

# APPLYING BUSINESS PROCESS IMPROVEMENT TO THE REGISTRATION PROCESS

By

*Robert Jablonski, J.D. Clemmons, and Deborah Wilson*

## **Background**

In mid-1991, Ballard Community Hospital was experiencing difficulty with inpatient admissions and outpatient registrations. As part of an Operations Evaluation program, Admitting was identified as a source of frustration for patients, physicians and their office staffs, and nurses and technicians within the hospital.

Patient frustration stemmed in large measure from the requirement that the registration process take place in the central Outpatient Registration area on the second floor prior to going to a hospital department for testing or treatment. Physicians, irritated by complaints from their patients, were carrying the complaints to administration and/or referring patients to other facilities for outpatient work. Nurses, technicians and administrators within the hospital could not understand the reasons for the complaints: the Admitting department was well staffed and equipped, located conveniently to the patient care areas, and led by a capable, experienced Director of Admissions. There seemed to be little, if any reason for patient complaints.

The Operations Evaluation team's Phase I report of August, 1991 highlighted the need for improvements to the admitting and registration processes. Administration concurred, and authorized a Business Process Improvement project focused on the major Admitting, Discharge and Transfer (ADT) processes. This Phase II effort appealed to Administration for a variety of reasons:

First, it would require heavy participation by managers and staff across several departments. Second, it would address a key customer service issue at the point of initial customer contact; and, third, it would enable Ballard Community Hospital to sample the process improvement methods and techniques without embarking on an organization-wide Total Quality Management program. An ADT Task Force was selected and met for the first time on September 6, 1991.

None of the thirteen members of the ADT Task Force had prior experience with process improvement or TQM-related assignments. Administration had set a deadline of October 28, 1991 for submission of findings and recom-

mendations to improve the admitting and registration functions. Thus, while expectations from Administration were high, confidence and understanding among the Task Force members was somewhat less. In less than two months, the team had to organize, learn new methods and techniques, identify problems and potential solutions, and recommend a course of action to Administration. The project followed the five-step program developed by Dr. H. James Harrington in his book, *Business Process Improvement*:

1. Organize for Improvement
2. Understand the Process
3. Streamline the Process
4. Establish Measures and Controls
5. Continuous Improvement

### Organizing for Improvement

With such a tight time frame, the Task Force needed to focus quickly on the processes that held the greatest potential for improvement and the best return on the time and effort invested in the improvement process. They also needed to familiarize themselves with the tools and techniques of process improvement as rapidly as possible. Several ground rules were agreed upon early in the life of the Task Force:

1. Meeting attendance was mandatory. Task Force members would attend the meetings and participate if they were at work; i.e., not on sick leave or on vacation.
2. Task Force members would come to meetings prepared to make commitments to produce deliverables and/or results required by the Task Force.
3. The improvement methodology as outlined by the facilitator would be adhered to for the duration of the Task Force.
4. The primary objective of the Task Force was to eliminate the cause of its creation – the frustration with ADT processes. The Task Force was not created to become another standing committee of the hospital.

One of the first issues facing the Task Force was to define its mission and objectives. Since Task Force membership was not voluntary, its members needed to understand why it had been brought together. A subgroup was formed at the first meeting and, over the next two weeks, developed the following mission statement:

“To create an ADT process for outpatients and inpatients by analyzing the current system, recommending changes, and initiating action. The ADT process encompasses the movement of the patient, the flow of patient information, and the patient needs as a person of dignity and value. The design will address the needs of the patient, their family, guests, physicians, medical office staff, and hospital team members. These action swill promote patient-focused, cost-effective service as measured and monitored by timely, objective data.”

To focus its efforts on the processes with the most potential payback, the Task Force storyboarded the processes that encompassed the ADT function. Twenty-six distinct processes were identified, ranging from pre-surgical screening through discharge to an external facility. Nominal Group Technique was used to prioritize the various processes for analysis by the Task Force. Finally, the Task Force agreed that at best, six processes might be flowcharted and analyzed in the two months available. Four processes were actually analyzed: Outpatient Registration, Surgery Preadmission, Inpatient Admitting and OB Admitting.

