Reines A, Rivera C, Habibnejad S, Goldszer R, Cubeddu L.X and Weinberg G.
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Improving the Quality of Resident Physicians' Chart Recording

Ariel Reines, Cynthia Rivera, Samira Habibnejad, Robert Goldszer, Luigi X Cubeddu and Gloria Weinberg

Corresponding author: Ariel Reines arielreines@mac.com

Department: Mount Sinai Medical Center, Primary Care Center, Lowenstein Bldg, 4300 Alton Road, Miami Beach, FL, 33140

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Abstract

Purpose: A Quality Improvement (QI) outcome project was designed to evaluate and improve resident physicians' performance in the competency category of patient care.
Methods: The quality and completeness of the outpatient patient charts of 29 residents were assessed before and after an intervention, during an academic year. Chart deficiencies were identified and residents were counseled on how to improve and correct specific deficiencies. All key health maintenance aspects, progress notes and diagnostics were quantified before and after the intervention.
Results: For all of the residents combined, the intervention produced statistically significant improvements in the documentation of allergies, problem list, living will, vaccinations and progress notes. There were no significant differences in pre and post-intervention values for health maintenance, gender health, vaccination, and progress notes between the PGY-1, PGY-2 and PGY-3 group of residents. Post-intervention values for completion of living will and surrogate forms increased significantly for the PGY-1 and PGY-2 groups (P=0.002), but not in the PGY-3 group of residents.
Conclusions: Early assessment of resident physicians' chart recording deficiencies followed by one-on one attending-resident intervention significantly improved the quality of chart recording. A smaller improvement of the PGY-3 than of the PGY-1 and PGY-2 residents may have resulted from a combination of higher baseline values and a decreased willingness to change ingrained habits at their later stage in training. We recommend that training programs incorporate similar methods into their teaching and QI programs beginning in the PGY-1 year.

Keywords: Assessment, quality improvement and competency.

Article

Background

In the late 1980s, the quality improvement (QI) movement emerged in healthcare as a new model for improving the quality of health care (O'Leary et al 1992). While this model took hold on a national level

throughout hospital administrations, residency programs remained largely separate from QI activities (Ashton 1993) until 1998 when the Accreditation Council for Graduate Medical Education (ACGME) launched an initiative called the Outcome Project. This general competency and outcome initiative requires that graduate medical education programs in the United States foster the development of resident physician competencies in six domains and collect performance data that reliably and accurately depict residents' ability to care for patients and work effectively in healthcare delivery systems (Swing 2007). It is in the interests of the resident physicians, the patients and the hospitals that effective QI projects be implemented (Welch et al. 2006). Residency programs have the unique opportunity to significantly contribute to improving patient safety and health care outcomes by training residents in the methodology of patient safety and QI. The ACGME Next Accreditation System (NAS) emphasizes education of trainees and their involvement in patient safety and quality improvement projects.

Here, we describe a QI outcome project conducted by the Internal Medicine Department at Mount Sinai Medical Center designed to evaluate and improve resident physicians' performance in the ACGME competency category of patient care. Our hypothesis was that early assessments of residents' chart quality and completeness would identify specific deficiencies that may be corrected by a one-on-one resident-attending intervention. Additionally, we also proposed that both baseline competencies and response to intervention may vary between first, second and third year residents.

Methods

Our QI outcome project evaluated 29 internal medicine residents' charting proficiency over the 2011 to 2012 academic year in the outpatient setting. Three randomly selected patient charts were reviewed for each resident during the first half of the academic year. Midway through the academic year, the results of each resident's evaluations were shared with that resident during a meeting with the program director and a faculty mentor. Every resident was counseled in their charting deficiencies and given advice on how to improve their performance. After the midyear intervention, evaluators reviewed three additional outpatient charts for each resident in the same manner. These results were compared to the pre-intervention results. Ten PGY-1, ten PGY-2 and nine PGY-3 residents were evaluated.

Charts were selected randomly from the roster of patients under a particular resident's care from the Outpatient Department Clinic. Medical record numbers were used as the identifying data for the patients. The evaluators consisted of faculty members who were not involved in the care of the selected patients. Faculty evaluators were randomly assigned to complete a "yes/no" questionnaire designed to evaluate the quality and completeness of the residents' chart documentation and patient care. The outpatient chart assessment instrument (Table 1) reviewed the documentation of all key health maintenance aspects including: alcohol screening, depression screening, colorectal cancer screening, and breast cancer screening to name a few. It also included the completeness of the progress notes and diagnostic studies, among others (Table 1).

