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The next AACD meeting is in Huntington Beach, CA on March 15-17, 2013.

There will be a meeting of the PTG task force – please send an email to
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PROCEDURAL TIMES GLOSSARY

Glossary of Times Used for Scheduling and Monitoring of Diagnostic and Therapeutic Procedures

Elevated concerns regarding the economics of health care are dramatically intensifying the pressure for health care providers to establish Critical Pathways and/or Total Quality Management programs. In addition, negotiating fiscally sound managed care contracts with Health Maintenance Organizations and health insurance carriers, as well as meeting state and federal government documentation requirements, requires justification for each aspect of patient care as well as improved techniques in cost factor analysis and accounting. Few hospital administrators would deny that operating rooms / procedure rooms (OR/PR) are expensive to run, and all would concur that economic analyses of running OR/PRs are not readily available.

During the planning for multicenter studies of OR/PR scheduling, utilization, and efficiency, members of the Association of Anesthesia Clinical Directors (AACD) felt semantics were introducing a major impediment to data comparison and economic analysis. To provide a universal lexicon for the acquisition of data, the AACD has developed a glossary which inclusively, yet restrictively, defines the procedural times that permit comprehensive analyses of OR/PR scheduling, utilization, and efficiency. The AACD proposes adopting this lexicon as a standardized Glossary of Times Used for Scheduling and Monitoring of Diagnostic and Therapeutic Procedures.

The glossary is divided into four sections: 1) Procedural Times, 2) Procedural and Scheduling Definitions and Time Periods, 3) Utilization and Efficiency Indices, and 4) Patient Categories. The terms defined under Procedural Times are listed in what is the usual chronological order, while terms defined in the other sections are presented in alphabetical order.

GLOSSARY:1 PROCEDURAL TIMES

(For purposes of analyzing efficiency, each of the times defined below may be further classified by the subscripts S and A, for "Scheduled" and "Actual", respectively.)

1.1 **Patient in Facility (PIF)** = Time patient arrives at health care facility (applicable to Out-patient or Same Day Admission patients).

1.2 **Patient Ready for Transport (PRT)** = Time when all preparations required prior to transport (e.g., labs, consent, gowning) have been completed.

1.3 **Patient Sent-for (PS)** = Time when transporting service is notified to deliver patient to the OR/PR.

1.4 **Patient Available (PA)** = Time the patient arrives in the OR/PR pre-procedure area.

1.5 **Room Set-up Start (RSS)** = Time when personnel begin setting-up, in the OR/PR, the supplies and equipment for the next case.

1.6 **Anesthesia Start (AS)** = Time when a member of the anesthesia team begins preparing the patient for an anesthetic.

1.7 **Room Ready (RR)** = Time when room is cleaned and supplies and equipment necessary for beginning of next case are present (see Discussion).

1.8 **Patient In Room (PIR)** = Time when patient enters the OR/PR.

1.9 **Anesthesiologist, First Available (AFA)** = Time of arrival in OR/PR of first anesthesiologist who is qualified to induce anesthesia in patient (see Discussion).

1.10 **Procedure Physician, First Available (PPFA)** = Time of arrival in OR/PR of first physician / surgeon qualified to position and prep the patient (see Discussion).

1.11 **Anesthesiologist of Record In (ARI)** = Time of arrival in OR/PR of anesthesiologist of record (see Discussion).

1.12 **Anesthesia Induction (AI)** = Time when the anesthesiologist begins the administration of agents intended to provide the level of anesthesia required for the scheduled procedure.

1.13 **Anesthesia Ready (AR)** = Time at which the patient has a sufficient level of anesthesia established to begin surgical preparation of the patient, and remaining anesthetic chores do not preclude positioning and prepping the patient (see Discussion).

1.14 **Position / Prep Start (PS)** = Time at which the nursing or surgical team begins positioning or prepping the patient for the procedure.

1.15 **Prep-Completed (PC)** = Time at which prepping and draping have been completed and patient is ready for the procedure or surgery to start.

1.16 **Procedure Physician of Record In (PPRI)** = Arrival time of physician / surgeon of record (see Discussion).

