

CHALLENGES OF THE *PATIENT VISIT REDESIGN* EVALUATION

by

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ABSTRACT

This paper describes an evaluation design to be utilized for a *Quality Improvement* project, *Patient Visit Redesign*. A theoretical framework from the *Quality Improvement* principles is employed to describe the concepts of improvement and evaluation. The history of the *Quality Improvement* movement is described as part of the theoretical framework combined with the principles of *Reengineering* and *Utilization-Focused evaluation*. The outcomes focused evaluation design follows the six step cycle of the US Public Health Service model. The project, which was implemented in a large, urban Community Health Center women's clinic, is extensively detailed together with the methods of evaluation. Challenges that were encountered by the internal evaluator during the design phase of the evaluation included formation of an evaluation team, dealing with bias and politics, requiring notification of subject rights and management pressures. The recommendation of the author is to conduct the evaluation every quarter in order to establish routinization, as a process for Quality Improvement, and to deal with changes in a timely manner.

CHALLENGES OF THE *PATIENT VISIT REDESIGN* EVALUATION

Section I

The purpose of this paper is to discuss designing an evaluation plan for a *Quality Improvement* project, *Patient Visit Redesign*, two years after its implementation in a large, urban Community Health Center. The theoretical framework will be described that involves the history of the *Quality Improvement* movement and *Quality Assurance* in healthcare, including the principles of *Reengineering* and *Utilization-focused Evaluation*. Methods for conducting an evaluation of *Patient Visit Redesign* using the *U.S. Public Health Model for Evaluation* will be reviewed including discussion of the challenges of performing an internal evaluation as a process in Quality Improvement.

Introduction

Donabedian, known as the Father of Healthcare Quality Assurance, reminds healthcare professionals that inherent in patient care is an agreement between the patient and the professional that care given to the patient will be of the utmost quality. It is expected that the health professional will be knowledgeable and practice the highest standards of care. However, it is important to “understand that the concept of quality itself is in a large measure a social construct; it represents our conceptions and valuations of health, our expectations of the client-provider relationship, and our views of the legitimate roles of the health care enterprise” (Donabedian, 1988, p. 190).

Quality Improvement has been regulated into the healthcare industry in the last ten years. The Joint Commission on Accreditation of Healthcare organizations (JCAHO) and Health Plan Employer Data and Information Set (HEDIS) regulatory agencies require

that institutions wanting credentialing have an organization wide method that encourages continuous quality improvement with evaluation of current practices and programs. The National Committee for Quality Assurance (NCQA) requires that organizations applying for accreditation with their agency meet performance measures in Quality Improvement processes, including an evaluation component. Every U.S. Public Health Service program is expected to have a quality improvement and evaluation component in evidence during all stages (MMWR, 1997).

In 1998, the Institute of Medicine initiated development of specific strategies targeted to improve the quality of healthcare. In the report *Crossing the Quality Chasm* (1999), they noted that health care was in urgent need of comprehensive restructuring. “The inherent challenge is to proceed from theoretical recognition of problems to practical initiative that addresses adverse clinical outcomes and waste found within the health care system” (Rozich Z& Resar, 2002, p.31). However, identifying practical, cost-effective strategies that enhance clinical outcomes and improve safety can be difficult. During seminars at the Institute of Healthcare Improvement (IHI) collaborative in January 2001, healthcare professionals decided to concentrate Quality Improvement practices on the patient visit. “Enhancement of patient flow through a facility should improve access to care, optimize outcomes by enabling timely diagnostic and therapeutic intervention and decrease the wasting of resources” (p. 32).

Background

In responding to this Quality Improvement focus, The Bureau of Primary Health Care collaborated with a reengineering consultant in 1998, to form a project that would

radically change the patient visit, which is the core business process of primary care practice. The Bureau, which oversees the National Association of Community Health Centers, decided to begin the project in a few select health centers then broaden the scope if the project was successful. Community Health Centers (CHC) are non-profit health organizations funded by federal, state and private money to provide care in federally designated, medically underserved areas as authorized in section 330 of the United States Public Health Service Act. The escalating cost of health care and decreasing availability of funding requires CHCs to make patient satisfaction and efficient use of time and human resources a priority. The aim of the collaboration was to “dramatically reduce cycle time for patient visits to the health center by redesigning the patient medical visit” (Canter, 1999, pg 16). Many groups of CHCs teams have since gone through the collaborative redesign training and have developed models for their setting that drastically affected the patient’s visit (Tanio, Starobin & Coleman, 1998).

Theoretical Framework

The development of the theoretical framework for the *Patient Visit Redesign* evaluation project is illustrated in the schematic diagram in Figure 1. *Systems theory* and *change theory* are explained briefly since they are the theoretical foundation of the quality movement. A historical perspective of *Quality Improvement (QI)* and *Quality Assurance (QA)* is described to facilitate understanding the two basic concepts represented in the framework: evaluation and improvement. The second level in the theoretical framework is *Reengineering* and *Utilization-focused evaluation*.

Reengineering concepts take the improvement ideals past making existing practices more

efficient to recreating processes for higher quality outcomes. *Utilization-Focused Evaluation* interacts with the improvement movement as a method of accountability and measurement. The final interaction in the framework involves the *U.S. Public Health Evaluation* model and the *Patient Visit Redesign* Project which intertwines the preceding quality improvement concepts and evaluation principles that are used in designing this project.

Systems theory

Ludwig von Bertalanffy in 1936 developed *general system theory* to guide research in different disciplines. He felt that with a common framework, scientists could make sense of a system's characteristics and then would be able to communicate their findings to each other in a more understandable way and could build upon each other's work. Von Bertalanffy was reacting against the reductionism science of the time to emphasize a sense of wholeness and interrelatedness of systems.

A system is greater than the sum of its parts is the basic premise of *general systems theory*. Von Bertalanffy stated that natural systems are open and react with their environments, and that new properties emerge as a result of continuing evolution. "Systems theory focuses on the arrangement of and relationships between the parts that connect them as a whole" (Heylighen & Joslyn, 1992, ¶1).

General systems theory concepts include (Begley, 1999, ¶ 8)

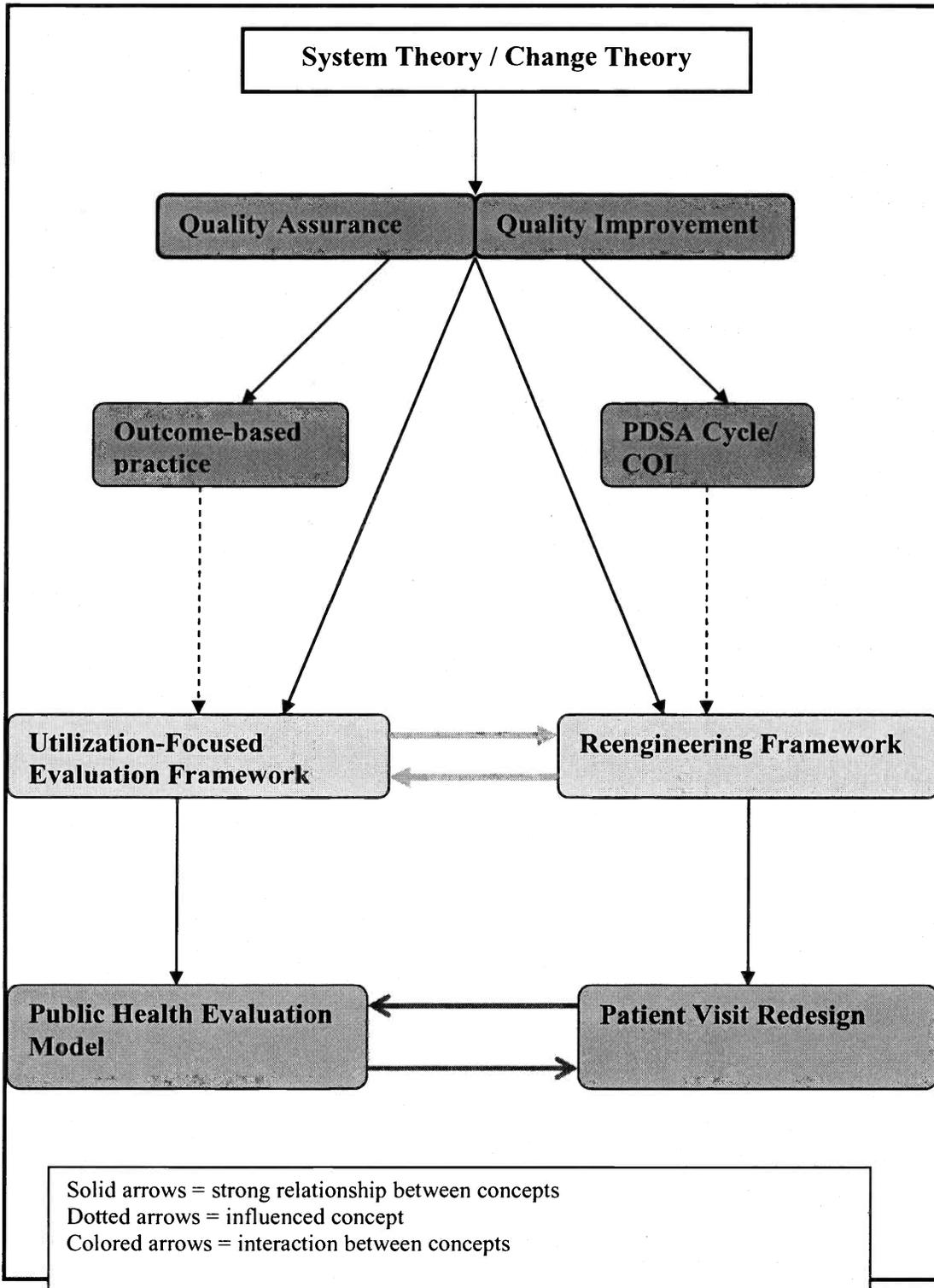
- a open system environment
- system inputs and outputs
- system functions and processes
- system hierarchies
- information and information flows

- a definable boundary
- the state of the system (homeostasis)
- goal-directed behavior

Change Theory

Classic change theory was developed by Kurt Lewin, the founder of modern social psychology, who identified three phases that occur for change to become part of a system. These are *unfreezing*, *movement*, and *refreezing*. During the *unfreezing* stage, people become discontent and are aware of the need for change. During the *movement* stage, the change agent identifies, designs and implements strategies to force change. It is important for the driving forces of change to be stronger than the restraining forces in the system during the *movement* phase. The last phase in the change process is *refreezing*, which involves the stabilization of the change into the system so that it becomes integrated into the status quo (Marquis & Hutson, 1992).

Figure 1: Schematic representation of Theoretical Framework



Quality Improvement(QI)

Quality improvement principles have a long history in the United States and around the world in the industry and business arenas. Tools created to improve quality helped to reduce problems in production and distribution of goods in manufacturing, and were quickly adopted by companies that supplied services to the public with favorable results. The concepts of quality improvement implemented in the last fifty years were largely responsible for renewing the competitiveness of American industry. In recent years, quality improvement principles have found their way into the delivery of healthcare (Bennet & Slaven, 2002).

The science of quality improvement is based on the pursuit of knowledge, especially that which is obtained and tested through the scientific method. “To create improvement, you need knowledge relevant to the particular problem at hand” (Bennett & Slaven , 2002, section: History of Quality Management). A historical perspective of the quality improvement movement is presented to clarify the development of the science of improvement.

Dr. Walter Shewhart. Dr. Shewhart worked for Western Electric Company in the early part of the twentieth century where he applied statistical techniques in producing a consistently high quality product. He proposed that a high quality, reliable product did not need to be *perfect only in control*. *In control* represented that factory standards could vary to a certain extent and have what he referred to as *common cause variation*. He declared that the attempt to eliminate this *common cause variation* was time consuming, costly, wasteful and made things in the factory worse, not better (Bennett & Slaven,

2002, section: History of Quality Management). He described *special cause variation* where investigation should be spent to assure quality and maximum productivity. These mathematically calculated *special cause variation* outcome values were displayed on a *Control Chart* to guide the factory workers. For this work he is called the “Father of Statistical Quality Control”. His work influenced the next leaders of the quality improvement movement who would make Dr. Shewhart’s quality tool “one of the greatest contributions to the improvement of quality in this century” (Bennett & Slaven, 2002, section: History of Quality Management)

W.E. Deming. Dr. Deming’s early collaboration with Dr. Shewhart strongly influenced his work. Dr. Deming’s significant contribution to industry was his *System of Profound Knowledge*, where he stated that one has to have deep appreciation and knowledge of the entire system to understand its variations and bring about change. Deming offered practical and pragmatic approaches to quality improvement. He based his philosophy on a strong belief that “every worker has nearly unlimited potential if the environment supports, educates and nurtures a sense of pride and responsibility” (Skymark, 2002, *Deming*, ¶ 7). Fourteen points were originally published (Figure 2) by Dr. Deming to cultivate a more efficient work place which would create higher profits and increase productivity. The first of his points involved establishing continual improvement through redefining the company processes. The fifth point states the importance of commitment to quality. He based his entire business philosophy on the idea of cooperation, which he believed, captured the power of the worker (Skymark, 2002, *Deming*). Deming’s fourteen quality principles changed the “focus of managers

from trying to change people to changing the processes and systems to improve output and reduce cost through redesign and reengineering” (Bennett & Slaven, 2002, section: History of Quality Management).

