Study Analyzes Causes and Consequences of Patient Overlay Errors

Save to myBoK

By Grant D. Landsbach, MSHSA, RHIA, CHDA

For years, many in the health information management (HIM) industry have been aware of the dangerous patient misidentification problem known as an "overlay."

This situation occurs when the incorrect patient is registered/admitted/documented on another patient's medical record, often completely unbeknownst to clinicians. This has always been dangerous, but with electronic health records (EHRs) the stakes are even higher as patient-level information transcends multiple visits. Imagine a clinician making a care decision using medication or allergy information recorded in the EHR that actually did not belong to that person—the results could be tragic.

Because of this, a leading eight-hospital, multi-state healthcare organization began tracking and keeping detailed statistics on overlay errors for five years with the implementation of their EHR. In doing so, they amassed an amazing bank of data from which a recent study was conducted to help glean insight on these overlay errors, including their prevalence, how they are created, how they are caught, and how they might be mitigated.

This study adds considerably to a lacking body of knowledge in the field and helps to shed light on these often overlooked but incredibly dangerous errors lurking in today's EHRs.

Research Into Overlay Complications Lacking

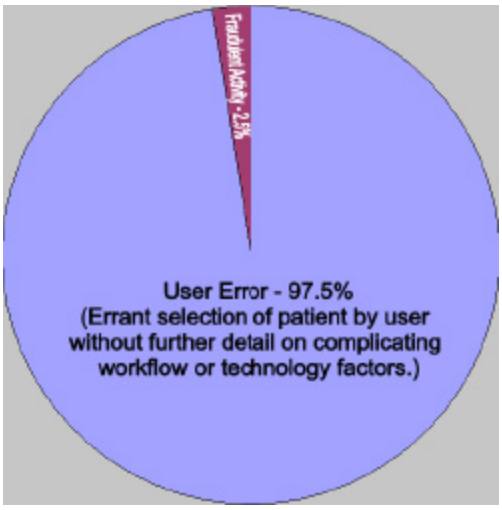
One of the most important patient safety issues facing HIM professionals is patient identification errors, or overlays, which again occurs when the wrong patient information is recorded in the wrong patient chart.

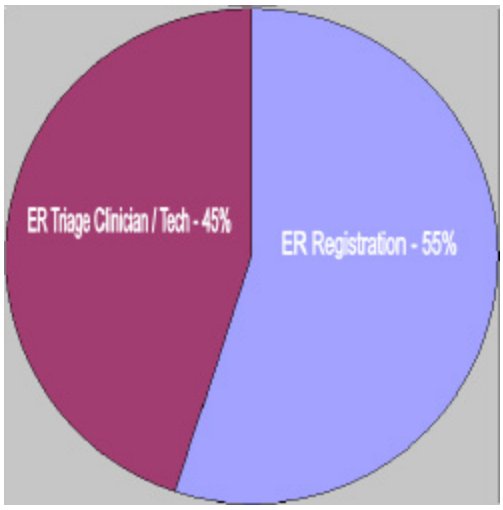
The study of overlays at the eight-hospital, multi-state healthcare organization began with an introduction and literature review. This revealed that there are currently few studies that focus solely on this issue. The few that do tout its dangers lack solid statistics. Of interest was a number of root-cause analysis studies that did not set out to find—but indeed did find—patient overlays to be the primary cause of other significant patient errors. This again identified overlays as wide-reaching and dangerous.

Investigators analyzed EHR data from a five-year period that had been maintained by an HIM Data Integrity Team at the healthcare organization. Many different attributes of these errors were cataloged in discreet fields within an Access database.

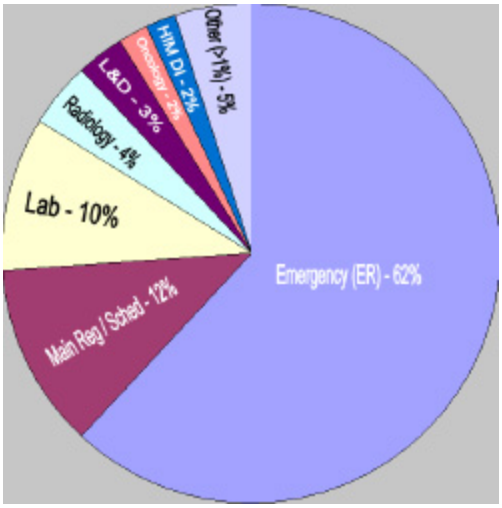
Operationally, the practice of compiling all of this data was mainly to facilitate an iterative process of error reporting from the data integrity team to front end users, but further analysis of this data proved to be a veritable goldmine of interest for the study.