GLOSSARY:1 PROCEDURAL TIMES

1.17 Procedure / Surgery Start Time (PST) = Time the procedure is begun (e.g., incision for a surgical procedure, insertion of scope for a diagnostic procedure, beginning of exam for an EUA, shooting of X-ray for radiological procedure).

1.18 Procedure / Surgery Conclusion Begun (PCB) = Time when diagnostic or therapeutic maneuvers are completed and attempts are made by the physician or surgical team to end any noxious stimuli (e.g., beginning of wound closure, removal of bronchoscope).

1.19 Procedure Physician of Record Out (PPRO) = Time when physician / surgeon of record leaves the OR/PR (see Discussion).

1.20 Procedure / Surgery Finish (PF) = Time when all instrument and sponge counts are completed and verified as correct; all post-op radiological studies to be done in the OR/PR are completed; all dressings and drains are secured; and the physician / surgeons have completed all procedure related activities on the patient.

1.21 Patient Out of Room (POR) = Time at which patient leaves OR/PR.

1.22 Room Clean-up Start (RCS) = Time housekeeping or room personnel begin cleanup of OR/PR.

1.23 Arrival in PACU / ICU (APACU) = Time of patient arrival in PACU or ICU.

1.24 Anesthesia Finish (AF) = Time at which anesthesiologist turns over care of the patient to a post anesthesia care team (either PACU or ICU).

1.25 Room Clean-up Finished (RCF) = Time OR/PR is clean and ready for setup of supplies and equipment for the next case.

1.26 Ready-for-Discharge from Post Anesthesia Care Unit (RDPACU) = Time that patient is assessed to be ready for discharge from the PACU.

1.27 Discharge from Post Anesthesia Care Unit (DPACU) = Time patient is transported out of PACU.

1.28 Arrival in Same Day Surgery Recovery Unit = Time of patient arrival in Same Day Surgery Recovery Unit.

1.29 Ready-for-Discharge from Same Day Surgery Recovery Unit (RSDSR) = Time that patient is assessed to be ready for discharge from the Same Day Surgery Recovery Unit.

1.30 Discharge from Same Day Surgery Recovery Unit (DSDSR) = Time patient leaves SDSR unit (either to home or other facility).

PROCEDURAL AND SCHEDULING DEFINITIONS AND TIME PERIODS

(For purposes of analyzing efficiency, each of the time periods defined below may be further classified by the subscripts E and A, for "Estimated" and "Actual", respectively.)

2.1 Anesthesia Preparation Time (APT) = Time from Anesthesia Start to Anesthesia Ready Time.

2.2 Average Case Length (ACL) = Total Hours divided by total number of cases performed within those hours.

2.3 Block Time (BT) = Hours of OR/PR time reserved for a given service or physician / surgeon. Within a defined cutoff period (e.g., 72 hours prior to day of surgery), this is time into which only the given service may schedule. (N.B., in some institutions, this is known as Available or Allocated Time.)

2.4 Case Time (CT) = Time from Room Set-up Start to Room Clean-up Finished (see Discussion).

2.5 Early Start Hours (ESH) = Hours of Case Time performed prior to the normal day's start time when it is not expected that the Patient Out of Room Time will be before the normal start time for that day.

2.6 Evening / Weekend / Holiday Hours (EWHH) = Hours of Case Time performed outside of Resource Hours.

2.7 In-own Block Hours (IBH) = Hours of Case Time performed during a Service's own Block Time. (N.B., for a case to be counted in IBH, it must begin during that given Service's Block Time.)

2.8 Open Time (OT) = Hours of OR/PR time not reserved for any particular Service, into which any Service or physician / surgeon may schedule according to the rules established by the given institution (N.B., in some institutions, this is known as Discretionary Time).

2.9 Outside-own Block Hours (OBH) = Hours of Case Time performed during Resource Hours but outside of the Service's Block Time.

2.10 Overrun Hours (OVRH) = Hours of Case Time completed after the scheduled closure time of the OR/PR (i.e., after the end of that days Resource Hours).

2.11 Released Time (RT) = Hours of OR/PR time that are released from a service's Block Time and converted to Open Time (typically done when a service anticipates that it will be unable to use the block time due to meetings or vacation).

2.12 Resource Hours (RH) = Total number of hours scheduled to be available for performance of procedures (i.e., the sum of all available Block Time and Open Time). This is typically provided for on a weekly recurring basis, but may be analyzed on a daily, weekly, monthly, or annual basis (see Discussion).

