Practices and Productivity in Acute Care Facilities

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How does your HIM department measure up? A national benchmarking survey of acute care facilities will give you some answers. Take a look at your colleagues' practice patterns.

HIM professionals often are asked to provide information on how their department practices compare to those in similar organizations. The information requested concerns how tasks are performed, various quality measures, and productivity standards. Unfortunately, there is little data available in professional literature to answer these questions.

Benchmarking fills this need by determining what best practices are and how they are achieved. To be done well, investigation of best practices requires site visits and personal interviews. But because time and money often are not available to conduct such detailed assessments, members of the HIM and Systems Division of the Ohio State University Health Sciences Center, with the assistance of an AHIMA grant, conducted a survey to collect baseline information on HIM hospital department practices.

A descriptive research study was designed to obtain initial data on HIM practices in acute care facilities. The objectives of the survey were to:

- obtain descriptive information on HIM professionals working in acute care
- determine turnaround times for HIM department functions
- determine standard procedures for discharge analysis
- determine productivity standards for HIM department functions
- describe the extent to which electronic storage is used
- determine which department functions are outsourced
- determine the status of implementation of electronic signature, optical imaging, and universal chart order

We used the AHIMA membership list to identify HIM directors in acute care facilities. From this list, we randomly selected 1,000 practitioners to participate in the study. In January 1998, the survey was mailed to these practitioners and 200 useable surveys were returned.

Because only 20 percent of the surveys were returned, we assessed the validity of the conclusions drawn from survey results. One way to determine whether survey respondents match the underlying population parameters is to conduct a Chi Square Goodness of Fit Test, which compares how closely the observed values of a variable match the values derived from a theoretical distribution. A non-significant test result indicates that the respondent profile matches that of the population from which it was drawn.

This test was conducted on two variables—the respondent's hospital size and his or her credential (see table 1). The results were not statistically significant for hospital size, meaning that our sample matched the population on the hospital size variable. However, the result was statistically significant for the credential variable, indicating that the proportion of RHITs and RHIAs in the sample did not match the demographics of AHIMA membership. Therefore, results may be generalized only to practice patterns by hospital size and not by credential. Other limitations of this research include non-response bias and misinterpretation of survey questions.

table 1—chi square goodness of fit—hospital size and credential

	Hospital Size			Credential	
	< 200 Beds	200-399 Beds	400+ Beds	RHIT	RHIA
Observed %	65.8%	21.1%	4.6%	43.5%	56.5%
Expected %	74.1%	19.3%	6.6%	59.5%	39.0%
	X^2 = 1.704, df = 2, p > .05			X^2 =12.2, df = 1, p < .001	

Survey Respondents

Of the 200 useable surveys returned, 199 were from credentialed practitioners—86 RHITs (43.2 percent) and 113 RHIAs (56.8 percent). The percentage of respondents by hospital size and credential is presented in table 2. Results of chi square analysis indicated a statistically significant relationship between hospital size and credential, meaning that proportionately more RHITs than expected were practicing in hospitals with fewer than 200 beds and fewer RHITs than expected were practicing in hospitals with 400 or more beds.[1] The distribution of RHIA practitioners by hospital size did not deviate from the expected distribution.

table 2—respondents by credential and hospital size

Hospital Size	RHIT n = 86	RHIA n= 113	Total n = 199
< 200 Beds	82.6% (n = 71)	53.1% (n = 60)	65.8% (n = 131)
200 - 399 Beds	13.0% (n = 11)	27.4% (n = 31)	21.1% (n = 42)
400+ Beds	4.6% (n = 4)	19.5% (n = 22)	13.1 % (n = 26)

When comparing RHITs and RHIAs by number of years of experience, we found that the average number of years of experience for the total group was 16.9 years. With an average of 17.5 years, RHITs have slightly more years of experience than RHIAs, for which the average was 16.4 years. Results of chi square analysis revealed no statistically significant relationship between credential and years of experience among the respondents.[2]

