

## Table of Contents

### Preface

Working Group Members  
Purpose of this Publication

### 2 Introduction

### 3 Philosophy of Continuous Quality Improvement

*W. Edwards Deming - Statistical Quality Control*  
*J.M. Juran - Quality Assurance Engineering*  
*Philip Crosby - Cost of Quality Management*

### 4 Passing Fad or Evolution of Quality?

### 4 Continuous Quality Improvement Practice Models

### 6 Hospital Pharmacy and Continuous Quality Improvement

Accreditation Standards

Elements in Hospital Pharmacy CQI Programs

- Quality Management
- Statement of Purpose
- Staff Involvement
- Clients
- Needs and Expectations of Clients
- Principle Functions of Pharmacy
- Processes for the Principle Functions of Pharmacy
- Criteria or Indicators of Quality
- Establishment of Priorities for Project Selection
- Monitoring Improvements
- Communicating Results of Quality Management Activities
- Standards of Care/Service
- Revisions of Standards of Care/Service

### 9 CQI in Action – the “How To”

- Quality Improvement Teams/Projects
- Defining the Process & Identifying Current Outcomes
- Establishing Desired or Expected Levels of Performance
- Selecting Criteria or Indicators of Quality
- Collection and Analysis of Data
- Identifying & Documenting Improvements in Care/Service
- Criteria for Project Selection

### 11 Why CQI Efforts Fail

### 12 Summary

### 13 Examples of CQI Projects

### 13 Medication Cart Filling

### 14 Medication Wastage

### 15 Turn-Around Time for Medication Orders

### 16 Appendices

### 16 Symbols for Process Flow Charting

### 16 CQI Process

### 16 Recommended Reading

## Preface

This document was developed by a working group of Pharmacy Directors from major Canadian hospitals. The group was chaired by Marg Colquhoun, Pharmacy Director at Princess Margaret Hospital and formerly CSHP Liaison to the Canadian Council on Health Facilities Accreditation.

### Working Group Members include:

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### The objective of the working group was to prepare a document to assist pharmacy managers to:

- Implement Continuous Quality Improvement
- Meet CCHFA/CCHSA Quality Standards
- Document the process for evidence of CQI efforts

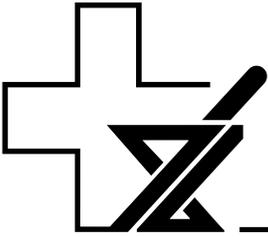
### Purpose of this Publication

This document is designed to introduce hospital pharmacists to the concepts and procedures relating to Continuous Quality Improvement and assist them in preparing for accreditation surveys.

Accreditation Standards are in a dynamic state and had evolved through several iterations at the time of developing this publication. Specific reference to standards has not been included. Rather, there is a general approach to preparation for accreditation which addresses the major elements of CQI with reference to “client centred care” concepts.

The working group acknowledges the support of Glaxo Canada Inc. Committee meeting, preparation and publication of this booklet were facilitated by Glaxo's sponsorship of the project.

This project was managed by Panacea Consulting for Glaxo Canada Inc.



## Introduction

### How many times have you fixed the same problem?

Too often, innovative pharmacy services begin and evolve by trial and error. The pharmacist who designs and develops the service does not always systematically quantify the process, or test to ensure that the service is comprehensive and meets the need for which it was intended. Rarely has a CQI program been incorporated into the design of the service. Yet there is no other way to ensure quality or consistency. Piecemeal quality assurance will enhance only parts of the pharmacy service.

There are many reasons why detailed systems analysis and design of pharmacy services are not routinely performed. Services are difficult to analyze and the distribution (the product) component is confused with the service (the patient) component of pharmacy services.

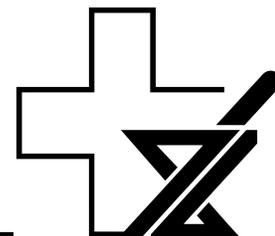
*Optimal drug therapy is the desired outcome, and requires delivery of the drug product as well as the ability and knowledge of the pharmacist to detect, resolve and prevent drug-related problems.*

The basis for continuous quality improvement is good operations management, expressed in work-flow diagrams or critical pathway method charting. These provide an understanding of the quality of each process or service. *What is not addressed is the quality of the outcome, which requires professional judgment, interdepartmental evaluation, and the client's assessment of the process.*

A system is needed that builds on the strengths of operational management to create a continuous quality improvement program *addressing both the quality of process and the quality of the outcome.* It is possible to design such a comprehensive framework .

**The basis for continuous quality improvement is good operations management, expressed in work-flow diagrams or critical pathway method charting**

# Introduction



## The Philosophy of Continuous Quality Improvement

Departments and hospitals have adapted many definitions of “quality”, but the common element of satisfying client expectations must be present in order to continuously improve quality.

A Client is anyone affected by our work or anyone to whom we provide a product or service. Clients may include patients, families, fellow staff and health care professionals and external organizations such as CSHP or the Ministry of Health.

Consistent conformance to client expectations implies doing the right job right the first time and every time; and anticipating, meeting and/or exceeding the clients’ agreed-upon specifications for the service provided.

The CQI movement and theory are usually credited to three individuals:

- W. Edwards Deming
- J.M. Juran
- Philip Crosby.

*W. Edwards Deming<sup>2</sup>*

### Statistical Quality Control

A statistician by profession, Deming’s approach focuses on the use of statistics as a means to prevent quality slippage. The emphasis is on increasing quality standards through process control. He uses statistics to build abstract models of how systems should function. His basic idea is that quality control cannot be attained through traditional quality control inspection methods.

Dr Deming and his methods have been

widely credited for the turn around in product quality in Japan. The highest honour for a Japanese company is the coveted Deming Award for outstanding quality.

Over the years, Dr Deming’s focus has shifted to apply his techniques within organizations. Frustrated with management’s failure to adopt the quality methods in decision-making, he developed a 14-point framework to establish the proper environment for implementing Statistical Process Control (SPC). These include:

- Adopt new Philosophy
- Modern Methods of Supervision
- Break down Barriers between departments
- Remove Barriers between departments
- Remove barriers that rob workers of pride
- Drive out fear.

*J.M. Juran<sup>3</sup>*

### Quality Assurance Engineering

Also credited with helping to improve Japanese quality, Juran’s emphasis is on the design of products for manufacture using high quality standards. A cornerstone of his approach is “fitness for use” rather than what he sees as the more common “fitness for sale” philosophy found in most companies. Dr. Juran and his followers have a clear engineering bias using systems approaches for integrated engineering applications.