Figure 2: Deming’s 14 Quality Management Principles

1. Create and communicate to all employees a statement of the aims and purposes of the company.
 2. Adapt to the new philosophy of the day; industries and economics are always changing.
 3. Build quality into a product throughout production.
 4. End the practice of awarding business on the basis of price tag alone; instead, try a long-term relationship based on loyalty and trust.
 5. Work to constantly improve quality and productivity.
 6. Institute on-the-job training
 7. Teach and institute leadership to improve all job functions.
 8. Drive out fear; create trust
 9. Strive to reduce intradepartmental conflicts
 10. Eliminate exhortations for the work force; instead, focus on the system and morale.
 11. Eliminate work standard quotas for production; substitute leadership methods for improvement and Eliminate Management by Objective, numbers and numerical goals; alternatively, learn the capabilities of process and honesty.
 12. Remove barriers that rob people of pride of workmanship.
 13. Educate with self-improvement programs.
 14. Include everyone in the company to accomplish the transformation.
- (Source: Skymark.com and Bennett & Slavin, 2002)

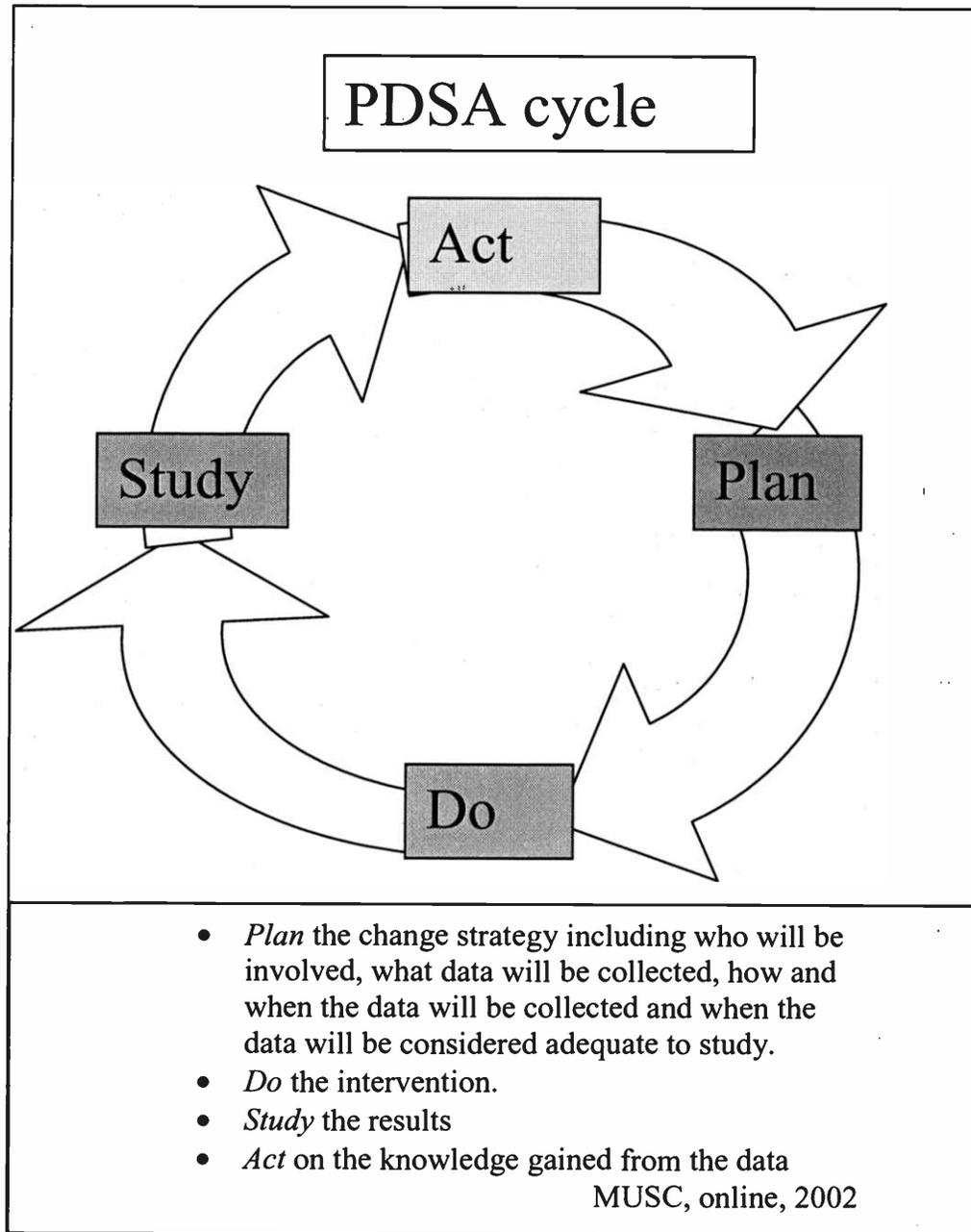
Plan Do Study Act cycle. Dr. Deming continue to develop Dr. Shewhart’s quality model to help managers implement quality changes using an efficient trial-and-learning methodology. The Shewhart Cycle starts with a plan and ends with an action based on the outcomes learned during the phases of the cycle. The model is known as the PDSA (Plan, Do, Study, Act) Cycle (Figure 3). The key of this model is that change is tried on a small scale, then using the PDSA Cycle; the plan is modified as needed. The cycle is repeated until the change is considered successful, and then the improvement is

expanded to the rest of the system and support systems are established (Bennett & Slaven, 2002, section: History of Quality Management). Today this QI model is often referred to as the FOCUS-PSDA cycle, the FOCUS part of the model represents:

- Find a process to improve
- Organize the team and its resources
- Clarify current knowledge about the process (analyze baseline data)
- Understand sources of variation and clarify steps in the process
- Select an improvement or intervention

Total Quality Management (TQM). Dr. Joseph Juran taught a “project-by-project, problem solving, team method of quality improvement in which all levels of management must be involved” (Bennett & Slaven, 2002, section: Juran) which is known as *Total Quality Management (TQM)*. Dr. Juran had been strongly influenced by Dr. Shewhart, and is best known for having incorporated human aspects into quality improvement. His Quality Trilogy consists of Quality Planning, Quality Improvement and Quality Control. He believed QI needed to involve the customer to be most effective; therefore Juran established organizational-wide planning teams that would first identify their customers and their needs, and then set goals for QI which could be measured. Finally, and very importantly, the teams had to develop processes that could meet these goals under operating conditions. (Skymark, 2002, Juran).

Figure 3: Plan, Do, Study, Act



Continuous Quality Improvement (CQI). CQI is a managerial philosophy that builds on quality improvement principles that evolved from Shewhart and Deming's early work. The focus of CQI is on meeting or exceeding customer expectations,

improving processes and the reduction of unwanted outcomes by acknowledging that improvement is best achieved in small, incremental changes using the scientific method and is most effective when it becomes part of the natural way work is done (MUSC, 2002, section: Quality Improvement).

QI culture. Dr. Philip Cosby added to CQI methodology by insisting that continuous quality improvement was not possible without first establishing a “quality improvement culture” (Bennett & Slaven, 2002, section: Cosby). His ideas included management commitment, education and training, measurements, costs of quality, quality awareness, corrective action, zero defects, goal setting and recognition. His plan had four absolutes: (1) Conformance to requirements is the only definition of quality; (2) What causes quality is prevention, not appraisal; (3) Zero defects is the only acceptable performance standard; and (4) The price of nonconformance is how quality should be measured.

Quality Assurance(QA)

Quality Assurance is not a new idea in health care. In the Crimean War, Florence Nightingale tracked her observations about the outcomes of the injured soldiers. She presented death statistics graphically about the causes of death in both civilians and soldiers. From her hard data, changes were made to improve the care given patients in hospitals. Her methods of Quality Assurance had great impact on Britain’s healthcare system (Bennett & Slaven, 2002, section: the healthcare perspective). Another early Quality Improvement healthcare scientist was Dr. Codman, who proposed an “open discussion of poor outcomes and errors” (¶ 4) in the surgical arena by documenting and

measuring outcomes through his “end result card”. However, his Quality Assurance ideas met with disapproval from fellow surgeons.

More recently, healthcare professionals have looked at the QI endeavors in industry and begun to adapt them to patient care. Avedis Donabedian is the leading proponent of Quality Assurance in healthcare. His widely recognized and utilized work began with methods to assess and measure the physician-patient relationship. He states that the assessment of quality can “limit itself to the performance of healthcare practitioners or it may broaden progressively to include performance of the institutions in which the practitioners work, the care received by patients, the care received by a caseload of patients, and the care received by an entire population.” (Donabedian, 1988, p.173).

Quality health. Quality Assurance in healthcare involves the ability to achieve desirable outcomes using valid methods with the objective of a specified state of health. This state of health can be defined narrowly or broadly depending on the situation of the assessment. “Most narrowly, health is a measurable improvement in physical or physiological function, at the broadest, health is as inclusive as the quality of life” (Donabedian, 1988, p173).

Quality assessment. Donabedian’s path to Quality Assurance is through quality assessment. He identified three approaches to quality assessment: (a) *outcome* of care, (b) *process* of care, and (c) *structure* of care. *Outcome variables* describe characteristics of the patient that are presumed to be a result of that care (survival, death, length of hospital stay, complications). *Process variables* describe what care is provided and its

characteristics (provider's orders, procedures and results, steps to gain access to the care). *Structure variables* are the least expensive and easiest to obtain as they describe characteristics of inputs to care processes, a building's physical structure and condition; caregivers training, qualifications and competence (Bennett & Slaven, 2002, section: Donabedian). "Structure, process and outcomes are seen only as three different avenues to [making] a judgment on quality, not as three dimensions or attributes of quality itself" (Donabedian, 1988, p. 177). None of the assessment approaches is better than another, they each have advantages and disadvantages; however, generally it is best to include elements of each in an assessment, "therefore allowing the weakness of one approach to be supplemented by the strengths of another." (p. 179)

Performance Assessment. The performance of the healthcare practitioners and institutions are essential components of Quality Assurance assessment which is often overlooked. Donabedian explains that judging the performance of practitioners involves evaluating both their "technical care and their management of interpersonal processes" (p. 174). When assessing the quality of a healthcare institution's performance, evaluation expands to concerns of amenities of care; such as comfort, privacy, access, and convenience. The patient's satisfaction with the care they received from the provider or institution should be an outcome to be considered in Quality Assurance assessment, since satisfaction is an aspect of well-being and therefore health (Donabedian, 1988).

Reengineering

In today's environment, organizations must adapt quickly to change; processes and designs that work today are obsolete tomorrow, flexibility is the defining strength of

the organization that is going to last (Hammer & Stanton, 1995). *Reengineering* is defined as “the fundamental rethinking and radical redesign of business processes to bring about dramatic improvements in performance” (p. 3). Like the quality movement of its roots, *reengineering* focuses on improving the quality of the organizations “product”; but it differs from QI, in that the premise is not about improving what already exists, but throwing out the old ways and “reinventing how you do your work” (p 4). However, if an organization does not focus the design on the customer’s needs, then they will accomplish very little improvement with their redesigning efforts (.Hammer & Stanton, 1995).

The methods of *reengineering* are similar to those of other QI programs, a team of employees analyze and capture data from present work processes, then examine the desired outcomes from those processes. The focus is on analyzing outcomes and processes, but differs from *PDSA cycle* in that the entire organizational unit is analyzed not just a set of work processes. The concepts of *reengineering* are (Hammer & Stanton, 1995):

- 1) Understanding the old process
- 2) Understanding the customer and their needs
- 3) Inventing a new process design that shatters long-held assumptions
- 4) Constructing the new process (including detailing, developing, training and building support systems)
- 5) Selling the new way of working to the organization as a whole

For *reengineering* to occur there must be effective leadership, a powerful team, and a culture that encourages change. The leader must be the instigator, the person who decides what must be done and has the authority to put the new design into operation.

The members of the *reengineering* team must reflect the nature of the work being done. Key principles involved in the team's reengineering efforts are: (a) assumption breaking, (b) overcoming resistance, (c) communication, and (d) shifting the organizational values. Today's workforce are more empowered professionals and organizations need measurement systems that are centered on processes not tasks; therefore, strategies, planning and management must be different for change to happen (Hammer & Stanton, 1995).

Utilization-focused evaluation

Evaluation is the systematic collection of information about the activities, characteristics, and outcomes of programs to make judgments about the program, improve program effectiveness, and/or inform decisions about future program programming. Utilization-focused program evaluation (as opposed to program evaluation in general) is evaluation done for and with specific, intended primary users for specific, intended uses. Patton, 1997, p 23.

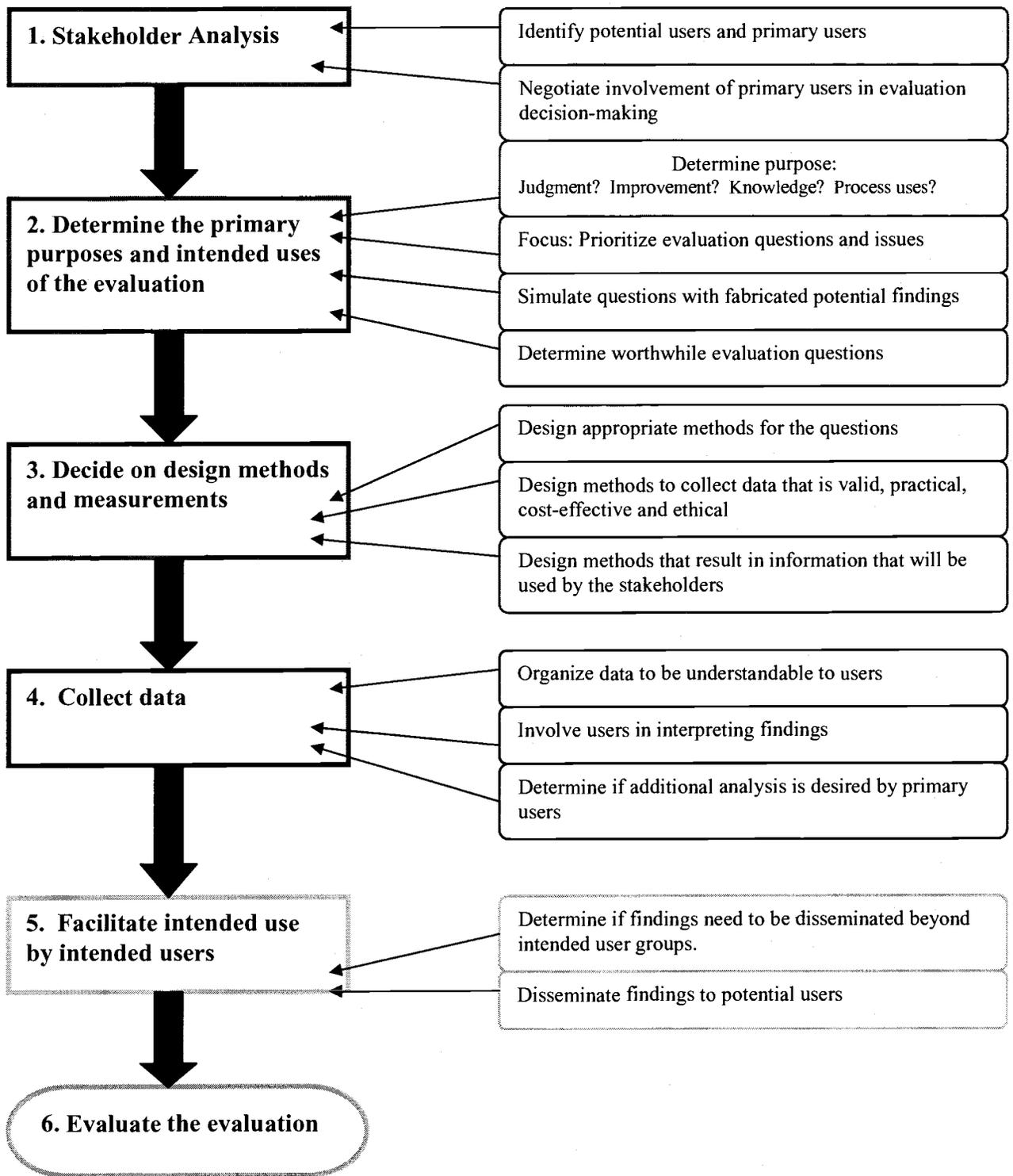
There are five primary steps in utilization-focused evaluation which are depicted in the flowchart in Figure 4. The first two steps differ radically from traditional program evaluation and are the foundation for the utilization-focus of the process.

