MPIs in Healthcare: Current Trends and Practices

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The master patient index (MPI) is a powerful tool in healthcare organizations that HIM professionals are largely responsible for managing and maintaining. This article takes a look at MPI core elements and practice patterns in acute care facilities.

Mergers and acquisitions among healthcare facilities have pushed the master patient index (MPI) to the forefront of health information concerns. Used by healthcare professionals to track patients as they move in and out of organizations, the MPI is a listing or database that a facility maintains to record all the patients who have ever been admitted or treated there. Basic data elements include the patient's full name, date of birth, medical record number, and dates of visits, admissions and discharges.[1]

An accurate MPI, whether in paper or electronic format, may be the most important resource in a healthcare facility because it tracks patient, person, or member activity within an organization and across patient care settings.[2] When a patient enters a health system for care, any existing previous health information on the patient should be made available to the current provider. This will aid the physician in diagnosis and treatment as well as in avoiding duplicate diagnostic tests such as lab and radiology procedures, which in turn reduces the cost of healthcare.

Our study, conducted in 1998, examines the core elements of MPIs in use at acute care hospitals and current practices for management and maintenance of the index. The results can be used to identify current MPI practice trends. Further, this study provides valuable feedback to HIM directors as they continue to work at linking patient encounter visits both within their respective facilities as well as in an integrated delivery system (IDS).

Given the recent passage of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), our study was very timely. HIPAA emphasizes the need to adopt standards that take into account the technical capabilities of health information record systems and the need for training persons who have access to them. Although MPIs have been in use for decades in US hospitals, recent literature has shown that problems exist nationwide with maintenance of the index and control of accuracy.

HIM professionals are charged with the responsibility of educating and training noncredentialed hospital staff members on the importance of accuracy when entering and updating MPIs. Because the information maintained in the MPI has far-reaching implications for all professionals working in healthcare today, the MPI's integrity as a database needs to become a priority.

Reviewing the Literature

Several publications have pointed to the need for an accurate MPI whether the healthcare organization functions as a single site or more importantly, as part of an IDS. Following is an overview of the information on the subject:

- A 1994 report in Healthcare Informatics explained that the need for an MPI solution increases as acquisitions continue and health systems expand.[3] The article noted that AHIMA's 1994 position statement on managing health information in facility mergers and acquisitions stressed this as well: "To ensure availability of health information to all legitimate users, patient records should be consolidated or linked in the master patient index." Further, the report discussed issues that complicate the process of building an MPI in an IDS, including the size and composition of the IDS, types of relationships between entities, legacy systems, and the competition in the marketplace.
- In 1998, *ADVANCE for Healthcare Professionals* reported that the typical rate of duplicates in the MPI is about five to 10 percent, with the majority of errors occurring in the past three years.[4] The article attributed the increased error

rates to the decentralization of the patient registration/admitting department and lack of training for personnel in this department. Further, MPI cleanup is costly. Electronically correcting duplicate medical record pairs and physically merging the paper-based records can cost from $5 to $20 per duplicate pair.

- Duplicate medical record numbers in the MPI are a long-standing problem for HIM professionals, and one that has traditionally received very little attention, noted the March 1996 *Medical Records Briefing*.[5] This project needs to become a top priority as hospitals move toward the computerization of health information. To clean out an MPI at 486-bed El Camino Hospital in Mountain View, CA, the existing MPI database was loaded into a software system that looked for duplicate MPI entries by matching social security numbers. In this project alone, 10,000 patient entries had to be evaluated on a manual basis to determine if errors existed.
- An article in the November 1995 *Journal of AHIMA* discussed the complexity of building the MPI for an IDS.[6] Variations in information systems, data capture, and institutional goals and objectives present multiple challenges to integrating patient data. And after technical and organizational problems are overcome, the purely operational task of linking patients across multiple facilities is difficult due to duplication and error within the individual facility's MPI.
- After devoting time and money to an MPI cleanup, HIM professionals should turn their attention to keeping it clean, according to the February 1997 *Medical Records Briefing*. Educating and training hospital registration clerks is critical, as is making them aware of the clean-up cost per record when a duplicate MPI number is created.[7] Tracking and reporting errors allows managers to use error rates as part of the registrar's evaluation. Lastly, administrators and medical staff members need to be aware of the magnitude and cost of MPI cleanup so that they will become more interested in keeping error rates down.