Table 1. Assessment Instrument: Outpatient Department Patient Chart Review Forms

OUTPATIENT DEPARTMENT
PATIENT CHART REVIEW

RESIDENT:_____ **PGY:**____

** Include dates to ensure compliance with USPSTF recommendations
** Write N/A when criteria do not apply (e.g., AAA screening not needed in 67 year old man who never smoked)
** Use second page (back of form) for comments (e.g., patient refuses, S/P TAH, etc.)

	PT NAME: PT age/ gender PT NO:			
REVIEWER				
DATE				
	YES	NO	NA	COMMENTS
Allergies noted on front of chart				
Problem List – Complete and Updated				
Health Maintenance – **INCLUDE DATES DONE**				
ALL PATIENTS				
Alcohol misuse screening and counseling				
Colorectal cancer screening (indicate which)				
FOBT				
Colonoscopy				
Depression				
Diabetes screening				
Diet/behavioral counseling				
HIV screening				
Lipids				
Obesity – BMI/diet counseling				
STDs - counseling				
Tobacco use				
MEN				
Abdominal aortic aneurysm screening				
PSA				
Rectal				
WOMEN				
Breast exam				
Cervical cancer screening (PAP)				
Chlamydia screening				
Gonorrhea screening				
Mammogram				
Osteoporosis screening				
Vaccines (as indicated)				
TDaP				
Influenza				
Pneumococcus				
Others (Hep A, B, Varicella, Zoster)				
Surrogate Forms				
Living Will				
H & P				
Note Incomplete Section(s)				
Progress Notes				
Medication List Updated				
VS				
Height and weight				
Pain Scale				
Reason for Visit Clearly Stated				
Exam Appropriate				
Diagnostic Exams Noted				
Results of Consultations Noted				
Assessment and Plan Clearly Stated				
Patient Counseling Noted				
Prior Records Requested/Received/Reviewed/Filed				
Order Sheets(including diagnostics)				
Legibility				

PLEASE TURN OVER

Statistical Analyses

The data from the outpatient chart reviews were compiled and divided into two groups. The first group, titled General Medical Items included the following: allergies noted on the front of the chart (yes/no); problem list completed and updated (yes/no); surrogate forms completed (yes/no); living will completed (yes/no); and history and physical satisfactorily completed (yes/no). The second group, titled Health Progress & Maintenance, included the following: health maintenance, a composite of 10 items; gender health, a composite of three items for men and six items for women; vaccines, a composite of four items; and progress notes, a composite of 13 items. Please refer to Table 1 for a breakdown of each individual item included in these composites. Each item was scored as "yes" or "no" depending on its adequate completion. The data from both groups were analyzed using a two tail non-parametric Mann Whitney U test. Significance is defined as a P value less than .05.

Summary of Data

Table 2. Effects of intervention on the outpatient chart recording efficiency of General Medical Items

The following items were assessed: allergies noted on the front of the chart (yes/no); problem list complete and updated (yes/no); surrogate forms (yes/no); living will (yes/no); and completed history and physical (yes/no). Three charts were reviewed for each resident (total number of charts reviewed at pre-intervention= 87, and at post-intervention=87). Shown is the percentage of correctly completed sections for each item, expressed as mean values ± SEM. n: number of charts reviewed for all residents (n=87). Number of residents: PGY1 (n=10), PGY2 (n=10) and PGY3 (n=9) residents.

All residents	Pre-intervention (n=87)	Post-Intervention (n=87)	P value
Allergies reported	55±5	74±4	0.023
Problem list	59±3	81±3	0.008
Surrogate	25±5	38±5	0.068
Living will	16±4	41±5	0.0004
H&P completed	64±3	73±4	0.062

PGY-1	Pre-intervention (n=30)	Post-Intervention (n=30)	P value
Allergies reported	44±9	74±10	0.023
Problem list	58±9	81±10	0.01
Surrogate	14±6	46±5	0.002
Living will	14±6	55±11	0.002
H&P completed	76±10	74±11	0.92