### Understanding the Process

The first process to be analyzed was Outpatient Registration. The analysis process consisted of generating a set of process flowcharts, and identifying the points at which the process broke down, became unwieldy or failed to meet customer needs and expectations. The analysis generated three documents: an Environmental Model, a Functional Flow and a Situation Analysis. Each is designed to focus on the process at a different level of detail. The Environmental Model is similar to a data flow diagram in that it depicts the path that information follows throughout the process. Sources, destinations and repositories of information are identified, with arrows depicting the sequence and flow of process information. Paper paths and information system use are documented as well. The Outpatient Registration Environmental Model is shown in Figure 1.

Following completion of the Environmental Model, a Functional Flow chart was created. The Functional Flow is a more detailed analysis of the process and identifies all the activities, actions and assets used to complete the process. Stages in the cycle of the process are highlighted and the number of FTEs, forms, computer screens, data elements and interpersonal contacts are listed. Process and cycle time data are included where such data is available. The Functional Flow for Outpatient Registration is depicted in Figure 2.

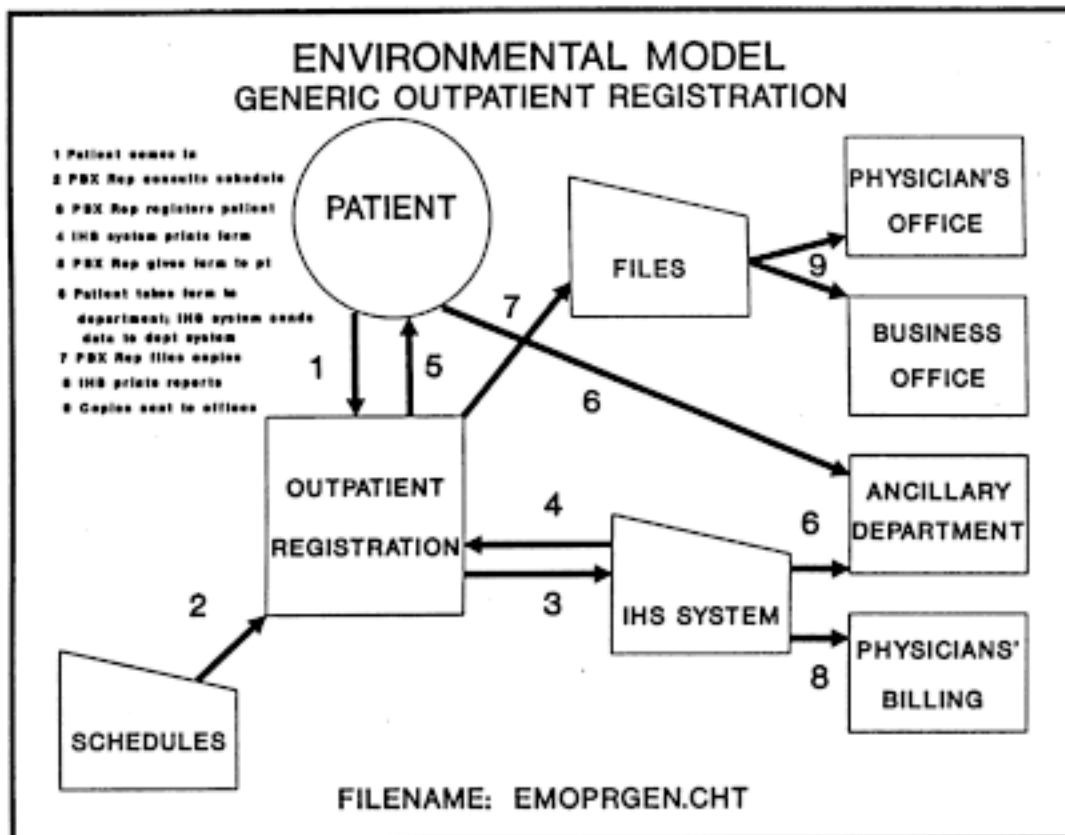


Figure 1

**BALLARD COMMUNITY HOSPITAL**  
**PROCESS: Outpatient Registration**  
**FILENAME: FFOPRGEN.WK1**

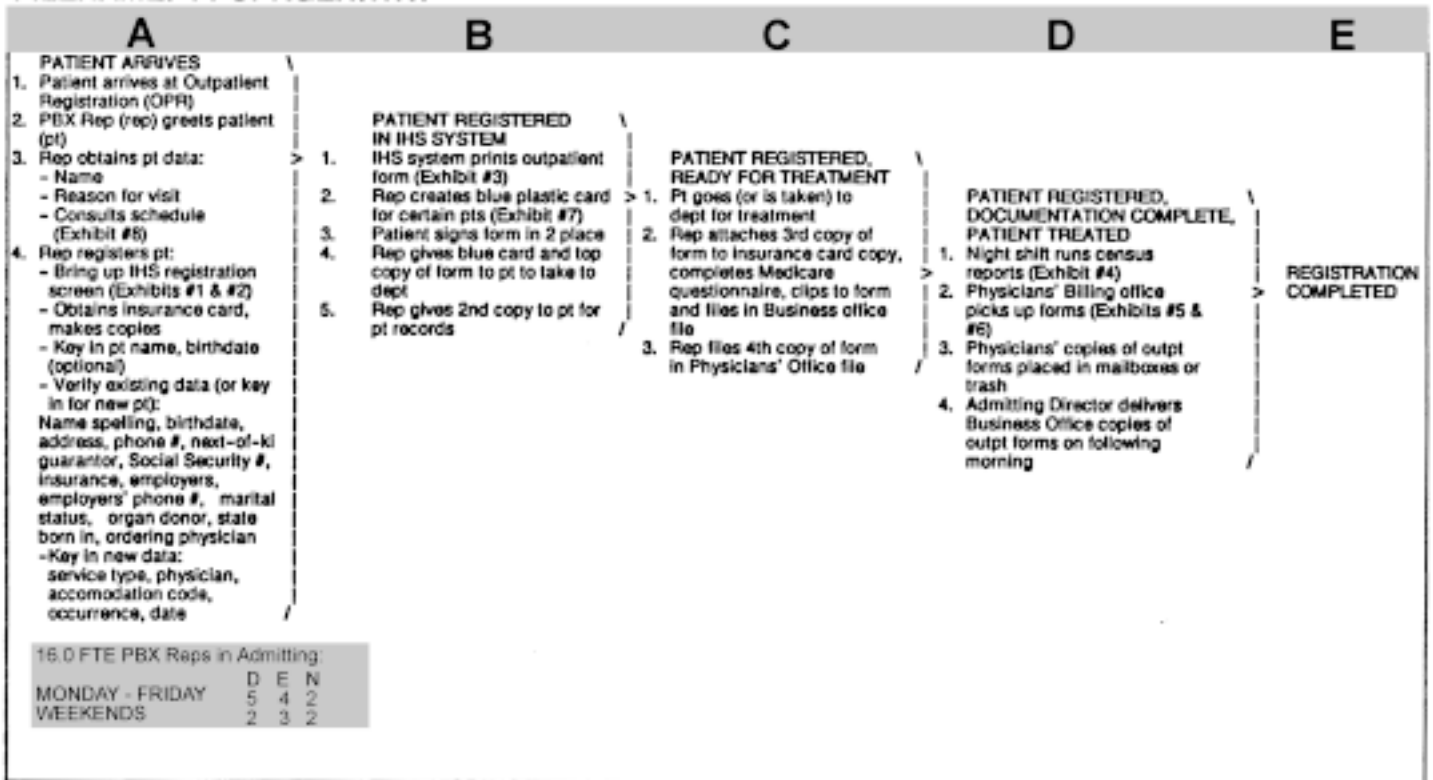


Figure 2

Both the Environmental Model and Functional Flow charts depict the process “when it works”, i.e., when the system performs as designed. Since the purpose of the analysis is to focus on the occasions when the process does not produce the desired result, a mechanism that captures the dysfunctional aspects of the process is used. This is the purpose of the Situation Analysis. This document lists the Current Situation - the things that go wrong or cause problems for either the customer or the employee, the Impact of this condition – what it costs the organization in time or money, the delays or extra work, or customer dissatisfaction that results from the situation. Next, the Preliminary Goal is identified, usually in terms of the ability to accomplish some objective or to take some positive action to meet customer needs and expectations. Finally, the Situation Analysis lists some Resolution Concepts, or ideas regarding how to achieve the Preliminary Goal. The main purpose of the Situation Analysis is to highlight problems, establish the facts of the situation and brainstorm some ideas for improving the situation. A Situation Analysis section is shown in Figure 3.

