

## Hospital Campaign Anti-Bug 2000 as Leverage for Promoting Continuous Quality Improvement

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### Abstract

The management of a 750-bed tertiary care university hospital that serves the Jerusalem area and nationwide referrals initiated a total overhaul of all its supporting systems. This program, with parallel contingency plans, ensured a smooth transition of all computer-dependent and other services into the year 2000. Because this extraordinary project proved successful, its outcomes are now being utilized as a unique impetus for implementation of hospital-wide continuous quality improvement programs. This paper reports how the established QI procedures, which were introduced also during the campaign, are now being activated from the baseline of those outcomes that have provided absolute efficacy in all hospital activities. The success of the campaign was achieved through the total involvement of all staff. This involvement was enhanced by the popular appeal of the dramatic deadline of the date 2000, as well as by focusing attention on personnel dynamics. Strategies for sustaining the momentum must be considered.

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Midnight, 31 December 1999 was the first recorded occasion in human history when mankind felt threatened by the passage of seconds leading from one millennium to the next. What was likely to occur on that fateful eve, at every site and in every situation during those transition seconds of computer confusion and in the days thereafter, could not be projected from any previous experience. The potential issues for some authorities were of major economic significance, while for others the possible problems related to health and life endangerment.

In our hospitals we were to confront, among other complexities, the crucial issues involved in the sophisticated treatment of patients in the operating rooms and critical care units. It was essential, therefore, that we prepare every element of the life-saving and life-supporting equipment to ensure their fool-

proof functioning, while also readying provisional emergency programs for the possibilities of breakdown. These preparations included a total and scrupulous inspection of every system serving the hospital, such as the computer services, the electronics web, every item of laboratory equipment and their connections, as well as all infrastructure systems whether computer dependent or not. This unprecedented overhaul provided a unique opportunity to also address the quality aspects of all the systems, since the campaign was planned to embrace every element of the hospital – administrative, medical, nursing, paramedical and maintenance.

The role of Administration comprised inspection of the serviceability of equipment and its suitability for use in the year 2000, the repair and upgrading or replacement of those items of equipment and systems that were judged unsuitable, the organization of testing exercises, and the examination of compatibility between the various systems and within each system.

In the Medical and Nursing systems, a cementing of the cooperation between physicians and nursing staff was promoted through the review and formulation of work norms and incident-reporting procedures, instructions for the operation of equipment, and manpower regulations. The preparedness of the medical departments and units for potential events of breakdown was at peak performance. Quality circles were already in operation on a large scale in the hospital. These quality circles were implemented independently in every medical unit, however small, while similar stages of action were in the process of development in the larger units, which were followed by the consolidation of all the quality activities of the various medical departments. This in turn was followed by their integration with the various services, for example the computer services, or medical engineering, with every medical unit, or the critical care unit with the biochemistry laboratories.

In the Computer unit, all equipment was overhauled, including every personal computer, and their compatibility for the Y2K was verified. In the Medical Technology unit, an inspection was made of all medical instruments, which was also a superb opportunity for taking a complete inventory and achieving absolute updating of every item of electronic

QI = quality improvement

equipment, including all the extras, such as gifts and private properties. Each item was tested for its compatibility with Y2K as well as its efficacy.

The Maintenance unit is responsible for the infrastructure systems of the hospital – electricity, water, air-conditioning, etc. Their survey entailed the preparation of all the computerized and other components of these systems, which included testing all large items, such as elevators and generators, and the smallest items such as lamps. Thus, at the conclusion of the survey and preparation for the year 2000, all equipment was in perfect working condition.

In the final stage, the quality activities within the campaign encompassed all the hospital systems as an integrated complex – computers to laboratories, medical engineering to surgery, and so on, with the whole constituting an interwoven web. This gradual systemization was planned to attain the goal, at a stipulated date, of complete synchronization so as to orchestrate an absolute harmony of action between all the components of the hospital.

### **“Plan-Do-Study-Act” with continuous reactivation**

This readying of the hospital was seized as an excellent opportunity to attend to problematic issues that could be seen as potentially hazardous to the goals of the campaign. One such issue was that of the medical records. Because of the vulnerabilities of the situation, every nurse, physician and paramedical user of medical records was made aware of the necessity to scrupulously document all events, and in particular to give a full account of the medical details. And indeed, in the course of that weekend and subsequent days, there was meticulous documentation into patient files of every physical examination, every procedure performed and every instruction given. This outcome of the campaign, which had been so apparently necessary, could provide a model for future performance in raising the quality of all medical records.

In the post-emergency period when we conducted a review of the entire campaign, it became clear that we had gained a rare advantage by using QI procedures. It was evident that they could now be employed in a follow-up routine in ‘normal’ times, with the added boost gained by their success in the emergency preparations. The extra bonus was that the total overhaul had

supplied us with the type of definite baseline that can only be acquired in a new institution starting from zero.

The most rewarding outcomes came from the unique accomplishment of this total overhaul. We were now in possession of an absolutely complete and updated inventory of every article in the institution. This gave us the perfect database for a prospective long-term plan of a program of regular inspections of all equipment, for ongoing maintenance, for controlled replacement or upgrading of items that had depreciated, and rejection of redundancies according to technological and scientific progress. This was to apply to all aspects of the infrastructure systems, so that a constant standard of efficiency would be regulated and maintained by computerized checking throughout the institution.

Outcomes in the medical, paramedical and nursing spheres would require more personalized strategies for sustaining the momentum of enthusiasm for accuracy and excellence experienced in the campaign. The outcome of improvement in medical recording – so clearly demonstrated in the campaign, when the threat of computer chaos heightened awareness of its importance – would need to be developed into habits of behavior that leaders in the quality circles would be required to promote. The human issue of dynamics in communication and cooperative interaction – which formed the basis of the smooth running of the hospital in an emergency when institutional goals were clear and united – is an issue not to be taken for granted in regular times and requires reviewing and refreshing in occasional trial exercises. Another critical issue that received extra attention in the wake of the campaign was that of patient safety. In the overhaul of instrumentation, all equipment such as bedside monitors, alarms, furnishings, lighting, and the many other items and manpower involved in patient safety and add quality to patient care, were checked and upgraded to required standards. These standards can now be regularly checked against the baseline in a far more systematic way than previous circumstances allowed.

We suggest that all hospitals in a position to exploit such outcomes of the anti-bug 2000 take full advantage of this one-time opportunity to boost their quality improvement programs.

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*We now have the worst of both worlds – not just inflation on the one side or stagnation on the other, but both of them together. We have a sort of ‘stagflation’ situation.*

*Iain Macleod, British Conservative politician (1913-70),  
speech to the House of Commons in 1965*