Systems Approach Workbook

Quality Improvement and a Systems Approach to Substance Use

May 2013

Who should read this brief?

- Leaders and decision makers, such as regional directors and program managers, in substance use and related fields such as mental health.

- Service providers and others working within substance use systems who are in the process of or considering implementing quality improvement mechanisms.

How is quality improvement relevant to the Systems Approach?

- This brief is part of the Systems Approach Workbook, which is intended to assist those using the Systems Approach report as a guiding framework for improving the accessibility, quality and range of services and supports for substance use in Canada.

- Quality improvement provides a structured approach to achieving the goal of the Systems Approach: improved accessibility, availability and quality of services and supports.

- This brief will help you understand the emergence of quality improvement approaches in the health and substance use fields, and how they align with the Systems Approach to enhance client-centered services, organizational development and resource efficiency.

Systems Approach Workbook

Quality Improvement and a Systems Approach to Substance Use

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Executive Summary

What is Quality Improvement?

Quality improvement refers broadly to a collection of structured approaches designed to improve the effectiveness and efficiency of systems (and the specific processes within those systems). Many of these approaches originated in the manufacturing sector and have since been adapted and applied to the healthcare, medical and social service sectors.

Why is Quality Improvement Important to the Substance Use Field?

High-quality health care is a priority for Canadians. Healthcare services make up the largest expenditure in increasingly stressed provincial and territorial budgets. We know that substance use has a significant impact on the healthcare system—an estimated cost of $8.8 billion per year in 2004 (Rehm et al., 2006). We also know that effective, evidence-based substance use services have positive health, social and economic impacts at both the individual and community levels (National Treatment Strategy Working Group, 2008). Quality improvement is a mechanism for supporting investment in effective substance use treatment systems by ensuring and demonstrating both efficacy and efficiency.

Within today's economic and social climate, accountability is also an ongoing priority. Quality improvement methods at both the system and service levels provide a means for leaders in the substance use field to demonstrate their commitment to:

- Effective client service;
- Efficient use of resources; and
- Organizational development.

How Do I Apply Quality Improvement Methods?

Quality improvement is about improving processes to produce more effective products and services. In manufacturing, this might mean changing a production line to reduce defective widgets. In health care, it means changing current services to improve client experiences and outcomes. The various quality improvement methodologies outlined in this brief are also applicable to substance use services. The *Systems Approach to Substance Use in Canada: Recommendations for a National Treatment Strategy* report can provide a framework for implementing this kind of change, with its recommendations and guiding concepts supporting quality improvement processes through emphasis on:

- Accessibility of a comprehensive continuum of services from any point in the system;
- Early identification and intervention, community-based or less intensive services;
- Efficient movement between and across system components; and
- Coordination and transparency through accurate and relevant client- and system-level information.

Quality Improvement and a Systems Approach to Substance Use

> *At its heart, QI is a form of experiential learning that regards improvement to be part of the work process and always involves deliberate actions expected to improve care, guided by data reflecting the effects. (Lynn et al., 2007)*

Introduction

With health care representing the largest area of spending for provincial and territorial governments, policy-makers face the difficult task of balancing increasing costs with the public's expectations of quality, timely care. Within this context, support for structured quality improvement approaches has been emerging, often with the assumption that they will result in both reduced costs and improved quality.

Quality improvement refers broadly to a collection of structured approaches designed to improve the efficacy and efficiency of systems and processes within them. Batalden and Davidoff (2007) proposed the following definition to apply specifically to health care:

> …the combined and unceasing efforts of everyone—healthcare professionals, patients and their families, researchers, payers, planners and educators—to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning).

This definition emphasizes the interaction between the system, the workforce and the client. The quality improvement approaches that have gained momentum in Canada's healthcare sector have usually been focused at the level of program units and specific services. At the same time, a great deal of effort has gone into developing public policy and strategic approaches that affect quality at system levels: regional, provincial, national and international. Often, the broad, carefully developed frameworks and plans have not had their intended impact. Instead, the smaller, seemingly more practical projects at the field level have had more traction and more success. However, application at the client service level has also been uneven (Perla, Bradbury & Gunther-Murphy, 2011). Work at all levels is therefore necessary and should be complementary.

This guide outlines some of the benefits and implications of using a quality improvement approach in substance use and mental health programs.[1] It also demonstrates the relevance of approaches introduced in private industry to the substance use field by linking quality improvement considerations to key Systems Approach concepts (see Table 1), and provides a brief overview of the origins of quality improvement methods and their application to the healthcare context.

