Reducing the Prevalence of Pressure Ulcers Using a Smartphone App

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INTRODUCTION

OBJECTIVE

To reduce pressure ulcers (PUs) at the skilled nursing facility (SNF) at Teays Valley Center in West Virginia, U.S.A., using quality improvement methodologies and an innovative skin and wound smartphone application.

BACKGROUND

Pressure ulcers, a major type of chronice wound, is a serious healthcare problem reported to affect 11.3% of the population in skilled nursing facilities.[1]

The prevalence of these wounds is a key quality metric for the Centers of Medicare & Medicaid Services CMS), which regulates these facilities.

METHODS

Three initiatives were introduced at a 128-bed SNF to improve pressure ulcer prevention:

- Quality and a Root-Cause Analysis was conducted to improve the facility's wound care program.[2]
- A Skin Integrity Coordinator role was created to act as a central point of accountability for wound care-related activities and related performance metrics.
- A digital wound care management solution was implemented to track wound healing progression and management (Figure 1).[3]

Improvements in pressure ulcer prevention were monitored using CMS-reported quality metrics:

- The percentage of long-stay high-risk residents with pressure ulcers.
- The percentage of short-stay residents with pressure ulcers that are new or worsened.

RESULTS

The pressure ulcer prevalence for long-stay high-risk residents was 12.99% (Q4 2016) and, upon implementation of these initiatives, the facility saw continued reductions in pressure ulcer prevalence to as low as 2.9% (Q4 2017, Figure 2).

Pressure ulcer prevalence for short-stay residents was maintained at zero throughout this period.

In addition, the following improvements were observed:

