Storage Media Profiles and Health Record Retention Practice Patterns in Acute Care Hospitals

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Abstract

This exploratory study examined the health record retention practices among health information management professionals in acute care general hospitals in the United States. A descriptive research design was used, and data were collected using a self-reporting survey. Respondents answered questions about the relationship between researcher-assigned storage media profiles (descriptions of the type or types of media on which facilities maintain health records); retention periods and factors affecting record retention periods; retention of secondary data; vendor usage; and continued reliance on paper in environments where electronic health records exist. Storage media profiles were found to be significantly related to facility operational and research needs and to the convenience of not purging records. These findings have implications for federal policy promoting the implementation of electronic health records by 2014.

Key Words

Record retention, media, paper records, imaged records, electronic records, hybrid records, Permanent record retention, nonpermanent record retention, secondary data, storage media profile, vendor.

Introduction and Purpose of the Study

Health record retention is intrinsic to the health information management (HIM) profession, and with it comes a number of challenges. Electronic health records (EHRs) or health records consisting, in part, of EHRs (hybrid health records) are increasingly present in myriad healthcare settings. With the ultimate goal of improving patient care and increasing the portability of health information, this evolution has been spurred by the federal government's widely publicized initiative to develop a functional model and standards for EHRs.[1, 2] As the development of EHRs continues, record retention will certainly remain central to the process.

This exploratory study provides empirical data that describe health record retention practices in acute care hospitals and establishes benchmarks for future record retention practices in light of the evolving EHR. This second part of a two-part study examines the relationship between researcher-assigned storage media profiles (descriptions of the type or types of media on which facilities maintain health records); retention periods and factors that influence record retention periods; retention of secondary data; vendor usage; and continued reliance on paper in environments where EHRs exist.

Background

The health record serves many diverse purposes in the daily operations of a healthcare organization. It allows a patient's healthcare providers to communicate with one another; provides a basis for planning a patient's course of treatment; documents the quality of care for review at a later time; provides a source of information for statistical, research, and educational functions; serves as evidence in legal proceedings; and establishes a basis for the billing process and the generation of financial reports.[3] HIM professionals have played an important role as decision makers in the construction of effective health record retention policies and schedules in order to fulfill these important purposes and to comply with other compelling obligations such as federal and state laws and Joint Commission accreditation requirements.[4-6] With the tremendous amount of attention that has been focused on healthcare fraud and abuse, HIM professionals have also been encouraged to consider the evidentiary value of the health record in fraud and abuse allegations and to establish retention periods that are sufficient to comply with the False Claims Act.[7, 8] These internal and external factors require the availability of a patient's health record for varying periods of time. Despite the importance of record retention and the availability of health record documentation, research has not previously been undertaken to evaluate the current status of health record retention practices in hospitals throughout the United States. This study was designed to assess record retention practices of a sample of hospitals.

Methods

A descriptive research design was used. The study population was all acute care general hospitals in the United States named by the American Hospital Association (AHA) to *Hospitals & Health Networks* magazine's July 2004 list of "100 most wired hospitals and health systems " (numbering 101 due to a tie), 25 "most wired small and rural" organizations, and 25 "most wireless" organizations.[9] Because approximately half of the organizations were multihospital systems, the three lists (referred to cumulatively as the "most wired") consisted of an estimated 700 individual facilities. A sample population of 250 hospitals, expected to be representative of the larger population, was randomly selected. To ensure uniformity outside of state laws and individual facility needs, each hospital met the criteria of providing acute medical/surgical services, having Joint Commission accreditation, and participating in Medicare.

A self-reporting survey instrument was used to collect data between August and October 2005 from HIM professionals at the randomly selected hospitals. It requested information about respondent and facility demographics and record retention policies, periods, and methods. The survey instrument also solicited information about the retention of secondary data and the use of health record vendors. Recipients were notified and reminded of the survey through two postcard mailers. The survey was mailed to all members of the sample population. Two follow-up mailings were sent to nonrespondents.

