome commonly shared barriers to using best practices.
Collaboratives are typically time-limited (usually 12 - 24 months) and seek rapid improvement in healthcare quality and/or efficiency by focusing on a single technical area (e.g., dialysis infections). Collaborative teams typically represent different facilities and/or geographic areas and are expected to implement recommended prevention strategies and share information and data about these strategies, so they can learn from each other's experiences and successes. Teams typically use a common set of core measurement indicators that reflect desired outcomes; collect indicator data, and report that data on a regular, ongoing basis.

Methods

Planning and Recruitment

Planning for Colorado's dialysis infection prevention collaborative began in September 2011, when CDPHE was notified of the award. First steps included hiring IMESRD as CDPHE's contractor, establishing an implementation team comprised of CDPHE and IMESRD staff, and determining the focus. Because hand hygiene (HH) is acknowledged by the Centers for Disease Control and Prevention (CDC) as the "most important measure to prevent contaminant transmission," it was chosen as the major focus of this intervention. Furthermore, HH was seen as an ideal target as a single activity that is easy to measure. Due to grant timelines, the entire collaborative was scheduled to be completed by July 31, 2012.

DTC were recruited for collaborative participation through a recruitment letter and email advertisements, telephone discussions with DTC managers, and an initial recruitment/ information conference call held on November 3, 2011. The call addressed the purpose and description of the collaborative, as well as expectations and benefits for participants. At the time of recruitment, 62 DTC were operating in Colorado. Thirty one facilities (50%) enrolled in the collaborative; only one (3.2%) dropped out due to increased workload and reduced staffing. Thus, 30 facilities remained in the collaborative through its completion in July 2012.

Expectations for Participants

Throughout the collaborative, it was emphasized that participants were expected to:

- Attend three educational learning sessions
- Participate in monthly conference calls during months without learning sessions.

- Implement an intervention of their choice to improve HH (suggested interventions included procedural, cultural, educational and structural strategies).
- Assist in developing, pilot testing and implementing a HH audit tool.
- Conduct at least 20 HH observations a month using the selected audit tool.
- Submit completed audit tool data (showing the number, type and compliance of the HH observations) on a monthly basis.
- Continue entering dialysis data into the National Health Care Safety Network (NHSN).
- Collect and share data.

Whereas all facilities had to monitor and report data on their staff's HH practices using standardized data collection measures and tools, the strategies they used to improve HH were not standardized; it was up to each facility to select or develop their HH improvement intervention.

In exchange for their efforts, collaborative participants were given opportunities to:
- Share best practices and ways to improve adherence to evidence-based practices to reduce infections.
- Get input on identifying and overcoming barriers/challenges to adherence from dialysis facility staff and clinical experts.
- Network with others through in-person meetings and conference calls to discuss infection prevention strategies and related topics.
- Receive free infection prevention education from dialysis and clinical experts.
- Receive free education and support in NHSN use, infection measurement, data analysis.
- Describe Collaborative efforts at regional, national meetings; serve as role models.
- Develop tools, resources that assist in national infection prevention movement.
- Get formal recognition for partnering with CDC and others in protecting dialysis pts.
- Get assistance with press releases about efforts to protect patients and improve care.
- Experience pride in being an integral partner with CDC, CDPHE, and IMESRD to reduce dialysis related infections and improve patient care.

Participant Activities
Three types of activities collaborative members participated in were: 1. Shared learning sessions including face-to-face conferences and conference calls; 2. Intervention execution, which involved implementing a selected or developed strategy to improve HH in the facility, and; 3. Data collection and review, which consisted of monitoring, measuring and submitting data on HH compliance and entering dialysis event data into NHSN, and receiving monthly feedback reports to review their own facility's data in relation to other collaborative facilities.

Activity 1 – Shared Learning Sessions
Shared learning sessions included three face-to-face conferences held mid-November, 2011, mid-March, 2012, and late July 2012. All were held at a local conference center and breakfast was provided. Each session included a welcome piece that reiterated the collaborative's rationale and presented process and outcome data, expert guest speakers on relevant topics, interactive exercises, and a "wrap-up" piece to reiterate expectations, and honor and motivate participants. During months without face-to-face conferences, conference calls were held addressing such topics as HH improvement strategies, HH audit tool feedback and selection, clarification on audit tool use, challenges and lessons learned, demonstration of feedback reports, and discussion on what was working and what could be improved. Our final webinar in June hosted a presentation by CDC's Dr. Priti Patel on results and lessons learned from the CDC Dialysis Collaborative.

