DEM Journal Club

Article Appraisal

Article: Impact of Scribes on Emergency Medicine Doctors' productivity and patient throughput: multicentre randomised trial

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Background and Study Objective(s):

Emergency physicians have long debated the benefits of having a "scribe"—an assistant chiefly designed to record information, but also with diverse other duties. This was a prospective, multicentre non-blinded randomised trial analyzing the impact of scribes on efficiency in the emergency department. The authors hypothesized that scribes would provide a 15% increase in efficiency.

Study Design:

This prospective, randomized, non-blinded trial was completed in five Australian hospitals between November 2015 and January 2018. Sites included four public/Medicare hospitals and one private tertiary (not for profit) centre. Emergency physicians had to be consultants permanently employed for at least one shift per week. They were salaried and paid per hour. Two sites allowed senior emergency trainees to participate due to limited staff physician numbers. Physicians were offered training sessions before receiving scribes, but very few completed the training. Scribes were trained at one of the hospital sites and were simultaneously employed at all sites during the study. Any patient who attended the emergency department was eligible for scribe involvement, but the number of patients declining scribes was not recorded. Physicians had discretion to see patients they felt they had the capacity to manage at any given time. Scribes were allocated to shifts based on a computer generated random number. Blinding to presence of scribe was not possible. The unit of analysis was the shift, and based upon scribe availability, shifts were randomized in an approximate 1:6 ratio.

The primary outcome was the aggregate difference in physician productivity, defined as total patients seen and "primary" patients seen, between scribed and non-scribed shifts. Secondary outcomes included door to doctor time, ED length of stay, change in productivity by type of shift worked (acute, sub-acute, triage, and pediatric shifts) and rates of "primary consultations". "Primary consultation" is an Australian term defined as when the physician was the main physician for the patient (including medical triage consultations in which the patient was immediately discharged without further care from a physician), as opposed to a "secondary consultation", which was either a

medical triage consultation (when the patient is later seen by another physician for a full consultation) or a handover consultation.

In order for scribes to have a break-even business case the authors needed to show productivity gain of 15%. Using a two sided test with 5% significance, they needed to study 1000 shifts in total (100 scribed and 100 non-scribed from each of the five sites) to achieve 80% power to detect this difference. The authors calculated total consultations per hour per doctor by using the sum of "primary" and "secondary" patient encounters for each doctor, divided by the hours worked each shift. Characteristics of patient populations and shift level data were analyzed using the Kruskall-Wallis test, and chi square testing was used for categorical variables. The effect of scribes was determined using linear or logistic regression.

Results:

The authors ended up analyzing 589 scribed shifts (5098 patients) and 3296 non-scribed shifts (23?838 patients). Overall, scribes increased doc productivity from 1.13 to 1.31 patients per hour per doctor showing a 15.9% gain (p <0.001). Clinically, this roughly translates to seeing 1.5 more patients per 8-hour shift. For primary consultations, productivity increased from 0.83 to 1.04 patients per hour per doctor demonstrating a 25.6% gain (p <0.001). The most benefit happened with senior docs who had scribes working at triage. Median length of stay decreased from 192 (interquartile range 108-311) minutes to 173 (96-208) minutes for scribed shifts, or by 19 minutes (P<0.001). There was no significant difference in door to doctor times (p 0.89), likely reflecting bottlenecks elsewhere in the department.

Validity of Results:

This study was internally valid. Almost all participants were analyzed in the groups to which they were randomized and the patient characteristics were similar in each group. There were sufficient shifts to achieve 80% power to detect the 15% productivity gain sought to create a break-even business case. Groups appear to have been treated equally. However, it was impossible to blind to the presence of scribes. It also would have been beneficial to see if the use of a scribe increased individual physician productivity as opposed to only examining aggregate data. Finally, physician, scribe, patient, or administrator satisfaction was not queried.

Generalizability of Results:

This study is challenging to extrapolate to our setting, as Australian physicians at the study sites see a much lower volume of patients on their own than our staff physicians, and a large volume of Australian patients are managed by trainees. (This is evident from their use of "primary" and "secondary" consultations.) Furthermore, the greatest productivity gain was for physicians in the role of "senior doctor at triage", for which we have no comparable role at our institutions. Australian physicians are also remunerated differently and this could affect study generalizability.

The Bottom Line:

Although the Australian and Canadian emergency systems differ considerably, this study demonstrated productivity gains and decreased length of stay using scribes in the emergency department, even when most physicians were not trained how to use scribes. It likely worth looking into scribes further to determine potential productivity gains in our system. This would be especially true if scribes increase physician satisfaction given that frustration with electronic and digital records may be a problem in emergency medicine. As such, many would argue that a scribe would be beneficial even if there is only a break-even business case.