Using the EMR for Better Patient Care

The medical record was developed in the US in major teaching hospitals in the 19th century and widely adopted when it was realized the records benefited patients, nurses and doctors (1). These paper records continued (although with many alterations) until the early 21st century when electronic medical or healthcare records (EMR) were mandated by the Federal government. EMRs offer great promise by handling the enormous amounts of data generated in healthcare. Furthermore, in those instances where early identification of disease process seems to make a difference, EMRs would seem an ideal tool to alert nurses and doctors. Sepsis is a disease process which would seem appropriate for early identification by EMR since early recognition can be difficult but early intervention improves outcomes (2). However, previous attempts to use the EMR to identify septic patients have been disappointing (3,4). In this issue of the SWJPCC Fountain and her colleagues (5) used clinical decision support systems (CDSSs) incorporated into EMRs to successfully identified septic patients with reasonable sensitivity and positive predictive value.

Why did Fountain et al. succeed while others failed? The 20 year old definition of sepsis that required two or more systemic inflammatory response syndrome criteria to define sepsis did not identify the sickest patients at the greatest risk for death (6). Realizing this weakness, Fountain and colleagues shifted their diagnostic focus from systemic inflammation to infection-triggered organ failure consistent with the new definition of sepsis proposed by the international Sepsis Definitions Task Force (7). This insight would seem most likely to account for their success.

Fountain's success also raises the question of why so many EMR interventions for sepsis and other disease processes have failed to improve patient care. In order to be successful, CDSSs need to pick diseases with well grounded criteria and interventions. This requires extensive expertise in reading and evaluating the medical literature. It seems too often a quick internet search by a non-expert committee chooses poorly. For example, ventilator-associated pneumonia is a disease with no well established criteria or accepted prevention other than extubation. Too often EMRs have increased workload and inefficiency without apparent patient benefit, even potential patient harm as suggested by some.

If Fountain's criteria is replicated in randomized trials and early identification improves outcomes, it may represent a major step forward in sepsis care. However, perhaps more importantly it could represent a major step forward in how CDSSs are conceived and developed.

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