Journal of Substance Abuse Treatment xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Journal of Substance Abuse Treatment

Continuous quality improvement in substance abuse treatment facilities: How much does it cost?

Priscillia Hunt [a,c,*], Sarah Hunter [a], Deborah Levan [b]

[a] RAND Corporation, Santa Monica, CA, USA
[b] Behavioral Health Services, Los Angeles, CA, USA
[c] Institute for the Study of Labor (IZA), Bonn, Germany

ARTICLE INFO

Article history:
Received 15 August 2016
Received in revised form 1 February 2017
Accepted 2 February 2017
Available online xxxx

Keywords:
Continuous quality improvement
Group randomized controlled pilot trial
Health care costs
Time spent

ABSTRACT

Continuous quality improvement (CQI) has grown in the U.S. since the 1970s, yet little is known about the costs to implement CQI in substance abuse treatment facilities. This paper is part of a larger group randomized control trial in a large urban county evaluating the impact of Plan-Study-Do-Act (PDSA)-CQI designed for community service organizations (Hunter, Ober, Paddock, Hunt, & Levan, 2014). Operated by one umbrella organization, each of the eight facilities of the study, four residential and four outpatient substance abuse treatment facilities, selected their own CQI Actions, including administrative- and clinical care-related Actions. Using an activity-based costing approach, we collected labor and supplies and equipment costs directly attributable to CQI Actions over a 12-month trial period. Our study finds implementation of CQI and meeting costs of this trial per facility were approximately $2000 to $10,500 per year ($4500 on average), or $10 to $60 per admitted client. We provide a description of the sources of variation in these costs, including differing intensity of the CQI Actions selected, which should help decision makers plan use of PDSA-CQI.

© 2017 Published by Elsevier Inc.

1. Introduction

While implementation of continuous quality improvement (CQI) has grown since the 1970s, little is known about the costs to implement it in substance abuse treatment facilities. CQI methods, such as flow-charts, Pareto diagrams and rapid-cycle testing, are used to evaluate the implementation of a new improvement project or development of a new or improved process, product or service (Colton, 2000). In CQI, staff consider questions such as "How are we doing?" and "Can we do it better?" (Edwards, Huang, Metcalfe, & Sainfort, 2008), and follow a schedule of acting on identified needs and monitoring progress using data. Examples of new projects or improved processes in substance abuse treatment facilities include creating and using incentives for clients attending contingency management programs, more opportunities for peer exchange (Roosa, Scripa, Zastowny, & Ford, 2011), and staff training in evidence-based practices (Chinman, Hunter, & Ebener, 2012). The progress of these CQI Actions are then monitored through a number of patient and staff outcome metrics, such as patient length of stay, wait times, and staff turnover. Research regarding the impacts of CQI approaches in substance abuse treatment facilities is limited, although one approach has been researched rather extensively- the Network for the Improvement of Addiction Treatment (NIATx) (Gustafson et al., 2013; Hoffman, Ford, Choi, Gustafson, & McCarty, 2008; McCarty et al., 2007; Quanbeck et al., 2011). NIATx involves researchers selecting process improvements in advance, which are implemented in a top-down process, and then tracking data extensively (Hoffman et al., 2012; Quanbeck et al., 2011; Wisdom et al., 2006). The NIATx approach was shown to reduce wait times and increase retention, although no changes in admissions were identified.

Since examining data is a core component of CQI and doing so could help motivate program staff to try new strategies to improve outcomes (Roosa et al., 2011), CQI could be an effective strategy in substance abuse treatment. However, CQI practices appear to be a challenge in community service organizations, such as substance abuse treatment facilities, because such organizations have fewer resources such as reliable process and outcomes data and analytic capacity to conduct CQI as compared to manufacturing where these practices were first derived or more traditional hospital settings where CQI was initially applied in health care. While many facilities collect some data often used for government reporting purposes (e.g. number of clients, accounting/fiscal data), treatment facilities are not required to collect a number of metrics (e.g. wait time) that can prove useful for evaluating benefits of CQI and improving outcomes. An additional challenge is the timing and reliability of client-level data collected by organizations that attempt to retrieve useful data from their existing health record systems. Without clear and consistent data collection and reporting systems, the

* Corresponding author at: RAND Corporation, 1776 Main Street, Santa Monica, CA 90401, United States.
E-mail address: phunt@rand.org (P. Hunt).

http://dx.doi.org/10.1016/j.jsat.2017.02.001
0740-5472/© 2017 Published by Elsevier Inc.

