

## Missing Physical Exam-Automatic Notifications Used to Improve Documentation

**Authors:** David Rico Mora, MD; Luis I. Rodriguez MD; Keith Candiotti, MD

**Introduction:** Anesthesia Information Systems (AIS) help by automatically documenting certain events while the anesthesiologist focuses on patient care. This continues to evolve and now improve documentation through automatic process monitoring, alerts and reminders. Despite the fact AIS help to decrease incomplete records, delayed reimbursement due to incomplete records continue to be a problem (1, 2). These errors and lack of information can be addressed by timely alerts connected to paging systems (2), but many of them can be ignored by clinicians due to the great amount of irrelevant warnings and saturation. One strategy applied is to modify the design of more serious warnings (3).

**Methods:** We retrospectively analyzed the records completeness in the period of March-December 2013. We measured the # of cases and pre-operative evaluations with and without physical exam. We focused on evaluations done over the phone with the physical exam to be completed the day of surgery.

We studied 2 automatic notification systems to address physical exam documentation. The first method employed was massive e-mails to all anesthesia providers, reminding of need to document the physical exam. These notifications were sent by the department chair. This method was used once during the month of July and once in October. The second method was the use of an automatic alphanumeric page to physicians in charge of a case with missing physical exam during the pre-operative evaluation. We compared the differences between the initial values and the changes after the implementation of both systems of notification.

**Results:** During the first 4 months of the study (March- June) the mean of pre-operative evaluations with missing physical exam was 30.3%. After the first e-mail sent, the percentage of missing physical exam dropped from 30.5% in June to 21.8% in July. This pattern was constant during the following months August (23.2%) and September (23%). In October, a second email was sent; the percentage of missing physical exam dropped to 17.3%. We then implemented the automatic notification system, and during the period of November-December the mean of missing physical exam dropped to 10.9%.

**Conclusions:** There are different methods used to improve documentation. Of these, the least effective are formal lectures to providers and the most effective is the use of computer generated reminders, incentive rewarding, and sending e-mail reports. Other options are text pagers or using prompts alerting of missing information. (1, 4, 5)

We confirmed that automatic reminders improve documentation of incomplete preoperative evaluations. We were able to significantly reduce the number of incomplete records, but we also recognize that reminder saturation or the overwhelming messaging leads to providers ignoring the message can still account for that 10.9% missing data. We plan to modify the messaging system and test a reminder in real-time.

**References:**

1. Anesth Analg  
2008;106:192-201
2. Anesthesiology  
2007;106:157-63
3. NEJM 2003;348:2526-34
4. Anesth Analg  
2006;103:131-6
5. Mt Sinai J of med  
2012;79:757-757

MONTH	Total # Cases	Electronic Preops		Missing PE	
March	1364	542	39.7%	166	30.6%
April	1466	609	41.5%	182	29.9%
May	1404	526	37.5%	158	30.0%
June	1428	584	40.9%	178	30.5%
<b>July</b>	1482	582	39.3%	127	21.8%
August	1522	582	38.2%	135	23.2%
September	1320	514	38.9%	118	23.0%
<b>October</b>	1561	677	43.4%	117	17.3%
<b>Nov-Dec</b>	1318	569	43.2%	62	10.9%
<b>TOTAL</b>	12865	5185	40.3%	1243	24.0%