Dr Juran has also moved his focus beyond engineering and manufacturing. He considers participation and project team approaches critical to meeting client needs. Achieving “fitness for use” requires

that those who market, design, manufacture products and provide services must know their clients intimately. His ten-step plan includes:

- Build awareness of the need and opportunity for improvements
- Give recognition
- Communicate results.

*Philip Crosby<sup>4</sup>*

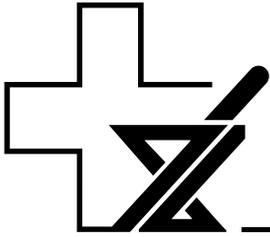
### Cost of Quality Management

Crosby’s message, first outlined in *Quality is Free*, debunks the common assumption that higher quality means higher cost. He asserts that it costs less to do it right the first time. He shows that by tracking the Cost Of Quality (COQ), teams can discover how the greatest improvements in both quality and efficiency can be made. Crosby also argues that the popular Acceptable Quality Level (AQL) standards reduce overall quality. He believes that this practice actually encourages defective merchandise and sets defects as the norm. He exhorts companies to set standards of “zero defects”.

Crosby has 14 steps for quality improvement. His sequential process centres on Quality Improvement Teams (QIT) who discover and track the Cost of Quality through audits. They work to establish measures, evaluate costs and build awareness. The process continues with forming committees for “zero defect days”, goal setting, recognition and quality councils.

37

Philosophy



## Passing Fad or Evolution of Quality?

CQI is a dynamic process of progress toward ever-better performance of systems and their processes. Improvement of care rests with individual and group momentum to improve and provide better service to clients. This is reflected in the values, culture, vision and mission of

the pharmacy department and hospital.

CQI represents an evolutionary step in the quality journey. It is a process and an attitude (see table 1) that will lead to "culture change" within the organization.

One hospital's process simply cannot be transplanted to another hospital. Each

process will be different because of unique values, vision, mission and culture at each institution. What can be transferred, however, are the beliefs and philosophies. A model is then adopted or customized to suit each institution.

**Continuous Quality Improvement is a Process and an Attitude**

Table 1

Process	Attitude
<ul style="list-style-type: none"> <li>method of change which depends on the ideas and skills of the people closest to the client</li> </ul>	<ul style="list-style-type: none"> <li>of listening to your clients and providing what is needed/expected</li> </ul>
<ul style="list-style-type: none"> <li>understanding client needs and expectations</li> </ul>	<ul style="list-style-type: none"> <li>of removing barriers to excellent service and consistency</li> </ul>
<ul style="list-style-type: none"> <li>improvements made on the clients' behalf</li> </ul>	<ul style="list-style-type: none"> <li>taking every opportunity to improve the process through teamwork</li> </ul>
<ul style="list-style-type: none"> <li>focus on the system, not the person</li> </ul>	<ul style="list-style-type: none"> <li>100% error-free work (i.e. zero-defects)</li> </ul>
<ul style="list-style-type: none"> <li>involve all staff in making improvements - small or large</li> </ul>	

**CQI is a dynamic process of progress toward ever-better performance of systems and their processes**

## Continuous Quality Improvement Practice Models

Table 2

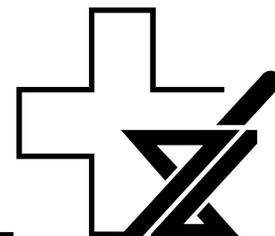
Over the last few years, several models have been introduced to either departments or hospitals living the CQI evolution. Some of these are depicted in Table 2.

Consistent with the philosophy of CQI, these models have the following attributes in common:

- focus on processes, not individuals
- incorporate clear definitions of the problem or area for improvements
- involve the client and define improvement and outcomes based on statistical measurement, data collection and client expectations.

CQI Practice Models			
JCAHO 10 Step QA Plan	Hospital Corp of America Model	AJHP Sep 91 Gitlow Model	Problem Solving Approach
1. Define who is responsible	F=Problem Found	1. Develop key indicators for process & outcome	1. Define problem
2. Scope of Care	O=team Organized	2. Quality Control Audit & diagnosis - identify best practices	2. Diagnosis phase: symptoms, data collection, causes
3. Identify important aspects of care	C= Clarify to understand causes of problem	3. Variance Analysis between best practice & what's happening	3. Remedy phase - possible solutions and best solution
4. Establish indicators, criteria & thresholds for important aspects of care	U= Understand causes of problem	4. Housekeeping and daily management tasks - SDSA and PDSA **	4. Holding the gains - action steps and follow-up with ongoing monitoring
5. Collect and organize data	S= Select major cause of the problem	5. Cross-functional management	
6. Compare data with thresholds	PDCA**Cycle	6. Policy management - strategic planning	
7. Evaluate unacceptable care, validate acceptable care and provide feedback	1. Find Problem	7. Departmental management - bridge between daily management, housekeeping and policy management -cross functional responsibilities	
8. Identify problem or opportunity for improvement	2. Organize teams	8. Quality control circles/ teams/ project teams	
9. Corrective Action	3. Clarify		
10. Assess results - monitor, feedback	4. Understand		
	5. Select		
	6. Evaluate and Monitor - communicate and educate		

\*\* PDCA= Plan ,Do ,Check ,Act  
 \*\*PDSA = Plan, Do ,Study, Act  
 \*\* SDSA = Standardize, Do, Study, Act



## Continuous Quality Improvement Practice Models (continued)

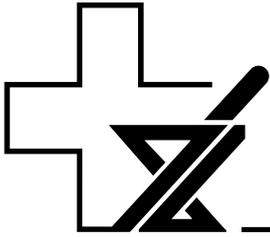
Table 2

CQI Practice Models			
SJHC*/3M CQI Pathway	Philip B. Crosby	W. Edwards Deming	Joseph M. Juran
1. Identify process for improvement	1. Management commitment	1. Create constancy of purpose for improvement of product and service	1. Quality planning - process of developing products and processes required to meet client needs
2. Identify clients and their expectations	2. Quality Improvement Team	2. Adopt new philosophy	2. Quality Control - regulating process through which actual performance is measured and compared to standards, and differences acted upon
3. Create a flow chart of the process	3. Quality Measurement	3. Cease dependence on inspection to achieve quality	3. Quality Improvement - organized creation of beneficial change
4. Determine key measurement and collect data	4. Cost of Quality	4. End practice of awarding business on price - single supplier	3a. Institution-wide planning of strategy
5. Establish target levels of improvement for key measurements	5. Quality Awareness	5. Improve constantly and forever	3b. Tackle one major problem at a time
6. Analyze gaps in performance and determine key improvement areas	6. Corrective action	6. Institute training on the job	3c. External and internal clients
7. Act to improve performance/process	7. Zero defects planning	7. Adopt and institute leadership	
8. Implement and evaluate improvements	8. Employee education	8. Drive out fear	
	9. Zero defects day	9. Break down barriers between staff areas	
	10. Goal setting	10. Eliminate slogans, expectations and targets for the work force	
	11. Error cause removal	11. Eliminate numerical quotas and goals - add leadership	
	12. Recognition	12. Remove barriers that rob people of pride - eliminate annual rating/ merit system and MBO	
	13. Quality councils	13. Institute vigorous program of education and self improvement for everyone	
	14. Do it all over again	14. Everybody works to accomplish the transformation - QITs/QC/CAT	

