The Procedural Times Glossary: A Roadmap to Improving Efficiency Tracking in Interventional Radiology

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Background

- Operating Rooms (OR) represent a significant source of revenue and expenditures for hospitals. Consequently, improving efficiency and clinical productivity in these settings is an important goal for clinical directors.

- In 1987, the Association of Anesthesia Clinical Directors (AACD) created the AACD Procedural Times Glossary (PTG) to facilitate the development of quality improvement measures and benchmarking by standardizing concepts and terms of OR efficiency and utilization [1, 2].

- Since its creation three decades ago, the AACD PTG has served as a prominent source of procedural definitions in the analysis of efficiency within the OR environment.

Background Continued

- Over the past decade non-operating room anesthesia (NORA) case volumes have been expanding [3].

- The increased demand of NORA services presents opportunities for application of OR efficiency measures to its workflows.

- However, the methodological application of the AACD PTG to NORA has not been studied. A PubMed search for documentation of AACD procedure times in Interventional Radiology (IR) yields no studies.

- The Interventional Radiology (IR) department represents one of the NORA services offered at the University of Vermont Medical Center (UVMMC).

Purpose

- To analyze workflow documentation from the Interventional Radiology (IR) service at the University of Vermont Medical Center (UVMMC) and assess the extent of procedural information tracked.

- To compare the data tracked by IR to the Association for Anesthesia Clinical Directors Procedural Times Glossary (AACD PTG).

Materials and Methods

- Procedure documentation from the Interventional Radiology service at the University of Vermont Medical Center was analyzed. Using the UVMMC IR Whiteboard and Epic (La Crosse, WI), cases with and without anesthesia were pulled for comparison.

- The Whiteboard System (VIEWS for Virtual Interactive Electronic Whiteboard System) in use at UVMMC provides integration with the GE Radiology Information System and with the Epic electronic health record to perform patient lookup, as well as to pre-populate patient demographic and allergy data. VIEWS was developed as a ASP.Net web application, written in HTML5, CSS3, Javascript and C#.

- Using the definitions from the AACD Procedural Times Glossary, a database tracking the differences between the two different workflows were analyzed. All data were maintained on Microsoft Excel (Redmond, WA).

Results

- The AACD PTG defines thirty procedural times for analyzing efficiency. IR cases with anesthesia involvement maps three PTG definitions. In contrast, those without anesthesia map only two definitions. The items tracked in IR are patient in room, patient out room, and anesthesia start time.

- A summary and comparison to the Electrophysiology Suite at the University of Vermont Medical Center is shown in table 1.

Results

Code	AACD Procedural Times Glossary Definition	Electrophysiology	Interventional Radiology
(PIF)	Patient in Facility		
(PRT)	Patient Ready for Transport		
(PSF)	Patient Sent For		
(PA)	Patient Available	●	
(RSS)	Room Set-up Start		
(AS)	Anesthesia Start		
(RR)	Room Ready		
(PIR)	Patient in Room	●	●
(AFA)	Anesthesiology, First Available		
(PFFA)	Procedure Physician, First Available		
(ARI)	Anesthesiologist of Record In		
(AI)	Anesthesia Induction	●	●
(AR)	Anesthesia Ready	●	
(PS)	Position-Prep Start		
(PC)	Preparation Completed	●	
(PPRI)	Procedure Physician of Record In	●	
(PST)	Procedure-Surgery Start Time	●	
(PCB)	Procedure-Surgery Conclusion Begun	●	
(PPRO)	Procedure Physician of Record Out	●	
(PF)	Procedure-Surgery Finish	●	
(POR)	Patient Out of Room	●	●
(RCS)	Room Clean-up Start		
(APACU)	Arrival in PACU/ICU	●	
(AF)	Anesthesia Finish	●	
(RCF)	Room Clean-up Finish		
(RDPACU)	Ready for Discharge from PACU		
(DPACU)	Discharge from PACU		
(ASDSR)	Arrival in Same-day Surgery Recovery Unit		
(RDSDSR)	Ready for Discharge from SDSR unit		
(DSDSR)	Discharge from SDSR Unit		
Total	30	13	3

Table 1: Summary of the Association of Anesthesia Clinical Directors Procedural Times Glossary and corresponding procedural times tracked in the Electrophysiology and Interventional Radiology at the University of Vermont Medical Center.

Discussion

- IR documentation contains few items that are typically logged in other NORA services at UVMMC.

- For example, the Electrophysiology Suite workflow maps thirteen of the Procedural Times Glossary definitions.

- Much of the crucial times necessary to track efficiency of the IR operations are missing.

- For example, Anesthesia Preparation Time is determined from anesthesia start time and anesthesia ready time. Similarly, information needed to track Room Set-up Time and Room Clean-up Time are missing from the workflows.

Discussion

- Dexter et al. demonstrated that there were significant inaccuracies in estimating anesthesia time for diagnostic radiology and IR procedures.

- Further, their analysis found that the relative cost of an hour of over-utilized time (an efficiency metric) was about four times more costly than staff time during normal working hours [4].

- This data suggests that efficiency tracking in radiology can be effective towards reducing costs generated by inefficient work flows.

Conclusion

- Future directions should examine the operational and financial impact of better data tracking for IR with the goal of applying benchmarks like the AACD PTG to the IR workflow.

- The AACD PTG can serve as a road map to efficiency tracking of IR at UVMMC.

- Tracking baseline efficiency data in IR and implementing policies to track more PTG definitions can be done as an analysis to determine if it may lead to increased workflow efficiency.

References

1. Association of anesthesia clinical directors (AACD). Available at http://www.aacdhq.org.

2. Donham R. T., Defining measurable or-pr scheduling, efficiency, and utilization data elements: The association of anesthesia clinical directors procedural times glossary. Int Anesthesiol 1998; Clin. 36(1):15–29.

3. Nagrebetsky A, Gabriel RA, Dutton RP, Urman RD. Growth of nonoperating room anesthesia care in the United States: a contemporary trends analysis. Anesth Analg. 2017; 124:1261-67.

4. Dexter F, Yue JC, Dow AJ. Predicting anesthesia times for diagnostic and interventional radiological procedures. Anesth Analg. 2006; 102:1491-1500.