Developing Information Capture Tools (1997)

This practice brief has been retired. It is made available for historical purposes only.

Background

Civilization has progressed from using the horse and buggy for basic transportation to using the automobile—yet the wheel still is a basic component of automobiles. In the Information Age, paper is still a basic component of transactions, despite the progress made in computerizing information. Many visionaries believe that paper will never truly go away, that there will always be a need for it. The reality of health information management in 1997 is that we must learn to live with both the paper record and the electronic record.

Perhaps the best approach is to begin thinking in terms of data or information capture. Regardless of the medium employed, paper or electronic, the question should always be: What is the best means of efficiently capturing information? It is information—not paper forms and computer screen designs—that is the motivating factor behind practically every business transaction. The paper form and the computer screen are merely tools to control information processing within an enterprise.

Paper forms and computer screens control information systems by demanding and standardizing action, issuing instructions, standardizing vocabularies, fixing responsibilities, and improving communication. They both are an effective means of controlling data accuracy and quality in any information system.

Objectives of Information Capture Control

1. Maximize enterprise-wide efficiency through the effective design and construction of paper forms and computer screens
2. Establish and control standards for information content and vocabulary
3. Originate and maintain proper specifications for information capture and usage
4. Ensure consistent, accurate capture, storage, and usage of information
5. Streamline the information capture process by eliminating duplicate data entry, ensuring that information capture follows the flow of work, reducing key strokes, and ensuring that users have the information when they need it
6. Establish enterprise-wide guidelines and criteria for the development and revision of information capture tools

Structure of the Forms Committee

The traditional Forms Committee should be given a new charge of developing, reviewing, and controlling all enterprise-wide information capture tools. The committee should be composed of enterprise-wide information users and gatherers. Not every information user or gatherer needs to serve on the committee. Instead, individuals with immediate information capture needs should be invited guests of the committee on an as-needed basis.

Suggested Forms Committee Membership

The Forms Committee should include representatives of these departments:

- Health information management
- Medical staff
- Nursing staff
- Purchasing
- Information services
- Performance improvement

A forms vendor representative should also be included.

Both the purchasing and information services representatives have valuable expertise to contribute to the committee, and they play key roles as "gatekeepers" by preventing the creation of forms, computer screens, and/or data definitions that have not been screened and approved by the committee. The committee should be kept abreast of enterprise-wide activity. As programs, departments, and divisions are opened, closed, reorganized, or merged, the committee should consider the impact on information capture and take the necessary steps to ensure that the information needs of the enterprise are not compromised as a result.

Elements of Paper Form Design

These components should be considered when designing paper forms:

- A forms numbering system to provide a more positive form of identification than long form titles and to ease inventory control
- A revision date to allow for ease of tracking and purging of obsolete forms
- A forms titling system that is universally understood (avoid long complex titles, memory-jogging words, phrases, and initials [mnemonics])
- Facility name and logo on every page
- Patient identifying information including name, social security number, medical record number, billing number, physician name and number, date of birth, admission date, and room number. This information should appear on every page. Automating the posting of this information can save time and prevent errors
- A signature line should appear at the bottom of the report, and there should be no question about what has been authenticated. If initials are used, space should be provided to record the full name and title with corresponding initials, ensuring that each set of initials is identified
- Date and time of entry
- Data entry methodology should be considered if the information is to be keyed into a computer. The order of the form should mirror the data entry order, to allow an individual to enter the information in an orderly fashion. One approach to eliminating unnecessary data utilizes automated information collection systems. In this type of system, users customize the form design and access levels based on their needs. Each form designed is assigned a form ID. Once the form is completed, users performing data entry functions enter the form ID into the system. The software uses the form ID to identify the data elements on that particular form and create a customized data entry screen. This greatly increases data entry efficiency by eliminating unnecessary data elements and prompting for the data in the order in which it appears on the form. Forms produced and data entered in this manner would be especially useful in enterprises with a limited number of computer terminals
- Optical character reader codes and bar codes should be printed in the upper left-hand corner of the form if imaging the medical record is a possibility
- Size of the document will be an issue should the document need to be photocopied. The standard

- 8 1/2" X 11" is the best size for a document. Bi-fold and tri-fold documents are difficult to handle and copy in a closed chart
- With widespread use of photocopying, imaging, and faxing, the best form colors are black ink on white paper. If color coding is desired, a strip of color along one margin is the best option
- For documents that contain punched holes, allow at least a 3/4" margin. All other margins should be at least 3/8" wide
- Vertical and horizontal lines assist the user in completing and reviewing the form. Bold lines will draw the reader's eye to an important field. Provide enough space to complete the entry (e.g., 1/16" for typed letters and 1/3" high for handwritten). Titles for boxes and fields should be located in the top left-hand corner of the box or field
- Paper ranging from 20 to 24 pounds in weight is recommended for use in copiers, scanners, and fax machines
- The normal font size need not be limited to 12 points. But for legibility's sake, avoid use of type smaller than 9 points for lower-case letters and 10 points for upper-case letters

Elements of Computer View Design

Many of the issues related to paper forms design apply to computer view design. There are, however, a number of issues unique to computer view design.