Finally, after the flowcharting and analysis of the four processes was completed, an Action Plan was developed that clustered similar problem areas from all four processes, identified short-term responses to the problems

and long-term resolutions. A section of the Action Plan from the Phase II Task Force report is shown in Figure 4.

**Streamlining the Process**

Following development of the Action Plan, the Task Force agreed that a pilot program would be the appropriate means of testing the short-term responses. Accordingly, Outpatient Registration was selected as the process for which improvements should be pilot tested, since it held a high probability for success, was highly visible to Administration and physicians, and had the potential to significantly improve both revenue and patient relations. The Task Force drafted a pilot project plan and submitted it for Administration’s approval in November 1991.

Administration authorized the pilot program in late December, and a subgroup of the ADT Task Force began work in January 1992. The pilot program consisted of a limited implementation of a “distributed” registration process, whereby patients could be registered “at the original point of contact” with the hospital. This meant that, if the patient arrived in the laboratory, he or she could be registered there, rather than requiring that they go to Outpatient Registration and then return to the Lab for testing. This addressed the chief patient complaint of being shunted between departments before treatment.

CURRENT SITUATION	IMPACT	PRELIMINARY GOAL	RESOLUTION CONCEPTS
1 Patients do not always go to Outpatient Registration to register before going to a department for treatment. They may get lost in the hospital because they cannot find Outpatient Registration.	Patients may be late or even miss appointments, causing delays and backups in treatment areas. Productivity suffers when hospital staff have to work around the delays, escort and/or mollify angry patients. Patients complain to their doctors about their treatment at the hospital, resulting in physicians referring patients elsewhere and/or complaining to administration.	Ability to get patients to a valid registration point for processing.  Ability to minimize patient stress prior to the registration process.  Ability to maintain department schedules.	Centralize location of OPR, use current location but make it more visible (i.e., take down wall).  Place clearly visible signs at pt. entrances and main hospital corridors. Have printed maps available at all entrances.  Include maps and OPR instructions in newspapers and newsletters and on physician referral slips.  Combine Admitting and OPR personnel in one department in order to use current staff more efficiently.  Educate all employees and physicians on registration policies and procedures. Sensitize staff to patient feelings. All staff should be able to direct patients. Have OPR capability in every

Figure 3

PROBLEM AREA	SHORT TERM RESPONSE	LONG TERM RESOLUTION
<p><b>PATIENT ACCESS</b></p> <p>There is not a consistent point of contact with patients. Some patients go directly to ancillary departments, some arrive in Admitting, some don't know where to register. This situation arises from different instructions given to patients by their physicians, by differing policies within BCH, and by the layout of the hospital. There are numerous entrances to Ballard Community Hospital, used by patients for various departments. This causes confusion when patients come in for different services requiring them to either report to different locations or follow different registration procedures or both.</p>	<p>Define a consistent and comprehensive patient registration policy that delineates where patients are to report for services, who will perform the registration process and the hospital's policy on customer service. Communicate the policy to physicians and their office staffs and have them instruct their patients accordingly. Improve signage and routing within the hospital to enable patients to determine how to find their destinations with ease.</p>	<p>Consider relocating the Admitting department in a more easily accessible area. Prepare maps and instructions for reaching the hospital and Admitting and distribute them to physicians' offices.</p> <p>Investigate the feasibility of having physicians' staffs register or preadmit patients from the physicians' offices using either a dial-up terminal or other remote data entry process.</p>

Figure 4

“Distributed” registration differs from a decentralized system in that patients are still requested to register with Outpatient Registration prior to treatment; however, in the spirit of customer service, the ancillary departments have the capability to register them should the need arise. In a decentralized system, there would be no central Outpatient Registration department – all outpatients would be registered by the departments.

The Task Force identified the major activities of the implementation and assigned deadlines and responsibility for completion. An eight-week trial period was established to allow for gathering of data and analysis of results. Physical Therapy and the Laboratory were selected as participants in the pilot program, since the Lab had a high volume of unscheduled outpatient activity, and Physical Therapy had lower volumes, but predominantly scheduled appointments for outpatients.

