

A Survey of Resident Attitudes on Billing and Coding Education: An Assessment by Pediatric Training Year and Career Plans

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Abstract

Introduction. Billing and coding (B&C) are important aspects of medical practice that many feel are taught inadequately during residency. In addressing this deficiency, residency programs must determine when and how to teach B&C. Some programs teach through informal methods or direct their education only towards senior residents and/or certain career paths. Is this approach ideal? This study evaluated pediatric resident attitudes towards formal B&C education, by post graduate year (PGY), and career plans.

Methods. A survey was distributed to residents before and after implementation of a novel, formal curriculum teaching B&C. General linear models were calculated to look at differences over time of all residents and by PGY levels and future career plans.

Results. Among all residents, there was no change in the highly positive attitudes towards Learning is Important, Valuable Use of Time, or Want a Formal Curriculum. Perceived Knowledge increased significantly and Need to Know More decreased significantly. There were no differences between PGY levels or career plans with all years valuing and wanting education. PGY-3s scored higher than PGY-1s and PGY-2s with Perceived Knowledge.

Conclusion. This study demonstrated a strong, equal amount of interest in the formal education of B&C across all residents, regardless of training year and/or career plans. Pediatric residencies should consider implementing formal education on B&C to all residents. Pediatric resident attitudes towards billing and coding education can be used to guide the curriculum.

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Introduction

Billing and coding is a complicated, but essential aspect of medical practice that affects the ability of every provider and institution to deliver care within legal, financial, and ethical bounds. First established in 1992, then heavily revised in 1995 and again in 1997/1998, the Physicians' Current Procedural and Terminology billing and coding rules established by the American Medical Association are confusing, unintuitive, often changing, and open for interpretation.¹⁻⁵ Many physicians have difficulty mastering this critical skill possibly due to inadequate

education during residency training.⁶ The Pediatric Residency Review Committee (RRC) understands the need to educate and has made Practice Management, under which B&C is classified, a requirement in training programs since 1999.⁷ However, the specifications are not defined clearly and training varies from program to program.

A review of the literature showed a desire and need from residents to learn more about B&C across multiple specialties.⁸⁻¹⁴ These studies, mostly surveys, highlighted the lack of training in their respective programs while underscoring the desire for a

more involved curriculum. Among the studies that assessed satisfaction with B&C education, only two assessed their residents' or graduates' competencies.^{15,16} Complicating the issue, there was a disagreement among Graduate Medical Education administrators centering on whether residencies should dedicate precious time towards a B&C curriculum or whether there were more valuable aspects of medicine to learn, especially within the restrictions of an 80-hour work week.^{17,18} Moreover, does B&C education need to be completed through formal didactics, or can informal teaching points be adequate? Because the RRC mandates practice management education in some form, some programs direct their B&C education only towards senior residents and/or certain career paths. But is this practice progressive or detrimental, and is it in accordance with what residents want?

To answer these questions about whether B&C should be taught to all residents, regardless of training year or career plan, and how it should be taught, the study purpose was to assess the attitudes towards B&C of pediatric residents by their post graduate year (PGY) and their career plans, in the setting of a new, formal B&C curriculum. We hypothesized that the majority of our residents possessed a favorable attitude towards the education of B&C, with PGY-3s and those going into private practice being most interested.

Methods

This study was approved by the hospital's Institutional Review Board. A waiver of documentation of consent was obtained. All pediatric residents were informed verbally, and in writing, that their participation within the study was voluntary. Assurance was given that their performance evaluations would not be affected by this study in any way.

The study was conducted during the academic year of July 2009 - June 2010. Residents completed an attitudes survey pre- and post-implementation of a new curriculum teaching the basics of B&C. The curriculum was given during resident clinics as a five-lecture series. The first two lectures, covering the basic skills of assigning the proper Physicians' Current Procedural Terminology Evaluation and Management code, were given in September. The curriculum included the provision of a simplified reference sheet, created by an investigator and approved by the institution's auditors, highlighting the basic principles of B&C. The last three lectures, given monthly in January, February, and March, focused on case examples and reinforcement of what was taught initially in September.

The survey (sample questions in Table 1) was designed to assess resident attitudes in four general areas: the importance of B&C, their perceived current knowledge of it, their desire to learn more, and their desire for a formal curriculum. The questions were scored on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Written at a 6th grade level, the questions were created by general pediatric faculty from the suggestions of former residents. Three attending physicians piloted the survey to assess readability and clarity before its distribution. The survey also requested the participant's PGY and future career plans immediately post-graduation: Academic Medicine (plans to join the teaching faculty of a medical school), Fellowship (plans to pursue subspecialty training), Private Practice, and Unknown.

