

Electronic reminders can help patients prevent surgical site infections

August 1 2014

The use of electronic reminders such as text messages, emails or voicemails is highly effective at getting surgical patients to adhere to a preadmission antiseptic showering regimen known to help reduce risk of surgical site infections (SSIs), according to a first-of-its-kind study published in the August issue of the *Journal of the American College of Surgeons*.

Each year approximately 400,000 SSIs occur and lead to a death rate approaching nearly 100,000 according to data sources cited by study authors. To help reduce the risk of these dangerous infections, clinicians recommend that surgical [patients](#) take antiseptic showers with chlorhexidine gluconate (CHG) 24 to 48 hours before admission. CHG is beneficial because it reduces the microbial burden on the surface of the skin and, thereby, the risk of intraoperative wound contamination.

"SSI risk reduction really involves a holistic approach and the preadmission shower is an important component of that comprehensive prevention program. So, if a patient excludes one of the components in this process, the benefit of the surgical care could be affected," said lead study author Charles E. Edmiston, PhD, professor of surgery and hospital epidemiologist, Medical College of Wisconsin, Milwaukee.

"In general, getting patients to comply with this preadmission cleansing strategy is a challenge throughout [health care](#)," Dr. Edmiston said.

"While patients want to be compliant, they will often forget to fulfill this preadmission requirement. So, that's why we looked to new technology

for a solution. When you use a prompt like texting or emailing, you make the patient an intimate partner in the health care process."

For the study, researchers recruited 80 healthy volunteers who were randomized to one of four skin-antiseptic showering groups. Electronic alerts were sent as voicemails, text messages or emails, with text messages being the most popular method (80%) among volunteers. Volunteers were randomized to either taking two (Group A) or three showers (Group B). Group A1 and group B1 was prompted to shower by an electronic alert reminder, while Groups A2 and B2 did not receive an electronic prompt.

The participants were instructed to return to the laboratory within three hours after their last shower to have their skin-surface concentrations of CHG analyzed at five separate sites on their bodies. Researchers measured compliance by looking at skin-surface concentrations of CHG in all 80 individuals who were assigned to take the antiseptic showers.

The analysis showed that CHG skin-surface concentrations were significantly higher in groups A1 and B1 (patients who received alerts) compared with groups A2 and B2 (patients who did not get reminders). In a comparative analysis between groups A1 and A2, there was a 66 percent reduction in the composite mean concentration of CHG on the skin surface in patients who were not alerted to shower (group A2) compared with those who received electronic reminders (group A1).

Furthermore, in the groups that showered three times, there was a 67 percent reduction in the composite mean skin-surface concentration of CHG in patients who were not alerted before showering (group B2) compared with those who received electronic alerts (group B1).

Thus, the researchers conclude that the patients who did not receive digital communications reminding them to shower were significantly less

compliant with preadmission orders compared with those who received the [electronic reminders](#). These study findings have great ramifications not only for this preadmission strategy and its potential impact on SSI risk reduction, but also for other preadmission orders.

"I think a study like this provides us with a tremendous opportunity to empower patients because it clearly makes them an intimate partner in the whole health care experience," Dr. Edmiston said. "It's reminding them that they are not a passive player but rather an active participant in an important risk-reduction strategy that if successfully completed can contribute to an improved clinical outcome."

Ultimately, the researchers are striving to develop a standardized process wherein [surgical patients](#) take preadmission showers in a methodical way, resulting in an overall improvement in outcomes. Moving forward, additional research is needed to determine if electronic alert reminders and better compliance translate into lower SSI rates, Dr. Edmiston concluded.

More information: *Journal of the American College of Surgeons*, August 2014: Vol. 219 (2) 256-264.

Provided by American College of Surgeons

Citation: Electronic reminders can help patients prevent surgical site infections (2014, August 1) retrieved 5 May 2024 from

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