PROCEDURAL AND SCHEDULING DEFINITIONS AND TIME PERIODS

2.13 **Room Clean-up Time (RCT)** = Time from Patient Out of Room to Room Clean-up Finished.

2.14 **Room Close (RC)** = Time at which the room should be empty and the assigned personnel free to be discharged.

2.15 **Room Open (RO)** = Time when appropriate staff are scheduled to be present and are expected to have the OR/PR available for patient occupancy.

2.16 **Room Set-up Time (RST)** = Time from Room Set-up Start to Room Ready.

2.17 **Service** = a group of physicians or surgeons that together perform a circumscribed set of operative or diagnostic procedures (e.g., Cardiothoracic Surgery, Interventional Radiology). Generally, any member of a service may schedule into that service's block time. Similarly, OR/PR time used by a given physician or surgeon is credited to his/her service's Total Hours.

2.18 **Surgical Preparation Time (SPT)** = Time from Position / Prep Start to Procedure / Surgery Start Time.

2.19 **Start Time (ST)** = Patient In Room Time (see Discussion).

2.20 **Total Cases (TC)** = Cumulative total of all cases done in a given time period. May be subdivided by Service or physician / surgeon.

2.21 **Total Hours (TH)** = Sum of all Case Times for a given period of time. $TH = IBH + OBH + EWHH$. May be subdivided by Service or individual physician / surgeon.

2.22 **Turnover Time (TOT)** = Time from prior Patient Out of Room to succeeding Patient In Room Time for sequentially scheduled cases (see Discussion).

3 UTILIZATION AND EFFICIENCY INDICES

3.1 Adjusted-Percent Service Utilization (ASU) = $(IBH + OBH) \times 100 / BT$. This measures the percentage of time a Service utilizes their Block Time during Resource Hours. It is adjusted, compared to Raw Utilization, in that it gives a Service "credit" for the time necessary to set-up and clean-up a room, during which time a patient can not be in the room. It may exceed 100% because of the inclusion of cases performed during Resource Hours that are Outside-own Block Hours (see Discussion).

3.2 Adjusted-Percent Utilized Resource Hours (AURH) = $(\text{Total Hours} - \text{Evening} / \text{Weekend} / \text{Holiday Hours}) \times 100 / \text{Resource Hours}$. This calculation provides the percentage of time that the OR / PR's are being prepared for a patient, are occupied by a patient, or are being cleaned after taking care of a patient during Resource Hours. It is adjusted, compared to Raw Utilization, in that it includes the time necessary to set-up and clean-up a room, during which time a patient can not be in the room (see Discussion).

3.3 Delays may be due to:

3.3.1 Patient Issues

- Insurance problems
- Patient arrived late
- Patient ate / drank
- Abnormal lab values
- Surgery issues
- Complications arose

3.3.2 System Issues

- Test results unavailable
- Blood unavailable
- Patient not ready on floor
- Transport Delay
- Elevator Delay
- Previous case ran late
- Case bumped for emergency case
- Equipment unavailable
- Equipment malfunction
- X-rays unavailable
- X-ray technician unavailable
- Delay in receiving floor bed
- Insufficient post procedure care beds
- ICU delay
- Instrument problem

3.3.3 Practitioner issues

- Needs more workup (e.g., labs, consults)
- No consent
- Physician / Surgeon arrived late
- Anesthesiologist arrived late
- Physician / Surgeon unavailable
- Anesthesiologist unavailable
- Inaccurate posting
- Prolonged setup time

3 UTILIZATION AND EFFICIENCY INDICES

3.4 Early Start = When Patient In Room, Actual, is prior to Patient In Room, Scheduled.

3.4.1 With overlap - when a case starts early but prior to the Room Clean-up Finished, Actual, of the case originally scheduled to precede it (this occurs when either the preceding or following case is moved to a different OR/PR than originally scheduled).

3.4.2 Without overlap - when a case starts early but after the Room Clean-up Finished, Actual, of the case originally scheduled to precede it (this may occur because there is no preceding case or because the preceding case finishes earlier than scheduled).

