# Success in Preventing Wrong-Site Procedures in Minnesota with the Minnesota Time Out

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## Editor's Note

The Pennsylvania Patient Safety Authority is pleased to report another success in improving wrong-site surgery from colleagues in Minnesota, who have also undertaken a project to prevent wrong-site surgery in their state.

In Minnesota, as in Pennsylvania, wrong-site surgeries and wrong-site invasive procedures are issues of great concern. In 2008, Minnesota used a collaborative approach to develop a human-factors-based time-out process known as the Minnesota Time Out. Since spring 2011, an effort has been under way to implement the Minnesota Time Out statewide, with a goal of having every hospital and ambulatory surgery center perform the specific steps of the time-out for every invasive procedure, every time.

During the first seven years in which Minnesota's mandatory statewide adverse event reporting law has been in effect (2003 to 2010), 155 (11%) of the 1,403 adverse events that were reported to the Minnesota Department of Health by hospitals and ambulatory surgery centers were wrong-site procedures. The number of reported events in this category increased from 13 in year one to 31 in year seven, with nearly one-third resulting in a need for additional treatment, in some cases a second corrective procedure. Roughly 45% of these wrong-site procedures occurred outside of the operating room (OR), most commonly in interventional radiology, anesthesia, radiation therapy, and preoperative areas.

Data submitted under the adverse event reporting law underwent a thorough review beginning in 2007 that uncovered a number of common system breakdowns that contributed to the wrong-site procedures. Despite the existence of nationwide standards such as the Joint Commission's Universal Protocol for Preventing Wrong Site, Wrong Procedure and Wrong Person Surgery™, compliance with best practices for preventing wrong-site procedures was inconsistent, with site marking and time-outs present in only about half of all reported events in 2007. Based on these findings, in 2008 the Minnesota Department of Health and the Minnesota Hospital Association (MHA) began working closely with the University of Minnesota's Center for Design in Health, a research center that works to integrate human factors system design into healthcare work processes, to develop a more rigorous time-out process grounded in human factors principles.

Researchers from the Center for Design in Health observed surgeries in eight facilities around Minnesota in 2008 to document weaknesses in preprocedure verification processes. Their findings were strikingly consistent across observed facilities. Regardless of facility size, geographic location, and procedure type, the team observed the following:

— Inconsistent site-marking practices, including cases without site marks, cases in which the site was marked in the OR rather than in preoperative areas, cases in which site marks were removed or obscured, and cases in which site marks were ambiguous or were made without reference to source documents

— Inconsistent time-out processes, including cases with no time-out, cases in which team members did not cease other activities or actively participate in the time-out, cases in which information for the time-out was provided from memory rather than with the use of source documents, and cases in which the time-out was done without the surgeon present

Based on these observations, the researchers worked with the department of health and MHA to develop a comprehensive preprocedure verification process, the Minnesota Safe Surgery process. The steps in the time-out portion of this process, and the rationale for each, are outlined in the following discussion.

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## MINNESOTA TIME OUT

The Minnesota Time Out is a critical component of the Minnesota Safe Surgery process. Each step of the time-out has been designed based on human factors and cognitive science principles to create an effective time-out that engages the full procedure team.

## IMPLEMENTATION AND DISSEMINATION

Since its development in 2008, the Minnesota Time Out has been incorporated into statewide wrong-surgery prevention work, with the goal of establishing this more prescriptive, more rigorous time-out as the statewide community standard (see Table). To accelerate this work, MHA convened a group that included the Minnesota Department of Health, the Minnesota Medical Association, the Minnesota Medical Group Management Association, the Minnesota Ambulatory Surgery Center Association, and the MMIC Group, a medical professional liability insurance company. This group of organizations established the Minnesota Safe Surgery Coalition to address challenges related to prevention of wrong-site procedures and to brainstorm strategies for leveraging each organization's resources and influence to push for statewide implementation of best practices to prevent wrong-site procedures.

During the spring of 2011, the Safe Surgery Coalition initiated a three-year campaign to eliminate wrong-site procedures, with the first year focusing on ensuring that the Minnesota Time Out was conducted for every patient, every invasive procedure, every time. Each facility that signed up to participate in the Minnesota Time Out campaign is required to have its chief executive officer sign off on this commitment, and participating organizations have access to training, videotaped simulations of the time-out for auditing practice, and other resources, including time-out videos, sample policies and scripts, and talking points. To assist in engaging physicians in the process, MHA developed a "Physician Peer-to-Peer" DVD that features prominent Minnesota surgeons talking about the importance, value, and simplicity of the Minnesota Time Out. More than 100 facilities across the state are currently involved in the campaign (see Figure).

While the journey to prevent wrong-site procedures in Minnesota is far from over, this concerted statewide effort to support implementation of the Minnesota Time Out is starting to bear fruit. Since Minnesota began requiring reporting of wrong-site procedures in 2003, the number of days between events has averaged roughly 13. During the first six months of the current reporting year, prior to

Table. The Minnesota Time Out

| STEP | RATIONALE |
|---|---|
| 1. Person performing procedure initiates, using a phrase such as "Let's do the time-out now." | The team is more likely to cease activity and come together for the time-out if it is initiated by the person performing the procedure; the person performing the procedure is the only one who can know when he or she is ready to begin. |
| 2. Team ceases all activity. | Active listening and participation: team cannot cognitively engage in time-out if engaged in other activities. |
| 3. Designated staff member, other than person performing procedure (e.g., in the operating room [OR], the circulator), verbally states patient name, procedure, and location while referring to source documents. In the OR, the anesthesia care provider then provides patient name and procedure from his or her documentation. | Source documents have been verified prior to the procedure and should be an accurate source of information.<br>All team members must have an active role in the time-out in order to be cognitively engaged.<br>Requiring an active response (rather than "I agree") from all team members and providing each with an active role counters rote recitation. |
| 4. Designated staff member, other than person performing procedure (e.g., in the OR, the scrub staff member), locates and verbally confirms visualization of site mark, and states where it is located. | The site mark has already been verified against source documents; it must be visualized as part of the time-out. |
| 5. Person performing procedure verbally states procedure, including location, from memory. | Providing information from memory increases focus on the procedure.<br>The surgeon is the last to verify in order to control for hierarchy or power differential (i.e., if the surgeon states information first, the team is more likely to agree rather than provide independent verification). |

Figure. Minnesota Time Out


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the launch of the time-out campaign, the average number of days between events was 11, and the state was on track for another increase in the annual number of events. In the latter half of the reporting year, the average number of days between events has risen to roughly 30, and Minnesota is on track to achieve a roughly 20% reduction in these serious—and preventable—events.

Time will tell whether this reduction will be sustainable, but Minnesota's experience in working to establish a consistent and effective time-out process as the statewide community standard in hospitals and ambulatory surgery centers has provided a number of key lessons about how to develop and implement process changes within and across organizations, as well as lessons about the sometimes hidden barriers to change that often derail safety campaigns. The process has highlighted, once again, the importance of clear leadership expectations and standards, particularly for surgeons, in conducting the time-out. It has also shown that a prescriptive process can be successful, as long as those who are carrying it out are well-versed in the rationale for the steps, know what to look for when auditing the process, and have the authority to speak up when the process is not being followed. These key lessons can offer insight into not only how to design a comprehensive safe-surgery process, but also how to engage organizations and team members to successfully implement and sustain the key best practices that will have an impact on outcomes.

For more information about the Minnesota Time Out and the Minnesota Safe Surgery Coalition, visit http://www.mnhospitals.org/index/timeout.

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