PGY-2	Pre-intervention (n=30)	Post-Intervention (n=30)	P value
Allergies reported	54±9	72±10	0.03
Problem list	46±10	78±7	0.01
Surrogate	32±9	42±8	0.06
Living will	12±6	48±10	0.002
H&P completed	67±10	82±8	0.05

PGY-3	Pre-intervention (n=27)	Post-Intervention (n=27)	P value
Allergies reported	58±10	75±10	0.03
Problem list	78±8	85±10	0.2
Surrogate	30±9	25±2	0.3
Living will	20±8	24±11	0.89
H&P completed	60±10	63±11	0.96

Table 3. Effects of intervention on outpatient chart recording efficiency of Health Maintenance Items and Progress Notes

The following assessments were conducted: health maintenance, a composite of 10 items (see Table 1); gender health, a composite of three items for men and six items for women; vaccines, a composite of four items; and progress notes, a composite of 13 items. Each item was scored as "yes" or "no" depending of its adequate completion. Shown is the % of correctly completed items for each for each item for each of the four sections. Results are shown as mean values ± SEM. n: number of charts reviewed for all residents (n=87), PGY1 (n=10), PGY2 (n=10) and PGY3 (n=9) residents.

All residents	Pre-intervention (n=87)	Post-Intervention (n=87)	P value
Health Maintenance	73±2	74±2	0.84
Gender Health	65±3	69±2	0.43
Vaccinations	54±3	62±4	0.010
Progress notes	83±2	92±8	0.005

PGY-1	Pre-intervention (n=30)	Post-Intervention (n=30)	P value
Health Maintenance	74±4	76±3	0.92
Gender Health	66±5	65±4	0.91
Vaccinations	52±6	71±6	0.01
Progress notes	82±4	89±3	0.06

PGY-2	Pre-intervention (n=30)	Post-Intervention (n=30)	P value
Health Maintenance	68±4	73±4	0.1
Gender Health	67±5	74±5	0.09
Vaccinations	57±5	63±2	0.04
Progress notes	80±3	91±4	0.05

PGY-3	Pre-intervention (n=27)	Post-Intervention (n=27)	P value
Health Maintenance	74±4	78±4	0.75
Gender Health	65±6	69±4	0.81
Vaccinations	57±8	71±7	0.04
Progress notes	85±3	94±3	0.02

Results

Analysis of chart recording efficiency of General Medical Items (allergies, problem list, surrogate, living will, completed history and physical)

At pre-intervention, of the General Medical Items, reporting of allergies, problem lists and completion of History and Physical was documented in 50-60% on all charts. The documentation of both surrogate and living will had the lowest reporting. This low reporting was observed for the three groups of residents; namely, in the PGY-1 PGY-2 and PGY-3 groups of residents. For all residents combined, the intervention produced a statistically significant improvement in the documentation of allergies, problem list and living will after the intervention (Table 2). There were also improvements in the documentation of a healthcare surrogate and the accurate completion of the history and physical exam, but the improvements did not reach statistical significance.

When broken down by year, the PGY-1 and PGY-2 groups had statistically significant post-intervention improvement in all areas of chart documentation of General Medical Items, whereas, the PGY-3 group only had statistically significant post-intervention improvement in their reporting of allergies (Table 2). Although PGY-1 and PGY-2 residents had lower pre-intervention values for the completion of living will and surrogate forms than PGY-3, their post-intervention values increased to values that were significantly higher than those for PGY-3 (P=0.01).

Analysis of chart recording efficiency for Health Progress and Maintenance Items (health maintenance, gender health, vaccinations and progress notes)

Documentation of Health Progress and Maintenance included a composite of screening and reporting alcohol misuse, colorectal cancer screening, depression, diabetes screening, diet & behavior, HIV screening, lipids, obesity, sexually transmitted diseases **(** STDs) and tobacco use. Documentation of appropriate gender health included for men a composite of abdominal aortic aneurysm screening, PSA and rectal exam and for women a composite of breast exam, cervical cancer screening, chlamydia screening, gonorrhea screening, mammogram and osteoporosis screening.

For all residents combined, the intervention produced statistically significant improvements in the reporting of vaccinations and the progress notes; however, it failed to improve health maintenance and gender health items. When broken down by year, the three groups of residents, PGY-1, PGY-2 and PGY-3, displayed comparable responses to the intervention, with significant improvements in the documentation of vaccinations and progress notes. Interestingly, there were no significant differences in pre and post-intervention values for health maintenance, gender health, vaccination, and progress notes between PGY-1, PGY-2 and PGY-3 resident's groups.