\* SJHC CQI Training Manual -  
St. Joseph's Health Centre,  
London, Ontario

37

Models



## Hospital Pharmacy and Continuous Quality Improvement:

### CCHFA/CCHSA Standards And Accreditation

In 1988, The Canadian Council on Health Facilities Accreditation (since renamed Canadian Council on Health Services Accreditation) (CCHFA/CCHSA) made a commitment to increase communication with national health organizations. The Canadian Society of Hospital Pharmacists (CSHP) seized this opportunity for a very active liaison with CCHFA/CCHSA providing considerable input into the Standards Revisions. CSHP representatives drafted the *Pharmacy Patient Care Standard* for 1991. CCHFA/CCHSA provided CSHP with the proposed *Quality Management Standards* prior to review by its Board. CSHP thus had active input into the development and evolution of the standards.

As stated earlier, the standards are in a state of flux. The following material describes elements of standards as they relate to quality improvement in hospital pharmacy practice which will remain common as the standards evolve. There are no specific "Pharmacy sections" as in previous years. Pharmacy is expected to participate on interdisciplinary teams for patient care groupings.

The *patient is the focus* of all activity in the health facility and the standards genuinely reflect this viewpoint. In terms of quality improvement, the standards indicate that management and quality of the patient care process depend upon the integrated, coordinated, and complementary activities of the health care team. Individuals have a shared responsibility to assess and improve the quality of processes in which they participate, considering opportunities to coordinate efforts across functional boundaries.

Although there is no specific plan of care for Pharmacy, the general Care Planning process can be compared to the Pharmaceutical Care Model:

#### The Plan of Care envisioned by CCHFA/CCHSA includes:

- Clearly defined patient centred goals which are realistic and based on the patient's needs, preferences and strengths;
- Expected patient-centred results of care or outcomes;
- Identification of person(s) responsible for implementation of the plan within the interprofessional team.

### **The Patient is the focus in all activity in the health facility and the standards generally reflect this viewpoint**

In the accreditation survey process, a core set of questions assist the surveyors to focus on CQI:

#### Client Focus

- Who are the groups or individuals you serve?
- How do you determine their needs and expectations?

#### Teamwork

- How has the team been put together?
- How long has the team been operating as a team?
- Do you feel that the team consists of the right people?

#### Process

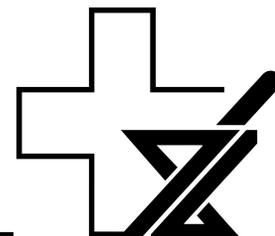
- Describe your process for .....?
- How well is the process working and how do you know?
- Is it comprehensive, coordinated, client-centred, communicated and collaborative?

#### Continual Improvement

- How can/did you make the process better?
- What indicators do you have and how are they used to evaluate the process?

The Accreditation Guidelines provide the details for each facility's preparation for the survey process. The following are a few "survival" tips to help make the survey process a smooth experience:

- Participate on the interdisciplinary teams for the patient care groupings - so that staff pharmacists on the patient centred teams provide their active input into the care of the patient
- Focus on patient-specific care relevant to the patient's needs and expectations - do not assume everything is in "the best interest" of the patient unless the patient's needs are requested and met
- Start small "indicator" and "outcome" projects related to pharmaceutical care - therapeutic interventions, medication counselling, ADRs, allergies, Pharmacokinetic monitoring and detection an resolution of drug related problems all lend themselves to outcome projects. Ensure that the outcomes are viewed from the patient's perspective.
- Document Care Plans, interventions, counselling etc. in the patient's clinical record



## Hospital Pharmacy and Continuous Quality Improvement (continued)

- Involve all employees in the preparation for the survey - implement teams in the department to develop a strong client-focus
- Update relevant policies and procedures just in case
- Ensure all staff are trained in CQI and are aware of all departmental processes - surveyors will be interviewing staff and not necessarily supervisors
- Be aware of overlap areas in the new guidelines and how these affect the pharmacy department.

Preparation for the survey is a process in itself. If done properly the opportunities for discovery, challenge and bringing the team closer together outweigh the “fear of inspection”.

### Elements in Hospital Pharmacy CQI Programs

Regardless of the evolving content of the Accreditation Standards, there are a number of specific elements which must be in place in any hospital pharmacy quality improvement program. These elements were identified in previous editions of CCHFA/CCHSA Standards and even though not repeated in subsequent editions of the standards, are included below to assist pharmacy directors in developing quality improvement programs in their departments.

#### Quality management

- Pharmacy Services has planned, systematic and integrated activities for improving the quality of processes related to patient care and service delivery.
- The activities include action and follow-up to ensure continuous improvement in the quality of care/service.

#### Statement of purpose

- Describes the purpose of the Pharmacy service
- Reflects the philosophy of care/service and a commitment to quality improvement. It should be included in the department’s mission/vision statement as the department’s commitment to CQI
- Is developed with input from all levels of staff and consultation with other relevant services/programs .
- Is consistent with professional standards and/or guidelines for practice
- Is revised as necessary and reviewed at least every three years

#### Note:

- If the organization has made the commitment to CQI principles and has prepared all staff for CQI, then the potential for pharmacy to be successful in addressing issues outside of the department will be greater
- If not adopted by the organization, pharmacy may still have success with CQI, but application may be limited to departmental issues.

#### Staff Involvement

- Interdisciplinary/interservice/interprogram meetings
- Individual responsibilities such as identifying and reporting opportunities for the improvement in care/service
- Group meetings
- Staff meetings
- Membership in quality improvement teams (cross functional or intradepartmental)
- The closest person in the organization involved in doing the job must be included

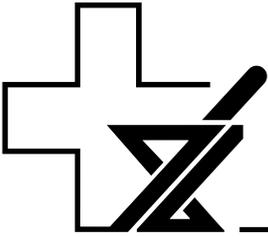
- Most often, the closest person(s) will be front line staff
- The employee will feel “empowered” - and will be a key participant in identifying quality issues, finding root causes of the problems, proposing solutions, selecting the best alternative and carrying out the plan of action.
- All participants will require basic training in CQI principles
- The tools used in CQI can be learned by staff in a “just in time” manner, however the facilitator will need to understand the tools before the team meets to be able to use the appropriate tools.