Activity 2 - Intervention Execution
Twenty seven of 30 facilities attended the March learning session and delivered power-point presentations on their HH interventions. The interventions were subjectively classified into the categories of procedural, cultural, educational and structural, and facilities could employ multiple interventions. Procedural interventions were implemented by 12 facilities and included requiring use of alcohol based rub before specific activities and daily homeroom meetings to discuss HH audits. Cultural interventions, also implemented by 12 facilities, involved the

use of friendly HH reminders, observation and on-the-spot correction of HH practice, and positive reinforcement of proper HH (verbal reinforcement, stars, stickers). Educational strategies were implemented by ten facilities and included such strategies as watching HH videos, brainstorming ways to increase HH adherence and patient education. Six facilities employed structural interventions involved increasing the number of sanitizer and glove stations, repositioning sanitizers and water alarm buttons, limiting exits to areas with clean sinks, increasing or making signage and alcohol rub containers more visible.

Activity 3 - Data Collection and Review

Development and Implementation of HH Audit Tool**.** Two versions of potential HH audit tools were introduced at the kick-off session in November with a request for facilities to pilot test the tools through December 2011 and provide feedback and ideas for revision. A conference call held December 22, 2011 addressed the pilot test experience and facilitated discussion of the tools and how they worked. A tool was selected by the group, who also provided suggested revisions. The HH audit tool was finalized and distributed to facilities for use in mid-January, 2012. The tool was used by all participants to complete at least 20 HH observations per month and completed audit tools were submitted to the implementation team monthly.

Collaborative Data Collected & Tracked. From January through June 2012, data were collected for one process measure and two outcome measures. The process measure was HH adherence, defined as the proportion of times HH was practiced correctly out of the number of observations done using the HH Audit Tool. The two outcome measures were numbers and rates of local access infection (LAI) and access related bloodstream infection (ARB), as reported into NHSN. All three measures were collected, tracked and fed back to facilities each month.

Monthly Data Feedback Reports. Each month, HH audit compliance rates and LAI and ARB rates were compiled and presented in a monthly data report showing each facility's data and overall collaborative averages. Facilities were not identified by name and were kept anonymous by using their NHSN IDs only. The report allowed facilities to review their own HH performance and infection trends over time and compare themselves to other facilities.

Results

Hand Hygiene Adherence. During February 2012, the first full month of using the HH audit tool facilities showed a HH adherence rate of 68%. Beginning in March, a modest rise in HH adherence was noted. See Table 1.

Table 1: Hand Hygiene Adherence by Month

	Jan	Feb	Mar	Apr	May	June
% Adherence	Started mid-late month	68%	73%	72%	75%	74%
# Facilities	24	28	30	29	29	27

Dialysis Infection Rates. LAI rates in collaborative facilities remained lower than LAI rates in non-collaborative facilities (0.7 vs.1.0, respectively; see figure 1) and appeared to remain stable after starting HH audits in Jan. 2012, while non-collaborative facilities showed an increase.

Collaborative facilities had higher rates of ARB at baseline than non-collaborative facilities (0.8 vs. 0.4; see figure 2). Moreover, ARB rates in collaborative facilities showed a decline after starting HH audits in Jan. 2012, while ARB rates in non-collaborative facilities remained stable.