However, when respondents were compared by credential and years in current position, chi square analysis resulted in a statistically significant relationship.[3] The average number of years in current position was 12.0 for RHITs and 7.9 years for RHIAs. For RHITs and RHIAs combined, the average was 9.7 years. Respondents by credential and years in current position are presented in table 3. Analysis of the x2 standardized residuals, which determines the factors that most influenced the chi square analysis, indicated that there were more RHITs than expected with 25 years or more experience in their current position; and, conversely, there were fewer RHIAs than expected with 25 years or more experience in their current position. Given the same level of experience, the results may be an indication that RHIAs more readily change positions than RHITs.

table 3—respondents by credential and years in current position

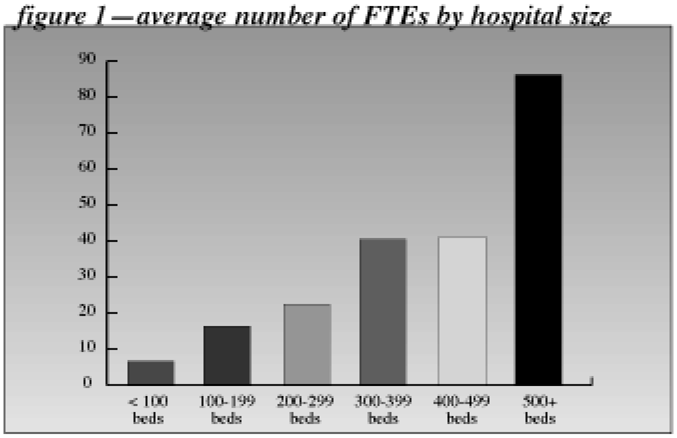
Years Experience	RHIT n = 86	RHIA n = 113	Total n = 199
≤ 5 years	26.7% (n = 23)	46.0% (n = 52)	37.7% (n = 75)
6 - 10 years	29.1% (n =25)	29.2% (n = 33)	29.1% (n = 58)
11 - 15 years	16.3% (n = 14)	14.2% (n = 16)	15.1% (n = 30)
16 - 20 years	7.0% (n = 6)	4.4% (n = 5)	5.5% (n = 11)
21 - 25 years	8.1% (n = 7)	4.4% (n = 5)	6.0% (n = 12)
> 25 years	12.8% (n = 11)	1.8% (n = 2)	6.5% (n = 13)

When compared by geographic location, more RHITs practiced in rural areas while more RHIAs practiced in urban/suburban areas. Results of chi square analysis were statistically significant, indicating that there is a relationship between certification and geographic location.[4] Analysis of x2 standardized residuals indicated that more RHITs and fewer RHIAs than expected work in rural areas.

Number of Full-time Employees

The average number of full-time employees (FTEs) by hospital size is displayed in Figure 1. The Pearson correlation coefficient between hospital size and number of FTEs was statistically significant, meaning that the two variables are related.[5] The average number of FTEs ranged from 6.67 for hospitals with fewer than 100 beds, to 86.15 in hospitals with 500 or more beds. The results of linear regression modeling indicated that 56 percent of the variation in FTEs is accounted for by hospital size.

figure 1—average number of FTEs by hospital size



Record Turnaround Time

We asked respondents how many days were required from the day of discharge to complete the traditional discharge analysis activities. The overall means for each activity are reported in Table 4. At 21.9 days, assembly had the shortest turnaround time (TAT), while coding had the longest TAT at 5.5 days, suggesting that more complex tasks lead to longer TATs. The shortest turnaround time for coding was 3.78 days in hospitals with 400-499 beds; the longest turnaround time was 6.51 days in 200-299 bed hospitals. The mean TAT for each activity steadily increased with hospital size. The average completion time for release of information (ROI) activities varied by hospital size with the exception of information released to insurance companies. In general, the average completion time for each activity increased with hospital size. The average number of days turnaround time for ROI activities is displayed in table 5.

table 4—average completion time, in days, for discharge processing activities

Activity	Mean	S.D.	Range of Means	F	p
Assembly	2.19	2.44	1.89 - 2.50	.38	.86
Analysis	3.50	4.29	2.26 - 5.74	2.97	.01
Coding	5.50	7.10	3.78 - 6.51	.617	.68
Billing	5.34	4.41	3.91 - 6.67	.88	.50

table 5—mean turnaround time, in days, for ROI activities

Release of Information to:	N	Mean	S.D.	Range of Means	F	p
Patients	195	4.01	4.27	3.18 - 7.59	3.84	.002
Physicians	192	2.96	4.01	2.30 - 6.44	3.32	.007
Other Providers	193	3.57	4.49	2.68 - 8.06	4.75	<.001
Government	193	6.27	4.73	5.54 - 9.82	2.47	.034
Attorneys	194	7.62	6.61	6.87 - 11.94	2.32	.044
Insurance	191	7.26	5.76	6.60 - 8.91	1.58	.169

