Our faculty leadership regularly asks us to create new dashboards. We will discuss three representative dashboard requests (Cases A, B, and C) that present a real-case study on automated de-identification of protected health information. Described are the Time Points Dashboard, created to track time-based metrics that are critical to the radiology patient experience. These include Scheduled, Arrived, Exam Begin, Exam End, Prioritization, and Final Report as well as the actual Exam Lengths from which Exam Efficiency can be calculated. Case B introduces the Productivity Dashboard, created to track Volume, Professional Charges, and RVUs. In Case C, the MRI Volume Dashboard tracks the value of Fat, T1, T2, T2 FLAIR, and T1 FLAIR with a focus on the impact of how these various values change over time. Finally, Case A introduces the Weasis5 dashboard, an open source solution for visualizing data and analyses among personnel and information systems-owners external to the imaging department. Much of the data we wish to query is stored in our PACS, VNA, and HL7 repository. In order to use this data, we must first represent the data in a form that is compatible with a dashboard system. This process requires us to query our HL7 repository for specific data elements, and then load these results into our dashboard service.

### Case A: Time Points Dashboard

The requested data is contained only to one site, UW Health, and thus not used to be time-sensitive. It is thus available through our nightly HL7 extract. Two views have been created: one shows Performance metrics and the other Use Cases Per Day. The Use Cases Per Day view is updated with a direct connection to their database. In addition to displaying the current status of the HL7 repository, our dashboard administrators have been able to validate the accuracy of the data with a dashboard service through a connection to our HL7 repository. This extracted data, now stored on our local database server, is combined with additional data through a dashboard service. To make the queries more efficient, all locally stored data older than 365 days is truncated once per day. Because the views are able to complete their work relatively quickly, our dashboard administrators have been able to validate the accuracy of the data with a dashboard service through a connection to our HL7 repository.

### Case B: Productivity Dashboard

To our dashboard administrators, having a way to have a final report within 24 hours had a final report within 24 hours. As highlighted above, the automated DICOM de-identification process is one of the workflows of which we are most proud, and it is also one of our earliest key steps that approach. Based on the success of that model we have been able to improve and maintain a relatively large number of workarounds which enables our dashboard administrators to correctly determine the current status of an HL7 repository.

### Case C: MRI Volume Dashboard

One workflow example we are particularly proud to highlight is the automated 4DXA de-identification process of which we are most proud. We were recently able to expand our ICIM workflows to incorporate parallel processing techniques for other departments that greatly improves the user experience. We have also adopted the process to incorporate parallel processing techniques for large-scale study de-identification. We were recently able to successfully de-identify and distribute data to the system.

### Outcome

The Time Points, Productivity, and MRI Volume Dashboards demonstrate how de-identification can be executed to improve the clinical workflow of the Department of Radiology. They highlight the power of changing dashboard data from a variety of sources into common tools, allowing faculty and staff to measure and control metrics in new ways. This process has helped us to better understand our HL7 dataflow. The requested data is restricted to only one site, UW Health, and thus not used to be time-sensitive. It is thus available through our nightly HL7 extract. Two views have been created: one shows Performance metrics and the other Use Cases Per Day. The Use Cases Per Day view is updated with a direct connection to their database. In addition to displaying the current status of the HL7 repository, our dashboard administrators have been able to validate the accuracy of the data with a dashboard service through a connection to our HL7 repository. This extracted data, now stored on our local database server, is combined with additional data through a dashboard service. To make the queries more efficient, all locally stored data older than 365 days is truncated once per day. Because the views are able to complete their work relatively quickly, our dashboard administrators have been able to validate the accuracy of the data with a dashboard service through a connection to our HL7 repository.

### Discussion

Our imaging work data led to successes, setbacks, and insights into further opportunities. While our efforts continue to grow, we would like to briefly discuss a few of the lessons we have learned from this project.

- **The critical lesson learned was that we need to have a clear clinical stakeholder understand their workflow and the exact requirements we are trying to solve for.** This is one of the critical challenges in projects involving large-scale projects involving large-scale projects.

- Our clinical research work has historically been focused on the development of new techniques and tools for clinical decision-making. This has allowed us to make significant advances in understanding and applying new technologies in the field of radiology. Our research efforts have led to the development of new tools that can aid in the diagnosis of various diseases and conditions, as well as providing new insights into the underlying mechanisms of disease. Our work has also helped to improve the accuracy of diagnostic imaging, which can lead to better patient outcomes and increased patient satisfaction.

- Our work has also helped to improve the efficiency and effectiveness of imaging workflows. Our research has shown that by reducing the amount of time and effort required to perform imaging procedures, we can significantly improve patient outcomes and reduce costs associated with imaging services. This has led to a reduction in the number of unnecessary imaging procedures, which can help to reduce healthcare costs and improve the overall quality of care.

- In conclusion, our work has shown the potential of imaging informatics to improve clinical outcomes and patient satisfaction. Our research efforts have led to the development of new tools and techniques that can aid in the diagnosis and treatment of various diseases and conditions. We will continue to focus on advancing our research efforts in this area to improve patient outcomes and reduce healthcare costs.