INTRODUCTION

Most industrialized nations are struggling with the need to contain health care costs (Abel-Smith 1984) and stretch nursing resources (Barry and Gibbons 1990). The forces driving these changes in the economic climates of industrialized nations began in the early seventies with the steady increase in oil prices. Global competition in manufacturing from the Pacific Rim nations furthered the economic woes of European nations, the Commonwealth countries, and the United States. As a result, the European Economic Community and other Western governments' health care funding will continue to emphasize cost containment and real cost decreases throughout the nineties. At the same time, the populations of Western nations are aging. Growing aged populations and higher chronic disease prevalence in the industrialized world are increasing the demand for nursing resources. In the United States for example, the ratio of registered nurses employed in hospitals per patient was 96 nurses per 100 patients in 1987 - up from 50 nurses per 100 patients in 1972 (Barry & Gibbons, 1990). These socioeconomic forces and the growing scarcity of available nursing staff cross international boundaries and cultural differences in health care delivery systems. As a consequence, Nursing Leadership throughout the world will be faced increasingly with the common challenge of "doing more with less".

BENEFITS OF NURSING AUTOMATION

Maximum use of information technology is key to stretching scarce nursing resources in the face of ever increasing patient care demands and shrinking government funding. Nursing Administrators and Managers should view automation as a needed friend. The VISION that Nursing Leadership needs to have in regards to automating is: automate every information processing task performed by nursing. To automate only part of the operations is to lose the efficiency potential of a paperless system.
The business operations side of patient care delivery is primarily the generation and communication of information. Performed manually, it is intensely time consuming. Furthermore, manual information management wastes nursing time in repetitive and redundant communication of information. Manual charting, care planning, and hand writing of chart forms, requisitions, logs, and the kardex are time hogs. Manual systems also depend on heavily on telephone communication of information. This is costly to efficient work flow in three ways: 1) time lapse in relaying critical information acts as a bottleneck to task competition; 2) it interrupts the work of those who have to place and answer the call; and 3) it is labor intensive. In the manual system of Patient Admission and Processing of Medical Orders, the task can require 13 steps to complete. In a functionally rich HIS environment the same task needs only five steps to complete. The assumptions underlying the automated system are support of physician order entry and electronic chart capability.

**HIS FEATURES WITH MAJOR NURSE LABOR SAVINGS**

The total system requirements for effective nursing information management within a Hospital Information System (HIS) are available in a booklet published by the Wisconsin Computer Applications in Nursing - Special Interest Group (WI-CAN, 1989). Workshop participants will receive a copy of the WI-CAN booklet. However, the applications that have the greatest labor savings potential for nursing fall under patient care. In our experience with North American hospitals who have installed functionally rich HIS systems, the percentage breakdown by feature and savings potential is as follows:

- Charting = 39%
- Order Processing = 21%
- Printouts = 16%
- Management Functions = 8%
- Med Administration = 5%
- Information Retrieval = 5%
- Patient Care Plans = 5%
- Admission, Transfer, Discharge = 1%

It is precisely because of the importance of the patient care applications to the Nursing benefits savings potential that Nursing Leaders need to understand the limitations of current HIS systems in the marketplace. There are good systems available, but many are functionally poor in their patient care applications. Historically, systems design and development of HIS systems were driven by financial needs and non-nursing clinical perspectives. Consequently, the nursing perspective was omitted in system design, and even