Step one. The first step in utilization-focused evaluation is to identify the stakeholders and intended users of the evaluation information who will function with the evaluator in making decisions about evaluation priorities and methods. "When possible and practical, an evaluation task force can be organized to make major decisions about the focus, methods, and purpose of the evaluation" (Patton, 1997, p. 352-53). The members of this Evaluation Task Force should meet chosen thoughtfully. Various groups of stakeholders need to be represented on the team and there should be people included

who have the authority to use findings to make decisions (or at least can influence those who do have power). Members of the Evaluation Task Force should “believe that the evaluation is worth doing, should care how the results are used, and should be willing to make a firm commitment of time” (p 354). A leader is designated to coordinate and maintain continuity throughout the evaluation process; this responsibility usually belongs to the evaluator.

Step two. The second step to utilization-focused evaluation is that the users and the evaluator must decide and commit to the intended uses of the evaluation data and determine the focus of the evaluation. There are a number of directions the focus of an evaluation can take, but the intended use of the information needs to be the determining factor in the direction chosen. Many issues need to be considered in prioritizing the direction of the evaluation, including political, economic and ethical consequences. Patton (1997) lists fifty-seven common ways to focus evaluations, stating many types can be combined or can be implemented sequentially as needed. “Focusing an evaluation means dealing with several basic concerns. What is the purpose of the evaluation? What will we know after the evaluation that we don’t know now? What actions will we be able to take based on the evaluation findings?” (p. 189)

Figure 4: Utilization-focused evaluation



Step three. The third step of the utilization-focused evaluation process is to decide on the methods that will be used to answer the questions of the intended users. Both quantitative and qualitative methods of data collection are used in utilization-focused evaluation. Quantitative measures are used when the focus is on outcomes that can be measured and counted into standardized categories, while the qualitative approach is useful when trying to capture the experiences of patients and staff. “A consensus has emerged in the profession that evaluators need to know and use a variety of methods in order to be responsive to the nuances of particular evaluation questions and idiosyncrasies of the particular stakeholder needs”(Patton, 1997, 267).

The primary users of the information should be included in determining the measurement methods in utilization-focus evaluation and the evaluator should be the expert advisor to point out the pros and cons of the various choices. Patton (1997) states it is imperative the users be involved in this process, even though it goes against the path of normal evaluation techniques, “the best way to ensure pertinence and responsiveness in through direct interaction with the evaluation clients and primary stakeholders, facilitating their making decisions to represent their needs and interests” (p.247).

Validity and credibility. Credibility is addressed in evaluation through systematic inquiry, competence, honesty and integrity through the processes. Therefore, the evaluator must always be cognizant of the way data is collected and interpreted. In utilization-focused evaluation there is a concern regarding *face validity*. *Face validity* concerns the extent the tool measures what it was intended to measure and if stakeholders can understand what is being measured. In traditional evaluation, *face validity* in not

considered as important as it is in utilization-focused evaluation where evaluators must confirm the *face validity* of methods before data is collected. It is imperative the data be analyzed and interpreted in ways that assist the users to “understand and believe in the data”. (Patton, 1997, 255)

Reliability. Patton (1997) describes reliability in an evaluation is the extent the measurement method can repeatedly reproduce the same results. Errors can occur when data measurement is done inconsistently or errors can be due to events that affect the results over which the evaluator has no control. Errors are intrinsic to measurement tools and need to be kept in mind when measurement methods are considered. The purpose of the evaluation determines the allowable amount of error, for example, if the evaluation will determine whether the program continues (summative evaluation) then error would be less acceptable. There is often a trade off between absolute truth and utility in the evaluation process. Time and money constraints dictate that data collection is often shorter than what is needed by the evaluator for accuracy. In utilization-focused evaluation, “attention to technical quality is tied to and balanced by concern for relevance and timeliness” (p.261)

Step four. The fourth process in utilization-focused evaluation is collecting and deciphering data and reporting the results to the stakeholders. Data analysis and interpretation must include active participation of the primary users, “because in the end, they are the ones who must translate data into decisions and action” (Patton, 1997, 302). Preparing the users for the analysis of the collected data is best done through a technique of creating “application scenarios” (p.302). The evaluator presents possible results, both

positive and negative, and leads the group through simulated actions that could be taken due to the presented results. Patton (1997) states this technique accomplishes four important items: (1) checks on the design to make sure all relevant data is being collected; (2) trains stakeholders for the real analysis process; (3) sets realistic expectations of strengths and weakness of the design; and (4) helps to build commitment to use the results of the evaluation. This technique assists the stakeholders to review their objectives and establish precise criteria prior to the data collection, so conflict and misconceptions can be avoided.

Raw data needs to be organized into a format that permits decision makers to detect patterns. Simplicity is the key for stakeholders to understand the data and be able to draw conclusions; however, it is important to represent multiple viewpoints, to strive for balance in presenting the data. Patton (1997) describes three ways to distinguish between analysis and interpretation of data. First, numbers and qualitative data must be interpreted to have meaning; second, data are representative of the event, not the event; and finally, data offers probabilities, not absolutes. The evaluator does not interpret the findings alone in utilization-focused evaluation; interpretation of the findings is a collaborative effort between the evaluator and the users; therefore, many different perspectives are involved in the decision-making processes. The evaluator's responsibility is to facilitate the users reaching consensus on the most reasonable conclusions that are supported by the data. This approach lends itself to early transition from analysis to actions.

Step five. The fifth evaluation step involves dissemination of the findings. In utilization-focused evaluation, benefit from the evaluation does not have to wait until the final report since usage has been emphasized from the beginning. The purpose of the evaluation should decide the format of the report. “A summative report will highlight overall judgment of merit or worth with supporting data. A knowledge-generating report aimed at policy enlightenment may follow a traditional academic format. A formative report may take the form of an internal memorandum with circulation limited to staff” (p.330). The best format for the report is the one that meets the needs of the intended users; at times it is necessary to have multiple reporting strategies to reach different audiences. Patton (1997) describes five principles for the evaluator to remember about reporting:

1. Intentionally direct the report toward the purpose of the evaluation.
2. Focus on primary intended users in style, format and content.
3. Share findings with stakeholders prior to the final report, to avoid surprises.
4. Shift negative results to positive findings by focusing on learning and improvement.
5. Dissemination of findings is not the same as utilization of the results.

Evaluate the evaluation. The final phase of an evaluation is to evaluate the evaluation. The evaluator should examine each step of the evaluation process, judging accomplishments and failures in reaching the objectives of the evaluation. A thorough analysis of failures and set backs will improve the evaluator’s skills for the next evaluation project. (Patton, 1997)

Ethics. “Utilization – focused evaluation may well exacerbate (ethical) challenges, so warnings about potential political corruption, ethical entrapments and

moral turpitude direct us to keep asking fundamental questions: *What does it mean to be useful? Useful to who? Who benefits? Who is hurt? Who decides? What values inform the selection of intended users and intended uses? Why? Or Why not?"* (p 368).

Questions can arise about whom the evaluation and the evaluator will serve. Evaluators are urged to evaluate their own moral values; to exercise care, including ethical care, in selecting projects to work on and stakeholders to work with; and to be clear about whose interests are more and less represented in an evaluation (Patton, 1997). Suggestions for guiding ethical decisions during an evaluation were described by Newman and Brown (1996, quoted in Patton, 1997, p 362):

1. Pay attention to one's intuition that something isn't quite right.
2. Look for rules that provide guidance.
3. Examine how the situation looks in terms of basic ethical principals of autonomy, nonmaleficence, beneficence, justice, and fidelity.
4. Examine your personal values—be in touch with your own beliefs and comfort levels.
5. Act: consult with colleagues, calculate trade-offs, make a plan and follow it.

A fear regarding the level of engagement of the stakeholders in the evaluation processes is that the integrity of the project could be compromised. Patton (1997) addresses this issue by cautioning evaluators to beware of "becoming a political tool of only one partisan interest" (p 357). The evaluator must make a commitment to systematic and credible data collection and reporting; and stay focused in the evaluations research foundations to ensure integrity. Patton (1997) states that working with multiple users who understand and value an evaluation is one of the best preventative measures against unethical use of an evaluation.

Politics. There are three major reasons politics can interfere with an evaluation: (1) evaluations judge a program that was created by a political decision, (2) evaluations provide information to decision-makers which may compete with other political perspectives, and (3) the very nature of evaluation is political because it addresses issues and reaches conclusions (Patton, 1997). “Failing to recognize that an issue involves power and politics reduces an evaluator’s strategic options and increases the likelihood that the evaluator will be used unwittingly as some stakeholder’s political puppet” (p 345). Patton’s political truths for utilization-focused evaluators to remember are described in Figure 5.

Figure 5: Patton’s political maxims for evaluators

- A. Not all information is useful.
 - B. Not all people are information users.
 - information is power only in the hands of people who know to use it and are open to using it
 - getting the right information to the right people is the challenge
 - look for opportunities and strategies for creating and training information users
 - C. Targeted information is more likely to hit the target.
 - D. Only credible information is ultimately powerful.
- (source: Patton, 1995, p 350)
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Section II

Patient Visit Redesign Process

The *FOCUS-PDSA cycle* and *Reengineering* principals are used in *Patient Visit Redesign (PVR)* projects to effectively and dramatically improve productivity and quality of care in busy medical clinics. Changes are analyzed, adapted and then implemented in smaller trial sites prior to moving to the entire organizational unit. Small cross-functional teams are created to analyze the current practices to find the areas that produce bottlenecks, inefficiency and dissatisfaction in either staff or patients (Benson & Coleman, 2002). The process involves eleven key principles for redesigning the patient's visit in the healthcare setting (Figure 6).

Figure 6: Key principles for PVR

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1. Don't move the patient
 2. Increase clinician support ratio
 3. Create broad work roles
 4. Create patient care teams
 5. Communicate with walkie-talkies
 6. Start all visits on time
 7. Exploit technology
 8. Match capacity and demand
 9. Prepare for the expected
 10. Get the tools you need
 11. Do today's work today

(Benson & Coleman, 1998)

Team based. Formal team-selection and training in team methodology is at the center of the *Patient Visit Redesign* process. The participating CHCs are given a list of characteristics potential team members should have, related to ability to make decisions, initiate change and creativity. The team then attends workshops with other selected

teams “to benefit from the lessons learned from the teams trained previously, including successful redesign and the strategies involved in motivating staff regarding the redesign process and breaking through obstacles” (Tanio, Starobin & Colman, 1998, p.298).

The team is encouraged to first analyze the current practices in their setting, and then use the key principles of PVR (Figure 6) to create new systems for their patients’ visits. The workshops they attend encourage team building and creative thinking in planning the new patient visit procedures. After the team has designed their new procedures, they test them. Each CHC team is assigned a coach to assist them in the processes of *Reengineering*, *PDSA cycles* and implementation. Tools for breaking assumptions, dealing with resistance and creating a team culture are provided to the PVR teams in the later workshops and by their coach through weekly meetings.

Data collection. Data is collected prior to the design of the new process, during the “trial run” and after implementation. The team is taught to use the *Patient Visit Tracking Sheet* (Appendix B) which captures the times and processes of a patient’s visit. Other data points for collection include the average *cycle time* and *provider productivity*. *Cycle time* is defined as the total number of minutes from the time a patient enters the facility to the time they leave. *Provider productivity* is the number of patients a provider saw in one hour’s time. Before final implementation can begin, the team has to determine cost/benefit ratios of their PVR model.

Implementation. The design and trial period is usually for 6 months and then the team becomes pivotal in the implementation of their model. Dealing with resistance to

change and staff training become the primary focus of the redesign team during the next 90 days to facilitate implementation of their plan.

Outcomes. Seventeen CHCs were included in the first six month pilot project with exceptional results. Patient cycle time was reduced more than 50% and productivity was increased from 2.1 patients per hour to 5.3. Perhaps, the best findings from the study were that the clinics had become more patient-focused since the reengineering process, “they organized the work around the patient instead of the staff” (Canter, 1999, p. 20) and the staff had an increased feeling of empowerment as a result of the process.

These PVR concepts were used to tackle the Baltimore Medical Services CHC system with the excellent outcomes. High variations in capacity and demand were significantly controlled through increased care team communication, flexibility and preplanning. Staff members were trained and encouraged to assist the patient with their needs indiscriminately of their job. The PVR project resulted in a 40-60 % reduction in *cycle times* with a significant increase of patients seen per hour (Tanio, Starobin & Coleman, 1998). Lessons learned in the Baltimore Medical Services redesign project are listed in Figure 7.

Figure 7: Lessons learned from the Baltimore Medical Services Redesign Project

1. Clear performance goals must be set that are meaningful to the staff.
2. In CHC there is no positive attribute to increase productivity by itself, so staff must be able to empathize with the patients having to wait for long times.
3. Matching capacity to demand is difficult in the patient population served by CHCs. There are very high no show rates which result in idle system time.
4. Facility architecture barriers had to be overcome for increased communication and teamwork

5. Misconception that reducing cycle time meant decreasing the time a provider spends with a patient.
6. Changes to the appointment schedule alone or first may cause more bottlenecks.
7. Equating labor costs with the number of full-time equivalent staff members is not necessarily a true financial picture, as the measure is dependent on salaries and productivity.
8. Cost reduction related to the redesign project was more difficult to measure “as most CHCs do not have good accounting systems, and measuring cost reduction attributable to redesign efforts as opposed to other concurrent methods” is complicated.

(source: Tanio, Starobin & Coleman, 1998, p 302)

The U.S. Public Health System Evaluation Model

The United States Public Health System utilizes a practical framework, which adheres to Patton’s principles in *Utilization-Focused Evaluation* (1997), to systematically improve programs and provide accountability to their regulatory bodies. The model provides a comprehensive approach to understanding and completing evaluations that can be integrated into the day-to-day management of a program (MMWR, 1999). The foundations of the model are that evaluation should be attached to routine operations; should involve program staff and stakeholders and should not require evaluation experts. Any organized healthcare action can be evaluated by using this model as it can be applied to almost any activity including “direct services, interventions, community mobilization efforts, research initiatives, surveillance systems, policy development activities, outbreak investigations, laboratory diagnostics, communication campaigns, infrastructure building projects, training and educational services and administrative services.” (p 3)

Three interrelated value issues: merit (i.e. quality), worth (i.e. cost-effectiveness) and significance (i.e. importance), need to be dealt with at the beginning of a program

and revisited throughout the life of the program. Assigning value and making judgments regarding a program on the basis of evidence requires answering the six questions in Figure 8. This evaluation model provides a systematic approach to answering these questions.