The survey instrument was divided into sections so respondents could answer questions specific to one or more of three media types (paper, imaged, electronic) used in their facilities. Imaged records were defined as those "converted to optical or other electronic images through the use of a document management/imaging system" and were distinguished from electronic records, which were defined as those "captured electronically at the point of care and maintained electronically (excluding imaged records)." Each respondent was then assigned a storage media profile, described in the Results section.

A limitation of this study was that it relied on self-reporting and, despite definitions provided, some degree of interpretation by respondents. A second limitation was that, because the study was designed to elicit responses regarding retention practices of technologically advanced hospitals, it may not be representative of the larger population.

Data analysis was conducted using SPSS version 14.0. Frequencies, percentages, means, and standard deviations were calculated to summarize responses by storage media profiles and to describe secondary data retention, vendor usage, and continued use of paper where EHRs exist. One-way analysis of variance (ANOVA) and Fisher's exact tests were performed to determine the significance of relationships between

storage media profiles and independent interval and categorical variables, respectively. For this study, significance was set at $p < .05$ for each test.

Results

Of the 250 surveys mailed, 84 completed surveys were returned for a 33.6 percent response rate. Thirty-nine states and the District of Columbia (DC) were represented in the sample population. Thirty-one states and DC were represented in the responses (80 percent). Responses (n = 31 states and DC) represented 62.7 percent of all 50 states and DC.

Among respondents, 73.5 percent (n = 61) held the Registered Health Information Administrator (RHIA) credential with or without another American Health Information Management Association (AHIMA) credential, and 25.3 percent (n = 21) held the Registered Health Information Technician (RHIT) credential with or without another AHIMA credential. The average number of years of professional HIM experience was 20.8 (standard deviation of 10.5), with responses ranging from 2 to 48 years. The most frequently occurring numbers of years of experience were 25 and 30 years, with eight respondents (9.8 percent) in each category. Respondents most frequently identified their facility types as "community" and "rural."

Storage Media Profiles: As described in the Methods section, the survey instrument was divided into sections so that respondents could answer questions specific to one or more of three media types (paper, imaged, electronic) on which records were retained in their facilities. Each respondent was then assigned a storage media profile based on the sections of the survey that were completed or were not completed. The storage media profile described the type or types of media on which the facility maintained its health records. Facilities (n = 84) were assigned the following storage media profiles, rank-ordered from highest to lowest frequency: paper, imaged, and electronic records (PI&E), 34.5 percent (n = 29); paper and electronic records (P&E), 31.0 percent (n = 26); paper and imaged records (P&I), 16.7 percent (n = 14); paper records only (P), 14.3 percent (n = 12); and imaged and electronic records (I&E), 3.6 percent (n = 3). There were no respondents in the categories of imaged only (I) or electronic only (E).

Analysis of Relationships between Storage Media Profile and Record Retention: Among all storage media profiles except P&E, the largest retention period category for adult health records (n = 81) was "permanent retention" (see Table 1). In the P&E group, the largest percentage (40 percent; n = 10) retained records 10–19 years. Among all storage media profiles except P&E, the largest retention period category for minors' health records (n = 80) was also "permanent retention" (see Table 2). In the P&E group, the largest percentage (42.3 percent; n = 11) retained records 20–29 years. There were no significant relationships between the number of years that adults' and minors' records were retained and storage media profiles (p = .240 and p = .237, respectively). Further, there was no significant relationship between the percentage of data that was outside HIM department control and storage media profiles (p = .335).

Storage media profiles were also compared on factors affecting record retention periods, presented to respondents as options on the survey instrument, to determine if record retention factors varied by storage media profile. A statistically significant relationship was found between a facility's storage media profile and the following retention factors: facility operational needs in general (p = .008), facility research needs (p = .010), and convenience of not purging (p = .033). The record retention factor of facility educational needs approached significance with a p-value of .054. Thus, it seems plausible to conclude that there is a significant relationship between storage media profile and that particular record retention factor. These results are outlined in Table 3. There were no significant relationships between either the level of HIM administration/oversight (p = .119) or the facility type (p = .495) and storage media profiles.