Survey Methodology

To obtain data for this study, researchers mailed a questionnaire and self-addressed, stamped return envelopes to HIM directors at 1,000 acute care hospitals in the United States. The hospitals were randomly selected from the 1996 AHA Guide to the Health Care Field based on an equal mix of large (greater than 150 beds) and small (less than 150 beds) facilities. All 50 states were represented in the random sampling. The data received was processed by the University Testing Center using SPSS statistical analysis.

The survey consisted of four parts. The first part collected demographic information from each hospital: the job title of the survey respondent, the department in charge of the MPI, urban or rural hospital designation, and whether the hospital is a single-site healthcare organization or part of an IDS.

The second part of the survey consisted of a table of AHIMA-recommended core elements for an MPI, which are internal patient identification, patient name, date of birth, gender, race, ethnicity, facility identification, admission or encounter date, and discharge or departure date.[8] Respondents were asked to note items that their respective MPIs captured. In addition, respondents were asked to designate which optional data elements (advance directive status, organ donor status, allergies or reactions, a problem list) their facility's MPI captured.

In the third part of the questionnaire, the respondents were asked if the hospital had policies and procedures to address items such as:

- data capture, including search criteria to register and/or locate patients
- use of suffixes and prefixes with a patient name
- use of alias names
- correction of duplicate MPI entries
- correction of inconsistent data elements
- access to the MPI
- education/training of employees to resolve duplicate MPI entries and inconsistent data elements

The fourth part of the survey focused on outsourcing MPI management. Respondents were asked to indicate if their facility outsourced the identification of duplicate entries in the MPI, correction of duplicate entries in the MPI, and merging of MPIs when necessary.

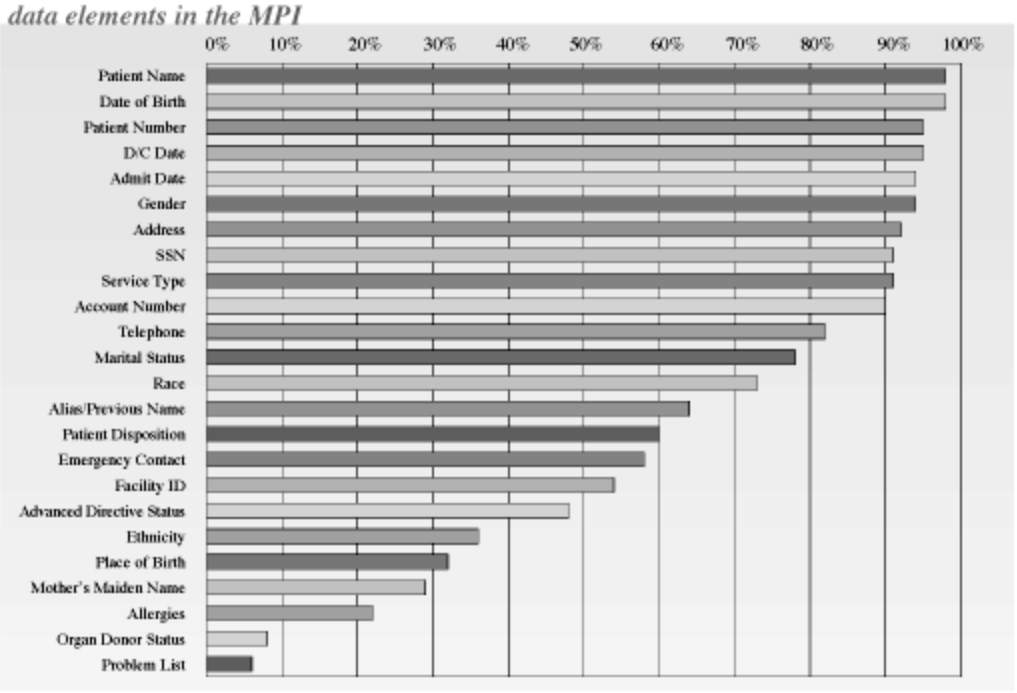
Tracking the Trends

The response rate for this study was 31 percent (n=306). It was not surprising to find that the majority (86 percent) of MPIs are maintained by HIM or medical records departments. The admitting/business office maintains 10 percent of MPIs, according to respondents, while information systems and other departments maintain 3 and 1 percent of MPIs, respectively.