#### Clients

- Clients and suppliers (internal and external) must be clearly identified
- They may include patients and families, co-workers, vendors, nurses, physicians, porters, funding agencies, administration, other health professionals etc.

**Regardless of the evolving content of the Accreditation Standards, there are a number of specific elements which must be in place in any hospital pharmacy quality improvement program**

37



#### **Needs and expectations of clients:**

- Mechanisms for defining their needs and expectations will be required
- Mechanisms may include: negotiations, needs assessment, focus groups (e.g. Pharmacy Nursing Committee), surveys
- Professional standards and/or guidelines for practice must be considered in establishing the needs and expectations
- Standards and/or guidelines for practice must be consistent with current statistics and trends, case mix, acuity, method(s) of care delivery and technology.

### **The client is the focus of CQI - clients define quality, not health care providers.**

#### **Principal Functions of Pharmacy:**

- Must relate to the agreed upon needs and expectations of the clients and suppliers
- For example, provide a safe and effective unit dose/CIVA drug distribution system, publish and maintain a formulary, perform drug use evaluation etc.

#### **Processes For The Principal Functions Of The Pharmacy:**

- The process (i.e. steps required) to provide each principal function/activity of the department must be stated
- Procedure statements and/or flow charts can be used to outline each process

#### **Pitfall to Avoid:**

- Steps in the written process may not be the steps actually carried out unless flowcharted correctly. This must be

done by the individuals actually doing the work, not managers, directors etc.

#### **Criteria or Indicators of Quality:**

- Indicators most often include outcomes of the principal functions, as identified from the client's perspective.
- Indicators can measure steps in the process
- The greatest challenge is to identify the key quality indicators which will direct the department to problem areas.
- The development of indicators will include staff and clients.

#### **Pitfall to avoid:**

- Criteria or indicators that cannot be reasonably tracked or measured.

#### **Establishment of Priorities for Project Selection**

- A mechanism to select which process(es) will be evaluated to ensure continuous improvement in quality is required. For example, listening to clients, asking people in the process, reviewing management reports and examining competitive benchmarks
- Priority should be given to processes that are:
  - patient-centered,
  - high risk,
  - high volume,
  - problem prone.

#### **Monitoring Improvements**

- Maintaining the gains achieved by the quality improvement committee is important. This is best done through continuous monitoring of indicators that have been established as valid after the critical few issues have been identified.

- Monitoring activities may include:
  - ongoing data collection as required through re-audit and re-survey
  - process redesign

#### **Communicating Results of Quality Management Activities**

- The mechanisms may include:
  - Committees
  - Education programs
  - Reports
  - Staff meetings
  - Newsletters or bulletins

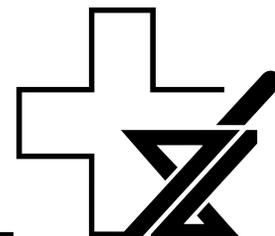
#### **Standards of Care/Service**

- Consistent with the philosophies of patient care and continuous quality improvement concepts
- Based on relevant professional/technical standards of practice
- Developed within the service/discipline
- Accessible to relevant service staff and other disciplines

#### **Revision of Standards of Care/Service**

Standards are revised whenever there is a change in:

- Statistics and trends
  - Casemix
  - Acuity assessment
  - Method(s) of care delivery
  - Professional and/or technical standards of practice
  - Technology
- Standards of care/service are developed/modified as a result of quality management activities.



## Hospital Pharmacy and Continuous Quality Improvement (continued)

### CQI in Action — The “How To”

#### Quality Improvement Teams /Projects

- Problem statement should be clear. The project should be approved by the Quality Improvement Council (or equivalent body) of the hospital. Each project team requires:

- a leader to provide direction and substance to chair the committee
- a facilitator to provide direction/training on quality improvement principles and tools. The facilitator observes, evaluates, and intervenes when the committee flounders.

- a historian, responsible for maintaining a storyboard (description of activities/learning experiences of the quality improvement committee)
- committee members - front line people for grass root participation of those directly involved in the work area studied is essential. This may draw across several departments/professional boundaries.
- Training is supplied to the team members by various methods depending on the philosophy of the organization. Of importance is that all team members be trained in quality improvement principles. Consensus should be used to arrive at decisions.
- Note that it may be useful to distinguish between big “Q” teams that are interdisciplinary and require QI Hospital steering committee approval and small “q” projects that may be conducted internally within a department or involve only one other department.

- It is important for team members to appreciate that they represent not only the area they are from to the QI Team but also the QI Team back to that area. Information must flow freely in both directions.

#### Pitfalls to avoid:

- philosophies of “win/lose” or “majority rules”
- failure to establish the autonomy and authority of the team prior to the first meeting. this may take several years, particularly if the horizontal representation in the team is functioning in a vertical hospital hierarchy.

#### Tools required:

- Formal courses in the quality improvement philosophy and tools must be provided to team members

#### Defining the process and identifying current outcomes.

- The flowchart is the basic tool of quality improvement. There are many types of flow charts available.
- Establish whether the project is “process oriented”.
- At the beginning of flow charting post “start” and “end” steps first.
- Next, perform a high level flowchart without a great account of detail. Document the detail under each portion of the high level flowchart next.
- Use common symbols available for flowcharting.
- Finally, identify rework, complexity, decisions, databases and areas where waits or delays occur.
- Of primary importance is the recognition that no single person within an organization knows the entire process as it actually works.

#### Pitfalls to avoid:

- Not having people who are actually involved in the work
- Getting bogged down in detail too early
- Guessing when unsure of the actual steps within the flowchart.
- Assuming. Identify areas of deficiency in knowledge, gather the data and fill in at a later date.

#### Tools required:

- Various flowcharts
- Brainstorming
- Idea boarding
- Multivoting
- Decision matrices

#### Establishing the desired or expected levels of performance

- If you don’t know where you’re going, any road will likely take you there!
- The desired output should be clearly stated. For example, “one hundred percent compliance is expected in that no neonate is dropped while feeding.”
- Establish the best demonstrated practice (BDP) by involving all affected players/clients.

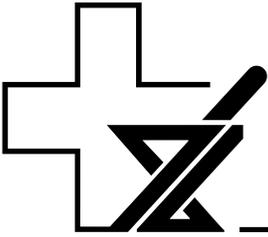
#### Pitfalls to avoid:

- process flow diagrams which are not detailed sufficiently to determine where rework etc. occurs. These are very difficult to analyze.
- client requirements not accurately or fully identified

#### Tools required:

- process flow diagrams
- Plan Do Check Analyze/Act (PDCA) cycle
- histograms
- graphs
- pareto diagrams
- cause and effect diagrams etc.