AHIMA Standards and State Law Data: As a matter of professional practice, AHIMA has established the following recommended retention standards: 10 years after the most recent encounter (adult health records); age of majority plus statute of limitations (minor health records); 10 years after infant reaches age of majority (fetal heart monitor records); 10 years (disease, operative, and physician indexes); five years (diagnostic images such as x-ray films); and permanently (master patient index; registers of births, deaths, and surgical procedures).[10]

Among the respondent states (*n* = 32), 11 states' laws required that adult records be retained 10 years (in most laws, since discharge or most recent care). Fifteen states' laws required a period of time less than the AHIMA-recommended 10 years. North Carolina required 11 years, and Massachusetts was the most restrictive with a 30-year requirement. The remaining four states deferred to statutes of limitations, AHA recommendations, and legal opinion or implied permanent retention. Seventeen states' laws addressed minors' records, with most specifying retention until the age of majority plus a specified number of years. State record retention laws of respondent states are outlined in Table 4.

Secondary Data: Respondents were asked to indicate the retention period and format of secondary data as identified by AHIMA.[11] Table 5 displays, for each secondary data type identified, the number of respondents that retained this type of data permanently versus those that retained it for a specified number of years. "Other response" indicated that the respondent was unsure of the retention period, the specific type of secondary data did not apply to the respondent's facility, or, in the case of fetal heart monitor records, the retention period was "until the age of majority" and a single numerical value could not be assigned.

Expanding upon the nonpermanent "Specified # of Years" column located in Table 5, Table 6 displays the mean, standard deviation, minimum number of years, and maximum number of years for those who cited a specific number of years that secondary data was retained. Data is not displayed for the Master Patient Index (MPI) because all but one respondent indicated that the MPI was retained permanently.

Table 7 delineates the media types on which secondary data were retained. Respondents checked all options that applied. Electronic storage of secondary data was the most prevalent overall; paper was the most prevalent for fetal heart monitor reports; and imaged—although least common overall—was the most frequent media type for diagnostic images/films. Further, facilities retained secondary data on more than one media type.

Vendor Usage: Inherent in the record retention process for facilities that maintain their records in document management systems (i.e., "imaged" records) or EHR systems is the selection and implementation of vendor products. Among the individuals who responded to a question about health record document management/imaging system vendors (*n* = 47), McKesson was the most widely used (*n* = 8, 17.0 percent). Also cited more than once were AMS (*n* = 4), Siemens (*n* = 3), and SoftMed (*n* = 3). The survey also asked respondents about EHR vendors. Of the 58 individuals who responded to this question, Meditech and Cerner were cited most often (*n* = 10, 17.2 percent, each), followed by McKesson (*n* = 8), IDX and internally developed (i.e., "home grown") systems (*n* = 6 each), and Siemens (*n* = 3).

Reliance on Paper in an Electronic Environment: Of particular interest was a determination of whether and to what extent facilities continued to rely on paper despite the implementation of EHRs. Of the 57 individuals who responded to a question that sought to obtain this information, 56.1 percent (*n* = 32) reported that electronic records were copied to paper. The responses of those who reported copying electronic records to paper were grouped into the following general themes: physician and staff preference, including unwillingness by some physicians to sign records electronically; legal reasons, including a definition of the paper record as the legal record and reluctance to declare the electronic record as the legal source of truth; centralization of paper documents in a permanent and organized manner where information could be found consistently; accessibility concerns associated with EHRs (e.g., not all systems interfaced presently, long-term electronic storage had not been established, and inability to depend on the vendor to maintain the legal record for a specified number of years into the future); and tradition.