Regarding days spent in accounts receivable, respondents indicated that the smallest average number of days records spent in accounts receivable was 29, in hospitals with 400-499 beds, whereas the greatest average number of days was 43, in hospitals with fewer than 100 beds. The average number of days in accounts receivable by hospital size is reported in table 6.

table 6—average number of days in A/R by hospital size

Hospital Size	N	Mean	S.D.	Range
< 100 beds	56	42.64	32.06	0.00 - 120.00
100-199 beds	38	42.56	29.55	1.00 - 9.00
200 - 299 beds	17	40.44	31.60	3.00 - 120.00
300 - 399 beds	11	36.86	27.09	5.00 - 72.00
400- 499 beds	7	28.83	32.13	4.50 - 75.00
500+ beds	14	35.01	36.23	3.00 - 107.00
Total	143	40.49	31.10	

Discharge Analysis Procedures

Because there has been much discussion on discharge analysis procedures in various HIM publications as well as on the Internet, we investigated the extent to which participants engaged in the historical discharge analysis activities, such as checking the presence of reports and signatures in the medical record. With continuing economic pressures and corresponding downsizing prevalent in the healthcare industry, we expected that these activities would be on the decline. Instead, discharge analysis procedures appear to be similar across hospitals, regardless of size. However, fewer larger hospitals review histories, physicals, and physician orders for signatures than the small- or medium-size hospitals. The percentage of respondents indicating continued practice of the traditional discharge analysis procedures is presented by hospital size in table 7.

These results are similar to those found in the special report "Where Do You Stand? A Collection of MRB Benchmarking Articles" published by *Medical Records Briefing* (MRB) in July 1998. MRB's benchmarking studies addressed many of the same issues that our survey explored. However, the results differ in one respect: MRB's findings indicated that 69 to 72 percent of the larger hospitals concerned themselves with flagging deficiencies for physician orders compared to the 48 percent in this study.

table 7—discharge analysis procedures by hospital size

Activity	< 200 Beds (n = 131)	200 - 399 Beds (n = 42)	400+ Beds (n = 27)	Total (n = 200)
H & P Present	97.7%	95.2%	88.8%	96.0%
H & P Signed	97.7%	95.2%	88.8%	96.0%
Disch. Sum. Present	97.7%	100.0%	100.0%	98.5%
Disch. Sum. Signed	97.7%	95.2%	96.3%	97.0%
OP Report Present	91.7%	92.9%	96.3%	92.5%
OP Report Signed	91.7%	90.4%	96.3%	92.0%
Orders Signed	93.1%	71.4%	48.1%	82.5%
V.O. Signed	93.1%	73.8%	48.1%	83.0%
Nurse Notes Signed	46.5%	11.9%	11.1%	34.5%
Standard Terminology	72.5%	31.0%	44.4%	60.0%

Inpatient Coding Productivity

Next, we examined the productivity standards for various HIM department tasks. Daily production standards, per FTE, for inpatient coding are presented in Table 8. Analysis of variance revealed a statistically significant difference in coding productivity standards by hospital size.[6] Average daily productivity standards ranged from 12.67 charts per day for hospitals with fewer than 100 beds to 25.29 charts per day for hospitals with 400-499 beds. The daily productivity in hospitals with fewer than 100 beds is more likely a reflection of the amount of work available rather than a standard productivity rate.

table 8—average daily inpatient coding productivity and use of encoders by hospital size

Hospital Size	N	Mean	S.D.	N	% Using Encoders
< 100 Beds	55	12.67	12.09	81	45.7%
100 - 199 Beds	41	21.30	11.97	50	70.0%
200 - 299 Beds	21	25.86	15.62	24	75.0%
300 - 399 Beds	17	24.11	8.22	18	67.0%
400 - 499 Beds	7	25.29	5.94	9	77.8%
500+ Beds	18	24.39	6.80	18	94.0%
Total	159	19.74	12.62	200	63.0%

The results of the coding productivity analysis are encouraging because there is little difference in productivity standards for hospitals ranging from 200 to 499 beds. For these three groups, the mean ranges from 24.11 to 25.86. In fact, the differences in the observed means for these three groups were not statistically significant.