Figure 1	
Overlays: Fraudulent Activity vs. User Error	**Overlay Errors Breakdown: ER Registration Staff vs. ER Clinical Staff**

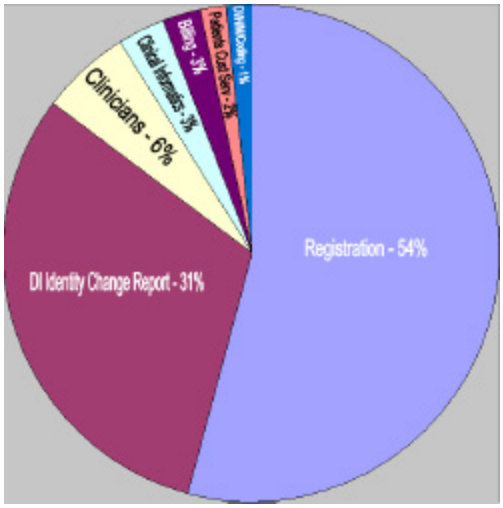




Overlay Errors by Area/Department:



Areas that Found and Reported Overlay Errors



Teasing Out Errors

The study sample size was considerable, at 555 errors for the five-year study period. These were averaged against inpatient and outpatient visit totals per year for the organization's acute care sites. This revealed an error rate of essentially one in every 10,734 admissions. Though this seems small, it comes out to be over nine per month. As the study shows, these are major errors with far-reaching effects and require a high degree of resources to correct. Additionally if every overlay error is regarded as a potential patient safety event, then this certainly has merit. If regarded on par with a medical error of similar severity, for example, nine per month would be significant.

The study showed a trend upward in errors. Further analysis revealed this was due both to growth of the organization and also due to better proactive error identification tools and utilization of those tools. Oftentimes overlay errors "hide" in data and are not caught until later downstream, if at all. This trend showed that some of these EHR tools prove their worth when utilized regularly.

The study then focused on some more specific attributes of overlays, including the fact that of the 555 errors only 14, or 2.5 percent, were found to be fraudulent in nature. A total of 541 errors, or 97.5 percent, were caused by user oversight or error. This indicates that while fraud certainly plays into overlay errors—for example, people coming to the emergency room using a fake name or another person's identification in order to access drugs—it is not nearly as prevalent as is often suggested.

Patient Overlay Error Study Results

One section of the study focused on what departments or areas in which these errors were occurring. The study showed a predominant trend toward most errors occurring in the emergency department (ED), but also to lesser degrees in the registration and scheduling areas, as well as ancillary areas such as lab and radiology. This prompted a deeper dive in the data, revealing that the roles of users who created these errors varied and were not limited to registration staff. Indeed, many clinical users who perform initial patient search and selection duties had created overlay errors.

Of interest to researchers was how the errors were found. Most were found by registration users. This is logical given their direct contact with patients. But second was the aforementioned proactive tools used by the HIM Data Integrity Team built into the EHR. The study did show that both billing staff and clinicians also found these errors in patient charts, but more often, patients themselves were finding these errors via the proliferation of patient portals—which allow patients greater access to their records. The errors found by some of these methods (billing, patients themselves, etc.) included highly sensitive protected health information (PHI), making overlays a HIPAA violations risk.