- Allowed the SNF to survey all wounds at the population level.
- Brought wound issues to the forefront, enabled by the design of the Skin and Wound app dashboards and improved documentation compliance.
- Wound photos improved understanding and communication between stakeholders (interdisciplinary team, surveyors, resident and family members, legal teams).
- Photos conveyed the state of wounds in a way that written, technically-worded descriptions/jargon were unable to do.
- Improved the accuracy of wound classification, which in turn had the benefit of enacting correct, appropriate treatment regimens.
- The Skin and Wound App enabled remote consultation with a wound council consisting of physicians and experts located 500 miles away who made recommendations on how best to proceed with treatment.
- Comprehensive wound documentation was extremely advantageous during audits, impressing CMS surveyors and assisting with regulatory compliance.
- Wound metrics were monitored in real time, enabling more efficient management of nursing workload.
- Significant time-savings were reported from using digital documentation to replace paper-based wound documentation.
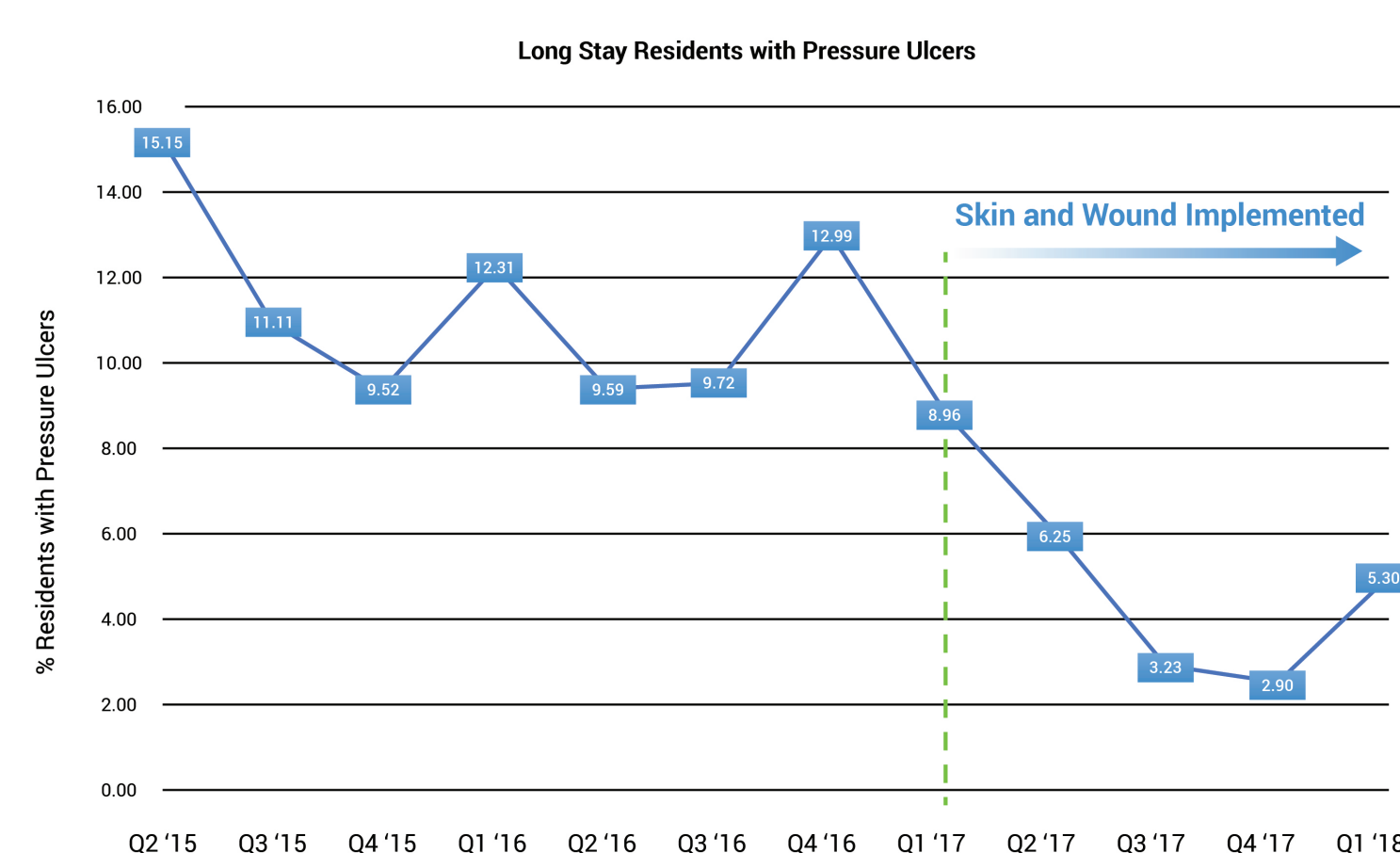
DISCUSSION

We report the results of a quality improvement study examining the consequences of changes in management practice, focusing on the implementation of a digital skin and wound management system, on the prevalence of PUs in both long- and short-stay resident populations, in a skilled nursing facility.

Implementation of the Skin and Wound app is associated with a reduction in the percentage of patients with PUs, a key minimum data set (Minimum Data Set)-derived quality metric.

We envision that use of the Skin and Wound app will have a significant impact on wound litigation. Using the practices reported in this study, residents' wounds are photographed, from admission to discharge.

Although there is a cost associated with utilizing the Skin and Wound app, the findings from this quality improvement study strongly suggest this will be greatly offset by savings realized as a result of improving PU wound care and preventing or minimizing their occurrence.

The results of this quality study highlight the importance of involving multiple stakeholders in the care and management of PUs.

REFERENCES

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DISCLOSURES

SCW is a co-founder and CMO of Swift Medical.
AC is an employee of Swift Medical.
YA was an employee of Swift Medical.

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Figure 1: Skin and Wound smartphone app (right two images) and web-based dashboard (left. The Swift App shows point-of-care wound assessment, photographs, measurements, and documentation. Dashboard shows aggregated wound information by progression.

Figure 2: Prevalence of pressure ulcers (PUs) in long-stay residents in Teays Valley Center skilled nursing facility. Line graphs indicate the percentage of long-stay high-risk residents with pressure ulcers and, a minimum data set (MDS)-derived quality measure) for the yearly quarters indicated. Data obtained from the Centers for Medicare & Medicaid Services (CMS) nursing home compare website.[4]