Figure 1: Monthly Local Access Infection Rates* Across All Access Types

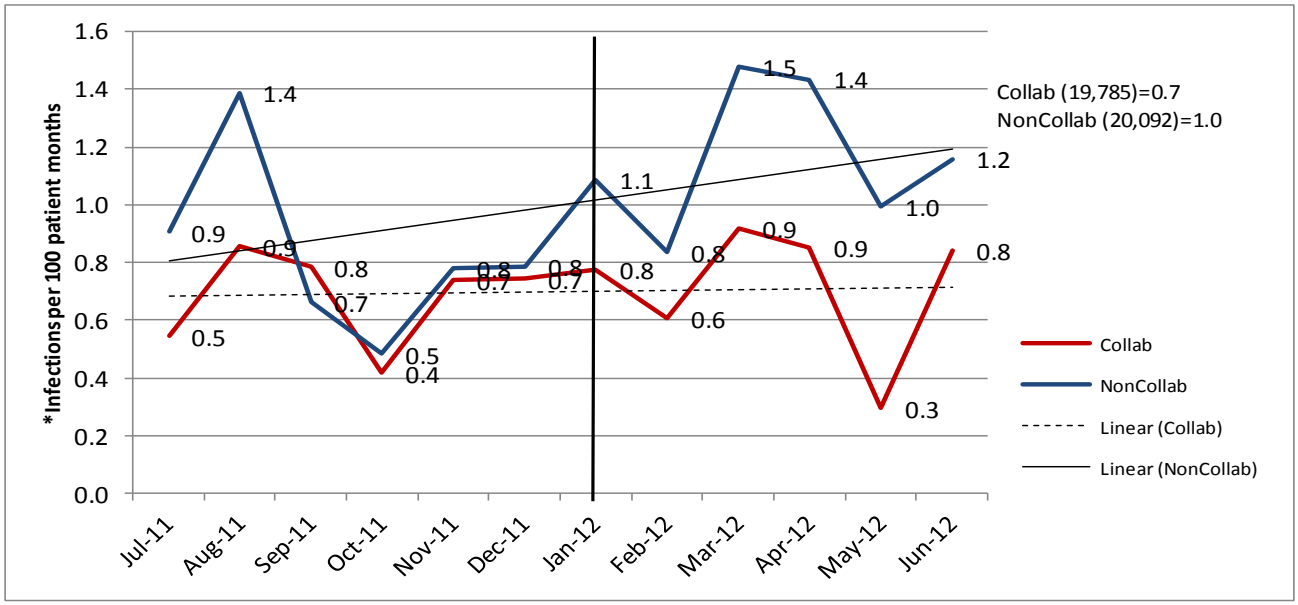
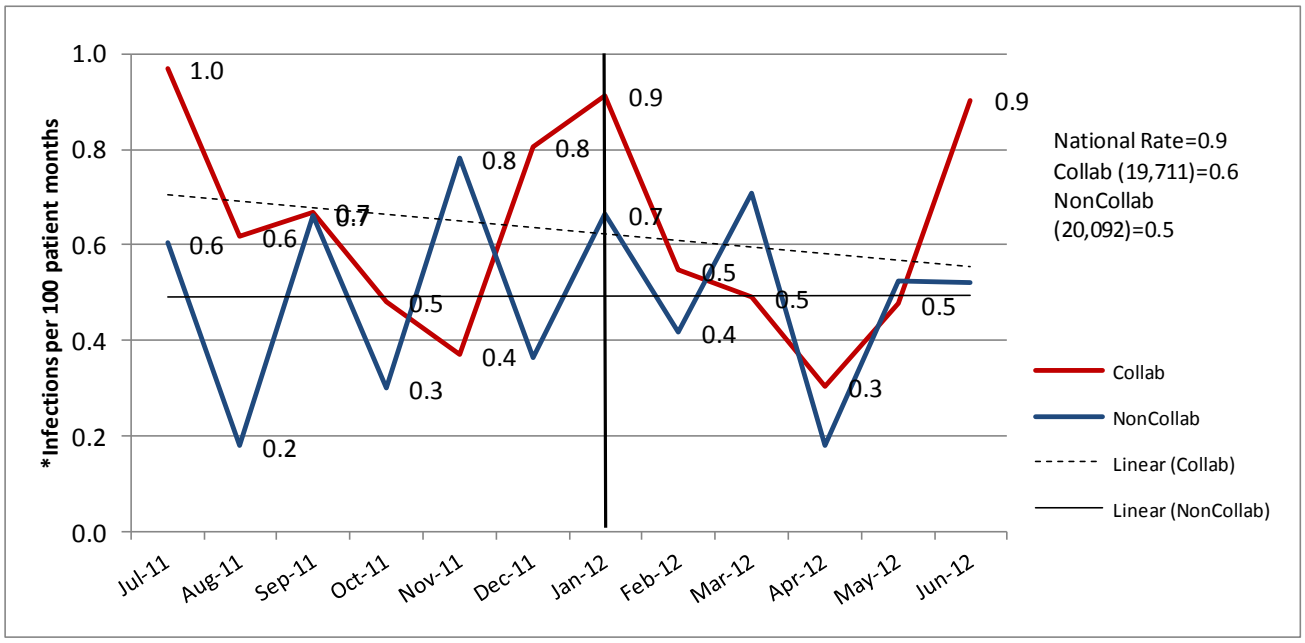