Statistical analysis was performed using SAS (version 9.2 March 2008, SAS Institute Inc, Cary, NC). Means for each question were reported. General Linear Models were constructed to examine differences in the

means for each question pre- and post-curriculum by all residents, each PGY level, and each career plan group. Pair-wise comparisons of the least square means were used to examine the averaged pre- and post-results between each PGY level and career plan groups. Statistical significance was set

at 0.05. Data were analyzed on an aggregate basis because of the interest in attitudes by PGY and career plans, rather than on an individual basis. Furthermore, because data were analyzed in this method, it was not necessary to ensure that the same residents completed both pre- and post-surveys.

Table 1. Sample questions on the Attitude and Perceived Knowledge survey.

Sample Questions	Label for Figures
Learning to properly code and bill is important in my career.	Learning is Important
Learning to code and bill is a valuable use of my time.	Valuable Use of Time
I have a good sense on how to properly code and bill.	Perceived Knowledge
I need to learn more on how to properly code and bill.	Need to Know More
The residency program should have a formal curriculum on coding and billing.	Want a Formal Curriculum

Results

Sixty-five residents were eligible to participate in the study. Forty residents completed the pre-curriculum survey (61% completion rate) and 45 completed the post curriculum survey (69% completion rate). Because some residents were on night float, vacation, or rotated to an outside continuity

clinic, not all residents could complete both surveys and/or attend all five lectures. The average lecture completion rate was 3.2 lectures (+/- 1.2 lectures). There were no significant differences among the composition of PGY level or career plan groups (Table 2).

Table 2. Characteristics of resident participants.

	Pre-Survey (n = 40)	Post-Survey (n = 41)	p Value
Post Graduate Year (PGY)			
PGY-1	12 (30%)	14 (34%)	0.854
PGY-2	16 (40%)	14 (34%)	
PGY-3	12 (30%)	13 (32%)	
Future Plans			
Academic	6 (15%)	5 (12%)	0.565
Fellowship	14 (35%)	17 (42%)	
Private Practice	12 (30%)	15 (37%)	
Undecided	8 (20%)	4 (10%)	

Aggregate analysis of all residents demonstrated no significant change over time in the values seen for the questions of

Learning is Important, 4.8 to 4.9 (p = .367), Valuable Use of Time, 4.7 to 4.7 (p = .606), or Want a Formal Curriculum, 4.5 to 4.5 (p

= .596). A significant increase was demonstrated in Perceived Knowledge from a mean of 2.1 to 3.3 ($p < .001$) and a significant decrease was seen in Need to Know More from a mean of 4.9 to 4.6 ($p < .003$).

Analysis by each PGY demonstrated no significant differences for Learning is Im-

portant, Valuable Use of Time, Want a Formal Curriculum, or Need to Know More. However for Perceived Knowledge, a significant increase was seen over time in the means for PGY-1: from 1.7 to 3 ($p < .001$); PGY-2: from 2.2 to 3 ($p < 0.001$); and PGY-3: from 2.4 to 3.9 ($p < .001$; Figure 1).

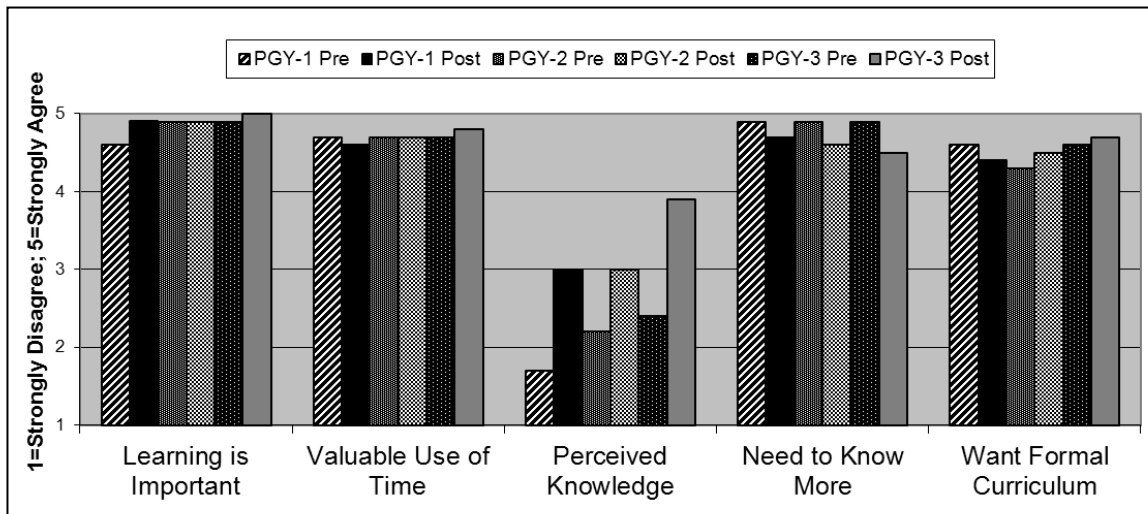


Figure 1. Survey results by post graduate year (PGY). Perceived Knowledge showed significant change.