Figure 8: Questions to ask regarding evaluation

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1. What will be evaluated?
 2. What aspects of the program will be considered when judging program performance?
 3. What standards must be reached for the program to be considered successful?
 4. What evidence will be used to indicate how the program has performed?
 5. What conclusions regarding program performance are justified by comparing the available evidence to the selected standards?
 6. How will the lessons learned from the inquiry be used to improve effectiveness?
-

(MMWR, 1999, p3)

Elements of the model. There are two elements in the model; the first is a cycle of six steps depicted in Figure 9. These steps are interdependent and can be encountered in a nonlinear sequence; “however, an order exists for fulfilling each -- earlier steps provide the foundation for subsequent progress. Decisions regarding how to execute a step are interpretative and should not be finalized until previous steps have been thoroughly addressed” (MMWR, 1999, p 5). Adhering to these six steps facilitates an understanding of a program’s context (program history, setting and organization) and “improves how the evaluation is conceived and conducted” (p 5).

The second element of the framework is a set of standards for assessing the quality of evaluation activities, organized into four groups (Figure 8). These standards are adopted from the Joint Committee on Standards for Educational Evaluation and are

recommended as criteria for judging the quality of program evaluation efforts in public health. These standards answer the question: Is this evaluation effective? (MMWR, 1999).

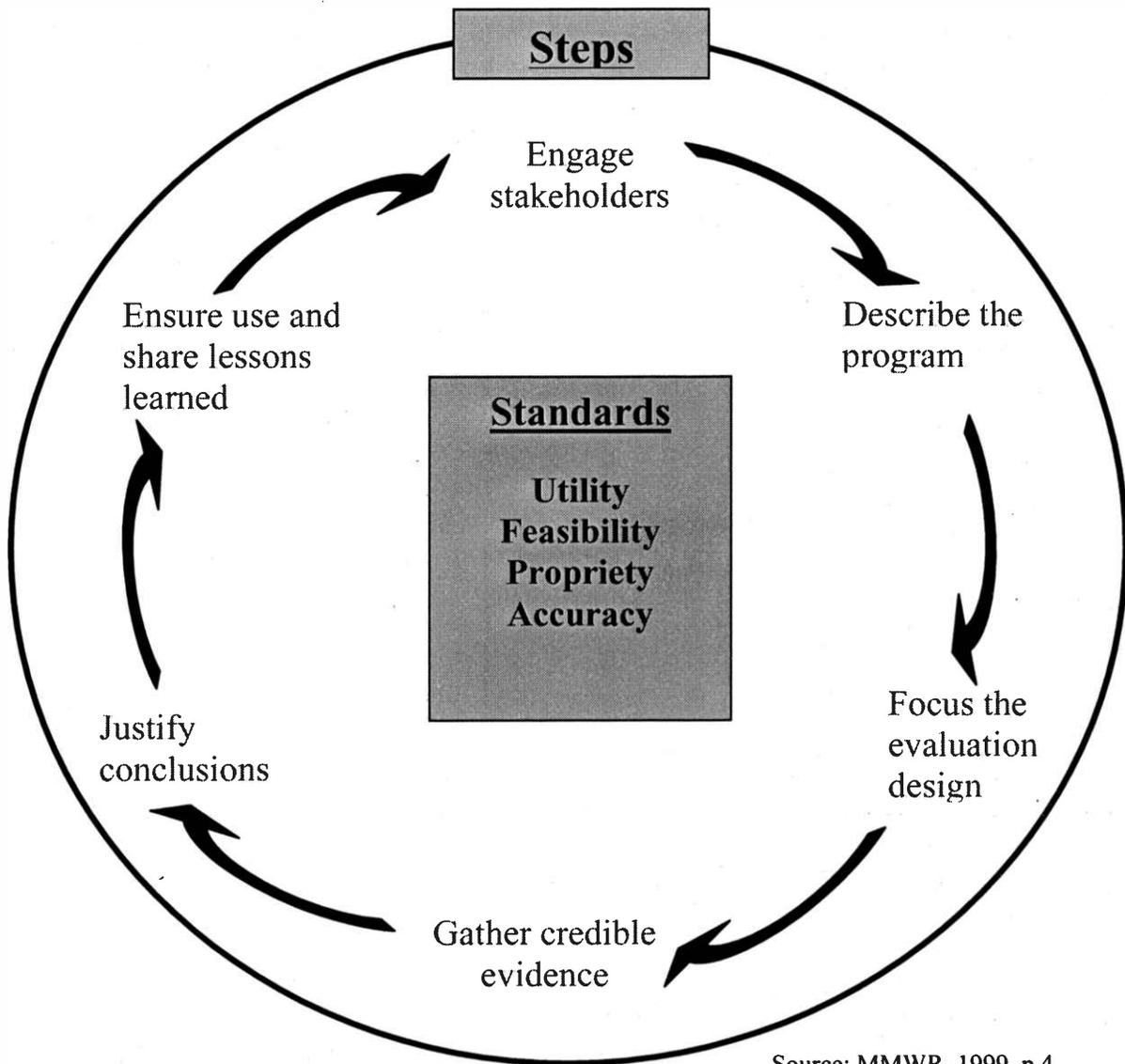
Step 1 – Engage the stakeholders

The evaluation begins by identifying and engaging stakeholders. It is necessary to involve the stakeholders in order to “address important elements of a program’s objectives, operations, and outcomes” (p 5). There are three types of stakeholders to identify and involve: a) those involved in program operations; b) those served or affected by the program and c) primary users of the evaluation (specific persons who are in a position to do or decide something regarding the program)

Step 2: Describe the program

An evaluation must sufficiently describe the program to ensure understanding of the program’s mission, goals, and strategies (figure 10). Evaluations done without a thorough description are of limited use. The following aspects need to be included in a program description: *need, expected effects, activities, resources, stage of development, context and the logic model*. The model’s definitions of these terms are described below (MMWR, 1999).

Figure 9: U.S. Health Department Model for evaluation



Need. A statement of need describes the problem or opportunity that the program addresses and implies how the program will respond. The description “includes: (a) nature and magnitude of the problem or opportunity, (b) which populations are affected, (c) whether the need is changing, and (d) in what manner the need is changing” (p.7-8).

Expected effects. A description of expectations that convey what the program must accomplish to be considered successful. These descriptions develop “over time, therefore, the description of expectations should be organized by time, ranging from specific (immediate) to broad (long term) consequences” (p. 8), including any unintentional consequences of the program that occurred.

Activities. “Describing program activities (what the program does to effect change) includes specific steps, strategies or actions and demonstrating how each activity relates to another and clarifies the programs hypothesized mechanism or theory of change” (p 8). The activities that are the direct responsibility of the program should be distinguished from those that are conducted by related programs or partners. It is important to include external factors that might affect the programs success, such as current trends in the community.

Resources. “Include time, talent, technology, equipment, information, money and other assets available to conduct program activities” (MMWR, 1999, p. 8) when describing resources. The amount and intensity of program services are included as well as mismatches between desired activities and resources available to execute those activities. Economic evaluation requires an understanding of all direct and indirect program inputs and costs.

Stage of development. The stage of a program’s development needs to be reflected in the evaluation, as over time programs change. There are at least three recognizable stages of development during a program’s existence: planning, implementation, and effects. During the planning stage the program activities are

untested and the goal of evaluation is to improve the program plan. Program activities are “being field-tested and modified during implementation; the goal of evaluation is to characterize real, as opposed to ideal activities and to improve operations perhaps by revising plans. During the last stage, enough time has passed for the program’s effects to emerge; the goal of evaluation is to identify and account for both intended and unintended effects” (MMWR, 1999, p. 9).

Context. The descriptions of the program’s context in an evaluation should include the setting, history, social and economical conditions, and environmental influences. “Understanding these influences is required to design a context-sensitive evaluation and aid users in interpreting findings accurately and assessing the generalizability of the findings.” (MMWR, 1999, p. 9)

Logic model. “A logic model describes the sequence of events for bringing about change by synthesizing the main program elements into a picture of how the program is suppose to work...often displayed in a flow chart, map or table to portray the sequence of steps leading to the program results”. (MMWR, 1999, p. 9) A description of the infrastructure needed to support program operations can be included. Elements that are connected within a logic model generally include the inputs, activities, outputs, and results ranging from immediate to intermediate to long term effects. “Creating a logic model allows stakeholder to clarify the program’s strategies; therefore, the logic model improves and focuses program direction.” (p 9) A logic model can reveal assumptions, strengthen claims of causality, provide a frame of reference for an evaluation and be a

basis for estimating the program's effect on outcomes that are not directly measured, but are linked in a causal chain supported by prior research (MMWR, 1999).

Figure 8: Describing the program

Definition: Scrutinizing the features of the program being evaluated, including its purpose and place in a larger context. Description includes information regarding the way the program was intended to function and the way that it actually was implemented. Also includes features of the program's context that are likely to influence conclusions regarding the program.

Role: Improves evaluation's fairness and accuracy; permits a balanced assessment of strengths and weaknesses and helps stakeholders understand how program features fit together and relate to a larger context.

Example Activities

- Characterizing the need (or set of needs) addressed by the program
- Listing specific expectations as goals, objectives and criteria for success
- Clarifying why program activities are believed to lead to expected changes
- Drawing an explicit logic model to illustrate relationships between program elements and expected changes
- Assessing the program's maturity or stage of development
- Analyzing the context within which the program operates
- Considering how the program is linked to other ongoing efforts
- Avoiding creation of an overly precise description for a program that is under development

Source: MMWR (p 11)

Step 3: Focusing the evaluation

Patton's (1997) Utilization-Focused Evaluation framework is followed in the model's precepts about focusing the evaluation. To establish the focus of the evaluation, an assessment regarding the concerns of the stakeholders needs to be conducted.

"Among the items that need to be considered in focusing the evaluation are *purpose, users, uses, questions, methods and agreements*" (MMWR 1999, p. 10).

The *purpose* of an evaluation depends upon the programs' stage of development, context, and the analysis of the stakeholders' needs. The Public Health framework states four *purposes* for conducting an evaluation: (1) to gain insight into the activities of the program; (2) to change current practices; (3) to assess the effects of the program; and (4) to assess how the evaluation affects the participants. The particular stakeholders that will receive the evaluation findings are the *users* and the specific ways in which the information generated from the evaluation will be applied are the *uses* of the evaluation. Evaluation *questions* establish boundaries by stating what aspects of the program will be address. There are some basic questions that should be asked at the beginning and throughout the evaluation process to stay focused.

1. What is the purpose of the evaluation?
2. How will the information be used?
3. What will we know after the evaluation that we don't know now?
4. What actions will we be able to take based on evaluation findings?

The "*methods* of evaluation are drawn from scientific research options; particularly those developed in the social, behavioral and health sciences" (MMWR, 1999, p 13), including experimental, quasi-experimental and observational. Methods are selected to provide the appropriate information to address the evaluation questions.

The final consideration in focusing an evaluation is the *agreement* between primary users, stakeholders, and those conducting the evaluation regarding procedures, time lines and processes of the evaluation; clarification of roles, responsibilities, and available resources; description of how the evaluation plan will be implemented; what

safeguards are in place to protect human subjects; and if ethical or administrative approvals need to be obtained. (MMWR, 1999)

Step 4: Gathering credible evidence

The information collected during the evaluation needs to present a well-rounded picture of the program to be considered credible by the primary users of the evaluation. :
“Having credible evidence strengthens evaluation judgments and the recommendations that follow from them. Although all types of data have limitations, an evaluations’ overall credibility can be improved by using multiple procedures for gathering, analyzing, and interpreting data.” (MMWR, 1999, p 15) There are some characteristics of data collection during an evaluation that usually affects the primary users’ perception of credibility. These include the evaluation *indicators*, information *sources*, the *quality* and *quantity* of data gathered and the *logistics* of the collection methods.

Indicators define the attributes of the evaluation project that pertain to its’ focus and questions. Indicators translate general program concepts and expected effects into specific measures that are meaningful to monitor which can then be interpreted to make judgments about the program. Multiple indicators are usually needed to track the implementation and effects of a program; however, defining too many indicators can detract from the evaluation goals. Intangible factors (service quality, community capacity or inter-organizational relations) that influence the program can be more difficult to measure. A systematic method of recording what is said or done when these intangible concepts are expressed can lead to a quality indicator. During the evaluation, indicators may need to be modified or new ones adopted. It is important to remember

that measuring indicators is only part of an evaluation project and should not be the singular basis for making decisions. (MMWR, 1999)

Sources of credible evidence in an evaluation are the persons, documents, or observations that provide information. Selecting multiple sources to gather information for each indicator to be measured offers different perspectives regarding the program to be included, which enhances the evaluation's credibility. The criteria for selecting sources need to be stated clearly so users and other stakeholders can interpret the data accurately. Sources can be narrative or numeric. "The integration of qualitative and quantitative information can increase the chances that the evidence base will be balanced, thereby meeting the needs and expectations of diverse users." (p 17)

Quality refers to the suitability and veracity of data collected in the evaluation. Factors that improve data quality are well- defined indicators, instrument design, data collection procedures, training of data collectors, source selection, coding, data management, and routine error checking. There are trade-offs in any evidence collection activity since all data have limitations, "the intent of a practical evaluation is to strive for a level of quality that meets the stakeholders threshold for credibility" (p 18).

Quantity refers to the amount of evidence gathered in an evaluation. The amount of data is collected determines the internal validity of the evaluation's ability to detect effects of the program. "The amount required should be estimated in advance, or where evolving processes are used, criteria should be set for deciding when to stop collecting data." (MMWR, 1999, p 18)

Logistics are the methods, timing and physical infrastructure for gathering and handling evidence. Each technique selected for gathering evidence must be appropriate for the type of data sources, analysis, and communication methods used during the evaluation.

Step 5: Justifying conclusions

Conclusions must be linked to the evidence that was collected during the evaluation. A judgment regarding the program's performance is made based upon previously agreed standards. In utilization- focused evaluations, the stakeholders articulate and negotiate their own standards for deciding if the program is successful or not. Obtaining consensus among the stakeholders regarding value judgments can be difficult and may require some creative techniques. Conclusions can be reinforced through exploring reasons for the evaluation results, such as: "a) summarizing the plausible mechanisms of change; b) delineating the temporal sequence between activities and effects; c) searching for alternative explanations and showing why they are unsupported by the evidence; and d) showing that the effects can be repeated" (MMWR, 1999, p 22).