Facility improvements were required in Lab and P.T. to accommodate patient registration, including installation of computer terminals and printers and rearranging the floor plan. Training of departmental staff was undertaken on a “train the trainers” basis, with a lead staffer from each department being trained initially. The Task Force identified several improvements to the registration process, notably the reduction in paper copies and redundant data collection and entry sequences. Evaluation criteria were developed by the Task Force and a procedure to check the registrations and identify corrections and retrain the department staff was established. During the pilot program, all patients’ registrations processed by department staff were inspected by the Director of Admitting personally. The number of registrations and the number and type of errors were tallied daily. In addition, the time distribution of registrations was monitored to provide insight into the timing of outpatient activity for staffing and scheduling purposes.

The program was implemented in Physical Therapy during the first week of February 1992, and the Lab on February 17.

### ***Measurements and Controls***

In order to evaluate the effectiveness of the program in meeting patient needs and expectations, each department head developed a patient questionnaire to survey patients on their satisfaction with the new registration policy. In addition, an Assistant Administrator contacted physicians and their office staffs to survey them on their reaction to the new distributed registration program. Their reactions were reported every two weeks to the Task Force Administration.

The volume and timing of outpatient registrations in the departments was tallied and graphed for the weekly Task Force meetings. The number and type of registration errors were also reported to the Task Force on a weekly basis. Feedback was provided to department heads and the clerical staff who processed the registrations, and training

course content was revised as required to reduce the number of errors.

Following completion of the eight-week pilot program, the Task Force assessed the results of the distributed registration methodology and prepared a summary of findings and recommendations to Administration.

### ***Continuous Improvement***

With the pilot program completed, Ballard Community Hospital is now positioned to implement a Continuous Quality Improvement process with respect to its ADT function. The Task Force members have been trained in the use of the Business Process Improvement tools and techniques, and have applied several of them to process-related problems and opportunities in other areas. The distributed registration approach has been successful in addressing customer needs and expectations in the Admitting Department. The need to focus on meeting customer expectations has been recognized by a significant portion of the management team. The definition of internal and external customers and the recognition of their sometimes competing needs have been accomplished. These factors will drive the organization to continuously examine its processes and operations in light of their impact on customers. Already, additional process improvement teams have been created to address customer needs and expectation in other processes under the ADT function. These are not the only challenges facing the hospital, to be sure, but as BPI becomes embedded in the culture of the organization, the methods of meeting the challenges will change to a process orientation, as opposed to a problem or people orientation.

### ***Program Evaluation***

The ADT Task Force and the Distributed Registration pilot program were not initiated without risk to both the organization and the individuals involved. The hospital was embarking on a merger process with another hospital. There was no organization-wide acceptance of the need for or a Total Quality Management of Continuous Quality Improvement environment. The primary focus of the organization was on cost reduction rather than quality improvement. Nonetheless, Administration authorized the project as an approach to improving service to patients and physicians and solving problems with an area perceived to be in need of operational improvement.

Many of the Task Force members approached their role with some skepticism; as veterans of several committees and task forces, they were unconvinced that this effort would achieve significant results or bring about the required changes to the system.

While the project followed the plan and timetable, there were several midstream alterations. The streamlining segment of the project was not completed until midway through the pilot program. At that point, the Task Force

discovered that patients who frequently visited the hospital required an expedited registration process. These so-called "frequent flyers" were distressed at the prospect of having to register at every appointment for service. After considerable analysis and work by a subcommittee, the Task Force adopted the amended process depicted in Figure 5.

The concept of distributed registration generated much concern on the part of the Admitting, Data Processing and Business Office professionals who expressed reservations about the ability of departmental clerical staff to provide data integrity, and appropriate data entry. This is an ongoing issue and strikes at the heart of the continuous improvement mind-set. High levels of data quality come from a zero defect approach on the part of management and staff. One hundred percent inspection of registration data, such as that performed during the pilot program is impractical. Data integrity can only be ensured when errors are discovered as part of quality audits, returned to the department which created them, and data entry staff are re-trained in proper coding and data entry sequences. Run charts such as that depicted in Figure 6 will be used to track performance and identify the need for feedback and retraining.