In the case of paper records copied from electronic record systems, 41.4 percent (*n* = 12) of 29 respondents destroyed these, but 58.6 percent (*n* = 17) did not. Reasons mirrored those listed above but also included medical executive committee compulsion; savings on reprinting costs at a later time; and avoidance of costs associated with the destruction of paper.

Discussion/Conclusion

This study shows that, among hospitals in this study population, the majority of health records are hybrid. Paper continues to have a significant presence both in hybrid and paper-only records, existing as the only medium or as part of a hybrid storage media profile 96.5 percent of the time. As health records continue to migrate toward electronic media, the hybrid record remains a formidable presence and is likely to continue for the foreseeable future.

As reported in the first part of this study, respondents perceive that state record retention laws are the primary influence in determining record retention periods. However, data from the respondent states show that virtually none of the laws from those states require permanent retention. Nonetheless, both adult and minor health records are being retained permanently by the largest number of hospitals in all storage media profile categories except one. While the reasons for hospitals' perceptions that they are following state record retention laws when they actually are not is not known, one explanation may be that hospitals use state record retention laws as a starting point and proceed to go above and beyond based on other factors (the survey question regarding influences on record retention periods asked respondents to select all applicable influences).

A facility's storage media profile may affect whether a facility uses general operational needs as a record retention factor. The storage media profile may also impact whether a facility uses research needs and the convenience of not purging as record retention factors. These conclusions are based on the existence of statistically significant relationships. Additionally, the factor of facility educational needs approached significance.

A majority of respondents (greater than 75 percent) retain most types of secondary data permanently. Secondary data is retained on all three media types, although imaged records are used least frequently. Permanent retention occurs most frequently for the Master Patient Index and birth, death, and surgery registries, which are secondary data categories for which AHIMA recommends permanent retention. For secondary data that is not retained permanently, mean retention periods are highest for birth registries and fetal heart monitors and lowest for diagnostic images/films. In all secondary data categories for which AHIMA recommends finite retention periods, the mean retention period exceeded the minimum recommended time periods.

More than half of respondents copy electronic records to paper, indicating a continued reliance on paper despite migration to an EHR environment. In light of the president's vision for EHRs for Americans by the year 2014 and the establishment of the Office of the National Coordinator for Health Information Technology (ONC), barriers exist that may inhibit that ultimate goal. These barriers warrant further attention. Reasons for the persistence of copying centered around the themes of hospital and medical staff preference; reluctance to recognize the EHR as the legal record; centralization of paper records versus decentralization of EHRs; lack of vendor ability to guarantee access years into the future; and tradition. Until healthcare providers accept, become accustomed to, and rely on the data and authentication mechanisms contained within EHRs, and until the legal system fully accepts EHRs, EHR systems will indefinitely be encumbered by parallel paper records. Because the U.S. healthcare system is migrating toward electronic media, vendors must be able to guarantee usability and accessibility well into the future.

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Notes

1. eHealth Initiative. Available at www.ehealthinitiative.org.
2. U.S. Department of Health and Human Services, Office of the National Coordinator for Health Information Technology. "The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care." Washington, DC, July 21, 2004.
3. LaTour, Kathleen M., and Shirley Eichenwald-Maki (Editors). *Health Information Management: Concepts, Principles, and Practice,* 2nd ed. Chicago: American Health Information Management Association, 2006, p. 174.
4. Medicare Conditions of Participation, 42 CFR 482.24(b)(1).
5. See, e.g., Kansas Hospital Regs. 28-34-9(d)(1).
6. The Joint Commission requires generally that "the retention time of medical record information is determined by the hospital based on law or regulation, and on its use for patient care, treatment, and services, legal, research, operational purposes, and educational activities," thus deferring in part to other requirements discussed in this review. "Comprehensive Accreditation Manual for Hospitals: The Official Handbook." IM 6.10 (January 2006).
7. 31 USC sections 3729–3733.
8. Dougherty, Michelle. "On the Line: Professional Practice Solutions." *Journal of AHIMA* 74, no. 4 (2003): 54.
9. Solovy, Alden. "Most Wired 2004." *Hospitals & Health Networks*, July 2004: 40–50.
10. Fletcher, Donna M., and Harry B. Rhodes. "Retention of Health Information" (Updated). AHIMA Practice Brief, Web extra (June 2002).
11. Ibid.