A significant difference was found for Perceived Knowledge when comparing between PGY ($p < .001$). Using pair-wise comparisons of the least square means, the averaged pre- and post-results of each year showed PGY-3 scored significantly higher than PGY-1 and PGY-2 ($p < .001$ and $p = .005$, respectively). However, PGY-1 and PGY-2 were not significantly different from each other. The remaining questions showed no significant differences between PGY.

Analysis by each career plan demonstrated similar results with no significant differences found for Learning is Important, Valuable Use of Time, Want a Formal Curriculum, or Need to Know More. Perceived Knowledge showed significant increases over time for those entering

Fellowship: from 2.3 to 3.5 ($p < .001$); Private Practice: from 1.8 to 3.1 ($p < .001$); and Undecided: from 2 to 2.8 ($p = .04$). Academic Medicine did not increase significantly over time: from 2.5 to 3.4 ($p = .12$; Figure 2).

A significant difference was found for Perceived Knowledge when comparing between career plans ($p = .034$). Pair-wise comparisons of the least squared means showed that residents planning on entering Academic Medicine and those planning on Fellowship reported significantly higher values than those entering Private Practice ($p = .042$ and $p = .018$, respectively). No other questions showed significant differences between career plan groups.

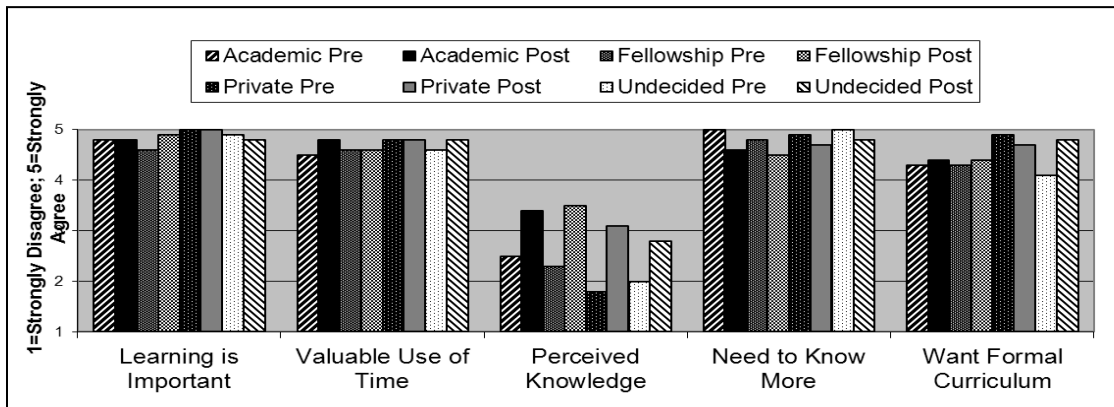


Figure 2. Survey results by career plans. Only Academic Medicine showed no significant change in Perceived Knowledge.

Discussion

This study demonstrated a strong, equal amount of interest in the formal education of B&C across residents, regardless of training year and/or career plans. These findings are contrary to our initial hypothesis that PGY-3s and those residents entering private practice would be most interested. Additionally, the results answered the debate about whether residency is an optimal time to teach B&C by demonstrating that all residents regard B&C as an important, valuable skill to learn. Residents' strong preferences for a formal curriculum suggested the answer of how to teach.

The pre- and post-surveys had a significant time interval between them, possibly leading to the confounding factor of resident attitudes improving because of work experience and not just from our curriculum. However, we believed time did not contribute to the measured change because residents did not receive any other training in B&C or submit their own bills.

Despite our curriculum's success with significant increases among all residents in Perceived Knowledge and significant decreases in Need to Know More, post-curriculum results were still low with Perceived Knowledge and high with Need to Know More. These results underscored a desire and understanding that there is more

to learn beyond the basics provided. This study can influence curriculum development by directing education to all residents, not just to those nearing graduation or planning for private practice.

Limitations to this study included its small sample size, which may have contributed to the statistical change seen when the question Need to Know More was analyzed by all residents, but not seen when analyzed by PGY or career plans. Also, the study was institution-specific, involved only pediatric residents, and spanned only one year. Lastly, some researchers may have preferred a pre- and post-paired response approach over the aggregate analysis we performed. Despite these limitations, we recommend that pediatric residencies institute a formal curriculum teaching proper B&C to all residents, regardless of PGY or career plans.

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