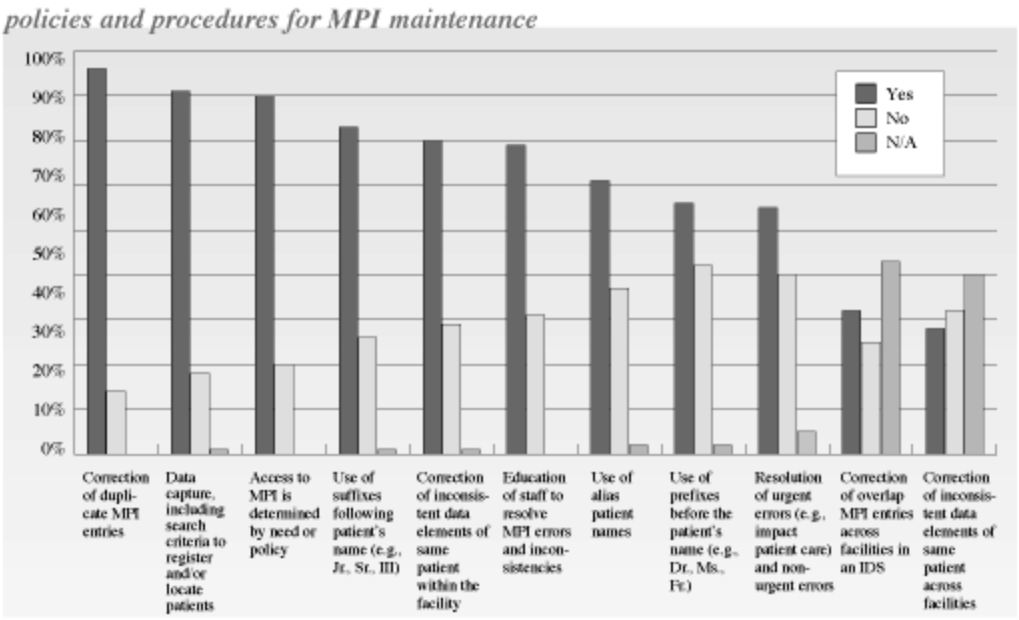
Those facilities where the MPI is maintained by the admitting/business office may represent an opportunity for HIM professionals to augment their job skills. New knowledge may be acquired by learning how to use information systems for admitting patients and ultimately, how the MPI is created and interacts with other information systems within a healthcare facility.

Slightly more than half (59 percent) of the respondents were from a single-site facility and the remaining 41 percent worked in an IDS. Respondents' job titles included director (73 percent), manager or supervisor (20 percent), assistant director (4 percent) and others (3 percent).

The chart below illustrates data elements found in MPIs, starting with the most common data elements and ending with the least common. More than 70 percent of respondents indicated that patient name, date of birth, patient identifier/number, admit and discharge dates, address, social security number, service type, account number, telephone number, marital status, and race were part of their facility's MPI. An alias or previous name is maintained in 64 percent of the respondents' MPIs and 58 percent included an emergency contact person. Only 54 percent of the respondents report that the facility is identified in the MPI.



When looking at optional data elements in the MPI, the frequency rates severely declined. Less than 50 percent of the respondents' facilities include ethnicity, place of birth, mother's maiden name, allergies/reactions, and less than 10 percent of facilities report organ donor status or a problem list. However, the advanced directive status, an optional data element, had a rather high frequency rate of 48 percent, suggesting that hospitals are trying to put valuable patient information at the fingertips of healthcare workers. Collecting this data element can save time because the medical record does not need to be accessed to determine if an advance directive exists. Monitoring optional data elements such as the advance directive status to determine if frequency rates increase over time is an opportunity for future research.