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[1] CCSA recognizes that many substance use and mental health systems and services exist along a continuum of collaboration and integration. (For more information, refer to the Substance Use and Mental Health Integration module.) The information provided in this brief is relevant to services and systems across this continuum.

Table 1. Systems Approach Guiding Concepts and Quality Improvement

Guiding Concept	Quality Improvement Considerations
No wrong door	Can potential clients enter the system easily from a broad range of access points?
Availability and accessibility	Does the system ensure that a comprehensive continuum of services is both available and accessible? For example, are there means through which rural clients can access specialized services located in urban centres?
Matching	Are clients directed to services that meet their needs and strengths, including cultural and gender characteristics?
Choice and eligibility	Are clients able to make informed choices between services for which they are eligible?
Flexibility	Are clients referred to appropriate places in the system as their needs change?
Responsiveness	Are clients provided with the support needed to move to lower-intensity or lower-tiered services over time?
Collaboration	Are there clinical, administrative and organizational collaborations in place to facilitate referrals and comprehensive service access, and to reduce duplication and 'cracks' in the system?
Coordination	Does the system facilitate information sharing to support clinical practice as well as planning, monitoring and evaluation?

Quality Improvement and the Systems Approach

A Systems Approach to Substance Use in Canada is a broad framework intended to improve the accessibility, quality and range of substance use services and supports in Canada. While its primary focus is at the level of *systems*,[2] it also recognizes the role of the workforce and the client through recommendations supporting evidence-based practice and client-centred care. The Systems Approach lays out principles and concepts for guiding effective system development. It promotes activity across organizational boundaries to provide a comprehensive continuum of services better able to meet client needs.

The quality improvement methods described in this report are useful tools for service and system improvements that align with the Systems Approach. In turn, a concrete plan to use the Systems Approach to improve services and guide system development provides a clear indication (in an accreditation process, for example) that an evidence-based, systemic approach is being applied.

Substance Use and Mental Health Join the Quality Movement

Many quality improvement approaches have their roots in the manufacturing sector. The more technical, specialized processes were the first areas in health care to implement quality improvement methods (the complex, multi-step medical processes found in hospital settings, for instance). Although the fit was not as obvious in behavioural health[3] fields such as substance use and mental health, as organization-wide commitments to quality improvement were made, substance use and mental health programs also began to participate. Leaders in these areas

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[2] Please see the Systems Approach Workbook Glossary for an explanation of italicized terms.

[3] The term "behavioural health" is commonly used in the U.S. to refer to areas where behaviour is an important aspect of assessment and intervention. Within the fields of substance use and mental health, prevention, assessment, intervention and aftercare are all part of how this term is used and understood.

understood that broad strategies aimed at practical service improvements for clients needed to be supported. By building on what works (and where it works best), the adaptation of quality improvement methods in substance use and mental health areas has been possible.

Approaches

The following section provides a brief description of prominent quality improvement approaches that have informed development in the health sector.

1. Business Process Re-engineering (or Redesign)

Business process re-engineering (BPR) was developed when information technology (IT) tools were first emerging in the 1980s, then grew in popularity throughout the 1990s. BPR was first promoted as a method that would address large systemic issues and achieve desired outcomes through fundamental redesign (Jones, 2007), with the introduction of IT usually understood as a key component of system redesign. The process uses a five-stage approach, summarized below (Davenport & Short, 1990):

1. Develop business vision and process objectives (i.e., objectives and stretch targets set)

2. Identify processes to be redesigned (i.e., critical or bottleneck processes identified)

3. Understand and measure existing processes (i.e., current problems identified and a baseline set)

4. Identify information technology levers (i.e., brainstorm new process approaches)

5. Design and build a prototype of the process (i.e., organizational and technical aspects implemented)

> BPR could play a role in implementing the recommendations in the Systems Approach report for improving capacity to collect and report service provision information. As an example, jurisdictions could standardize service data entry into centralized systems and produce more consistent, comprehensive information. Doing so could help jurisdictions better monitor trends and patterns to inform investments and policy decisions (see, for example, the National Treatment Indicators).