3.5 Late Start = When Patient In Room, Actual, is after Patient In Room, Scheduled.

3.5.1 With no-interference - when the Room Clean-up Finished, Actual, of the preceding case occurs before the Room Set-up Start, Scheduled, of the following case (i.e., the OR /PR is available prior to or at the time that preparation for the next case is supposed to begin).

3.5.2 With interference - when Room Clean-up Finished, Actual, of the preceding case occurs after the Room Set-up Start, Scheduled, of the following case (i.e., the OR /PR is not available at the time that preparation for the next case is supposed to begin, either because it is still occupied or because it has not been cleaned).

3.6 Overrun = When Room Clean-up Finished, Actual, for the last scheduled case of the day is later than Room Close. This may be caused by a late start, a Case Time, Actual, greater than Case Time, Scheduled, or a combination of late start and longer than scheduled Case Time.

3.7 Productivity Index (PI) = Percent of time per hour that a patient is in the OR/PR during the prime shift time (e.g., first 8 hours).

3.8 Raw Utilization (RU) = For the system as a whole, this is the percent of time that patients are in the room during Resource Hours (see Adjusted-Percent Utilized Resource Hours). For an individual service, this is the percent of its Block Time during which a service has a patient in the OR /PR (see Adjusted-Percent Service Utilization).

3 UTILIZATION AND EFFICIENCY INDICES

3.9 **Room Gap** = Time OR/PRs are vacant during Resource Hours

3.9.1 Empty Room (or Late Start) Gap (LSG)

Planned - When Patient In Room, Scheduled, is later than Room Open.

Unplanned - When Patient In Room, Actual, is later than Room Open.

3.9.2 Between Case Gaps (BCG)

Planned - When Patient In Room, Scheduled, is later than the Room Clean-up Finished, Actual, of the preceding case.

Unplanned - When Patient In Room, Actual, is later than the Room Clean-up Finished, Actual, of the preceding case.

3.9.3 End of Schedule Gaps (ESG)

Planned - When Room Clean-up Finished, Scheduled, occurs before Room Close.

Unplanned - When Room Clean-up Finished, Actual, occurs before Room Close.

3.9.4 Total Gap Hours (TGH) = LSG + BCG + ESG

4 PATIENT CATEGORIES:

4.1 **In-house (IH)** Patient admitted to and residing in the hospital prior to scheduled surgery/procedure.

4.2 **Outpatient (OP)** Patient who is coming in on the day of surgery/procedure and is expected to return home following the procedure.

4.3 **Same Day Admit (SDA)** Patient who is coming in on the day of surgery/procedure and will be admitted to the hospital following the procedure.

4.4 **Overnight Recovery (ONR)** Patient who comes in on the day of surgery/procedure but requires overnight recovery prior to returning home. These patients are never admitted to the hospital as inpatients, but may remain in the recovery facility for 1223 hours post surgery/procedure.

PTG DISCUSSION

The foregoing list of Procedural Times was intentionally made exhaustive in order to be all inclusive. This by no means suggests that all of the data points defined need to be collected by all institutions. Where problems with OR / PR efficiency exist, whether they are real or perceptual, collecting the appropriate times listed above, and calculation of the pertinent time periods, will permit objective evaluation of where the real problems lie. Use of common definitions across the country will also permit inter-institutional comparisons that have been previously impossible.

Several terms listed in the Procedural Times Glossary have not had heretofore a universally accepted definition. For several of these, the authors, the Board of Directors of the Association of Anesthesia Clinical Directors, and the Society for Technology in Anesthesia National Database Committee felt that there existed significant controversy over which definition should be chosen. Although for each of these a consensus was generated which led to the definition chosen, general acceptance of these choices may be improved if the logic behind the decision is known. For those terms which created serious debate, the following discussion of terms is provided.

Adjusted-Percent Service Utilization (ASU) = $(IBH + OBH) \times 100$ BT. This measures the percentage of time a Service utilizes their Block Time during Resource Hours. It is adjusted, compared to Raw Utilization, in that it gives a Service "credit" for the time necessary to set-up and clean-up a room, during which time a patient can not be in the room. It may exceed 100% because of the inclusion of cases performed during Resource Hours that are Outside-own Block Hours.