Please cite this article as: Hunt, P., et al., Continuous quality improvement in substance abuse treatment facilities: How much does it cost?, *Journal of Substance Abuse Treatment* (2017), http://dx.doi.org/10.1016/j.jsat.2017.02.001

ARTICLE IN PRESS

information retrieved may be questioned. Furthermore, staff members, who may be in positions to use data for performance improvement, typically do not have training in performance improvement methodologies as part of their preparation for working in the field. Research has called for more funds to build capacity for quality improvement (D'Aunno, 2006; IOM, 2006; Padwa et al., 2016), but the question is: how much? Understanding the costs and benefits of utilizing CQI approaches in substance abuse treatment facilities would allow policy makers and program directors to make important decisions about how to allocate funds to conduct such activities.

Previous studies of CQI implementation costs in health care tend to focus on costs of quality improvement in hospitals. A study of sixteen hospitals in the U.S. in 1998 found the CQI and quality assurance costs ranged from approximately $397 to $5637 per facility (Dranove et al., 1999) in 2013 dollars using the Consumer Price Index (BLS, 2016). In a fiscal year 2006 study of four, urban, nonprofit, acute care teaching hospitals within a health care system in the Northeast of the U.S., the costs of building and maintaining system-wide infrastructure for inpatient quality and safety ranged from $2.3 to $24.3 million per hospital in 2013 dollars (Chen, Rein, & Bates, 2009). Organizational costs of the QI process starting in 2000/2001 for depression care in a large health care system, the Veterans Health Administration, were an estimated $102,377 to $127,032 in 2013 dollars for 7 clinical practices over a 4-year period (Liu et al., 2009); authors do not provide cost per clinical practice, yet a rough calculation of simply dividing total cost by the number of clinical practices and study period implies a per practice-year cost of $3656 to $4537. A more recent quality improvement study conducted in six Chicago diabetes clinics between 2009 and 2013 used surveys to estimate the average annual cost per clinic and found the cost ranged from $15,000 to $39,000 or $6 to $68 per diabetic patient across clinics (Sathe et al., 2016). A key factor in the variation of the cost per patient was the size of the clinic, with lower costs per unit in the largest clinics.

CQI cost evaluations in substance abuse treatment facilities specifically have thus far focused largely on the costs of training and planning. One study between 2007 and 2009 found the state average costs for the Network for the Improvement of Addiction Treatment (NIATx) intervention ranged from $2210 to $5440 per facility for study participation costs (excluding one-time set-up costs and continuing costs for data infrastructure) in 2013 dollars and $1443 to $8610 per facility for the NIATx interventions over 18 months (Gustafson et al., 2013). Gustafson et al. (2013) focus on costs to deliver NIATX training and did not include implementation costs by treatment center staff (e.g. time spent), which is a key contribution of this paper. A second study analyzed the impact and costs of a PDSA-CQI intervention – similar to what was used in this study – across ten youth substance abuse prevention and treatment programs operated by one organization in 2007/08 (Chinman et al., 2012). Hours spent by staff were collected in quarterly intervals and the study found that staff from each of the 10 programs reported an average of 28 h (in Q1), 46 h (in Q2), and 34 h (in Q3) for a total of 108 h total, or 12 h per month, implementing PDSA. Since the study did not provide the monetary cost of labor, we are not able to describe cost per facility. The current study builds off of Chinman et al. (2012) by collecting time spent in monthly intervals (thereby reducing recall bias) and obtaining details of the day-to-day tasks performed by each staff member, thus permitting results in terms of costs to complete a PDSA-CQI cycle by type of CQI Action selected.