Healthcare organizations began using BPR in the 1990s to help achieve goals related to cost reduction, time saving, quality improvement and quality of work life. Since then, countless processes in the healthcare field have been automated using the BPR approach. Some were specific, local processes such as tracking documents and posting staffing schedules; others were system-wide processes such as electronic health cards and records. In some cases, existing processes that should have been updated were automated as they were, preserving the status quo with new technology (for example, digitizing existing forms without reviewing their content or efficacy). Others were updated based on input from consumers and users, greatly improving the way these systems worked for clients and providers (for example, automated health insurance claim submissions). As many healthcare processes are very complex, many more could be greatly improved by redesign and automation. While most healthcare organizations still have manual processes that could be redesigned and automated, the barriers of cost and development time remain.

2. Integrated Care Pathways

Integrated care pathways (ICPs; also known as critical pathways, care pathways, clinical pathways and care maps[4]) have been defined as "a tool and a concept that embed(s) guidelines, protocols and locally agreed, evidence-based, patient-centred, best practice into everyday use for the individual patient... record[ing] deviations from planned care in the form of variances" (National Health Service, 2005). ICPs were introduced to health care from the manufacturing sector in the 1980s and 1990s. Again, part of the motivation was the need to predict and manage costs (DeLuc, 2000).

Designed for client groups that need a particular service component, ICPs usually describe only part of a client journey through a service system. Care pathways have practical appeal in complex service environments and have been used widely in healthcare settings. The Scottish government, for example, has used client journey diagrams to illustrate ICPs for people who abuse drugs. See the example provided in Figure 1 below (Effective Interventions Unit, 2002; the Scottish government, 2010). However, research on the effectiveness of ICPs is still quite limited (Noha El Baz et al., 2007).

Figure 1. Client Journey Diagram Used by the Scottish Government to Illustrate Integrated Care Pathways
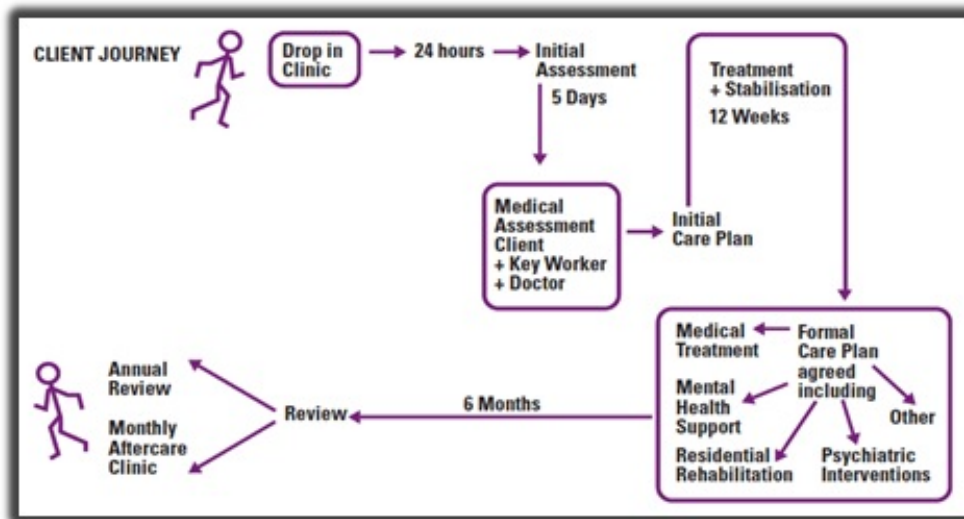
Source: Scottish Government, 2010, p.14

3. Plan Do Study-Act Cycle

Also developed for use initially in the manufacturing environment is the plan-do-study-act (PDSA) cycle, which was created by Edward Deming in the 1950s and is sometimes referred to as the Deming circle (Berwick, 1996). Since the 1990s it has become increasingly popular in healthcare settings as a way to quickly and efficiently develop, test and refine ideas for quality improvement. Four standardized steps are used during the PDSA cycle:

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[4] The application of this process to substance use services is demonstrated in the *Systems Approach Workbook: Mapping Substance Use Systems and Client Journeys*.

1. **Plan:** Needed changes are identified, allowing a testing team to make implementation plans and choose measurement methods.

2. **Do:** The plan is implemented and any variances (referred to as defects) are documented.

3. **Study:** The changes are analyzed for what worked well, what did not work and what would have improved results.

4. **Act:** The lessons learned are incorporated and a decision is made about repeating the improvement cycle.