During the eight-week pilot program, 481 patients were registered in the Lab and 243 in Physical Therapy. A total of 28 errors were detected in Physical Therapy and 117 in the

Lab registrations, many of them cosmetic mistakes such as misspelling of names or addresses. The error rate declined dramatically over the last four weeks of the program as training, user knowledge and skill levels improved.

**Summary**

From September 1991 through April 1992, the ADT Task Force labored relentlessly on a number of issues related to improving and streamlining the admitting and registration processes. By choosing to pilot test the Outpatient Registration portion of the process, the Task Force not only improved that part of the system, but also gained insights on how to replicate BPI for future projects. For example, on June 10, 1992 an inpatient ADT Task Force was formed to pursue BPI goals comparable to those associated with the Outpatient Task Force.

The chairperson, facilitator, data processing representative and the Business Office Manager were the only holdovers of a newly constituted fifteen-member committee. The primary goal of this newly formed body will be to improve the existing inpatient admitting, discharge and transfer system.

Besides anticipating the improvement of the existing Inpatient ADT process, we feel the lessons we continue to learn through the application of the BPI program will serve us well in future quality for improvement endeavors.

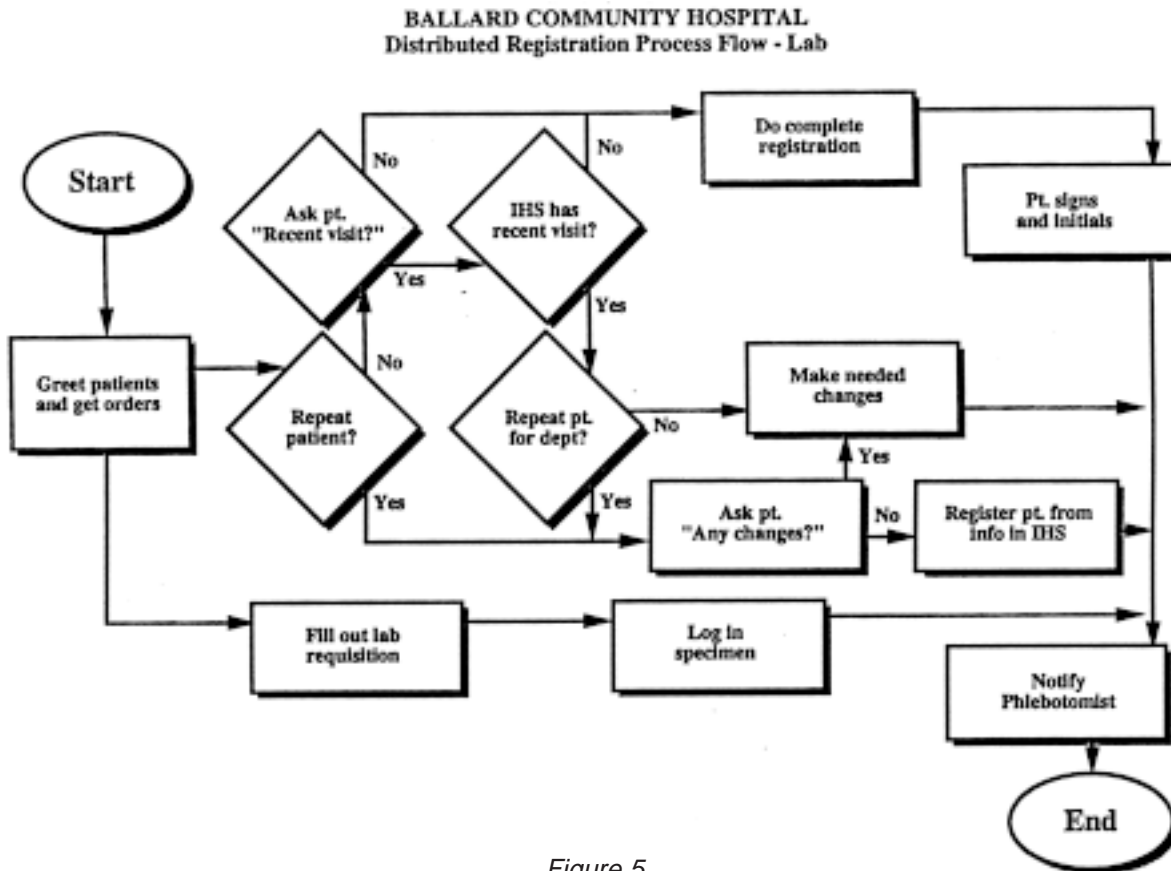


Figure 5

BALLARD LAB REGISTRATION SCATTER DIAGRAM - CHALLENGE RATE

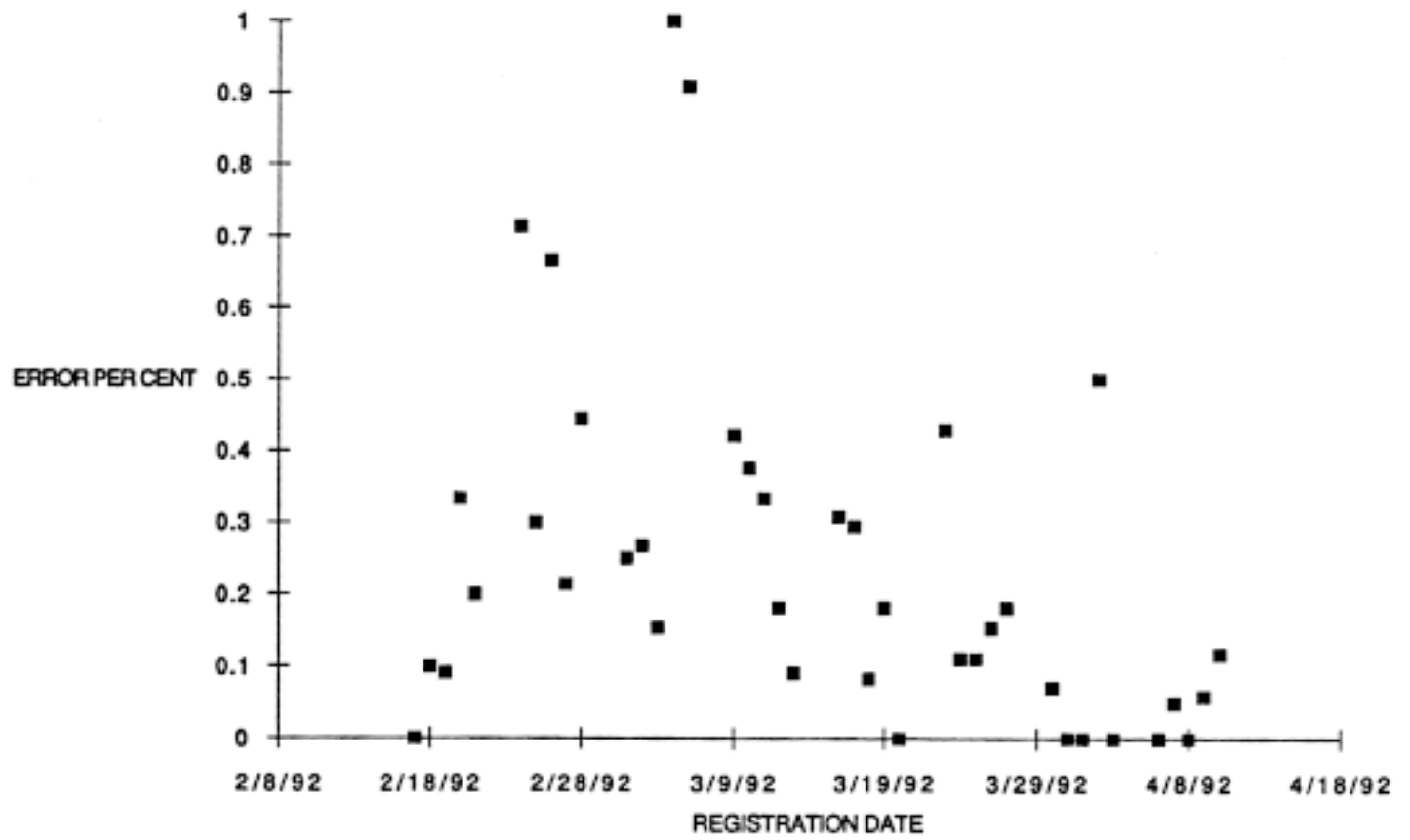


Figure 6