37



**Selecting criteria or indicators of quality**

- Performance indicator development may have to wait until brainstorming etc. is completed to determine the “critical few theories of cause”.
- Determine if it is “outcome oriented” or “process oriented”. This will help determine the criteria or indicators to use.
- Indicators should be based on the best demonstrated practice.

**Pitfalls to Avoid:**

- Indicators identified are not valid, are not easily collected or are ignored.

**Problem statement should be clear. The project should be approved by the Quality Improvement Council (or equivalent body) of the hospital.**

**Collection and Analysis of Data**

- This step is comprised of four components:
  - Data collection
  - Data analysis
  - Identification of theories of cause
  - Identification of opportunities for improvement or correction of root problem

**Data Collection**

- In order to accurately collect data that will be useful, develop a well-focused question.

**Selecting criteria or indicators of quality**

*Table 1*

Process Oriented	Outcome Oriented
■ Machines	■ Death, Disease, Discomfort
■ Material	■ Disability, Dissatisfaction (5 D's)
■ Method	■ Cure, alleviate, prevent
■ Measurements	■ Quality of life indicators
■ People	
■ (4 Ms and a P)	

- The question should be process-oriented, blame-free with measurable events.
- When collecting data, look for information (answers to question), not just raw data.
- Use existing data whenever possible.
- All data collection tools should be tested prior to use to ensure that all required data is obtained.
- All data collectors should be trained in methodology as well.

**Pitfalls to Avoid:**

- too broad a problem statement
- introduction of bias
- cheating
- poor methodology
- variation in methodology
- changes occurring to the process during the data collection period
- incomplete/missing data
- be aware of the Hawthorne effect, particularly if collecting prospective data.

**Data Analysis**

**Tools Required:**

- descriptive and/or influential statistics
- graphics, such as histograms, run charts, scatter and control charts, box plots etc.

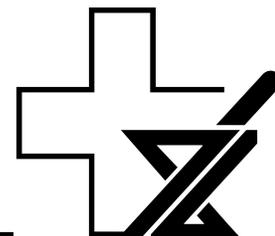
**Note:**

- each project team does not require its own statistician. A central resource within the organization can be utilized.

**Identification of theories of cause**

**Tools Required:**

- Cause and effect diagrams such as fish-bone or process flowchart
- Brainstorming. Purpose of brainstorming is to generate questions, not facts. It should be used to display areas of bias/ignorance. there are no bad ideas during brainstorming and criticizing someone else's brainstormed idea is not allowed. It should focus on the systems, not individual causes. A pitfall to avoid is not to confuse theory with fact. Data are still required after this step.
- Pareto Analysis. This step involves choosing the critical few issues that would cause the majority of the problems in the study area. Narrowing the list of potential causes to a manageable few to collect data may be accomplished using the Pareto Principle.
- Multivoting may help in narrowing an extensive list of causes to manageable few. Data will confirm or reject the choices initially made as the critical few.



## Hospital Pharmacy and Continuous Quality Improvement (continued)

### *Identification of opportunities for improvement or correction of root problem*

- Opportunities for improvement may be identified anywhere in the quality improvement project.
- It is important to make decisions based on good data, not hunches.
- If changes are made in the middle of the project, they must be identified, otherwise they may affect any pre and post project comparison.

### **Tools Required:**

- Benchmarking
- Cost/Benefit analysis
- Decision matrices
- Force field Analysis
- Multivoting

### **Identifying and Documenting the Improvements in Care/Service**

- A storyboard of the quality improvement committee's progress should be maintained by the historian.
- Lessons learned and issues dealt with should be briefly described.
- Graphs of performance indicators should be displayed.
- The results of the committee should be shared with the organization.
- This can be done in numerous ways such as presentations to administration, the board and staff, through hospital newsletters etc.
- There is evidence of integration of quality, risk and utilization data.

### **Criteria for Project Selection**

- Patient/family centered
- High risk
- High volume
- Problem prone

**Not all improvement campaigns improve quality. It is important to be aware of and watch for some of the pitfalls and signs of problems in the CQI process<sup>5</sup>**

## Why CQI Efforts Fail

Not all improvement campaigns improve quality. It is important to be aware of and watch for some of the pitfalls and signs of problems in the CQI process<sup>5</sup>.

### **False Starts**

The hospital may announce the campaign with fanfare. However, without follow-through and a plan for what staff will do differently and how they will do it, the continuous quality improvement effort will fail.

Improvements are not related to client issues.

Quality improvements, while they may be technically superior, are meaningless unless they are satisfying client needs. Quality therapeutic outcomes from a practitioner's perspective traditionally relate to disease and death. However, from a patient's perspective, improvements in quality will also relate to discomfort, disability and dissatisfaction.

### **“Do” versus “Develop” Mentality**

CQI is a continuous process with four phases: plan, do, check, act. To be successful, the process must not underestimate the importance of the planning and checking phases.

### **The Quick Fix.**

CQI is an ongoing process and significant results take time. First hunches may not prove to be the root cause of the problem. data are often needed to either identify the cause or demonstrate it to others.

### **“Mandate and Move On”**

CQI must be embraced at all levels within the organization, from the Board of Trustees to the front line staff.

### **“No time on the Hospital Agenda”**

The CQI project is launched and the hospital continues business as usual.

According to the literature, executives spend an average of 60% of their time fighting fires. It is suggested that until at least that much time is spent on quality initiatives, nothing much will change.

### **Lack of Leadership**

CQI needs leaders and champions.

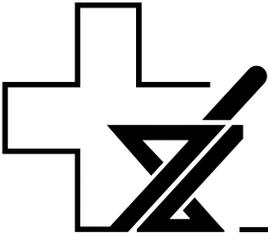
### **Budget Constraints**

Management's concern for CQI may dwindle when budgets for human and financial resources are reduced.

### **No sense of urgency**

CQI is a common-sense idea. Without passion, the idea can become lost in slogans without meaningful change.

37



## Why CQI Efforts Fail (continued)

### Too much too soon

The department tries to start with a huge project instead of a bite-sized one which will give large rewards. Starting with small projects develops expertise and creates the time to devote to larger projects.

### Lip Service

Living and Leading by the philosophies of CQI require patience and consistency of operating - not changing the way we manage/lead will destroy the practice in the minds of front-line staff.