Overlay Duration Studied

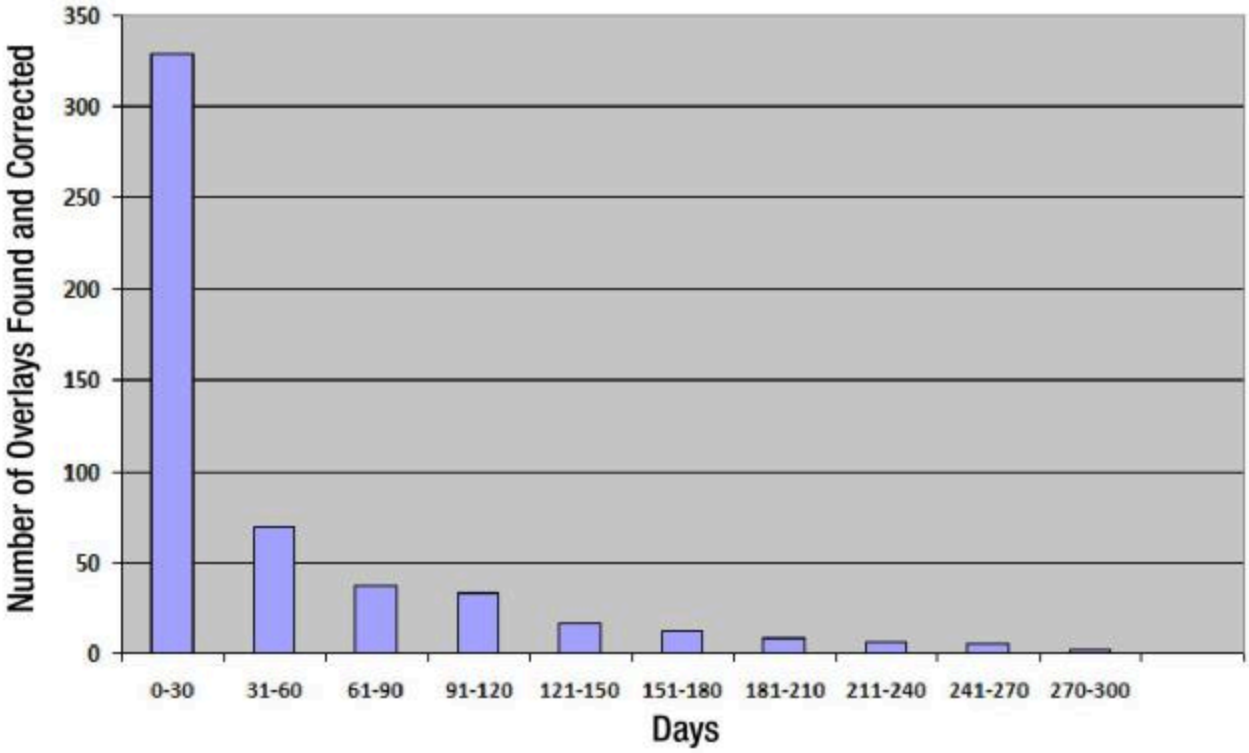
The study next focused on duration. First it looked at how quickly overlays were found. Here, researchers saw that proactive tools were instrumental in finding the bulk of these overlays well within 10 days of their occurrence. The trend showed that the further from the creation of the error researchers got, the less chance the error would be found. There are several factors surrounding this, but one is that if errors are missed soon after their creation they may stay errant in the data for long periods of time or permanently. And while they may be lying dormant, their inherent dangers remain should the patient return.

The second duration studied was the overall time it took to fully resolve an overlay error. The organization did an admirable job of correcting most within 30 days, but there certainly was a struggle to make timely filing within 90 days. This was interesting in that it showed just how much reimbursement may have been lost. It also showed the resource intensity necessary to correct even one overlay error.