The data from this study were collapsed in order to make comparisons with benchmarking data collected by MRB. Because the productivity data collected by MRB is stated in terms of records coded per hour, the daily averages obtained in this study were divided by 7.5 hours. The 7.5 hour figure was used instead of 8 hours because we assumed that 30 minutes per day were lost to "break" time. The comparisons are displayed in table 9.

table 9—hourly coding productivity

Hospital Size	Productivity/This Study	Productivity/MRB
Small	2.26	5.3
Medium	3.33	5
Large	3.00	4

Obviously, the results from the two studies do not agree: the respondents in the MRB study appear to be more productive. However, data collected by MRB is entirely voluntary, meaning that data are obtained strictly by asking people to respond to postcards included in the MRB newsletter—no research design—or sampling techniques are used. A major problem with self-reported data is that bias is introduced into the results. This latter point is also a limitation of self-reported surveys. Given these limitations, the results should be used with caution.

Respondents also were asked to indicate whether encoders were available for employees to use while coding (Table 8). The results indicate that encoders are more prevalent in larger hospitals. Chi square analysis revealed a statistically significant association between hospital size and use of encoders.[7] Analysis of c2 standardized residuals confirmed that hospitals with fewer than 100 beds had fewer encoders than expected.

These results are similar to those reported by MRB, which found that 50 percent of the respondents used encoders and another 27 percent of the respondents used books and encoders in tandem. However, MRB did not break down results by hospital size. Overall, 77 percent of MRB respondents used encoders, compared to 63 percent in this study.

Assembly, Analysis, and Electronic Storage

The average daily productivity standards for assembly and analysis, per FTE, by hospital size, are presented in table 10. As with coding, productivity standards increase with the size of the facility. Respondents in smaller hospitals indicated that daily productivity matched the number of daily discharges. Results of analysis of variance revealed a statistically significant difference in the average daily productivity for assembly by hospital size and for discharge analysis. [8,9]

table 10—assembly and analysis productivity standards by hospital size

	Assembly			Analysis		
Hospital Size	**N**	**Mean**	**S.D.**	**N**	**Mean**	**S.D.**
< 100 Beds	57	8.73	7.51	56	9.25	7.53
100 - 199 Beds	44	21.43	8.65	43	22.88	11.67
200 - 299 Beds	22	35.60	16.34	22	32.55	19.64
300 - 399 Beds	17	31.17	15.82	17	38.24	21.58
400 - 499 Beds	6	43.33	17.22	8	40.88	34.19
500 + Beds	11	50.72	37.54	14	49.21	35.34
Total	157	22.75	19.42	160	24.28	22.04

Survey results revealed that HIM directors in larger hospitals used electronic storage for reports more than practitioners in smaller hospitals. However, only the results for laboratory, pathology, radiology and OP reports have a statistically significant association with hospital size. The percentage of hospitals using electronic storage for history and physical exams, discharge summaries, and emergency reports matches the hospital size demographics (table 11).

table 11—percentage of hospitals using electronic storage by hospital size

Record	< 200 Beds n = 131	200 - 399 Beds n = 42	400+ Beds n = 27	Total N = 200	X^2	p
History & Physical	29.0%	57.1%	55.5%	38.5%	5.94	.31
Discharge Summary	30.5%	61.9%	74.1%	43.0%	8.15	.15
Emergency Reports	13.0%	28.6%	51.9%	21.5%	9.27	.10
Laboratory Reports	35.9%	73.8%	70.4%	36.0%	25.05	<.001
Pathology Reports	22.1%	57.1%	70.4%	36.0%	20.71	<.001
Radiology	27.5%	73.8%	85.2%	45.0%	27.08	<.001
OP Reports	11.5%	35.7%	51.9%	22.0%	18.82	.002

Outsourcing

Which activities do HIM departments outsource? Transcription and ROI were most commonly outsourced by HIM department directors. Although there is not a statistically significant relationship between outsourcing and hospital size, it appears that transcription outsourcing increases with the size of the hospital. For example, 18.3 percent of the hospitals with less than 200 beds, 28.6 percent of the hospitals with 200-399 beds, and 51.9 percent of the hospitals with 400 or more beds outsourced transcription.