Adjusted-Percent Utilized Resource Hours (AURH) = $(\text{Total Hours} - \text{Evening} / \text{Weekend} / \text{Holiday Hours}) \text{ Resource Hours} \times 100$. This calculation provides the percentage of time that the OR / PR's are being prepared for a patient, are occupied by a patient, or are being cleaned after taking care of a patient during Resource Hours. It is adjusted, compared to Raw Utilization, in that it includes the time necessary to set-up and clean-up a room, during which time a patient can not be in the room.

Raw Utilization (RU) = For the system as a whole, this is the percent of time that patients are in the room during Resource Hours (see Adjusted Percent Utilized Resource Hours). For an individual service, this is the percent of its Block Time during which a service has a patient in the OR /PR (see Adjusted-Percent Utilization).

Frequently, institutions attempt to assess the extent to which a service uses its allotted Block Time by calculating a utilization percentage. Such a calculation should be performed for the system as a whole to measure the extent to which the "normal" hours of operation are actually used for patient care. If one considers only the time that a patient is in the OR / PR (Raw Utilization), then the percent of time that a service uses their block time is artificially lowered because the time necessary to set-up and clean-up a room, during which time a patient can not be in the room, is not accounted for. Similarly, the calculation of percentage utilization of Resource Hours is artificially reduced if only patient in room time is used. The larger the number of procedures done in a given room during Resource Hours, the greater the error.

Cost effective utilization requires highly effective scheduling and optimum utilization of the Resource Hours, with minimal overtime and/or uses of more highly paid on-call personnel. For proper assessment of the extent to which a service or system utilizes its Block or Resource Hours, respectively, the utilization calculations should be adjusted as defined above. For the individual service, this provides a fairer determination of how much of their Block Time is truly used. For the system as a whole, it provides the actual percentage of time that the OR / PRs are being used for patient care. Perhaps as important, it provides an accurate percentage of time that is not used and therefore available for efficiency improvements.

PTG DISCUSSION - Continued

Anesthesiologist, First Available (AFA) = Time of arrival in OR/PR of first anesthesiologist who is qualified to induce anesthesia in patient.

Procedure Physician, First Available (PPFA) = Time of arrival in OR/PR of first physician / surgeon qualified to position and prep the patient.

If delays in starting cases are thought to be due to the late arrival of either a qualified anesthesiologist or surgeon, recording of these times will allow documentation of the extent of that cause of delay.

Anesthesia Ready (AR) = Time at which the patient has a sufficient level of anesthesia established to begin surgical preparation of the patient, and remaining anesthetic chores do not preclude positioning and prepping the patient.

To maximize efficiency, surgical preparation of the patient should begin as soon as an adequate level of anesthesia has been obtained. In some instances however, the anesthesiologist may need to continue anesthetic preparation of the patient (e.g., insertion of Swan-Ganz catheter) that precludes moving or prepping the patient. Anesthesia Ready is thus defined as that time when the anesthesiologist may allow surgical preparation to begin.

Anesthesiologist of Record In (ARI) = Time of arrival in OR/PR of anesthesiologist of record.

Procedure Physician of Record In (PPRI) = Arrival time of physician / surgeon of record.

In academic settings, delays may be due to the late arrival of either the attending anesthesiologist or surgeon. Recording of these times will allow one to determine if tardiness of either attending contributes to delays. Further, in the future, accrediting bodies and insurance carriers may require documentation of the time of presence of the physicians of record.

Case Time (CT) = Time from Room Set-up Start to Room Clean-up Finished.

This definition includes all of the time for which a given procedure requires an OR/PR. It allows for the different duration of Room Set-up and Room Clean-up Times that occur because of the varying supply and equipment needs for a particular procedure. For purposes of scheduling and efficiency analysis, this definition is ideal because it includes all of the time that an OR/PR must be reserved for a given procedure.

Procedure Physician of Record Out (PPRO) = Time when physician / surgeon of record leaves the OR/PR.

Because perceptual differences of turnover times abound, it is important to note when the physician of record leaves the OR/PR, as this may be significantly earlier than when the patient leaves the OR/PR. In those situations when an anesthesiologist is supervising another anesthesia care provider (resident or CRNA), the anesthesiologist of record may be in and out of the OR/PR multiple times, and thus no analogous definition has been provided for.