Discussion

Our hypothesis was that chart-recording deficiencies may be identified and subsequently corrected by early detection followed by a one-on-one resident-attending intervention. We found this to be true for the majority of the categories that were assessed. Overall, there were significant improvements in: allergies, problem list, living will, vaccinations and progress notes. The areas that showed improvement but did not reach statistical significance after the intervention were: history and physical, health maintenance items and gender health.

It is likely that residents are often hesitant to address end-of-life and surrogate issues with their patients during routine clinic visits due to the sensitivity of the topic. This is supported by the fact that prior to the intervention these items had the poorest documentation of any topic across every PGY year. Such an observation suggests the need of appropriate educational interventions for the residents, so that they can feel comfortable broaching this important issue. However, it is of interest to note that both PGY-1 and PGY-2 residents had the greatest improvements in living will and surrogate items; and that the lack of significant effects observed in the all residents combined group was due to the poor post-interventional response of the PGY-3 group of residents. The improvement observed in the younger residents suggests that these items are not emphasized during their medical school training, and that early attention markedly improved surrogate and living will reporting.

The reason for the lack of significant improvement of the documentation of the history and physical may have been that at baseline the residents were charting these items well, better than any of the other general health issues, leaving little room for statistically significant improvement. Similarly, there was little improvement in the Health Maintenance items and gender health. Each of these items reflected a composite of multiple screening items. Further analysis is warranted to break down these items and to see if there are particular components that the residents tend to avoid such as rectal exams or pap smears.

Interestingly, the PGY-3 group made the least improvement overall in correcting their General Medical Items chart deficiencies as compared with the PGY-1 and PGY2 group. They only improved significantly in their reporting of allergies. This may have been in part that their baseline was somewhat higher than their younger colleagues, and might also reflect a lack of willingness to take direction at this stage in their training.

We have recently implemented a computerized medical record for our residents. The baseline and post-intervention data we report here helps guide our implementation and ongoing training to be sure we are improving our medical documentation. Regular analysis of resident charting provides a picture of specific areas in need for improvement and successful changes to date. In the Next Accreditation System implemented

for Internal Medicine in 2013 we will be involving residents more in patient safety and quality improvement. Focused interventions such as described in this paper will be useful for providing specific input and then monitoring improvement for our trainees.

There were a number of limitations to our study. Firstly, there were a number of different reviewers, each of whom may have had a different subjective standard when evaluating the charts. For example, one reviewer's idea of an accurate and complete history and physical exam may not have been the same as the next reviewer. A second limitation was that the resident-attending interventions were not standardized. One attending physician's intervention may have had a greater impact on the residents' behavior than the next.

In conclusion, our QI outcome study shows that early detection of resident physicians' chart recording deficiencies followed by one-on one attending-resident intervention effectively improves the quality of chart recording. Further investigation is warranted to discover why residents respond better to this intervention in certain areas of chart recording than in others, why certain year residents respond more easily, and how to standardize our interventions to ensure that residents receive optimum training. We recommend that training programs incorporate similar methods into their teaching and quality improvement programs.

Notes on Contributors

Dr. Reines is director of the Medical Consult Service and a member of the core faculty at Mount Sinai Medical Center, Miami, Fl

Dr. Rivera is an assistant professor of clinical medicine at Florida International University and University of Miami Miller School of Medicine in Miami, Florida. She is the Associate Program Director of the Internal Medicine residency at Mount Sinai Medical Center, where she practices both Internal Medicine and Infectious Diseases.

Dr. Goldszer is a clinician and faculty member in Internal Medicine at Mount Sinai Medical Center, Florida International University, and University of Miami Medical schools. He is the Chief Medical Officer of Mount Sinai Medical Center, Miami Beach Florida.

Dr. Habibnejad is an assistant professor of clinical medicine at Herbert Wertheim College of Medicine , Florida International University. She is the Medical Director, Primary Care Center, Mount Sinai Medical Center.

Dr. Cubeddu is a professor of clinical pharmacology, medicine and pharmacy at Nova South Eastern University, Davie, Florida and Director of Internal Medicine Research at Mount Sinai Medical Center, North Miami Beach, Florida.

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