Patterns can be found in the evidence, "either by isolating important findings (analysis) or by combining sources of information to reach a larger understanding (synthesis)." (p 18) When using many different kinds of measurement methods, a separate analysis is necessary for each one before the evaluator can examine the "patterns of agreement, convergence or complexity". (p 19) Decisions are guided by evaluation questions, the type of data collected and through input provided by the stakeholders and

primary users. Improved understanding and practical application of the evidence that was gathered in the evaluation is determined through interpretation of these findings. “Interpretations draw on information and perspectives that stakeholders bring to the evaluation inquiry and can be strengthened through active participation or interaction.” (p 20)

Recommendations are actions that should be considered from interpretation of the evaluation findings. The credibility of the entire evaluation can be undermined if the evidence gathered in the evaluation does not support the recommendations or if the recommendations are not aligned with the stakeholders’ values. Recommendations are separate from a judgment, which is deciding a program’s merit or worth, and can include continuing, expanding, redesigning or terminating a program. “Sharing draft recommendations, soliciting reactions from multiple stakeholders, and presenting options instead of directives increase the likelihood that recommendations will be relevant and well-received.” (p 22)

Step 6: Ensuring use and sharing lessons learned

Ensuring the use of the evaluation results begins in the early phases of the evaluation and must continue throughout. Stakeholders do not automatically translate the results of an evaluation into “informed decision-making and appropriate actions” (p22). Preparing for utilization by stakeholders involves strategy and vigilance through the evaluation. An effort must be made to ensure that the findings are disseminated to the appropriate stakeholders.

There are five critical elements to ensure utilization of evaluation results. First, the evaluation should be designed to achieve the focus the primary users intended. Second, preparation must be made to enable the stakeholders and primary users to translate the results into effective decision making actions. Patton (1997) encourages “rehearsing” potential results with the primary users to promote evaluation utilization. The third element is feedback, the communication between evaluators and stakeholders that “creates an atmosphere of trust” (p 24). The primary users are kept informed of how the evaluation is proceeding and feedback is encouraged through periodic discussions and sharing of interim findings. Follow-up is the fourth element in evaluation utilization. This refers to the “technical and emotional support that users need during the evaluation and after they receive evaluation findings” (p 24). Follow-up may be needed to remind intended users of their planned use or to prevent lessons learned from becoming lost or ignored in the process of making complex decisions. Facilitating the utilization of the findings involves the responsibility of preventing misuse of the findings through averting actions that are not compatible with the evaluation results either from inappropriate generalization or overemphasizing a finding. Finally, it is necessary to oversee the dissemination of the results of the evaluation to the relevant audiences in a “timely, unbiased and consistent fashion” (p 24) Planning the most effective communication strategies requires considering the audience, timing, focus, goal of dissemination, and required formats. It is best to “tailor the report content for the audience, explaining the focus of the evaluation and its limitations, and listing both the strengths and weaknesses of the evaluation” (p 25).

Often there are additional benefits that emerge from the evaluation process; these have value and should be encouraged because they complement the uses of the evaluation findings (p 25). The immersion in logic, reasoning and values of evaluation methods can have significant impact on the people involved in the evaluation experience.

Additionally, the evaluation process can assist staff in clarifying their understanding of the program's objectives which encourages cohesiveness and teamwork.

Standards for effective evaluation

The final portion of the U.S. Public Health System Evaluation model is a format to assess the effectiveness of the evaluation itself. These standards provide a practical guideline to follow in deciding whether the evaluation was well-designed, unbiased, and balanced. These standards are to be applied throughout the evaluation and should be addressed in continuous evaluation (MMWR, 1999). The model describes the four standards that guide quality evaluations: *utility, feasibility, propriety and accuracy*.

The *utility* standard assures that the information gathered throughout the evaluation addresses the needs of the stakeholder and primary users. Standards target items such as who is impacted by the evaluation, what is the amount and type of information that is collected, what values are used in interpreting the findings, and what is the clarity and timeliness of the evaluation report. *Feasibility* refers to the evaluation that is achievable and sensible. Three *feasibility* standards accentuate the application of practical, non-disruptive procedures; generating valuable findings with the prudent use of resources; and recognizing differing political interests of those involved. *Propriety* standards ensure that the evaluation is ethical; are the rights and interests of those

involved protected and represented. Items such as developing protocols and other agreements for guiding the evaluation; protection of human subjects; balanced disclosure of findings, and managing any conflict of interest in an open and fair manner, need to be examined in a quality evaluation. *Accuracy* establishes that the findings are truthful. There are twelve standards of *accuracy* that refer to program descriptions and its context; “articulating in detail the purpose and methods of the evaluation; employing systematic procedures to gather valid and reliable information; applying appropriate qualitative and quantitative methods during analysis and synthesis; and producing impartial reports containing conclusion that are justified” (MMWR, 1999, p 29).

Section III

Patient Visit Redesign Evaluation Design

The general purpose of this evaluation project is to assess the status of the *Patient Visit Redesign* system that has been implemented for two years in the Women's Healthcare Clinic (WHC) of a large, urban CHC. An extensive history of the planning and implementation phases of *Patient Visit Redesign* is described, including a review of the data collected during the initial phases of the project. The design for an evaluation is developed by using the Public Health System Evaluation model (Figure 9) and through following the principles described by Patton's Utilization-Focused Evaluation framework (Figure 4).

Step 1: Engage the Stakeholders

Involvement of the intended users is fundamental to the concept of utilization-focus evaluation; the process begins with identification and interaction with the primary stakeholders of the program (Patton, 1997). The evaluator meets with these primary stakeholders to establish their level of commitment and understanding of the evaluation process. This interaction with the stakeholders should lead to the formation of an evaluation team. Stakeholders can have varying degrees of involvement on the team depending on their availability and interest. The strategy of utilizing an evaluation team "increases the available resources and enhances the evaluation's credibility" (MMWR, 1999, p 33). Patton (1997) describes the purpose of the evaluation team is "to make major decisions about the focus, methods, and purpose of the evaluation which will

typically increase stakeholders' commitment to use the results and increase their knowledge about evaluation" (p 352-353).

The stakeholders identified for this evaluation are the Board of Directors; the Executive Management Team, which consists of the Chief Executive Officer (CEO), the Medical Director, the Chief of Operations (COO), and the Chief of Financial Operations (CFO); the original *Patient Visit Redesign* team; the employees of CHC; and especially the WHC patients and staff. The primary users of the evaluation data are the Executive Management Team, the WHC Vice-president and department managers. The Evaluation Team consists of the Medical Director, the COO, the WHC Vice-president, a member of the original *Patient Visit Redesign* Team, a QI Team representative, two WHC support staff (1 front, 1 back), and the WHC office manager. The team leader is an internal evaluator whose position in the health center is the Maternal/ Child Operations Director.

Patton (1997) suggests a four- session format for the Evaluation Task Force. Session one is to consider the questions, issues, problems and goals that will direct the purpose of the evaluation. In session two, the team deliberates optional ways the evaluation can be conducted in order to follow the determined focus. During this session, the evaluator presents the strengths and weakness of various measurement approaches and designs; time and resource constraints are clarified; and intended uses of the evaluation data are determined. The evaluator then designs the instruments and writes up a concrete methods proposal, for session three, specifying units of analysis, control or comparison groups, sampling approaches, sample size, and an overall data collection strategy. The team reviews these methods ensuring there is a clear understanding of what

will be done and what will not be done; what findings will be generated and what findings will not be generated; and what questions will be asked and what questions will not be asked. Session three is “a good meeting to have a mock exercise with the task force to consider specifically how various kinds of findings might be used” (Patton, 1997, 355). Session four is directed at data interpretation, the team focuses on data analysis, interpretation, judgments and recommendations. The evaluator presents the data in an easy- to- understand manner, so that results can be appropriately interpreted by the Evaluation Team members.

Step 2: Describe the program

The Public Health Systems Evaluation model emphasizes the importance of describing the program under evaluation in detail. This description should include discussion of the “program’s capacity to effect change, its stage of development and how it fits into the larger organization and community” (MMWR, 1999, p 7). A comprehensive description allows for relevant comparisons to similar programs and facilitates recognition if actual implementation of the program has even occurred. Patton (1997) questions how outcomes can be evaluated if implementation may not have even occurred, or only partially occurred. “Until the program is implemented and a “treatment” is believed to be in operation, there is little reason to evaluate outcomes. Simply learning that outcomes are high or low doesn’t tell decision- makers much about what to do, they also need to understand the nature of the program” (p 200).

Description of the context. The center is a multi-specialty Community Health Center (CHC) located in a large, urban community. The community is designated

medically underserved for two reasons: first, a large percentage of people that live in the area have incomes that fall below the poverty level and second, there is a shortage of medical care available in the community, even though it is located in the state capital.

The health center serves approximately 30,000 patients annually. Over 90% of the patient's receiving services are of Hispanic or African American decent, and over 80 % live below 200% of the federal poverty level. The health center is governed by a community Board of Directors with daily operations administered through the President/CEO, (a registered nurse), and the Executive Management Team which consists of the Medical Director (an OB/GYN physician), the COO, and the CFO. The health center includes three medical clinics, a radiology department, a laboratory, a pharmacy, a dental clinic, a medical records department, a nurse advice line, a behavioral health department, a nutritionist, a community education department and two satellite clinics. There are over 180 employees, including 28 physicians, six nurse practitioners, five registered nurses, four dentists, three pharmacists, and various technicians and support staff.

The Women's Healthcare Clinic (WHC) is the largest of the three medical clinics currently serving an average of 180 patients a day and delivering an average of 150 babies every month. There are seven physicians, one nurse practitioner, one office manager, ten medical assistants, one ultrasound technician, four front office staff, a financial case manager, a social service case manager, and a part-time RN in the department. An RN Operation's Director supervises activities of both the WHC and Pediatric clinics.

Statement of need. In December 1999, a group of seven health center employees formed a Quality Improvement task force to investigate two concerns in the Women's Healthcare Clinic. First, there was a lower than industry average number of patient's being seen in the clinic, yet there appeared to be a large amount of intermittent "down time" for staff. Second, there had been a number of patient complaints regarding the length of time they had to wait both for an appointment and in the waiting room before their provider visit.

Description of Activities. In January of 2000, this team received their first training in redesigning the patient visit. In February 2000, the redesign team observed patient flow in the WHC department over a ten day period. During this time period, the clinic had three providers per day; each one had a medical assistant (MA) assigned to them. There were three front office staff and a case manager that visited with all pregnant patients at the time of their first appointment. Each team member then chose patients to observe from the time of check-in until they left the clinic. They recorded the data on the *Patient Visit Tracking Sheet* (Appendix B). After collecting the data, each member then "mapped" the patient's visit. "Maps are simply the graphical representations of tracked patient visit. Each map represents a single patient visit or experience" (Coleman, section 4, pg 2). Key aspects of the patient visit were captured in the mapping (times, location, waiting vs. service times, staff and type of services received). The data collected was analyzed into five key areas described in Figure 9.

Figure 9: Key definitions of Patient Visit Tracking

- 1) *Cycle time*: the total elapsed time of the patient visit
- 2) *Non-Value Added Time(NVAT)*: the waiting time when patient is not in direct contact with any staff member
- 3) *Value Added Time(VAT)*: the time when the patient was in direct contact with any staff member
- 4) *Handoffs*: a time when responsibility for the patient is passed to another staff member
- 5) *Principal Provider time (PPT)*: the time the patient spent with the person clinically responsible for their care in this visit

Coleman, 1999, section 4, pp 4-5

Pre-Redesign Results. Data from fourteen WHC “typical” patients was analyzed (Figure 10) from the mapping process forms. The longest total patient cycle time was 126 minutes, with an average time of 62.6 minutes. Forty-one percent of their visit time was spent with a staff member, 13% of that time with their principal provider. Which means the 59% of the patient’s visit was spent waiting for services. A patient was passed from one staff member to another an average of 3.8 times during the visit.

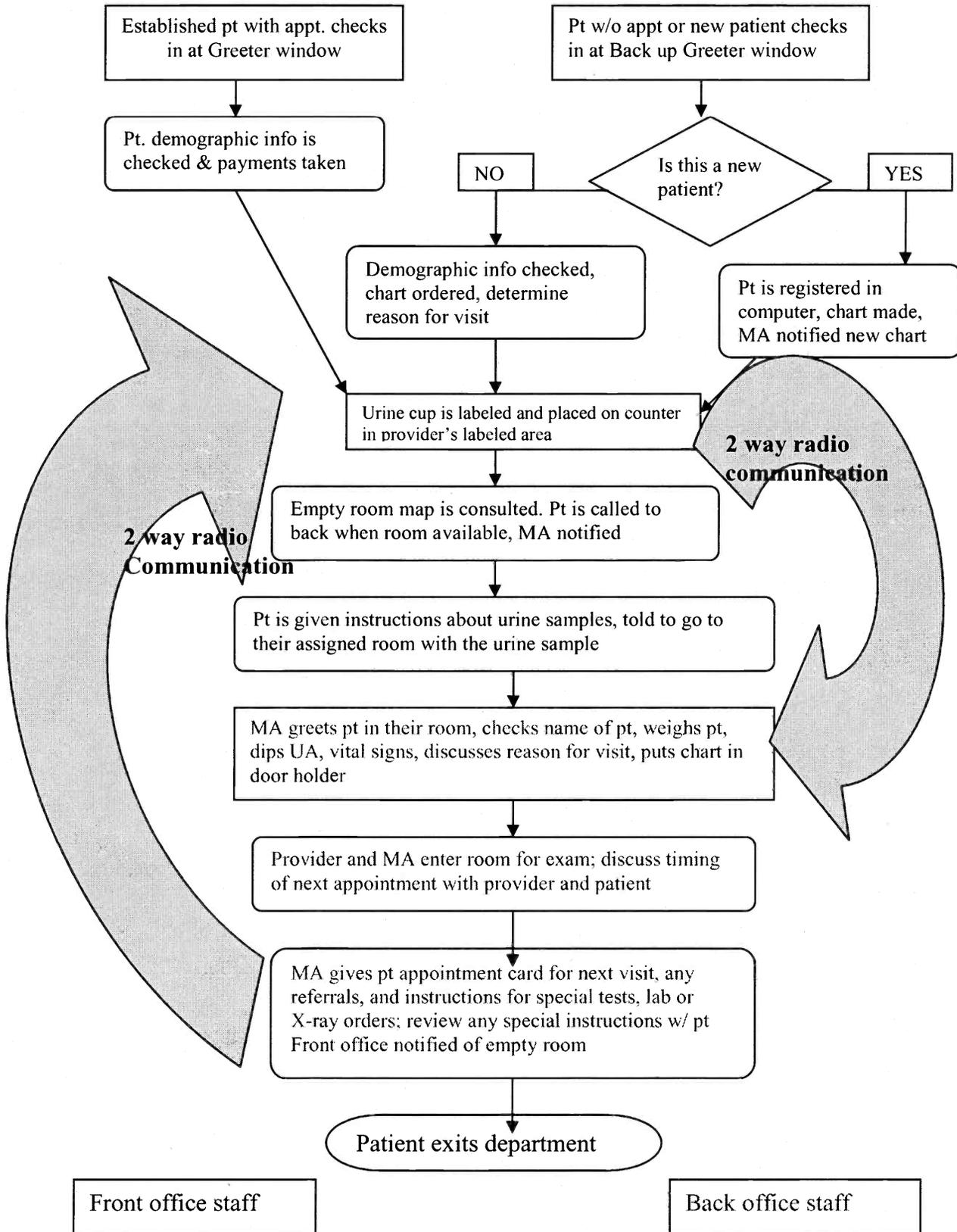
Figure 10: Statistical Data gathered before Patient Visit Redesign (Feb. 2000)

PT #	Cycle Time	NVAT	% NVAT	VAT	%VAT	PPT	%PPT	Visit Type	# Handoffs
1	52	36	69%	16	31%	3	6%	ob	3
2	35	17	48%	18	51%	5	14%	ob	3
3	44	26	59%	18	41%	4	9%	pre op	2
4	41	26	63%	15	37%	10	24%	suture ck	3
5	73	49	67%	24	33%	7	10%	ob	3
6	65	37	57%	28	43%	13	20%	ob	3
7	63	42	67%	21	33%	6	10%	ob	3
8	48	29	60%	19	40%	5	10%	ob	3
9	47	25	53%	22	47%	9	19%	gyn	5
10	126	91	72%	35	28%	21	17%	infertility	4
11	28	9	32%	19	68%	4	14%	gyn	5
12	51	27	53%	24	47%	6	12%	ob	4
13	85	48	56%	37	44%	13	15%	new ob	6
14	118	75	64%	43	36%	7	6%	ob	6
Average	62.6	38.4	59%	24.2	41%	8.1	13%		3.8

Expected Effects of the program. The redesign team spent weeks evaluating each step of the patient's visit. They studied examples of patient flow and organizational systems in other health offices. The team brainstormed ideas to change the structure of the WHC Department with two main objectives: streamlining the patient visit process and decreasing inefficient procedures. The amount of time the patient spent waiting for services, in both the front and back office, during a visit were considered the main source of wasted time and resources. Two goals were set to measure the outcome of their changes: (1) to reduce the patient's total cycle time; and (2) to reduce provider inactivity time.

