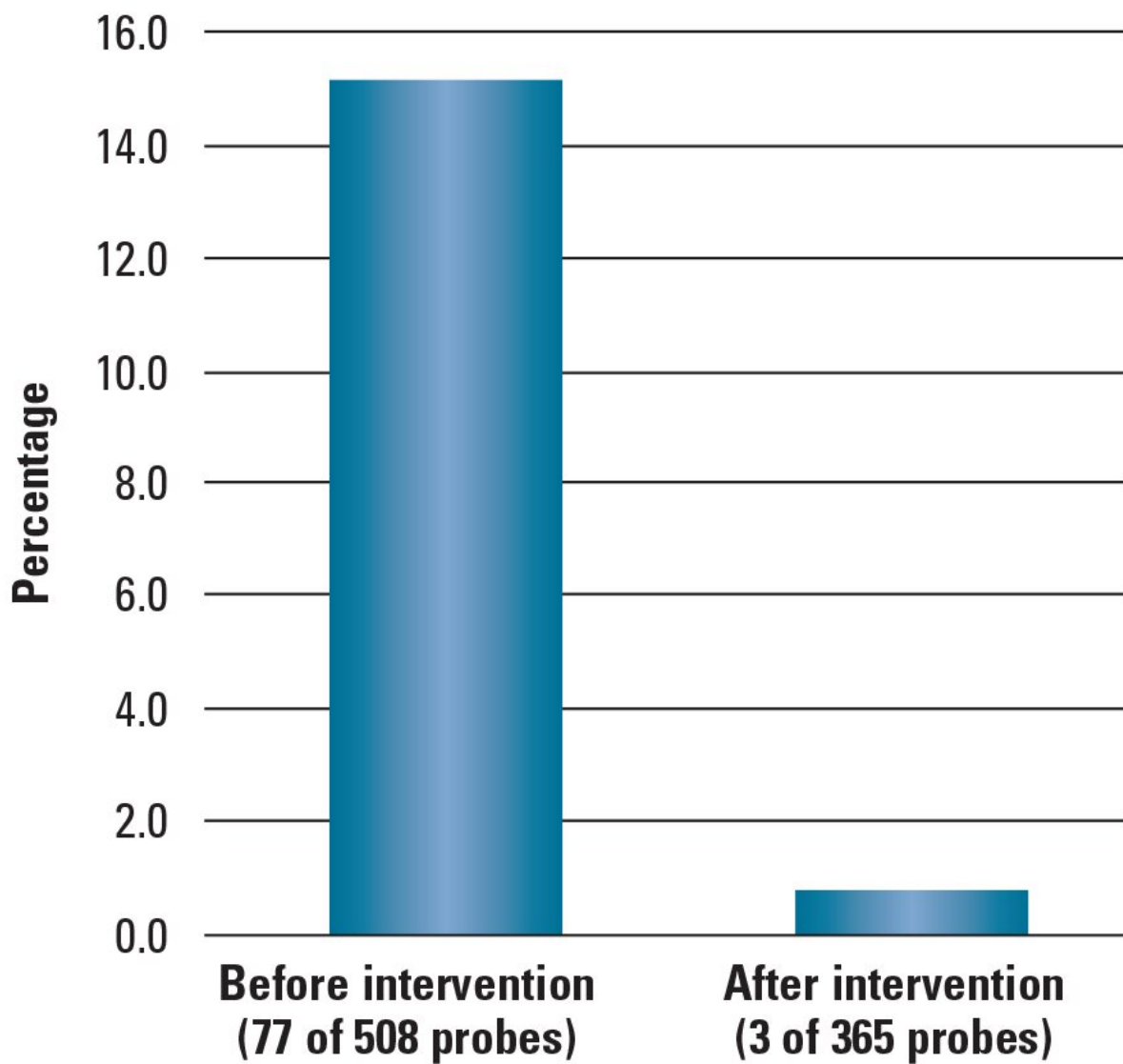


Initiative reduces off-label pulse oximeter placement

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Percentages of finger pulse oximeter probes used on the ear before and after the intervention. Credit: *Critical Care Nurse* (2022). DOI: 10.4037/ccn2022998

The critical care team at UCHealth in Colorado reduced the off-label placement of pulse oximetry sensors from 15% to less than 1%, according to an article published in the December issue of *Critical Care Nurse*.

"Improving Patient Safety by Increasing Staff Knowledge of Evidence-Based Pulse Oximetry Practices" details how the short-term quality improvement initiative helped change the culture of [pulse oximetry](#) use, with long-term solutions, ongoing education and the addition of dedicated ear probes in each critical care patient room.

Pulse oximetry is a commonly used monitoring technology that provides an indirect and accurate method of measuring a patient's oxygen saturation, an essential element in critical care units and many inpatient clinical areas. The results help inform decisions regarding oxygen therapy.

Many common clinical situations can result in using a pulse oximetry sensor in an off-label location, such as placing a finger sensor on an earlobe. With limited literature about the accuracy of such off-label use, it's considered a best practice to follow the manufacturer's guidelines and use sensors for only those locations for which they are designed.

Co-author Maureen Varty, Ph.D., RN, is a research nurse scientist at UCHealth University of Colorado Hospital and an assistant professor at University of Colorado College of Nursing, Aurora. She worked on the initiative with Danielle Hlavin, BSN, RN, CCRN-CMC, a charge nurse at UCHealth Memorial Hospital Central in Colorado Springs.

"When trying to get an oxygen reading, it can be easy to use the same sensor in various points, but pulse oximeters are not interchangeable," Hlavin said. "By taking the time to understand the barriers to practice, we identified [sustainable solutions](#) and reinforced [best practices](#) for using the correct type of sensor and preventing pressure injuries that may develop."

The initiative was a response to noticing that off-label placement was being used in critical care patient rooms, with inconsistent practices that could affect [patient safety](#).

Audits were conducted by entering each occupied patient room and noting finger probes being used on off-label sites. In the preintervention audit, with 508 observations during August through October 2020, a finger [probe](#) was used off label in 77 patients (15.2%). In the postintervention audit in March and April 2021, with 365 observations, a finger probe was used instead of an ear probe in only three patients (0.8%).

The team used a simple preintervention survey to assess healthcare staff members' knowledge of and confidence in pulse oximetry use and appropriate placement. Before the intervention, only 38.9% of bedside staff members said they knew not to use finger sensors on the ear. After the intervention, 85% of respondents knew not to do so.

They also evaluated the availability of pulse oximetry supplies, types of supplies and any barriers to obtaining this equipment. This assessment revealed anecdotal evidence that staff members had difficulty quickly locating ear probes for their patients, leading them to turn to off-label placement when finger sensors were not able to detect a good signal.

With the support of hospital management, 90 ear probes were purchased for critical care settings. These were labeled "ICU" and affixed to the

[pulse](#) oximeter cable in each patient room for easy access.

A brief, formal educational presentation was first provided to 175 nurses in October 2020 during staff skill laboratories, and then to 37 respiratory therapists and 21 patient care technicians and advanced care providers during their staff meetings from October 2020 through January 2021.

Further education was provided in real time to mitigate the potential risks of pressure injuries developing from the use of ear probes and ensure that best practices continued to be followed.

More information: Danielle Hlavin et al, Improving Patient Safety by Increasing Staff Knowledge of Evidence-Based Pulse Oximetry Practices, *Critical Care Nurse* (2022). [DOI: 10.4037/ccn2022998](https://doi.org/10.4037/ccn2022998)

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