**Starting with small projects develops expertise and creates the time to devote to larger projects.**

## Summary

The current restructuring of health care and the emphasis on cost-effective quality create the best opportunity pharmacists have ever had to define, evaluate and expand the contribution of their profession. Pharmacy leadership is needed now more than ever to articulate, research and finally, optimize cost effective drug therapy outcomes. The task is considerable but unless cost effective quality of process, client focus and outcome become an integral part of professional practice, pharmacy is destined to miss the evolution and potentially, to be replaced by machines and technology.

Any CQI program can only be as good as the information on which it is based. Accurate trend analysis to identify quality problems and opportunities for quality improvement are critical. An important adjunct to timely and comprehensive data collection and analysis is the use of

automation to make the process less labour intensive.

The greatest quality improvements in drug therapy will come about only when pharmacists consider it an integral part of their daily routine to identify patient-specific drug therapy problems, to recommend solutions and then to follow the patient to see that the anticipated results are accomplished. The ways in which individual pharmacists can improve the quality of patient care are virtually unlimited. Prospective monitoring, customized drug dosing, streamlined drug administration regimens and decreased adverse drug reactions offer some of the major opportunities.

Although success in the CQI process is the result of everyone's contribution, it must be supported by pharmacy managers. Managers must be prepared to provide good systems support, to lobby assertively at all levels of the organization

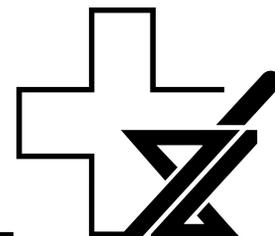
for needed resource allocation and to strive for continuous quality improvement in themselves and in their staff.

Pitfalls and failures in solving quality problems are generally social, not professional. Significant quality problems which require interdisciplinary solutions and efforts to solve them often fail at the boundaries between healthcare professional groups or departments. The interdisciplinary or team approach to CQI is absolutely essential.

Dissatisfaction means that we as pharmacists know that we can do better in improving the quality and cost-effectiveness of the drug therapy our patients receive. Vision means that we have to articulate the ideal in optimizing drug therapy and begin with what is feasible. The practical first steps are what we must take now to initiate change.<sup>6</sup>

**Pharmacy is looking for leaders, who may not necessarily be today's managers, to take us through the change.**

**Are you ready?**



## Examples of Continuous Quality Improvement Projects

### Example 1 Medication Cart Filling

#### Possible Problem

To establish the BEST PRACTICE process for unit-dose medication cart filling and delivery, where too many doses went/were delivered to the units without a second check.

#### Pathway

##### (A) Assign a Quality Improvement Team (QIT) or Task Force

- include front-line staff - pharmacists, pharmacy technicians, porter, stores-person, nurses, wardclerks, involve client at appropriate place
- appoint manager or supervisor of pharmacy satellite as team leader of the QIT
- Director appointed as facilitator of the QIT

#### Avoiding Pitfalls

Ensure that the correct mix of people are involved - those actually doing the job. Ensure that client expectations are addressed and that the QIT does not work in isolation. Finally, ensure that there is cross-functional representation on the QIT

##### (B) Define Process - including identifying current outcomes

- Clearly define work flow or process flow of the existing medication cart filling task - as it really occurs and not what the procedure manual dictates
- Use a process flow diagram and brainstorming as tools/techniques. Additional tools include interviews, surveys, cause/effect diagrams

- Identify rework loops and redundancy steps. Target these for examination first, identifying current outcomes and consequences of rework and redundancy steps

#### Findings

Too many updates placed in the medication bins after filling and checking.

#### Avoiding Pitfalls

Include feedback and expectations/needs of clients - clearly defining the process will lead to appropriate targets.

##### (C) Establish desired or expected levels of performance related to the process

- establish the ideal outcome or desired level of performance by analyzing those areas identified in the previous step - eliminate re-work and redundancy steps
- set the standards for new levels of performance i.e.. establish BEST PRACTICE PROCESS
- specifically, expect to reduce the number of updates to the checked bins, thereby reducing the number of doses delivered to the unit unchecked

##### Establish new indicators for 'Best Practice' process or new work-flow process for cart filling

#### Avoiding Pitfalls

Don't jump to conclusions or arrive at solutions without measurement.

##### (D) Establish/Select Criteria or Indicators for Achievement against the Expected levels of performance

- Establish new indicators for BEST PRACTICE process or new work-flow process for cart filling. These could include number of updates after the bins are checked, number of medication errors from medications on the update list, times of delivery of medication carts, times of filling/ checking medication carts

#### Avoiding Pitfalls

New indicators must measure achievement for best practice model

##### (E) Collect and Analyze Data to determine actual levels of performance and to identify causes of a problem and/or opportunities for improvement of care/service

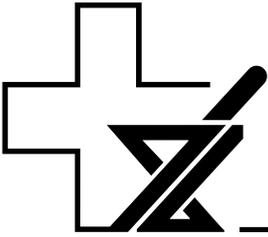
- Collect data, analyze information to validate findings/suggestions of the group.
- Tools and techniques include run charts, data collection, plots, pareto charts, brainstorming, cause and effect diagrams

#### Findings

Some bins are updated as often as 12 times before delivery, and after checking. Bins are filled and checked in the morning but not delivered until the afternoon.

Suggested problem - process of filling and checking bins and subsequent delivery to the unit. Time delay is too long, resulting in too many unchecked changes before delivery.

37



#### Avoiding Pitfalls

Not finding the real problem or area to contribute to most improvement.

#### (F) Identify alternative Solutions and Approaches

- Alternative solutions examined by QIT
- Solutions include:
  - recheck bins before delivery to units - check in PM
  - reschedule filling and checking
  - change staffing to allow for this change

#### Avoiding Pitfalls

Be creative in defining alternatives - they must address the real problem

Don't jump to solutions or alternatives without looking at all the possibilities.

#### (G) Select and Implement Appropriate Alternative

- Choose to reschedule filling and checking bins by changing staffing patterns to accommodate PM workload

#### Avoiding Pitfalls

Don't jump to solutions or alternatives without examining all possibilities.