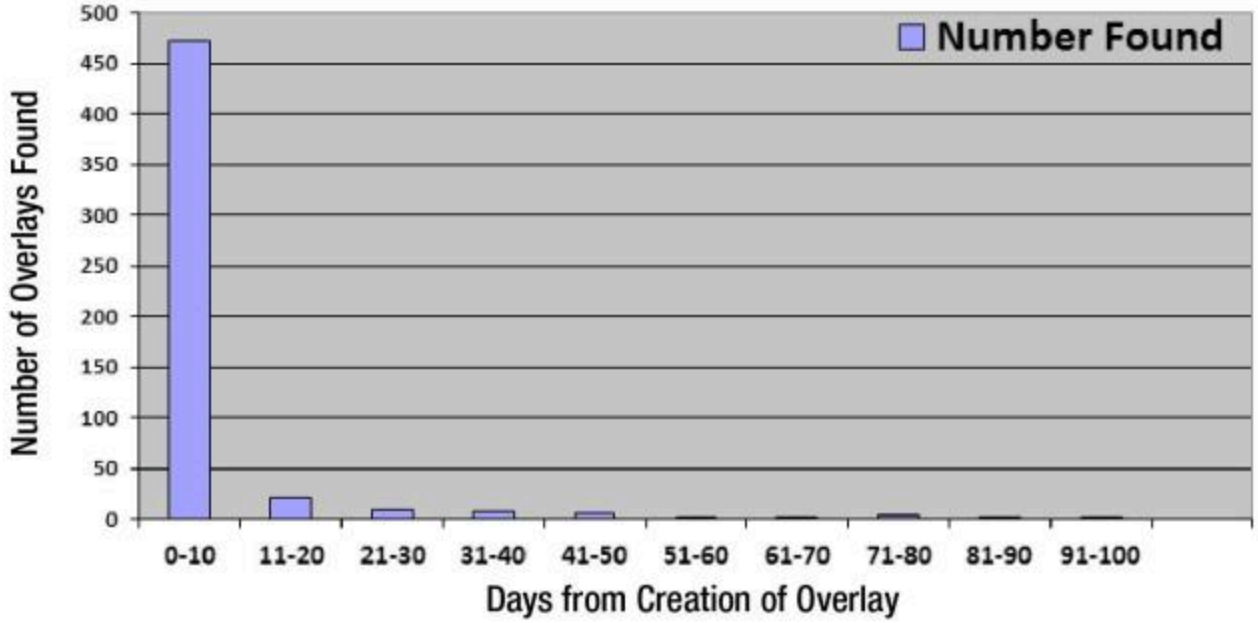
The results section concludes with a section on master patient index (MPI) metrics for the organization, which is useful for both benchmarking as well as diving into specific trends that lend themselves to overlay errors. For example, the study shows the total number of patients in the organization's MPI being 4,464,481. Amazingly, that data also shows 460,725 patients that have the exact same last name and first name combination. This gives insight into some of the inherent data trends in today's large EHR MPI databases that lend themselves to these errors.

Figure 2

Days from Overlay Found to Fully Corrected/Resolved



How Long It Takes to Find Overlays



Learning from Overlays to Prevent Mistakes

In light of the results it is appropriate that general discussion on the overall importance of the error is foremost. The study discusses the overall initiative toward a voluntary national patient identifier and how efforts toward such a goal may help to reduce errors and improve identity matching and patient safety as a whole. The topic of the continued and ongoing push toward interoperable health information exchange is also discussed as well as how overlay errors can dangerously and quickly proliferate beyond the walls of the organization—creating more havoc and danger “downstream” as information is shared through these efforts.

Results of the study conclusively show the prevalence of the types of error that can permeate even the most diligent and well-equipped organizations. This can lead to non-compliance, legal problems, and potential patient harm. The research reveals how widespread overlay errors are and how they truly are not just limited to areas like registration, as commonly thought.

Recommendations for preventing future overlays include having process improvement events, as well as training on policies and procedures when overlay errors are found with the patient still in-house. Overall, the study, which was published by Regis University, is the first of its kind to offer a real glimpse at the numbers behind these errors from a large organization. It paves the way for future studies on patient overlay errors as well as gives readers some insight on where to look and what to do to begin mitigating these errors in their own organizations. The specificity of the numbers also lends itself to loose benchmarking for other organizations, and a good comparison on size and volume. Finally, the study continues this vitally important discussion regarding proper patient identification and how HIM professionals stand at the crossroads with the skills and abilities to make a difference in these errors—even to the extent of saving a life.

Grant Landsbach (grant.landsbach@sclhs.net) is the data integrity/MPI manager at SCL Health, based in Denver, CO.

Article citation:
Landsbach, Grant. "Study Analyzes Causes and Consequences of Patient Overlay Errors" *Journal of AHIMA* 87, no.9 (September 2016): 40-43.