System Changes. The recommended changes included hiring additional medical assistants, organizing the majority of services to occur in the patient's exam room, and reassigning responsibilities for both front and back office staff members. An essential change was that the front office, back office and provider staff would now communicate on two-way radios; thereby decreasing time spent locating staff members. A creative solution to decrease paper work for all staff members was to print adhesive labels at each visit which contained the patient's demographic and insurance information, chart and account numbers. Labels were used on progress notes, orders, prescriptions, laboratory specimens, tracking logs, and any other time patient identification was required. Figure 11 diagrams the flow of the new redesigned patient visit.

Figure 11: WHC patient visit flow pattern after *Patient Visit Redesign*



Front office changes. Staff responsibilities were redefined into three distinct areas: a Greeter, a Back-up Greeter and a Verifier. A key front office change was that the Verifier would prepare as much of the billing and insurance paperwork as possible prior to the day of the patient's visit. The second core change for the front office staff was that they now had the responsibility of keeping track of patients waiting to be seen by the provider, sending patients back to exam rooms as they became available, and explaining to the patients that they needed to provide a urine sample and take it with them to their exam room. A complete listing of front office responsibilities and changes are listed in Figure 12.

Figure 12: Front Office Redesign Plan

Roles were redefined

1. Staff were assigned as Greeter, Back-up Greeter and Verifier
2. The Greeter checks in established patients with appointments, verifies demographic information and takes payments
3. The Back-up Greeter registers new patients, assists with insurance or payment problems, and assists the walk-in patients
4. The Verifier pre-verifies insurance or discount status. Notifies staff and/or patients of any problems with coverage. Preprints the encounter forms, patient labels, and attaches them to the charts for the next day appointments.
5. Staff was cross trained and would rotate positions each day so the Verifier could recognize patients with insurance problems
6. Hospital phone line responsibility was moved to the front office
7. Copying OB chart records responsibility was moved to the MA

Patient flow was redesigned

1. Charts for daily appointments were no longer kept in the front, but were moved to the back office
2. A labeled empty urine cup was placed on the counter when patient was ready to go to exam room
3. Two way radios were used to communicate between the front and back staff regarding availability of patients and rooms.

4. When notified of an empty room, the front office staff would call a patient, give her a urine cup, explain to patient how to obtain urine sample, to keep cup and go to assigned room.
5. Return appointments would be handled by the back office
6. Payments were taken when patients checked in, not out

Back office changes. Medical assistants that had been permanently assigned to one provider were now working in teams of two, and randomly assigned to any provider working in the clinic that day. One MA was assigned to be the Float each day. Perhaps the most radical change for the staff was the idea of “one-stop shopping”, where the patient stayed in their exam room to be weighed, have any routine lab tests performed, given their follow up appointments and needed referrals, and even collect payments if unexpected charges emerged from the visit. When the patient left the exam room their visit was completely finished. Figure 13 has the complete list of changes in medical assistant responsibilities that occurred with *Patient Visit Redesign*.

Figure 13: Back Office Redesign Plan

Roles were redesigned

1. The number of MAs per physician was increased from one to two and they were expected to work as a team.
2. MAs were no longer “assigned” to a provider; they were assigned as needed for that day’s work
3. The MAs were to form a team with the provider to discuss division of daily responsibilities and plan for patient visit issues
4. The MA team working with the provider that day would be responsible for any return appointments, referrals, authorizations and taking payments for unexpected charges generated during the patient’s visit
5. Each doctor was assigned a “surgery scheduler”
6. A “Float MA” position was designed that would be responsible for:
 - a) hospital and patient telephone calls
 - b) tracking, ordering and distributing labs to providers
 - c) assisting walk-in patients

Patient flow was redesigned

1. A “one stop” plan was developed for each exam room
 - a) individual room scales
 - b) urine dips would be done in exam room
 - c) patient’s history was taken in exam room by MA
 - d) appointments, referrals, prescriptions, etc. handled in exam room
2. Patient charts for the day’s appointments were kept in the back close to the exam rooms
3. The provider and MAs had two way radios set on a pre-designated channel to communicate
4. The MA notified the front office when rooms were ready for the next patient via the radio

Original evaluation of Patient Visit Redesign. In the summer of 2000, the staff, including the providers, of the WHC Department received an in-service regarding the changes occurring in the new system. An extensive *Patient Visit Redesign* notebook was given to the staff that outlined each staff member’s responsibilities and gave step-by-step instructions for major patient visit processes. The system was implemented in August 2000, and in September 2000, an evaluation was done in the same manner as the first analysis. Comparison of the two sets of data led to a conclusion that the average patient cycle time had decreased by 23 minutes and the percentage of the visit spent waiting for services (NVAT) had decreased 17%. While the time spent with the provider did not significantly change, the amount of staff interaction time (VAT) had increased by an average of four minutes (Figure 14). Therefore, the changes were considered successful by the Redesign Team for significantly decreasing both total patient visit cycle time and patient non-valuable waiting time.

Figure 14: Statistical data after *Patient Visit Redesign* (September 2000)

Pt #	Cycle Time	NVAT	%NVAT	VAT	%VAT	PPT	%PPT	visit type	# Handoffs
1	55	38	69%	17	31%	6	11%	gyn	2
2	55	34	62%	21	38%	4	7%	ob	2
3	17	0	0%	17	100%	7	41%	ob	2
4	15	6	40%	9	60%	4	27%	ob	2
5	14	4	29%	10	71%	2	14%	ob	2
6	67	36	54%	31	46%	22	33%	suture ck	2
7	32	7	22%	25	78%	7	22%	ob	2
8	37	9	24%	28	75%	9	24%	ob	2
9	60	33	55%	27	45%	9	15%	ob	2
10	47	29	62%	18	38%	10	21%	ob	2
Avg.	39.9	19.6	42%	20.3	58%	8	22%		2

Key: Cycle time = total patient visit time
 NVAT = Non-Value Added Time (total time patient is waiting w/o staff contact)
 VAT = Value Added Time (total time patient is with any staff member)
 Handoffs = pt passed to another staff member
 PPT = Principal Provider Time (total time patient spends with a provider)

Concerns regarding the original evaluation. A comparison of the data collected for the initial analysis of the patient flow process and the evaluation done of *Patient Visit Redesign* reveals some discrepancies that cause problems in critically analyzing the stated outcomes. The most obvious difference is that the initial data consisted of 14 visits, while there were only ten in the evaluation data. A significant concern in interpreting the results of the evaluation data is the wide variety of office visit types represented in the initial collection while the evaluation did not include any complex visits (infertility and a new obstetrical visit) and had only one gynecological visit, not two. In the initial analysis, the number of handoffs of a patient between staff members was recorded (Figure 10), while in the post redesign evaluation, this information was not gathered (Figure 14). It could be concluded that the new system controlled the number of handoffs to three (Greeter, MA and Provider), however, data was not collected to

substantiate that claim. *Provider productivity* was only recorded on the post PVR data (Figure 15).

Figure 15: Provider Productivity (September 2000)

Provider	Hours work	# pts scheduled	no show	total seen	%no show	# Per Hour
A	7.5	22	9	13	41%	1.7
B	7.5	26	9	17	35%	2.3
C	7.5	30	9	21	30%	2.8
D	7.5	41	13	28	32%	3.7
E	7.5	38	6	32	16%	4.3
F	7.5	21	4	17	19%	2.3
Avg.	7.5	29.7	8.3	21.3	29%	2.85

Stage of program development. Patient Visit Redesign was planned during the first half of 2000 and began to be implemented in the last quarter of the year. The current evaluation began 2 years later. It is expected at this time that the redesign changes have been adapted into the daily operations by the WHC staff and that effects of the program can be clearly measured (*routinization*). The goal of evaluation at this stage of development is “to identify and account for both intended and unintended effects” (MMWR, 1999, p. 9)

Step 3: Focusing the evaluation

Patton (1997) explains that evaluations are undertaken “to inform decisions, clarify options, identify improvements and provide information” (p 24).

Purpose. Outcome-focused evaluations assess if the program is reaching its goals; cost-effectiveness or cost-benefit evaluation examines the cost of program implementation compared to both the monetary and non-monetary outcomes; while Process- focused evaluations examine “the strengths and weaknesses of the day to day

operations” (Patton, 1997, p 194). These three purposes for doing an evaluation are especially relevant since the Executive Management Team and the Board of Directors shared that they are considering implementing the project in the other CHC clinics. Ironically, there is always a possibility that if the evaluation reveals that the original objectives of the project are not being met or if the cost is seen to be excessive, that the *Patient Visit Redesign* program could be discontinued or significantly downsized. Therefore, the evaluator determined that to meet the needs of the primary stakeholders, the purpose of this evaluation would need to be both summative and formative in nature.

Questions. Although the identified primary users of the *Patient Visit Redesign* evaluation findings expressed ambiguous reasons for needing information, they unanimously wanted the answer to the question: What was working and what was not working from the original *Patient Visit Redesign* plan? The interviews led to the formation of three evaluation questions:

1. Did *Patient Visit Redesign* increase staff productivity?
2. Did *Patient Visit Redesign* decrease patient cycle time?
3. Is the original *Patient Visit Redesign* plan being implemented in the clinic?

There were no questions regarding cost benefits or patient satisfaction mentioned by the primary decision- makers during their interviews, therefore by the principles of utilization-focused evaluation, neither an analysis of cost or patient satisfaction would be deemed essential for the evaluation. During the interviews, the primary users stated that the original *Patient Visit Redesign* data revealed significant cost and patient satisfaction

outcomes and they would assume that these were still significant if the model was implemented. However, since *Patient Visit Redesign* is based on Quality Improvement principles which are customer-focused, it is important to include a measurement of customer (both internal and external) satisfaction in the evaluation design. The primary users agreed with the evaluator's suggestion that two additional questions be included in the evaluation:

4. What is the level of patient satisfaction with the WHC at this time?
5. What is the level of staff satisfaction with the with *Patient Visit Redesign*?

Methods of evaluation. "Relevance and utility are the driving forces in utilization-focused evaluation; methods are employed in the service of relevance and use, not as their master" (Patton, 1997, 250). Quantitative measures are used when the focus is on outcomes that can be measured and counted, while the qualitative approach is useful when trying to capture the experiences of the program's participants (Patton, 1997). "A consensus has emerged in the profession that evaluators need to know and use a variety of methods in order to be responsive to the nuances of particular evaluation questions and idiosyncrasies of the particular stakeholder needs" (p 267). Quantitative data collection methods were used to answer the evaluation questions of whether the original goals of the redesign project were met: to decrease patient cycle time and to increase staff productivity. The formative portion of the evaluation required both quantitative and qualitative methods to accurately reflect what was working and what was not from the original project design.

Issues of believability, accuracy, suitability, practicality, and cost must be examined when deciding the tools and methods used for data collection (Patton, 1997). The Public Health System Evaluation model encourages the utilization of data collection methods and tools that are already being employed by the staff or that can easily be adapted into the daily routine. This causes less disruption to the staff during the evaluation and supports continuous program evaluation.

Quantitative methods will produce descriptive statistical information regarding patient cycle-times, provider productivity, and satisfaction questionnaire scores. A questionnaire will obtain subjective information regarding patient and staff satisfaction with the current WHC system and the changes that occurred from *Patient Visit Redesign*. Finally, observation of current patient visit processes will be collected and recorded by using the Patient Visit Tracking Tool (Appendix B) used by the original Redesign Team. Potential non-productive time and personnel costs prohibited the use of patient and staff Focus Groups as a tool to gather constructive information about *Patient Visit Redesign*.

Agreements. Agreements describe how the evaluation plan will be implemented by using the available resources and what safeguards are in place to protect human subjects and any administrative or ethical rights (MMWR, 1999). The health center gave written permission for the evaluator to conduct data collection regarding the *Patient Visit Redesign* project with publishable rights granted to the University of Arizona for Graduate study only (letter available upon request). The center retained the rights to all other types of publishing, especially if identification of the facility could be determined from the materials.

A plan for protecting human subjects is not absolutely necessary in an evaluation related to quality improvement (Bellin & Dubler, 1998). However, the distinction between the two is getting more difficult to define (Beyea & Nicoll, 2001). The 2003 HIPAA regulations require notification of patients for all inquiries, including quality studies, which may be a violation of their privacy. Therefore, the evaluator who was educated in the rights of human research subjects through the University of Arizona, decided that the procedures for research would be followed in the evaluation. Names of patients and staff involved in the tracking or patient or staff satisfaction questionnaires were not recorded or made available to any person collecting or analyzing data. Research Subject rights information was given to all persons involved in the evaluation project and they were informed of their right to not participate (Appendix A, C & E).

A formal agreement was not needed between the evaluator and health center, as this was an internal evaluator. All normal staff and material resources were available to the Operations Director to conduct the investigation; however, the evaluation could not hinder the normal work activities of the clinic.

Step 4: Gathering credible evidence

“Credibility is a complex notion that includes the perceived accuracy, fairness and believability of the evaluation and the evaluator” (Patton, 1997, p 250). Maximum credibility can be achieved through clear reporting, full disclosure of data strengths and weaknesses, balanced and impartial reporting of data findings, well chosen information sources, valid measurements, and conclusions that are justified in the findings (Patton,

1997). Patton suggests checking out the *face validity* of an instrument and the type of data it will collect with the primary users prior to its use.