While previous research has investigated some types of CQI costs, they do not provide the implementation costs of specific models in substance abuse treatment facilities. This study addresses this gap by providing cost estimates from a study conducted in four outpatient and four residential substance abuse treatment facilities operated by one umbrella organization in a large county of California from 2012 to 2014 (for more information about the study, see Hunter et al. (2014)). Two key features of this study is that data were collected on a monthly basis, thereby reducing issues with recall bias, and data were collected using a time-driven activity-based costing approach in which activities performed to carry out a CQI Action were identified monthly and assigned a cost based on resources used (labor and purchases) (Kaplan & Anderson, 2013). Using this approach addresses challenges in documenting the costs and benefits of implementing quality activities (Dranove et al., 1999).

2. Materials and methods

2.1. Study background

This work is part of a larger study examining the feasibility and effectiveness of CQI in substance abuse treatment facilities (Hunter et al., 2014). The CQI intervention was designed to assist clinical staff in utilizing the Plan-Do-Study-Act (PDSA) approach (Hunter, Ebener, Chinman, Ober, & Huang, 2015). The intervention incorporates an empowerment evaluation framework (Fetterman & Wandersman, 2005), where clinical staff primarily lead the development and execution of the "CQI Actions", rather than organizational leadership or outside entities. The "CQI Actions", or specific improvement plans, are based on a systematic assessment of facility process and outcome data available to the organization at the time of the study. While the organization identified weaknesses in their existing data and reporting systems during this study, the intervention was designed to build staff capacity to utilize the PDSA approach in analyzing available data to improve performance. The CQI Actions include a list of activities for staff to accomplish in order to address the improvement area.

For this study, participating staff of eight facilities in the one, networked organization were supported by monthly in-person meetings led by the study PIs (BLINDED FOR REVIEW) and organizational leadership (i.e., the agency's Quality Assurance Coordinator was assigned "the Champion" role) who provided information and coached each of the participating site staff about how to plan and complete each of the PDSA steps. More specifically, meetings included guidance on how to examine process and outcome data, how to develop a CQI Action, how to study and make a decision on next steps based on the execution of the CQI Action. All participating staff also received a draft version of a guidebook for conducting PDSA-CQI (final version, see Hunter et al. (2015)). The guidebook contained information about how to complete each of the PDSA steps and worksheets to document CQI activities.

The timeline and activities of the CQI intervention were as follows: for the first three months, staff attended monthly CQI meetings to receive guidance on the "Plan" phase of PDSA. Next, key staff attended a fourth CQI meeting in which they identified and documented a "CQI Action" (i.e., a small improvement plan, consistent with the "Do" phase of PDSA). In the following monthly meetings, staff documented methods to study its impact (i.e., "Study" phases of PDSA), gave updates, and discussed any challenges with the PDSA approach or implementing their CQI Action. When the "Study" phase was completed, staff documented the "Act" phase, i.e., decided to continue, modify or revise the improvement plan.

2.2. Participants

We received funding for an in-depth pilot study examining the feasibility, preliminary effectiveness, and sustainability of CQI. Given the extensive scope of the project, the number of facilities in the control and treatment groups was necessarily limited. The small number of facilities can affect statistical power, particularly if there is a great deal of variation that needs to be controlled for in an analysis. So, we eliminated external, organizational variation across facilities that can impact staff and its operations by selecting one umbrella organization with multiple facilities or locations for this study (i.e., we imposed homogeneity at the organizational level). Since the facilities of this study are all part of one

Please cite this article as: Hunt, P., et al., Continuous quality improvement in substance abuse treatment facilities: How much does it cost?, *Journal of Substance Abuse Treatment* (2017), http://dx.doi.org/10.1016/j.jsat.2017.02.001

Download English Version:

https://daneshyari.com/en/article/4932384

Download Persian Version:

https://daneshyari.com/article/4932384

Daneshyari.com