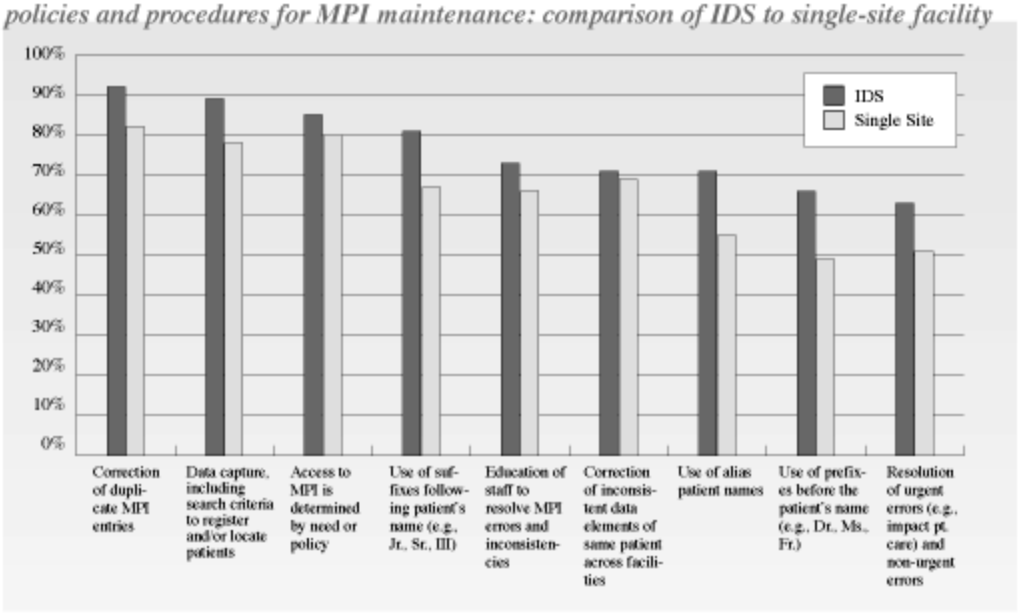


The greatest degree of variability occurred when reviewing facility policies and procedures on the usage and maintenance of the MPI (see "Policies and Procedures for MPI Maintenance", above). In some cases, respondents may have checked "not applicable" if the facility was not part of an IDS. Most facilities (70 percent or greater) have a policy and procedure that addresses correction of duplicate MPI entries; data capture, including search criteria to register and/or locate patients; access to the MPI; use of suffixes following patient's name; and correction of inconsistent data elements of same patient within the facility. Sixty-nine percent of the respondents reported that a policy and procedure exists for education and training of employees to resolve duplicate MPI entries and inconsistent data elements. Further findings revealed that the following areas are least addressed by an MPI policy and procedure:

- correction of inconsistent data elements of same patient across facilities
- correction of overlap MPI entries across facilities in an IDS
- resolution of urgent errors (e.g., those that impact patient care) and non-urgent errors
- use of prefixes before the patient name
- use of alias patient names

We noted that single-site facilities lag behind in the development of these policies and procedures, which may be attributable to the difference in delivery of healthcare when comparing the IDS to the single-site facility (see "Policies and Procedures for MPI Maintenance: Comparison of IDS to Single-site Facility," below). IDS facilities are more complex due to the many services they offer, whereas single-site facilities have a more streamlined approach. Perhaps single-site facilities have not yet realized a need for additional policies and procedures for maintaining the MPI.

policies and procedures for MPI maintenance: comparison of IDS to single-site facility



Only a small number of respondents reported outsourcing MPI functions, as illustrated in "Outsourced MPI Functions," below right. Less than 10 percent of respondents indicated they used an outside vendor for help in identification and correction of duplicate MPI entries or merging of indices. Written comments in this section of the survey indicated that certain software systems and custom-written programs can identify and correct duplicate entries.

department in charge of the MPI

HIM/Medical records	86% n=0
Admitting/Business office	10% n=28
Information systems	3% n=8
Other	1% n=2

outsourced MPI functions

Identification of duplicate entries in the MPI	6% n=17
Correction of duplicate entries in the MPI	5% n=14
Merging of MPIs when necessary	7% n=20

Preparing the MPI for the Future

The response rate for this study was sufficient to gain a clear understanding of current practice trends for maintaining MPIs in acute care facilities whether they are a single-site facility or part of an IDS. (It should be noted that one limitation of the study is the uncertainty that the responses we received represent viewpoints from all 50 states.)

This study indicated that there is a great degree of consistency with the data elements contained in MPIs. However, researchers found significant variability when looking at policy and procedures for maintaining the index. This is an area where HIM professionals should direct their efforts. Well-documented policies and procedures will promote clarity, consistency, and continuity of performance; provide information for training programs; establish standards and expectations against which performance can be monitored; and serve as source documents for inspection by accrediting and licensing agencies.[9]

As information technology and IDSs become mainstays in healthcare, the need to rely on a MPI becomes even more critical. This study provided baseline information on MPI current trends and practices that can be used for benchmarking purposes. It would be interesting to perform a follow-up study to monitor MPI practice changes. Further research could explore issues such as types of system-wide policies and procedures developed by HIM professionals in IDSs or what happens when two sites within an IDS report differently or have conflicting policies and procedures.

Both recent literature and vendor marketing information signal that outsourcing MPI functions may be growing more popular. Continued research in this area should provide more input to HIM professionals who continue to be challenged by increasing sizes of MPIs as well as benchmarking for accuracy rates. In addition, it is hoped that more development and consistency would be found in policy and procedure documentation for master patient indexes.

Notes

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