Limit view and access. Users should be allowed to easily retrieve and enter information in the configuration they desire. Access levels should allow users to view only the information they are authorized to view. The system should allow the fields of information to be captured, arranged, and presented to the user in a useful manner.

Reduce the number of key strokes. Data dictionaries should be set up to allow the user to enter information using as few strokes as possible. The sequence of the computer fields should follow the flow of work for the task being performed. Pop-up menus should be used to remind users of data dictionary contents where required. Whenever possible, information should be entered only once and then shared by all appropriate users in the enterprise.

Determine the correct size of the document. Too much information will make the screen difficult to read; too little information on the screen may require the user to scroll through numerous screens for the required information. Typically computer users can view only one-third of a standard 8 1/2" X 11" page at one time. Correct formatting of the computer view is the solution.

Use eye-catching features of the computer. Color, different font sizes, bold and italic type, and flashing characters can enhance the communication of information to the user. However, use of these features should be kept to a minimum or their positive effect will be diminished.

Employ standardized vocabularies. Traditional health information systems allow for the use of numerous terms, abbreviations, mnemonics, and definitions. This wide variety of terms and definitions is a source of constant confusion and misinterpretation in an automated system. In order for all system users to communicate and interpret captured information to the maximum benefit of the patient and the healthcare enterprise, it is paramount that the enterprise adopt uniform vocabularies that are universally accepted and utilized.

Finally, take note of external standards. Automation of patient information will allow healthcare providers to easily share and compare health information with other providers only if external standards are employed when creating data dictionaries and standard vocabularies. Some standards to become familiar with include:

- **E1384 Standard Guide for Content and Structure for the Computer-based Patient Record.** Developed by ASTM (American Society for Testing and Materials) Subcommittee E31.19 on Vocabulary for Computer-based Patient Records Content and Structure. The guide has five major purposes:

    1. To identify the content and logical structure of the CPR
    2. To define the relationship of data coming from diverse source systems and data stored in the CPR

3. To accelerate the adoption of CPRs by providing a common vocabulary, perspective, and references for those developing, purchasing, and implementing CPR systems
4. To describe examples of a variety of views by which the logical data structure might be accessed/displayed in order to accomplish various functions
5. To relate the logical structure of the CPR to the essential documentation currently used in the healthcare delivery system within the US in order to promote consistency and efficient data transfer

To obtain a copy of E1384, call ASTM Customer Service at (610) 832-9585 or send e-mail to service@local.astm.org.

- **National Committee on Vital and Health Statistics on Core Health Data Elements.** The National Committee on Vital and Health Statistics (NCVHS) and the Department of Health and Human Services, which it advises, have initiated and completed the first iteration of a process to identify a set of core health data elements on persons and encounters or events that can serve multiple purposes and would benefit from standardization. The committee's goal has been to develop a set of data elements with agreed-upon standardized definitions that, when needed in a data collection effort, can be used to collect and produce standardized data. For more information, see the article "Toward Standardization of Health Information" in the February 1997 issue of the *Journal of AHIMA*.

- **Data Elements for Emergency Department Systems (DEEDS).** DEEDS is the result of a project sponsored by the Centers for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control. Key stakeholders, including AHIMA, worked closely with the CDC on this project. This data set recommends specifications for many of the observations, actions, instructions, and conclusions that are entered into emergency department records. DEEDS is intended for voluntary use by individuals and organizations responsible for maintaining or improving record systems in 24-hour, hospital-based emergency departments. Its purpose is not to establish an essential or minimum data set, but rather to establish greater uniformity among data elements that are chosen for use. To obtain a copy of DEEDS Release 1.0, contact the Division of Acute Care, Rehabilita-tion Research, and Disability Prevention at the National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, Atlanta, GA 30341-3724, or telephone (770) 488-4031.

- **Health Level Seven (HL7).** The role of HL7 is to develop standards to facilitate the electronic interchange of information on admissions, discharges, and transfers within medical institutions; financial transactions within institutions; orders; scheduling; and nursing management within institutions. Contact HL7 at 3300 Washtenaw Ave. #227, Ann Arbor, MI 48104-4250, telephone (313) 677-7777, e-mail hq@hl7.win.net.

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