Table 1

Record Retention Periods for Adult Records, by Media Profile

No. of Years (*n* = 81)	P	P&I	P&E	I&E	P,I&E
	n = 11 *f* (%)	*n* = 13 *f* (%)	*n* = 25 *f* (%)	*n* = 3 *f* (%)	*n* = 29 *f* (%)
Permanent retention	5 (45.5)	8 (61.5)	8 (32.0)	2 (66.7)	18 (62.1)
30–50 years	2 (18.2)	0 (0.0)	2 (8.0)	0 (0.0)	3 (10.3)
20–29 years	1 (9.1)	2 (15.4)	3 (12.0)	0 (0.0)	1 (3.4)
10–19 years	3 (27.3)	3 (23.1)	10 (40.0)	1 (33.3)	5 (17.2)
5–9 years	0 (0.0)	0 (0.0)	2 (8.0)	0 (0.0)	2 (6.9)
Less than 5 years	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Table 2

Record Retention Periods for Minor Records, by Media Profile

No. of Years (*n* = 80)	P	P&I	P&E	I&E	PI&E
	n = 10 *f* (%)	*n* = 12 *f* (%)	*n* = 26 *f* (%)	*n* = 3 *f* (%)	*n* = 29 *f* (%)
Permanent retention	6 (60.0)	8 (66.7)	8 (30.7)	2 (66.7)	18 (62.1)
30–50 years	0 (0.0)	0 (0.0)	2 (7.7)	0 (0.0)	2 (6.9)
20–29 years	3 (30.0)	4 (33.3)	11 (42.3)	0 (0.0)	6 (20.7)
10–19 years	0 (0.0)	0 (0.0)	2 (7.7)	1 (33.3)	3 (10.3)
Less than 5 years	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Specified years past majority	1 (10.0)	0 (0.0)	3 (11.5)	0 (0.0)	0 (0.0)

Table 3

Relationship between Storage Media Profile and Categorical Data Relating to Factors That Affect Record Retention (Fisher's exact test)

Record Retention Factors	*p*-value*
State record retention laws	.962
Other state laws	.745
Medicare Conditions of Participation	.150
Other federal laws	.914
Statutes of limitations	.687
Joint Commission and other accreditation standards	.769
AHIMA recommended retention standards	.935
Facility operational needs generally	.008
Facility research needs	.010
Facility educational needs	.054
Cost of retaining records	.558
More convenient not to purge	.033
Other needs or reasons	.879

*Significance attained at $p < .05$ level

Table 4

Respondent States and Corresponding State Record Retention Laws for Acute Care General Hospitals