This process emphasizes clear, measurable goals and related time frames (Berwick, 1996). The PDSA cycle is found in some form in most quality improvement approaches, and is widely used to address both local service quality challenges and as part of larger quality improvement strategies.

4. Patient Safety[5]

The Canadian Patient Safety Institute (CPSI) and its partner organizations have developed a series of best practices and measures to improve safety and the quality of services, mostly in hospital settings. Known as *Safer Health Care Now*, this program covers areas like infection control, medication reconciliation, fall prevention and surgical safety. Accreditation Canada has adopted the CPSI's required operating practices in its accreditation standards for these service categories (Canadian Patient Safety Institute, 2013).

5. Six Sigma

The Six Sigma quality improvement approach was developed in the 1980s by Motorola (Chassin, 1998). The Greek letter sigma (σ) is the symbol for standard deviation, a statistical concept describing how closely events are clustered together or spread apart. Under the Six Sigma approach, the goal is to become virtually defect free.[6] To that end, the following series of steps are used to eliminate errors and improve quality:

1. **Define:** A project charter is created to define the project's needs, scope, goals, success criteria, team members and deadlines.

2. **Measure:** A plan for data collection from several sources and methods for tracking and studying patterns is established.

3. **Analyze:** Data is reviewed to detect deviation from the standards and find possible reasons for variation that can be tested.

4. **Improve:** Solutions and plans to implement them are developed.

5. **Control:** Policies, guidelines and error-reduction strategies are implemented to prevent slipping back to former patterns. Ways to monitor quality of new processes are established.

Six Sigma fits best in healthcare settings where errors and error rates can be accurately defined and monitored (for example, in medication administration or infection control procedures). A number of

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[5] In 2004, the U.S.-based Institute for Healthcare Improvement (IHI) launched the 100,000 Lives Campaign, which spawned the adoption of patient safety initiatives in thousands of healthcare settings in the U.S. and other countries, including Canada (Institute for Healthcare Improvement, 2012).

[6] "Virtually defect free" is defined as having "fewer than 3.4 defects per million units (or opportunities). These limits are set to include all observations within six standard deviations of the mean" (Chassin, 1998, p. 567).

consulting companies have worked with healthcare organizations throughout North America to implement Six Sigma, usually in combination with the Lean methods described below (Chassin & Loeb, 2011).

6. Lean

The Lean method has its roots in Edward Deming's work with Japanese automakers in the 1950s, the Toyota Production System that grew out of Deming's work (Ohno, 1998), and the work of Thomas Womack in the United States during the 1990s (Womack & Jones, 1996). During the past 15 years major corporations like Boeing as well as many others in industries including health care have introduced Lean methods. Like other quality improvement approaches, structured improvement cycles are central to the Lean approach. Emphasis is placed on shifting workplace culture toward "lean thinking," where employees keep customer or client needs as the focus while continually monitoring and making improvements.

A **kaizen** event is a structured workshop attended by people who know a particular environment. Participants map out the processes, think about how value is added and identify where waste is occurring.[7] They then decide what changes to make. The process is called "value stream mapping" and is outlined in the textbox below. In Lean organizations, **kaizen** events and other Lean tools[8] are used regularly to achieve client focused quality goals.

Value stream mapping

1. **Value:** Determining value as understood by the client or consumer of the product or service.

2. **Value stream:** Determining what parts of a process add value and eliminating those that do not.

3. **Flow:** Arranging value-creating steps in a tight sequence so the product or service will flow smoothly toward the customer.

4. **Pull:** Allowing consumers to "pull value" from immediately preceding activity, based on timing and need.

5. **Repetition:** Repeating the process until acceptable quality is achieved.

An important component now being emphasized in the Lean quality improvement environment is the **hoshin kanri** process (Huchins, 2008). While Lean activities focus on field-level activities, **hoshin kanri** sets the broad strategic vision for an organization, employing a version of the PDSA cycle at the organizational level (Deno, 2012).

The National Institute of Addiction Treatment (NIATx), based out of the University of Wisconsin, was the first to apply Lean methodology to addictions systems and has since expanded its use into other behavioural health areas throughout the United States. Saskatchewan Health and the Saskatchewan Regional Health Authorities are undertaking the first North American application of Lean methods

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[7] Waste categories include overproduction, underproduction, wasted inventory, repeated rework, wasted motion, undue waiting, unnecessary processing and excessive transport or handling (Varkey, Reller & Resar, 2007).