#### (H) Document

- Check new process with the same indicators
- Train staff on new system - get "buy-in" from staff
- Document the benefits:
  - Reduced number of doses sent to unit unchecked
  - Reduced number of updates to filled and checked carts
  - Saved hours in scheduling

#### (I) Ongoing Monitoring

- Establish audit cycle of the indicators - flag the system to indicate when it's breaking down

## Example 2 Medication Wastage

#### Premise

Excessive medications dispensed to patients and subsequently not used due to medication changes and/or reduced length of stay

#### Parameters

- Target high cost drugs first - IV antibiotics, ondansetron, omeprazole
- traditional system - nurse dispenses medications from supply in vial
- maintain automatic stop order of 7 days

#### (A) Assign a QIT or task Force

- Include a technician, nurse, pharmacist, and supervisors from nursing and pharmacy
- ad hoc members include porter, nursing manager, chairperson of PTC

#### (B) Define Existing Process

- Define current practice with feedback from all stakeholders
- Use a cause and effect diagram, work process flow diagram and brainstorming
- Select oral antibiotics as a target drug class

#### (C) Expected Level of Performance

- Expect to reduce antibiotic wastage by 50% and still maintain all other parameters of medication distribution process

#### (D) Establish Criteria and Indicators

- Number of antibiotics dispensed
- Number of antibiotics returned and wasted (counted from wastage bin)

#### (E) Collect and Analyze Data

- Indicators to include number of antibiotics wasted as a percentage of antibiotics dispensed
- Wasted antibiotics quantified by nursing unit

#### (F) Identify Alternative Approaches

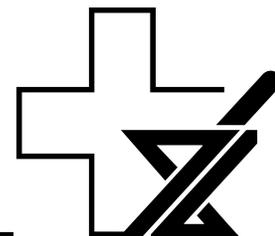
- Tailor/customize antibiotic supply to unit
- unit dose antibiotics
- strip package antibiotics
- reduce supply dispensed

#### (G) Implement appropriate Alternative

- Reduced supply of antibiotics - 1x3 day supply, reorders 1x4 day supply
- test wastage indicators for decreased wastage

#### (H) Document

- Actual wastage reduction and cost savings.



## Examples of Continuous Quality Improvement Projects (continued)

### Example 3 Turn Around Time for Medication Orders from Pharmacy to Patient Care Units

#### Premise

It takes longer than x minutes for medication orders to be processed and medications delivered to nursing units.

#### (A) Assign a QIT

- Includes nurse, porter, technician, pharmacist, pharmacist supervisor/manager as team leader
- May need *ad hoc* member for certain sections of the diagnostic journey

#### (B) Define existing Process

- Obtain feedback from all stakeholders including nursing, physicians and patients
- Establish client needs and expectation
  - need to have medication available for administration

- Process flow diagram
- Investigate current practice

#### (C) Expected level of Performance

- Establish a mutually agreeable target for turn around time e.g. all medications to be delivered one hour after order pick-up and all orders picked up from units each hour

#### (D) Establish Criteria

- Indicators to include:
  - Time count of orders written - number and times
  - Time of order pickup - number and times
  - Percent of orders with problems not turned around in one hour
  - Arrival time in pharmacy
  - Departure time from pharmacy (difference in process and filling time)

#### (E) Collect and Analyze data

- Collect data based on indicators in (D)
- Use run charts, pareto diagrams, cause-effect diagram

#### (F) Identify Alternative Approaches

- Pneumatic Tube for orders and deliveries
- Two porter system - one for order pick up and one for delivery
- Nurses pick up when ready
- Pharmacy technician pulls orders and delivers medications hourly

#### Avoiding Pitfalls

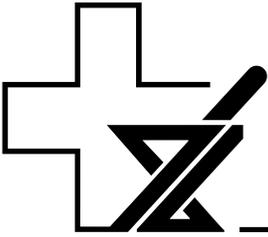
Unsure which alternative meets client's expectations

#### (G) Implement appropriate Alternatives

- Two porter system

#### (H) Document

37



## Appendices

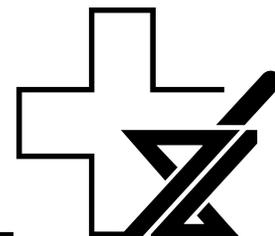
### Appendix I - Recommended reading "Team Handbook", Peter R. Schultes

<p><sup>1</sup>Adapted from Crane VS. Continuous Quality Improvement As An Ideal in Hospital Pharmacy Practice. Glaxo Inc., 1990.</p> <p><sup>2</sup>Deming, W. Edwards. <u>Out of Crisis</u> Cambridge, Ma. MIT-Center for Advanced Engineering Study, 1985.</p> <p><sup>3</sup>Juran JM. <u>Juran on Planning for</u></p>	<p><u>Quality</u>. New York, NY. The Free Press, 1988.</p> <p><sup>4</sup>Crosby, Philip B. <u>Quality is Free</u>. New American Library, NY.1979.</p> <p><sup>5</sup>"Change results from dissatisfaction, vision and practical first steps". Malpas R. <u>Moving toward greater energy efficiency</u>. Scientific American 1990: 263-184.</p>	<p><sup>6</sup>Adapted from Crane VS. Continuous Quality Improvement as an Ideal in Hospital Pharmacy Practice. Glaxo Inc. 1990.</p>
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### Appendix II - Symbols for Process Flow Chart

Rectangle		An activity. This may cross over two columns (to indicate a joint activity)
Drop-Shadow Box		Represents a process ie. a series of activities. Each drop-shadow box must include a reference no. of the sub-process it represents
Decision Box		Decision always has one input and two outputs. If yes, process goes down. If no, process goes either left or right
Oval		Start/Finish or reference number indicating supplier & customer of the process
Circle		Waiting on an activity before continuing
Arrowhead		Shows direction of process flow (at least one on every line)
Cross-Over		Symbols must be connected by lines. Lines must be horizontal or vertical. All lines must have an arrowhead.
On-Page/Off Page Connector		Use this symbol when the symbols connection is too far away eg. from right bottom to left top or when cross-over will not work. Use reference no. in the symbol to indicate where it connects.

Reference: Glaxo Canada Inc.:  
Continuous Quality Improvement - Beyond the Boundaries



## Appendix III - Continuous Improvement Process

### Flow Chart Guide

#### 1. Identify Customer Needs

The *Continuous Improvement initiative* is focused upon the needs of the customer. The initiator of a proposal for a project will identify the issue causing customer dissatisfaction or opportunities for improvement based on customer input, corporate performance measures and current benchmarks, or corporate strategic issues.