State	# Responses/ State	State Record Retention Law
TX	8	10 years after last treatment (adults); 10 years after last treatment or at age 20 (minors)
NC	6	11 years after discharge (adults); at age 30 (minors)
AL	5	5 years
IL	5	In accordance with hospital policy based on American Hospital Association recommendations and legal opinion
MA	5	30 years after discharge or final treatment
PA	5	7 years after discharge (adults); until age of majority plus 7 years or as long as adults' records are maintained (minors)
UT	5	7 years after last date of patient care or 3 years after minor reaches age 18, whichever is first
WI	5	5 years after discharge
AR	3	10 years after discharge (adults); 2 years after age of majority (minors)
IN	3	7 years
OH	3	7 years or 6 years after fiscal audit (Title XIX records)
OK	3	5 years after last encounter or 3 years after patient death; 6 years (Medicaid records)
OR	3	10 years after last discharge
VA	3	5 years after discharge (adults); 5 years after age 18 (minors)
MS	2	7 years after death; 10 years (adults); period of minority plus 7 years (minors), but not to exceed 28 years
SC	2	10 years (adults); 1 year following majority (minors)
SD	2	10 years after late date of care (adults); age of majority plus 2 years or 10 years, whichever is longer (minors)
TN	2	10 years after discharge or death (adults); until majority plus 1 year or 10 years after discharge, whichever is longer (minors)
CA	1	7 years after discharge (adults) or 1 year after majority or at least 7 years (minors)
CO	1	10 years after most recent patient care (adults); age of majority plus 10 years (minors)
DC	1	10 years after patient discharge
FL	1	7 years after last entry
GA	1	6 years after discharge (adults); until age 27 (minors)
IA	1	In accordance with statute of limitations
MD	1	5 years after record is made (adults); age of majority plus 3 years or 5 years, whichever is later (minors)
MI	1	6 years (Medicaid)
MO	1	In accordance with statute of limitations (which is a maximum of 10 years)
NM	1	10 years after last discharge
ND	1	10 years after last treatment (adults); age 21 or 10 years after last treatment, whichever is later (minors)
RI	1	5 years after discharge (adults); 5 years after age 18 (minors)
WA	1	10 years after most recent discharge (adults); 3 years after age 18 or 10 years after most recent discharge, whichever is longer (minors)
WV	1	Period not stated; permanent retention implied

Source: Fletcher, Donna M., and Harry B. Rhodes. "Retention of Health Information" (Updated). AHIMA Practice Brief, Web extra (June 2002).

Table 5

Permanent v. Nonpermanent Retention of Secondary Data

		Retention Periods		
Secondary Data	# of Responses	Permanently	Specified # of Years	Other Response
		f (%)	*f* (%)	*f* (%)
Diagnostic images/films	64	15 (23.4)	45 (70.3)	4 (6.3)
Fetal heart monitors	74	36 (48.6)	30 (40.5)	8 (10.8)
Master patient index	73	72 (98.6)	1 (1.4)	0 (0.0)
Disease index	69	54 (78.3)	11 (15.9)	4 (5.8)
Operative index	70	55 (78.6)	12 (17.1)	3 (4.3)
Physician index	67	52 (77.6)	10 (14.9)	5 (7.5)
Register of births	71	60 (84.5)	3 (4.2)	8(11.3)
Register of deaths	67	58 (86.6)	5 (7.5)	4 (5.9)
Register of surgeries	68	58 (85.3)	5 (7.4)	5 (7.4)

Table 6

Retention Periods for Nonpermanent Retention of Secondary Data

Secondary Data	# of Respondents*	Mean Retention (Years)	SD	Retention Periods	
				Min. Years Retained	Max. Years Retained
Diagnostic images/films	45	7.1	2.74	2	13
Fetal heart monitors	30	21.6	8.70	9	50
Disease index	11	14.7	12.6	5	50
Operative index	12	14.1	12.4	4	50
Physician index	10	15.5	13.1	5	50
Register of births	3	23.3	23.1	10	50
Register of deaths	5	17.4	18.3	7	50
Register of surgeries	5	16.6	19.9	3	50

* Respondents who supplied a specified number of years that secondary data is retained

Table 7

Media Types: Secondary Data Retention

		Media Types Used					
		Paper		Imaged		Electronic	
Secondary Data	# of Responses	Y	%	Y	%	Y	%
Diagnostic images/films	60	25	41.7	22	36.7	31	51.7
Fetal heart monitors	67	52	77.6	8	11.9	22	32.8
Master patient index	73	24	32.9	6	8.2	60	82.2
Disease index	65	17	26.2	4	6.2	52	80.0
Operative index	66	20	30.3	4	6.0	51	77.3
Physician index	61	16	26.2	4	65.6	48	78.7
Register of births	65	30	46.2	4	6.2	42	64.6
Register of deaths	62	25	40.3	4	6.5	43	69.4
Register of surgeries	61	22	36.1	4	6.6	45	73.8