Indicators. The indicators need to answer the questions raised by the primary users during the interview sessions, thereby measuring effects of the *Patient Visit Redesign* in ways that are important to the stakeholders. Performance indicator numbers were specified by the Medical Director from the data collected by the original *Redesign* analysis. The current patient visit processes can be compared with the original *Patient Visit Redesign* plan. Patient and staff satisfaction surveys offer subjective information, therefore a performance indicator can be difficult to define; the best indicator is to repeatedly offer the questionnaire for an extended length of time and compare patterns.

Sources and Quantity. There are two aspects to consider in deciding sources of information; where or who does the information originate from and how much information is necessary to gather for accurate interpretation. Obtaining information from multiple sources enhances the validity of the evaluation; however, it is imperative that the sources of information be considered appropriate by the stakeholders and primary users (MMWR, 1999; Patton, 1997). “The criteria used for selecting sources should be stated clearly so that users and other stakeholders can interpret the evidence accurately and assess if it might be biased” (MMWR, 1999, p 16-17). The amount of information that needs to be gathered for credibility is dependent on the method of analysis and what is determined credible by the stakeholders (Patton, 1997).

The *PVR* evaluation criteria (Figure 16) were established from a number of factors. The original *Redesign* measurement criteria only consisted of 2 random days of

productivity and the 14 observational mappings for cycle times. The primary users believed in the results from the original measurements, but felt more comfortable in using a larger sampling size since the information regarding provider productivity and patient cycle times could be collected relatively easily. The evaluator discussed the pro and cons of using data that would not compare equally with the previous evaluations with the primary users, as suggested by Patton (1997). The sampling size of the staff survey was determined by the number of staff working at the time of evaluation. The primary users determined that they would use only WHC staff in the survey. The sampling size required for a useful patient survey was determined by the primary users, they selected the amount required by the CHC in their annual clinic survey.

Quality. All data collection methods have some measure of error; different tools are subject to different types of errors. “Evaluators need not be defensive about errors, just explain their nature to intended users so that the amount of allowable error can be decided when choosing the instruments for the design” (Patton, 1997, p 257). The purpose of the evaluation defines how much error can be tolerated, while a summative evaluation requires minimal error, a formative evaluation would tolerate more possibility of error. Generally the more data collected the more costly the evaluation, but more data is suppose to increase accuracy. However, gathering too much data can lead to an unfocused evaluation, “where you know a little about a lot, but not knowing a lot about anything” (p 258). It is important for the evaluator to set boundaries by having the primary users determine their priorities regarding the type and amount of data that will

give them convincing answers to their questions regarding the program (MMWR, 1999; Patton, 1997).

The primary users and stakeholders in the *Patient Visit Redesign* evaluation are predominantly from science backgrounds, thereby, quantitative collection methods that generate statistical data are considered the more precise. The staff and patient satisfaction questionnaires were adapted and used with permission from IHI Quality Improvement in Clinic Patient Flow Initiative (IHI, 2002).

Figure 16: Measurement Table with Performance Indicators

<u>Question</u>	<u>Tool</u>	<u>Analysis Method</u>	<u>Performance Indicator</u>	<u>Sampling size</u>
Did <i>Patient Visit Redesign</i> increase staff productivity?	Provider Productivity Monthly Report	Descriptive statistics	Average patients/hour = 4.5	All patients and providers in a 30 day period
Did <i>Patient Visit Redesign</i> decrease patient cycle time?	Patient Wait Time Report	Descriptive statistics	Average cycle time = 41 min.	All patients and providers in a 30 day period
Is the original <i>Patient Visit Redesign</i> plan being implemented in the clinic?	Observational Mapping	Content analysis & Descriptive statistics regarding variances.	Following 100% original plan at least 80% of the time.	14 patient mappings randomly done over 30 day period
What is the level of patient satisfaction with the WHC at this time?	Patient Satisfaction Questionnaire	Descriptive statistics & content analysis	Score 90% Good to Excellent	5% of # of average/patients per month = 90 questionnaires
What is the level of staff satisfaction with <i>Patient Visit Redesign</i> ?	Staff Satisfaction Questionnaire	Descriptive statistics & content analysis	Score 90% Good to Excellent	# of WHC staff = 28

Logistics. The evaluator designs the evaluation structure, processes, and timelines to meet the needs of the stakeholders with consideration of resource restraints. It is vital to remember that the procedures for gathering information during the evaluation should

be aligned with the context of the setting and “scrutinized to ensure that the privacy and confidentiality of the information and sources are protected” (MMWR, 1999, p 18).

The WHC staff is bilingual and multicultural which will encourage minority, non-English speaking subjects to participate. Notices in English and Spanish will be placed in the clinic area during the 30-day period advising WHC patients and staff that an evaluation is being conducted. The staff will explain to patients that the purpose of the evaluation is to help the clinic provide better services.

Timeline. The 30 day time frame for initial data collection will be determined by the evaluation team; the WHC staff will be notified in writing that an evaluation is being conducted regarding *Patient Visit Redesign*. Training for the WHC staff will be done prior to the evaluation period regarding subjects’ rights and staff responsibilities during the evaluation. Data will be accumulated during the evaluation time by the evaluator and analysis will begin as information is available. Preliminary reports will be presented to primary users during the analysis phase as suggested by Patton (1997).

Procedures. The five evaluation questions will guide the description of the procedures used for data collection during the evaluation, including subject confidentiality and data management. No data with any patient identification will be taken outside the health center. The evaluator will ensure storage of the raw data for at least 6 years. Computer discs and hard copies of the completed report will be available to the CHCs Executive Board, the Evaluation Team and the University of Arizona.

Question 1: Did Patient Visit Redesign increase staff productivity?

At the end of each work day, the Medical Assistants currently complete a form describing the hours a provider worked and the number of patients the provider saw during that time span. This data is inputted into an Excel spreadsheet for on a weekly basis and descriptive statistics are calculated each month. No identifying patient information is included in the report and since this a routine activity of the department staff there is no recruitment of subjects necessary.

Question 2: Did Patient Visit Redesign decrease patient cycle time?

Cycle-time data will be recorded on all patient visits during the evaluation period. The clinic's MIS has the ability to record three clock times for each patient visit: a) the time a patient is checked in at the front desk; b) the time a patient is placed in the exam room; and c) the time the patient leaves the exam room (which is the final step in their visit process). A report can be generated that identifies the patient's account number, date of service, type of visit scheduled, provider, the three time entries and a total cycle time. This report is downloaded into Microsoft Excel for statistical analysis. A random number will be assigned by the Excel program so that any patient identifiers can be deleted. Descriptive statistical analysis will be completed on this data and the new data will be compared with the data collected previously. It is not necessary to obtain subject consent on this portion of the evaluation since the procedures involve an analysis of data already included in the patient's visit and there is no identification of the patient included in the analysis.

Question 3: Is the original Patient Visit Redesign plan being implemented in the clinic?

During the evaluation period the evaluator will follow fourteen patients throughout their visit. All women checking in during the times of observation will be given a disclaimer notice (Appendix A), which the front office staff will explain to the patient. It will be emphasized to the patients that no identifying information will be given to any government agency; that only patient flow process and staff activities are being observed, not the patient; that the observer will not go into the exam room with the patient and that no information about the reason for the visit will be given to the observer.

Patients will be selected by convenience sampling regarding their office visit type to match the original Redesign data. The Patient Visit Tracking Tool (Appendix B) will be used to record staff activity, patient activity and times of activities from the time of the patient's "check in" until they leave the clinic. The procedures used in the original redesign data collection will be followed. The data will be entered in an Excel spreadsheet and a descriptive and comparative statistical analysis will be completed.

Question 4: What is the level of patient satisfaction with the WHC at this time?

All women arriving at the WHC for an office visit during evaluation period will be given the opportunity to complete the Patient Satisfaction Questionnaire (Appendix F). A sign written in simple English and Spanish will be posted in several places in the department asking women to complete the survey, however, subjects will be asked to complete the survey only once during the time frame. The back office staff will give all patients a copy of the questionnaire with the disclaimer form (Appendix E), which is written in simple to read English and Spanish when they check them in their exam room.

The staff will ask the patient to leave the completed forms in one of the survey boxes in the lobby area when they leave.

Questionnaires will be gathered from boxes daily and the quantitative portions of the survey (questions 1-12) will be entered into Excel spreadsheet by a neutral party and a descriptive statistical analysis will be completed. Written comments will be analyzed by content; those comments written in Spanish will be translated into written English by a staff member educated in written Spanish.

Question 5: What is the level of staff satisfaction with the with Patient Visit Redesign?

Written and verbal explanation regarding the purpose and methods for the evaluation will be given to the staff. The Staff Satisfaction Questionnaire (Appendix D) with the Disclaimer (Appendix C) will be written in English and attached to each Questionnaire. An emphasis will be made with all subjects that no identification information will be given to any government agency or staff person, including supervisors or administrators. Completed surveys will be placed by staff into conveniently located Staff Survey Boxes and collected and analyzed by a neutral party . Answers will be entered into Microsoft Excel spreadsheet which will be analyzed by descriptive statistical procedures. Written comments will be categorized by content and analyzed. No subject identification will be associated with the questionnaires, and using Disclaimer Forms, instead of signed Consent Forms, ensures that no identification of a subject could be associated with the answers.

Step 5: Justifying Conclusions

Findings from the data collection is analyzed and synthesized by the evaluator and shared with the primary users. It is imperative that any conclusions that are drawn from the findings accurately reflects the results of the data collected (Patton, 1997).

“Deciphering facts from a body of evidence involves deciding how to organize, classify, interrelate, compare, and display information.” (MMWR, 1999, p 18) The practical implications of what has been learned from the evaluation are revealed through the conclusions drawn from the findings.

Patton (1997) describes four processes that are involved in drawing conclusions from evaluation results. First is *Description and Analysis*, when the data must be organized into a format that reveals factual patterns that can be presented in uncomplicated manners to the primary users. Second is the *Interpretation* phase, it is necessary to go beyond the facts by adding perspective, meanings, and significance based on deduction or inference to the conclusions. Questions to ask in this phase are:

1. What do the results mean?
2. What’s the significance of the findings?
3. Why did the findings turn out this way?
4. What are possible explanations of the results?”(p 307).

Next, values are mixed into the analysis and interpretations to judge merit or worth of the findings. This requires making a *Judgment* as to what extent and in what ways the indicators were desirable or undesirable. The final step synthesizes the analysis, interpretations and judgments to make *Recommendations* regarding actions that should be

taken from the findings. Only recommendations that are grounded in the data should be suggested. Patton (1997) encourages primary users to be actively involved in all four of these processes.

The evaluator must be aware of potential threats that could affect decision-makers interpretations and actions. “Evaluators have an obligation to think about, anticipate, and provide guidance about how threats to data quality will affect interpreting and using results” of an evaluation (p 263). Several common causes of incorrect conclusions if not addressed are listed in Figure 17.

Figure 17: Common causes of incorrect conclusions

1. Societal changes
 2. Separating maturation effects from program effects
 3. Reactions to the evaluation itself can affect outcomes
 4. Losing key people from a program can affect findings
 5. Nature of staff and client relationships
 6. Internal evaluator bias
 7. Political agendas of primary users
- (Patton, 1997)
-

Step 6: Ensuring Use and sharing lessons learned

It takes deliberate effort on the part of the evaluator to ensure that evaluation findings are used and disseminated appropriately. (MMWR, 1999) Having a clear evaluation design that was focused on use from the beginning is essential. The hypothetical results that the evaluator gave to primary users in the development stages of the evaluation have prepared them to make decisions from the actual findings. The evaluator has continuously received and given feedback with the primary users of the evaluation information. Therefore, all has been done that can to ensure that accurate information be distributed to the relevant people.

Patton (1997) discussed in detail the importance of targeting the reporting methods to the intended audience. Communication of *Patient Visit Redesign* evaluation findings to the primary users and stakeholders will be completed through a short Power Point presentation and to the Executive Team and the Board of Directors. A written summary will be presented to all stakeholders in a precise, bulleted format that includes graphs and charts of significant findings. Findings will be presented to WHC staff in a more discussion oriented format. Recommendations will be discussed with the primary users in both written and verbal communication.

Section IV

Evaluating the *Patient Visit Redesign* Evaluation design

It is essential for the evaluator to examine and analyze the evaluation processes and outcomes both during and after an evaluation project. Honest reflection of challenges and lessons learned during the process is a necessary component of this assessment.

The Evaluation Team

The success of utilization-focused evaluation and quality improvement initiatives is in large part due to their reliance on team process. The Reengineering concepts that *Patient Visit Redesign* was drawn from used the effort of team action to create and implement the original improvement project. However, the evaluator was unable to organize the primary users of the evaluation design into a cohesive team. These stakeholders preferred to meet individually with the evaluator, which hindered the development of a utilization-focused evaluation. Lacking the ability to organize and facilitate an Evaluation Team is a common issue when an internal evaluator is involved (Patton, 1997).

Internal evaluator: Pros and Cons

The use of an internal investigator during this evaluation raised some major issues during the evaluation design process. The most common concern regarding an internal evaluator is that of bias as the result of pressure or manipulation by supervisors that affect the findings, either positive or negatively. "The defining characteristic of external evaluators is that they have no long-term, ongoing position within the program or

organization being evaluated. They are therefore not subordinated to someone in the organization and not directly dependent on the organization for their job or career” (Patton, 1997, p 138).

Patton (1997) describes five major problems that an internal evaluator may have that external ones do not usually face; this evaluator faced all five in the *Patient Visit Redesign* evaluation process. First, there is more resistance from stakeholders and primary users to allow the evaluator to facilitate their involvement in evaluation process; the evaluator is expected to “do it all”. Second, the evaluator is often asked by the organization to prove that the program is effective, thereby, potentially affecting credibility of the findings. Third, internal evaluators are expected to spend enormous amounts of time generating data and reports that an external contractor would consider meaningless. Fourth, the evaluator’s role causes turf issues to emerge and therefore delay or even impede the dissemination of findings and recommendations to the correct people in the organization. And last, the internal evaluator is so far removed from the organizational decision makers that building “an evaluation perspective up front” (p 139-140) for new projects is practically impossible.

One advantage to being an internal evaluator is having an insider perspective and knowledge of the organization culture and program history. “They are there for the long haul...they can be particularly sensitive as how evaluation can serve organizational and program needs over time, for both program design and accountability functions”(Patton, 1997, 229) . Internal evaluators assist in building an *institutional memory* of ideas, skills developed and lessons that were learned over time. An “ongoing, developmental role for

evaluation is particularly important for internal evaluators to cultivate” (Patton, 1997, 229). Another advantage is that the evaluator can be part of implementing changes from findings that emerged during the evaluation. The Public Health System Evaluation model was created with consideration that internal evaluations must to be an integral part of any program to ensure continuous quality and optimal effectiveness (MMWR, 1999).