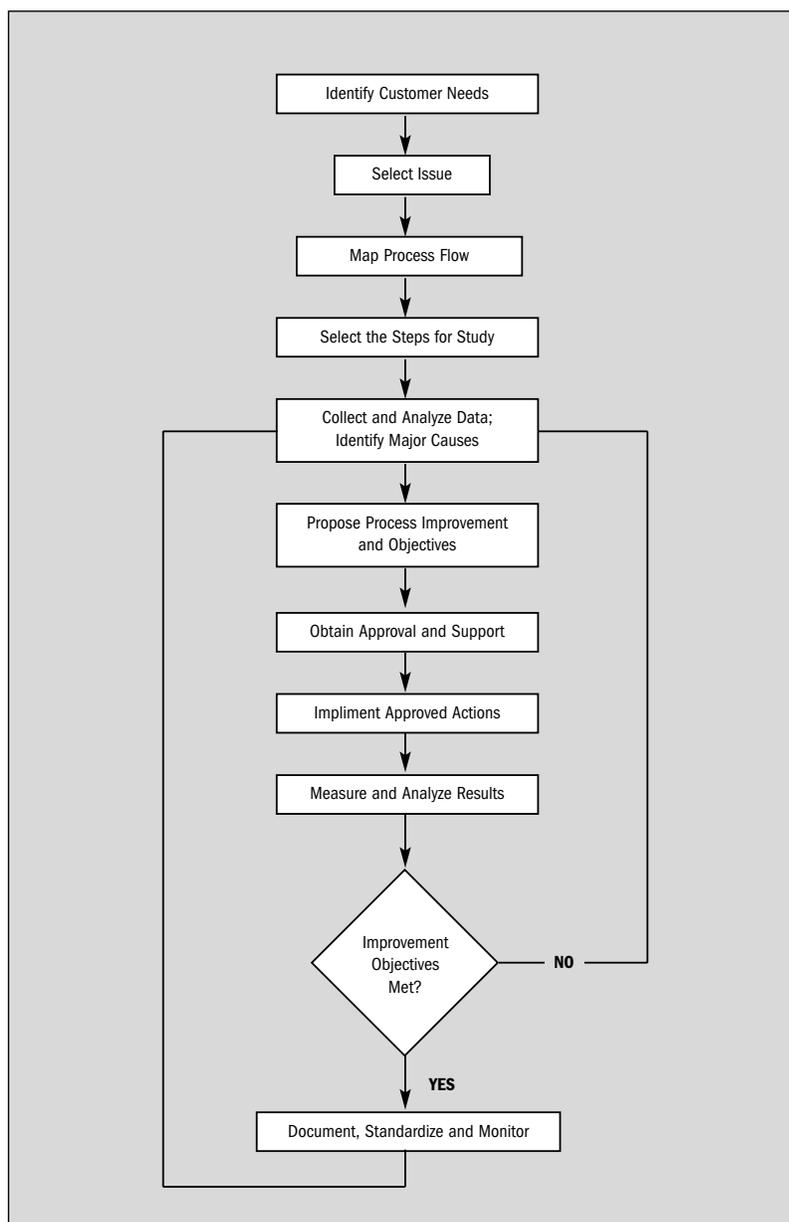
The customer is the recipient of any product or service and may be internal or external to the corporation.

#### 2. Select Issues

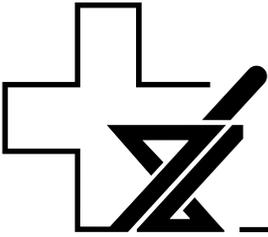
Customer issues are selected for attention to the severity and the extent of dissatisfaction experienced, and the potential gain to be made from improvement or remedial action.

Next, the proposal is presented to the Continuous Improvement Facilitator to obtain the support of a facilitator to assist the project team and to provide training in the use of various techniques of working with improvement issues. The facilitator will ensure that the team follows the *Continuous Improvement Process*.

The initiator, his or her manager, and the Continuous Improvement Facilitator will get together to organize the formation of the *Continuous Improvement Project Team*. As the team is formed, the issue will be clearly defined and the change that is needed in order to satisfy the customer's need must be stated in measurable terms. For instance, if the dissatisfaction is with the speed with which a service is provided, then magnitude of the change in the speed of the process needed to provide satisfactory service must be made clear from the outset.



37



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### **3. Map the Process Flow**

The first task of the Project Team is to make a Flow Chart showing all steps in the process being explored.

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### **4. Select the Steps for Study**

Using their knowledge of the process, the Project Team members will then “brain-storm” to list all the possible causes of the deficiency in the service to the customer. When they are satisfied that they have identified all the most likely areas of concern, they will decide which steps in the process warrant investigation first.

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### **5. Develop Data Collection Strategy**

Up to this point, the Team members have been relying on their collective experiences and perceptions to guide them in their investigation of the issue. Now they will decide what data they need to collect to explore and to understand the process they are investigating. This will also provide a measure of the problem. They must decide what information is needed; who will get it; where in the process the data should be gathered; and for how long the measurements should be made. Thus, a baseline of the process will be established.

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### **6. Collect and Analyze Data; Identify Major Causes**

The Project Team will then collect data according to its strategy and assemble it for review. If the plan has been well thought out and executed, the Team will now have sufficient facts to establish with confidence where the problem lies. From the analysis of the data, they will be able to identify major bottlenecks and opportunities for making changes that will provide satisfaction to the customer.

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### **7. Propose Process Improvement and Objectives**

The Project Team will now be in a position to propose an improvement to the process and set objectives defining the extent of the improvement and the timescale within which it is to be achieved. They will have a clear description of the process and the issue, and they will have facts which support their understanding of where the problem is.

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### **8. Obtain Approval and Support**

In many instances, the change to the process, needed to effect improvement, will need resources which are in short supply or will affect other groups of people and the way they work. For these reasons, the proposal for change will need to be presented at the appropriate level for authorization to proceed. Here, the data is again valuable: the evidence which convinced the team that they were on the right track can be used to justify the allocation of resources. It is important also, before committing to change and expenditure, to verify that the customer supports the proposed change. Finally, if the change is to be successful, other parties who are directly affected by the change need to be brought on board.

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### **9. Implement Approved Actions**

The Project Team will then implement the change. The data will be related to the baseline data that was collected before the change and will provide a measure of the effect of the change on the service provided to the customer.

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### **10. Measure and Analyze Results**

The Project Team will continue to collect data after the change is made. The data will be related to the baseline data that

was collected before the change and will provide a measure of the effect of the change on the service provided to the customer.

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### **11. Improvement Objectives Met?**

As data is accumulated, the Project Team and the customer will assess success of the intervention. If the objectives have been met then the team will go on to the next step; if not they will return to Step #6, reassess the causes of the problem, and work through the process again.

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### **12. Document, Standardize and Monitor**

As a change is established, the new process must be documented. Much of this work will have been done by the Project Team as they develop the new process. Once the steps are documented, the people responsible for the process will be given instruction in the new procedures so that the change is firmly established and standardized.

The process will then be monitored regularly by its owners to ensure that the improvement is maintained.

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### **13. Continuous Improvement**

When the initial objective has been achieved, the formal Project Team may disband, but the owners of the process will continue to monitor the process using objective data, and continually strive to find ways of further raising their standards of customer service.