In the mid-size category, 47.6 percent of hospitals outsource ROI. The percentages for small and large hospitals were similar: 19.1 percent and 18.5 percent, respectively.

MRB reported that 24 percent of its respondents entirely outsourced transcription and 54 percent partially outsourced this service. This latter figure is greater than what was found in this study. But MRB also found that outsourcing transcription is more prevalent in large hospitals than in small.

Electronic Signature, Optical Imaging, and Universal Chart Order

Our survey examined the implementation timeline for use of electronic signature, optical imaging, and/or universal chart order in their facilities. Of the three, implementation of universal chart order ranked highest in terms of positive responses (32 percent). Only 15 percent of the HIM directors indicated that they had implemented electronic signature, and 8 percent indicated that they had implemented optical imaging. RHIAs tended to indicate that they had implemented these practices more often than RHITs, although chi square analysis did not reveal a significant relationship between credential and implementation of these activities.

Further Exploration

Because we received only 200 viable survey responses, the results should be viewed with caution. Further, the study consists of self-reported data, so bias may be a further limitation of the study.

The results of the study indicate that there is some variation in practice patterns across hospitals by size. Processing time for discharge analysis activities and ROI tend to increase as the size of the hospital increases, and there appears to be an inverse relationship between the number of days in accounts receivable and hospital size. In addition, productivity standards for assembly and discharge analyses differed significantly according to hospital size.

Several factors may account for differences in productivity standards. First, directors of smaller hospitals may have been reporting productivity in terms of daily work available for processing rather than a daily productivity standard. Or variation in productivity could be due to the type of procedures in place in specific hospitals, because more complex procedures require greater completion times per unit of work.

Research should be conducted to determine the reasons for the variation in productivity in the areas of assembly, analysis, and coding. Are these actual differences or is there some other complicating factor at work that needs to be identified? Productivity rates should based on what an average person can reasonably produce in a given time period—not the amount of work that "needs" to be completed. Once a standard productivity rate is developed, this is applied to workload to determine the appropriate staffing levels needed to accomplish the task. For example, if an HIM professional can code 25 charts per day, and daily discharges equals 75, over an eight-hour day, three FTEs are required to accomplish the task (not accounting for personal time, fatigue and delay).

Complexity of work may also vary across hospital size. Medical records in larger hospitals may be more complex because many are teaching hospitals. With ongoing data collection, a profile of professional practice by hospital size could be developed.

The results also indicate that changes in practice patterns do not occur quickly. This might indicate that professionals weigh the options carefully before making a change or that the profession is not responsive to new ideas. One of the questions in the survey was directed toward change in discharge processing activities. The results indicated that traditional practices have not changed in the past 30 years. This prompts us to ask:

- Do we not make changes because it is easier not to, or do we fail to question the value of the activity?
- Is the task of reviewing medical records post-patient discharge for signatures, etc., a value-added activity? In a court of law, one may have difficulty making the case that all documentation was done at the time of the event if hospital procedures allow signatures on notes and orders post-discharge.

It is clear that more data needs to be collected, and the data collection should be ongoing so that a clearer picture of practice patterns can be obtained. As part of the data collection, efforts should be made to also investigate the types of processes that are being performed and how they relate to success. The collection of data to improve our practice patterns can only help us be the best providers of clinical information.

Notes

1. $x2 = 19.62$, $df = 2$, $p < .001$
2. $x2 = 5.1$, $df = 5$, $p > .05$
3. $x2 = 15.74$, $df = 5$, $p < .01$
4. $x2 = 19.63$, $df = 1$, $p < .001$
5. $r = .75$, $p < .001$
6. $F = 6.79$, $df = 5, 153$, $p < .001$
7. $x2 = 24.41$, $df = 10$, $p = .007$
8. $F = 26.1$, $df = 5, 151$, $p < .001$
9. $F = 17.69$, $df = 5, 154$, $p < .001$

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