It is essential for the internal evaluator to clarify their role in the organizational structure; traditionally this role has been limited to analyzing data and writing reports which limits the influence of the evaluator and use of the evaluation findings. Therefore, internal evaluators conducting utilization-focused evaluation may need to redefine their role into one of “advocate, champion and change agent” (Patton, 1997, p 141) regarding the evaluation in the organization. Additionally, in the QI culture, evaluation becomes “a leadership function of all managers and program directors in the organization. The person responsible for internal evaluation then plays a facilitative, resource and training function in support of managers rather than spending time actually conducting evaluations” (Patton, 1997, 143-144).

Internal evaluator and politics

Politics can be an exceptional precarious dilemma for an internal evaluator and must be dealt with throughout the evaluation process. During the *Patient Visit Redesign* evaluation it became clear that the culture of the organization was in the throes of change. Some members of the Executive Team were using the team concepts implemented through QI principles to attempt to create change in the traditional bureaucratic system to a more open, team decision-making model. The role of the evaluator during this

transformation was to be that of an advocate for an outcome-focused management style and to be a leader in team building. Patton (1997) encourages internal evaluators to take on the role of evaluation advocates because of the “social learning” that emerges from institutions that practice incorporating evaluations within the organization over time. (p 232) However, this role placed the evaluator and therefore the evaluation process in the middle of a political war.

It is important to remember that all evaluations involve politics to some degree because there are people who value or depend on the program being analyzed. There is classification, categorizing and interpretation of findings connected to evaluation which results in actions and decisions being made that affect allocation of resources and power (Patton, 1997). Another compounding issue is the organizational wrangling that occurs from information generated during an evaluation, especially concerning the interpretation of that information. Patton (1997) states “evaluation is not political under the following conditions: no one knows about the program; no money is at stake; no power or authority is at stake; no one in the program, making decisions about the program, or otherwise involved in, knowledgeable about, or attached to the program is sexually active” (p 352).

Dual responsibilities: manager and evaluator

It is not uncommon for an evaluation to reveal that a program has not been implemented or only partially implemented as planned (Patton, 1997). In discussing the focus of the evaluation with primary stakeholder of the *Patient Visit Redesign* project, it was apparent that most believed the designed model was only vaguely being followed by

the WHC staff. The manager of the clinic, who was also the investigator in the evaluation project, felt great political pressure to “make redesign work” from a managerial view and therefore may not be able to accurately evaluate the program’s outcomes as requested by the primary users. Patton (1997) states that “unless one knows that a program is operating according to design, there may be little reason to expect it to produce the desired outcomes. Furthermore, until the program is implemented and a ‘treatment’ is believed to be in operation, there is little reason to evaluate outcomes (p 200).

Continued implementation of a quality improvement initiative is often difficult for a number of reasons, which is why ongoing evaluation methods need to be built into any project. It is common for decision-makers to not consider project development past implementation of the plan and therefore the “routinization or final acceptance” (Patton, 1997, p 201) phase is never completed. Common impediments to *routinization* phase that may have occurred in the *Patient Visit Redesign* project include: (1) staff revert to the “old way” or “give up” when they encounter obstacles; (2) there are unclear communication methods; (3) there are delayed actions when problems occur so manageable problems become management crises; and (4) the loss of key personnel (Patton, 1997). Another significant issue that was interfering with the routine implementation of the original redesign plan was related to substantial growth in the number of providers and thereby number of patients that were seen in the clinic each day, but staffing had not been increased to meet these new demands.

Human Subject Rights vs. organizational Quality Improvement

Patient expect healthcare facilities and providers to offer quality care, however quality improvement projects should never interfere or impede the patient's right to privacy or best standards of care. The patients of the Women's Healthcare Clinic are considered vulnerable populations because of their minority status in ethnicity, language and poverty level; therefore the evaluator believes it is imperative that any Quality Improvement processes employ protection of human subject's regulations. Meeting these regulations for the evaluation of *Patient Visit Redesign* involved informing the staff and patients of their rights and training staff in the protection of these rights. Involving notification of human subject rights in this evaluation project was the cause of some concern in the Executive Team because it would set precedence for the annual patient satisfaction survey.

Recommendations

The evaluation should be conducted every quarter for a number of important reasons. First, routinization for the clinic staff will occur as accountability is established. Second, evaluation is a process for Quality Improvement and sets a precedence and expectation of outcome assessment and change. And last, but most importantly, a culture of empowerment and teamwork is encouraged through the utilization-focused evaluation process.

It is imperative that the evaluator encourage the involvement of the primary users in the evaluation process to a greater depth. This can hopefully be done through the use of an Evaluation Team, but at the least through increased communication.

Conclusion

As *Patient Visit Redesign* is planned and implemented in other clinics of the health center, an ongoing evaluation strategy must be part of the procedure. “Every quality improvement program is an experiment and will always be uncertain endeavors, liable to produce variable results and susceptible to failure if they are not well monitored. For this reason, we should start to incorporate some element of evaluation into every implementation of quality improvement... design it to be auto-evaluative so that the program itself produces information about its own effectiveness. (Walsh and Freeman, 2002 p. 87)

As an internal investigator, the process of designing the evaluation for the *Patient Visit Redesign* project encompassed a great deal of negotiating, but was enlightening. The process has led to a belief that it is possible and reasonable to assess outcomes and better the quality of care we give patients and the environment in which we provide that care. Patton (1997) states, “Evaluation leads to knowledge and knowledge leads to power”. This power enables healthcare providers and facilities to make improvements.

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Appendix A: Patient SUBJECT DISCLAIMER FORM

(Clinic Observation -PATIENT)

Evaluation of *Patient Visit Redesign* at Women's Healthcare Clinic

You are being invited to voluntarily participate in an evaluation study. The purpose of the study is to evaluate *Patient Visit Redesign* that has been implemented in the Women's Healthcare Clinic. You are being asked to participate because you are a patient of the Women's Healthcare Clinic.

If you agree to participate, your progress through the Women's Healthcare Clinic will be observed by a staff member trained in observation techniques. **This person will not be observing you personally; they will not have access to your name or your medical information. The observer will only be tracking specific time periods during your visit today** (for example the length of time you wait in the waiting room until called to your exam room.) **The observer will not be going into the exam room with you.** The observer is simply recording the length of time it takes for you to complete each step of your visit today.

You are free to refuse to participate in this study with no penalty or loss of benefits. Refusing to participate will not impact the medical care you receive at the Women's Healthcare Clinic. However, your participation today may benefit all patients by helping to improve the services provided by the clinic.

Any questions you have will be answered and you may withdraw from the study at any time.

You can obtain further information from any clinic staff member or manager. By participating in the observation process, you are giving permission for the clinic to use your information for evaluation purposes.

Thank you.

Linda Murphy, RN
Operations Director

Appendix B: Patient Visit Tracking Sheet

TRACKERS: _____

Appointment time _____

Date _____

Arrival time _____

Visit type _____

Provider _____

Patient gender & age _____

STEP	TIME	RUN CLOCK	DESCRIPTION OF STEP	WAIT MIN.
1				
2				
3				
4				
5				
6				
7				
8				

INSTRUCTIONS

1. Inform staff and patients that you are tracking a patient visit and will only be watching the visit flow not individuals and will not be given any personal information about the patient's visit.
2. Record the time when the patient enters the clinic lobby in step 1.
3. Record the activities of the staff and the patient during each step
4. A step changes when an activity changes including sitting to wait.
5. Record handoffs to another staff member.
6. You may ask questions as to activities and reasons for delay in a non-threatening way. Make sure you record the delays and reasons.
7. Record the time the patients completely exits the clinic.

Appendix C: Staff SUBJECT DISCLAIMER FORM

(Staff Satisfaction Survey)

Evaluation of Patient Visit Redesign at Women's Healthcare Clinic

You are being invited to voluntarily participate in the above-titled evaluation study. The purpose of the study is to evaluate *Patient Visit Redesign* implemented in the Women's Healthcare Clinic. You are eligible to participate because you are an employee of the Health Center.

You are asked to complete a short survey. The survey will take only a few minutes to read and complete. Your answers will be kept confidential. There will be no names or numbers on the survey that will identify you. When you have completed the survey, please place it in one of the "**Staff Survey**" boxes located in the Employee Lounge, Administration Lobby and the employee back exit door. **Please complete only one survey**

Any questions you have will be answered and you may withdraw from the study at any time. No one will have access to your name and the information that you provide. In order to maintain your confidentiality, **DO NOT WRITE YOUR NAME ON THE SURVEY.**

You can obtain further information from the Women's Healthcare Operations Director. By participating in the survey, you are giving permission for the investigator to use your information for evaluation purposes.

Thank you.

Linda Murphy, RN
Operations Director

Appendix D: Staff Satisfaction Survey

Please complete the following survey about the Women's Healthcare Clinic

If you have worked at the clinic longer than 2 years please answer this question, and then continue the survey with question # 3

1. *Patient Visit Redesign* has increased my overall satisfaction with the way the Women's Healthcare Clinic functions.

- Strongly agree Agree Not sure Disagree Strongly Disagree

If you have not worked at the clinic longer than 2 years than skip question # 1 and begin here.

2. Please rate your overall satisfaction with the way the Women's Healthcare Clinic functions.

- Excellent Very good Good Fair Poor

3. Please rate your overall satisfaction with the back office service patients receive in the Women's Healthcare Clinic.

- Excellent Very good Good Fair Poor

4. Please rate your overall satisfaction with the front office service patients receive in the Women's Healthcare Clinic.

- Excellent Very good Good Fair Poor

5. I would recommend the Women's Healthcare Clinic to my friends and family for health care.

- Strongly agree Agree Not sure Disagree Strongly Disagree

6. I would recommend the Women's Healthcare Clinic as a great place to work.

- Strongly agree Agree Not sure Disagree Strongly Disagree

7. Is there anything the Women's Healthcare Clinic can do to improve patient care and services?

- No, I am satisfied with everything.
 Yes, there are a **few things** that can be improved (**please describe**)
 Yes, there are **many things** that can be improved (**please describe**)

8. Is there anything the Women's Healthcare Department can do to improve the clinic for those that work here?

- No, I am satisfied with everything.
- Yes, there are a **few things** that can be improved (**please describe**)
- Yes, there are **many things** that can be improved (**please describe**)

Please rate your satisfaction with the following changes that were implemented with *Patient Visit Redesign* in the Women's Healthcare Clinic.

Rate your satisfaction with the following items:	Excellent	Very Good	Good	Fair	Poor	No Opinion
1. Charts are available for the patient's appointment the afternoon <u>before</u> appointment						
2. Charts and the preprinted Superbill are kept at the back office work stations						
3. The back office notifies the front office of available rooms						
4. The front office staff send the patients back to the assigned room						
5. Established patients are pre-verified regarding their insurance or discount status						
6. The front and back office staff communicate using the radios						
7. The front office work as a team to check in patients and register new patients						
8. Walk in patients needing care today are <u>triaged</u> by the RN						
9. Walk in patients needing care today are <u>triaged</u> by the provider						
10. Depo injections, GTT and walk in pregnancy tests are provided by the Float MA						
11. The Float MA checks new labs received against lab book, orders charts for next day						
12. Labs with charts are put on providers desks by 11:00 AM by Float MA						
13. The front office takes messages, orders the chart and notifies the Float MA						
14. Messages from professional organizations (hospitals, laboratory, other health offices) and from patients						

are screened by the float MA						
15. Float MA checks dept. voice mail daily and responds to patient requests						
16. The Float MA and the front communicate using the radios						
17. The MA assigned to the provider that day completes any orders from that day's work						
18. MAs are assigned in teams of two to work with a provider						
19. MAs are assigned to <u>various</u> providers to work with in the clinic, instead of a constant provider (except for surgery scheduling)						
20. Patient history is taken by the MA in the exam room						
21. Patients are weighed in their exam room						
22. Urine tests are done in the exam room						
23. Patients carry their covered urine cups to their exam room after using the restroom						
24. The provider communicates with his MA on the radio						
25. The MA teams communicate on the radio with each other and the provider						
26. The Superbill is completed by the provider and placed in a bin by the work station						
27. The patient is given their follow up appointment by the MA						
28. MAs get insurance authorizations and complete patient referrals						

Comments:

Appendix E: SUBJECT DISCLAIMER FORM

(Patient Satisfaction Survey)

Evaluation of *Patient Visit Redesign* at Women's Healthcare Clinic

You are being invited to voluntarily participate in the above-titled evaluation study. The purpose of this the study is to evaluate patient satisfaction with the Women's Healthcare Clinic. You are eligible to participate because are a patient of the Women's Healthcare Clinic.

If you agree to participate, you will be asked to complete a short survey. The survey will take only a few minutes to read and complete. If you would like to complete the survey verbally, please let a staff member know. Your answers will be kept confidential. There will be no names or numbers on the survey that will identify you. When you have completed the survey, please place it in the "**Patient Survey Box**" located in the patient waiting area. **Please complete only one survey.**

You may stop the survey at any time. Any questions you have can be answered by the clinic staff or manager. No one will have access to your name and the information that you provide will be grouped with the other participant's information.

In order to maintain your confidentiality, **DO NOT WRITE YOUR NAME ON THE SURVEY.**

By participating in the survey, you are giving permission for the investigator to use your information for evaluation purposes.

Thank you.

Linda Murphy, RN
Operations Director

Appendix F: Women's Healthcare Clinic Patient Satisfaction Survey

Please answer the following questions about the Women's Healthcare Clinic. If you would like assistance in completing the survey please let a staff member know.

1. How long have you been a patient at the Mt. Park **Women's Clinic**?
 This is my **first visit** to the Mt. Park Health Center.
 I have been seen in another Mt. Park Clinic before, but not in the Women's Clinic
 I have been a patient of the Women's Clinic **less than 2 years**
 I have been a patient of the Women's Clinic **more than 2 years**
2. What is the reason for your visit today?
 I am pregnant
 This is my 6 week visit after the baby was born
 This is my yearly Pap smear visit
 This visit is for a medical problem I am having, but **I am not pregnant**
 Other reasons not listed
3. Please rate your satisfaction with the length of time you have to wait from making your appointment until the appointment day.
 Excellent Good Poor
4. Please rate your satisfaction with the length of time you have to wait in the waiting room before seeing your doctor or nurse practitioner.
 Excellent Good Poor
5. Please rate your satisfaction with the length of time you have to wait in the exam room before being seen by your provider or nurse practitioner.
 Excellent Good Poor
6. Please rate your satisfaction with the time spent with your doctor or nurse practitioner.
 Excellent Good Poor
7. Please rate your satisfaction with the service and courtesy shown you by the **front office** staff.
 Excellent Good Poor
8. Please rate your satisfaction with the service and courtesy shown you by the **back office medical assistants**.
 Excellent Good Poor
9. Please rate your satisfaction with the overall care you receive from the Women's Clinic.
 Excellent Good Poor

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