[8] One of these tools is the 5S strategy for reducing waste. It stands for sort (keeping only items in the work area that are frequently needed), shine (cleaning the workplace and inspecting items for wear), straighten (putting work items in locations that match the efficient flow of work), systematize (standardizing the workflow processes) and sustain (sustaining the gains in earlier steps) (Varkey, Reller & Resar, 2007).

across an entire provincial (or state) health system (Saskatchewan Health, 2012). The application of the Lean process to substance use and mental health programs in Saskatchewan's Five Hills Health Region is provided in the case study presented on the following page.

Common Ground among Approaches

The goals and some of the methods in the different quality improvement approaches are quite similar to each other. Some of the concepts might be familiar from other fields or simply seem like common sense. Most of the approaches emphasize using a client or customer perspective to set goals, adjust processes, measure results and build on improvements. The concepts and application of quality improvement methods have become more commonplace in the healthcare field, although some adaptations will be necessary given that clients in the substance use, mental health and other health fields must be responsive to individual needs (Harrigan, 2000). Most Canadian healthcare professionals have had at least some exposure to the quality improvement approaches described in this brief.

Case Study: Applying Lean Methodology

The Five Hills Health Region (FHHR), a regional health authority in Saskatchewan that serves 55,000 people, began exploring the application of Lean methodology in 2007–2008. Its substance use and mental health programs, which had been brought together under the same administrative structure several years before, were among the first program areas in the region to explore the Lean approach.

In FHHR, 1,700 mental health and addiction clients were being seen each year and there was normally a waiting list of about 80 people—nearly five percent of the region's annual caseload. Through a series of Lean exercises, a number of changes in the service system have been introduced.

Client pathway: Clients are now assessed at intake using a standardized process. They are booked for a follow-up appointment during their initial contact or call. The intake assessment determines which service will respond and rates the client at one of four levels of acuity with associated standards for immediacy of response. The next person to see the client has reviewed several pieces of electronic assessment information collected during the initial assessment, so the client provides information only once. Counsellors and therapists have gradually been aligning their clinical tools with best practice evidence. The combination of better matching and more effective approaches has reduced the average number of one-to-one clinical sessions. Clients move to group sessions, to other services or get discharged from the service more quickly. No-shows have decreased and the waiting list, which is monitored weekly, is now typically between zero and 10 people.

Integration: FHHR leaders believe that the quality improvement focus has helped refine working relationships and improve coordination and flow between disciplines and programs. There has been a blurring of professional boundaries in some parts of the system, with staff gaining skills that apply to a wider range of clients than before.

Accreditation: Quality improvement activity and documentation is becoming an approach in which everyone is involved. Two accreditation cycles have occurred over the past five years and Accreditation Canada site visit reports commented positively about leadership, noting evidence of an effective quality improvement approach. Ongoing Lean-informed work often addresses one or more of the standards and the task of preparing for and going through the accreditation process has been simplified considerably.

One of the managers in FHHR describes it this way: "At first the Lean approach seemed to challenge professional autonomy for some of our staff. But as we continued to examine issues from the perspective of our clients and made improvements, a more flexible, exploratory attitude seems to have emerged for all of us. Now we have a simple way to assess and quantify problems, try out solutions and track how well they work. I think most of us would say continuous improvement is part of our work culture now."

Supports for Quality Improvement

Policy and Strategy Work. Many excellent documents that support quality improvement are available at the international, national, provincial and regional levels. Moving from a provider focus to a client focus is a common theme in many of them. The Systems Approach is one good example of a framework for system-level change centred on improving client experiences and outcomes. Documents like this serve as frames of reference and can help build commitment to improving quality at all levels of our systems. Organizations active in this area include the World Health Organization, the Mental Health Commission of Canada, the Canadian Senate and the Canadian Centre on Substance Abuse (CCSA).

Centres of Expertise. Academic institutions, non-government organizations, ministries and professional associations, often working together, have been part of developing and applying quality improvement strategies, and have also produced a wide range of learning tools. A variety of resources are now available to support any organization's quality improvement agenda. The accompanying textbox provides a list of some of the helpful websites supporting quality improvement in health systems across Canada.

