An angel on my shoulder: Mobile telemedicine for nursing homes

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In June 2016, Zeriscope, a technology company based in Charleston, SC, reached an agreement with White Oak Management (WOM) of Spartanburg, SC to provide its mobile telemedicine platform to more than a dozen of its skilled nursing facilities (SNFs).

Zeriscope is an enterprise-grade, hands-free, mobile-first, multi-sensor SaaS (Software as a Service) platform. Nurses empowered with a Zeriscope-enabled mobile device are able to stream their point-of-view from a tethered camera system in real-time, high-definition video, with advanced sensor streams such as Bluetooth stethoscope audio.

Like hospitals before them, SNFs are looking to telemedicine to help them lower rates of readmission, but the costs associated with traditional point-to-point telemedicine may prove a barrier, as profit margins for SNFs can be very narrow.The answer could lie in mobile telemedicine, which carries a much smaller price tag than traditional point-to-point telemedicine.

"A point-to-point telemedicine system can cost tens of thousands of dollars and requires a lot of infrastructure," said William Harley, Chief Executive Officer of ZeriscopeTM. "Our system is much less expensive, making it a viable option for SNFs."

Beginning in 2017, SNFs will be required by the Centers for Medicare & Medicaid Services to report rates of hospital readmission, and their performance on this measure will begin to affect their bottom line in

2018. There is no need to look far to understand the reasons for these new requirements—in fiscal year 2011, one quarter of Medicare nursing home residents were rehospitalized, at a price tag of $14.3 billion.

White Oak Management was quick to see the potential of ZeriscopeTM to improve patient care and prevent unnecessary hospital readmissions. "When introduced to Zeriscope and its innovative approach to telemedicine, we instantly realized that the Zeriscope platform could be a game changer in lowering the rates of patient rehospitalization and avoidable readmissions while maintaining White Oak's overall star rating," said John Barber, Chief Financial Officer of WOM.

Without telemedicine, the only recourse for nurses at SNFs is to verbally describe the patient's condition over the telephone. Much is lost in the translation—the physician has no way of assessing the patient's appearance and behavior and no way of checking real-time physiologic data. Because a comprehensive assessment is not possible, the physician often opts—out of an excess of caution—to transport the patient to the emergency department or hospital for further evaluation.

ZeriscopeTM makes possible a much more comprehensive assessment of SNF patients by off-site physicians, enabling them to "see the patients" in high-definition real-time streaming video, communicate with SNF staff, and access real-time physiologic sensor data. For example, at White Oak of Charleston, one of the WOM-operated SNFs, the ZeriscopeTM platform enables patients experiencing a health concern to be seen "virtually" by a physician any time of the day or night. Nurses use a mobile device—White Oak has opted for a tablet—to engage in a two-way audio/video consultation with a physician.

During the consultation, the nurse can use a high-definition camera tethered via Bluetooth to the mobile device to zoom in on an area of specific interest or zoom out to enable the physician to engage with more

members of the health care team. In addition to allowing the physician to see and speak with the patient, ZeriscopeTM can provide a wealth of physiologic feedback, including streaming stethoscope audio and EKG readings. Devices recording physiologic data can simply be plugged into or tethered via Bluetooth to the mobile device.

Because one component of the Zeriscope system is an elegantly designed, unobtrusive camera tethered to the mobile device that is mounted on the nurse's lapel or glasses, the video stream is hands-free. This important feature enables the nurse to interact naturally with the patient and other health care providers, examine the patient as directed by the physician, and apply additional physiologic sensors, as needed. Should the decision be made to transport, these data can be captured and sent with the patient.

"In addition to enhancing the capability for high-quality medical decisions when residents of the SNF experience problems, the ability to see, hear, listen to the heart and lungs, see the EKG, and interact with the staff and family is expected to reduce preventable admissions to the emergency department or hospital," said Robert J. Adams, M.D., President and Chief Medical Officer of Zeriscope.

Adams, a neurologist, was an early adopter of telemedicine and has played a seminal role in the development of telestroke. He is the South Carolina SmartState Endowed Chair in Stroke and Director of the South Carolina Stroke Center of Economic Excellence at the Medical University of South Carolina (MUSC). Adams is one of the inventors of Zeriscope and has an equity interest in the company. MUSC's Foundation for Research Development (FRD) also has a small equity stake in ZeriscopeTM.

Avoiding unnecessary hospital readmissions with mobile telemedicine not only makes good financial sense; it's good medicine. SNF patients,

who may be frail and face mobility challenges, are provided the best of medical care in a setting where they are comfortable without having to endure the stress of ambulance transport and the risk of fractures and infections. Nurses are empowered to treat more patients in place with confidence, knowing they have an angel on their shoulder—24/7 access to the expert advice of a physician.

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