Figure 2: Monthly Access Related Bloodstream Infection Rates* Across All Access Types



Participant Satisfaction Survey**.** To further evaluate the collaborative's effectiveness, an on-line, electronic survey was administered to participants at the end of the project period. Seventeen of 30 participants (57%) responded. The 15 item survey included questions about why participants joined, what were the most and least valuable aspects of the collaborative, and what would improve effectiveness. Specific questions about the perceived value of and suggested improvements for HH audits, monthly feedback reports, and other collaborative features were asked. Notable results include: 69% said the collaborative was either very or extremely helpful/valuable to their facility and staff; 88% said the process of completing HH audits was very or extremely valuable and 82% said they were very or extremely likely to continue HH audits; 88% said they would participate in another collaborative with CDPHE and IMESRD.

Discussion and Conclusions

Results among collaborative facilities showed modest increases in HH rates and decreases in LAI and ARB rates that appeared to have improved more than non-collaborative facilities. Collaborative facilities had higher rates of ARB than non-collaborative at the start of the program, but not LAI; targeting facilities with higher rates of infection to participate in the collaborative was desirable. This collaborative was successful; however, implementation of this collaborative required intensive resources, particularly in engaging facilities to attend activities.

Challenges included engaging staff participation, attaining regular submission of data, and limited time. An early challenge was posed by a district dialysis manager who wanted to represent ten facilities so staff would not be taken away from work. To resolve this, we engaged regional managers and stressed the importance of direct staff involvement, so they would receive similar messages and information as other participants, have opportunities to network with other dialysis professionals and learn from content imparted at the learning sessions. As a result, attendance improved from 14 to 27 participants at conferences and from 12 to 23 participants on monthly conference calls. It was also observed that participants became more vocal in sharing ideas.

Another challenge was getting facility staff to complete and submit HH audit tools on a monthly basis. To address this, repeated reminders and periodic check-in calls were initiated with facilities. Once that began, nearly all participating facilities submitted audit tools on time.

Development of the HH audit tool was demanding as it required multiple reviewers and staff time. However, we realized that the process of including input from numerous stakeholders was worth the effort in that it engaged participant buy-in and resulted in an effective, user-friendly HH audit tool that was later adopted by non-collaborative facilities in Colorado, Arizona, California, Indiana, and Texas.

Perhaps the greatest challenge was the short time period for this collaborative. Nine months is a short period for a collaborative, which typically last one or two years. The short period may have limited the ability for process changes to translate into identifiable reductions in infections. Alternatively, participants maintained engagement and compliance in HH monitoring and data submission, which may have resulted from the short time period.

Despite the challenges, the collaborative realized multiple accomplishments. Of 31 facilities that initially joined, 30 remained throughout the project period. Participating facilities were afforded the opportunity to work with staff from other facilities and corporations to share ideas and implement strategies to improve HH adherence and patient care. In the three conferences, participants received valuable education from nationally renowned medical experts in dialysis infection microbiology, transmission and prevention, hand hygiene, MDRO, and from patients (one who was a patient and nurse and one who shared her experience enduring severe infection).

Conclusions. While collaborative benefits include education and shared learning opportunities, collaborative data supports that the focus on HH adherence contributed to reduced LAI and ARB infections. Results suggest that this process and participation in other collaborative activities may have improved HH efforts and resulted in infection rates that either remained stable or declined, in light of increasing rates in collaborative facilities. This collaborative had the added benefit of providing resources and partnerships to participating dialysis facilities, and it is our hope that this lasts beyond the time period of the collaborative.

References

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[2] Patel, P, Yi SH, Booth S, Bren V, Downham G, Hess S, Kelley K, Lincoln M, Morrissette K, Lindberg C, Jernigan J, Kallen A. "Bloodstream infection rates in outpatient hemodialysis facilities participating in a collaborative prevention effort: a quality improvement report," American Journal of Kidney Diseases 2013: 62(2), 322–330.

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