Quality improvement resources for Canadian healthcare providers

Canadian Centre on Substance Abuse: Systems Approach Workbook

Public Health Ontario: Online Health Program Planner

Saskatchewan Health Quality Council

Health Quality Ontario: Tools for QI Teams

Knowledge Networks. Sharing information to build better quality service and support systems is also the primary goal of many networks and communities of practice. These less formal processes for promoting best practices and supporting change across traditional jurisdictional and sectoral barriers are gaining momentum throughout the health field. Examples with a substance use focus include CCSA's *SystemAction*, Ontario's EENet, the British Columbia Substance Use Network and McMaster University's Connections Canada.

Funding Criteria. Funding bodies are increasingly including commitment to evidence-based approaches in their selection and evaluation criteria. Examples include the Canadian Institutes of Health Research, Health Canada and the Michael Smith Foundation for Health Research.

Accreditation

During the past 40 years, healthcare organizations in developed countries have become increasingly committed to formal accreditation processes. From the beginning, improving quality and client outcomes has been the main focus of accreditation agencies. Now 70 countries have health-based accreditation processes (Nicklin, 2011) and the International Society for Quality in Health Care, a non-profit organization, has been established with the aim of improving quality and patient safety worldwide. Accreditation Canada (formerly the Canadian Council on Health Services Accreditation) is the primary accrediting agency for Canadian healthcare systems (Accreditation Canada, 2010).

Accreditation Canada's standards are developed with input from member agencies and other experts. Required operating practices specific to specialized activities are identified and organizations are measured against them during site visits, which are normally held every three years. Onsite sessions are conducted by peer surveyors from other jurisdictions who are trained in the accreditation process.

Mental health and, in particular, substance use services have engaged with the accreditation process later than other facility-based health areas. It has been more difficult to develop valid measurement and assessment tools in behavioural health service systems where inputs and outcomes are less tangible. However, the move to include substance use and mental health programs has continued and appropriate refinements have been made.

For mental health, Accreditation Canada now has three sets of standards: mental health, community-based mental health services and supports, and mental health populations. Separate substance use and problem gambling standards were introduced several years ago. The Accreditation Canada program for Aboriginal health services also includes standards for addiction services and community health services (Accreditation Canada, 2013).

A number of accreditation agencies that serve behavioural health programs, including substance use treatment, but are less dominant in Canadian health care include:

- The Canadian Accreditation Council (CAC), which has a strong membership base in Alberta (Canadian Accreditation Council, 2013);

- The Commission on Accreditation of Rehabilitation Facilities (CARF), which has a small number of substance use agencies accredited in British Columbia, Manitoba and Ontario (CARF, 2013);

- Le Conseil québécois d'agrément (CQA), which has a legislated mandate in Quebec to accredit or certify residential substance use treatment agencies (Conseil québécois d'agrément, 2013);

- The Council on Accreditation (COA), a U.S.-based agency with some members in Canada (Council on Accreditation, 2013); and

- The Canadian Centre for Accreditation (CCA), a newly formed, Ontario-based agency with some members in other provinces (Canadian Centre for Accreditation, 2013).

As a voluntary self-assessment and peer review process, accreditation is a popular concept that is gaining ground. As more accreditation experience is gained, the process should have increasing quality improvement impact for substance use and mental health programs.

Conclusion

There are many reports describing the application of specific quality improvement methods. While many indicate positive and promising results, it should be noted that outcome research on quality improvement initiatives is still in the early stages (Jooseten, Bongers & Janssen, 2009; Greenfield, Pawsey, Naylor & Braithwaite, 2009; Nicklin, 2011; Sullivan et al., 2011). Yet there is strong agreement that quality and safety initiatives in health organizations do improve client service and create a number of other advantages, including better communication, increased consumer confidence, more consistency and sustained commitment from funders. Like any change approach, quality improvement is not a single event but a commitment to ongoing evaluation and revision in response to changing contexts (Harrigan, 2000).

Quality improvement methods, with their roots in manufacturing processes, might not apply to all service aspects of behavioural health systems. Yet they can be powerful tools for improving key processes such as waiting list management, information exchange and referral processes.

Quality improvement methods at both the system and service levels provide a means for leaders in the substance use and mental health fields to demonstrate their commitment to:

- Effective client service;

- Organizational development;

- Accountability; and

- Resource efficiency.

In turn, the recommendations and guiding concepts found in the Systems Approach report support quality improvement processes through emphasis on:

- Accessibility of a comprehensive continuum of services;

- Upstream, community-based and less intensive services;

- Efficient movement between and across system components; and

- Coordination and transparency through accurate and relevant client- and system-level information.

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