PTG DISCUSSION - Continued

Resource Hours = Total number of hours scheduled to be available for performance of procedures (i.e., the sum of all available Block Time and Open Time). This is typically provided for on a weekly recurring basis, but may be analyzed on a daily, weekly, monthly, or annual basis.

For a given institution, this is the time during which an optimum number of appropriate personnel are available to do cases. This may include more than one shift of personnel, or personnel working extended shifts (i.e., greater than 8 hours), in order to gain vertical expansion of OR / PR hours. It may also include electively scheduled time on weekends to gain horizontal expansion of OR /PR hours. Resource hours do not include time gained through overtime or use of on-call personnel, even though this time may be routinely accrued at a given institution.

Room Ready (RR) = Time when room is cleaned and supplies and equipment necessary for beginning of next case are present.

To maximize efficiency, the patient should be brought into the OR/PR as early as possible. Although some wish to have all the supplies and equipment necessary for the entire case present and open before the patient is brought in, institutions which have minimized turnover times move patients into the OR/PR as soon as it is clean and only the minimum supplies and equipment (i.e., those needed to start the case) are present, but not necessarily open. In those institutions, room preparation continues as anesthesia is induced, allowing an overlap of processes (anesthesia induction and room preparation) that saves time.

Start Time (ST) = Patient In Room Time.

Significant debate, indeed, even argument, exists over the proper definition of Start Time. Operating and procedural room nurses generally feel that they have properly accomplished their preparatory tasks if the room is ready at the scheduled start time (Room Ready = Start Time, Estimated), regardless of where the patient is at that time. Anesthesiologists often feel that they are "on time" if anesthesia induction has been completed by the scheduled start time (Anesthesia Ready = Start Time, Estimated). Surgeons generally believe start time should be the time at which the procedure is begun (Procedure / Surgery Start Time = Start Time, Estimated). Since Room Set-up Time is procedure specific and therefore generally known at the time of scheduling, one can reasonably predict Room Ready Time. Anesthesia Preparation Time, however, depends on both the procedure and patient needs. It is thus more variable and not known at the time a procedure is scheduled, making accurate prediction of Anesthesia Ready Time impossible. This variability in Anesthesia Preparation Time also makes prediction of Procedure / Surgery Start Time inaccurate. Variability in Case Times, due to varying length of surgery, makes prediction of Start Times after the first scheduled case of the day even more inaccurate.

Much of the concern over Start Time is for the first case of the day, particularly when a service or surgeon follows her/himself in the same OR /PR throughout the day. Prediction, then, of accurate Start Times for the first case of the day appears to be most critical. Once the procedure is known, it is almost always possible to have the Room Ready at any time that is desired for the start of the day. It should also be possible, and desirable for maximizing efficiency, to have the patient in the room for the first case of the day as soon as the room is ready. For maximizing scheduling accuracy and attempting to encourage the most efficient patient flow, the authors have elected to define Start Time as Patient In Room Time.

PTG DISCUSSION - Continued

Turnover Time (TOT) = Time from prior Patient Out of Room to succeeding Patient In Room Time.

Strong perceptual differences exist over the definition of Turnover Time. Anesthesiologists and OR/PR Nurses usually consider turnover time to be the time between cases when the room is not occupied by a patient. Surgeons consider any time when they are unable to operate as "down time", and thus more often consider turnover time to be the time between the end of surgery on one case and the beginning of surgery on the next case. The latter may appear to be particularly long to an academic surgeon who leaves an OR before the wound is closed (allowing the residents to close and dress the incision) and does not re-enter the OR until the next patient is ready for incision.

As with Start Time, the variability of Anesthesia Preparation Time makes prediction of turnover times inaccurate if APT were to be included. Thus, to maximize scheduling accuracy and to encourage distinction of time spent preparing the OR/PR from time spent preparing the patient, the authors have elected to define Turnover Time as time from prior Patient Out of Room to succeeding Patient In Room Time for sequentially scheduled cases. As this definition attempts to include the time spent cleaning and preparing the OR/PR for the next case, it should only be calculated if a subsequent case is scheduled to immediately follow. With non-sequential cases, idle time between Room Clean-up Finished for the prior case to Room Set-up Start for the subsequent case should be identified and recorded under the appropriate room-gap category.