

Case Study: Leveraging Mobile-Video Telemedicine to Support Wound Care in Home-Health Consults at a Large Regional Provider

A major regional medical group in Northwest USA, part of the largest managed care organization in the United States, implemented a new telemedicine system to support their Home Health (HH) Wound, Ostomy and Continence Nurse (WOCN) Unit. After competitive trials, telmedx was chosen as the telemedicine partner for their Virtual Home Health WOCN program.

The Home Health unit collected data on every virtual-health consult over a four year period following rollout of the new telemedicine system. The data provide insights into the substantive role telemedicine support can play to augment the medical group’s Home Health WOCN clinical team. Four key questions are addressed.

1. Can telemedicine effectively handle a wide range of clinical consults and observation/reporting needs?

Over the three-year telemedicine study, an average census of 1,000 patients/day across a 3,400 square-mile service area were cared for by the Home Health unit’s WOCNs and clinicians. On average, the unit had approximately 350 patients per month on wound-care plans. Of these, 30% were simple surgical patients, temporarily housebound after total joint replacements and requiring physical therapy. The remaining 70% were complex, frail elderly who were mostly permanently housebound. Approximately 50% of this later group had chronic, non-healing wounds that required evaluation every 2 weeks. Overall, wound consults were segmented into “Chronic” and “Acute.”

Physician and nurse engagement with the new telemedicine system was high and remained effective across all types of consults encountered. At the time of reporting these findings, and based on the broad success of the implementation, the regional medical group is exploring roll out of the telemedicine system beyond wound care—and is considering geographical expansion of telemedicine-supported Home Health services as well as other clinical practice areas.

2. Can telemedicine support effectively integrate with, and enhance, existing team workflow?

A prerequisite for the new telemedicine system was that it overcome constraints in the old system that impeded effective clinical observation and resisted efficient integration into unit workflow. These constraints included an awkward or bulky camera unit, technical issues with uploading imagery to a medical record, lack of still-images to help document findings during a visit, and the requirement for Wi-Fi at a patient’s home for the system to function at all.

The new system addressed all these issues and achieved rapid and compliant adoption among physicians and nurses. Significantly, it utilized a simple app download to existing smartphones, intuitive and simple controls, and images plus a user-control interface that could be viewed on a single computer screen concurrent with an open EMR. As such, it integrated seamlessly with existing workflow as an efficient part of existing operations.

Beyond efficient integration, the new telemedicine system also demonstrated a causal role in improved patient outcomes—albeit one anecdotally self-reported by the clinical team. Typical of favorable outcomes was an elderly male receiving a care plan actually contraindicated by his real condition. Telemedicine images helped clarify his actual condition and a several-weeks’ long dermatitis cleared up within a week.

Types of Telemedicine-Supported Consult

Chronic Skin/Wounds	Acute Skin/Wounds
<p>Pressure Injuries - All Stages</p> <p>Lower Extremity Ulcers PVI—Very common PAD Lymphedema</p> <p>Cancer Lesions</p> <p>Stasis Dermatitis</p> <p>Chronic Skin Conditions Psoriasis</p>	<p>Surgical Wounds Open Midline/Sternal/ABD Ostomies NPWT/Wound VACs</p> <p>Partial Thickness Wounds Abrasions & Skin Tears</p> <p>Dermatitis Fungal Incontinent and Moisture Associated Radiation</p>

CHART 1: Chart 1 highlights the range of major categories of wound-care consultations supported by telemedicine-assisted Home Health unit physicians and nurses. Consistently efficient and effective levels of care were reported across all condition categories treated.

3. Does telemedicine have the flexibility to adjust to the environmental variability inherent in an in-home visit?

The telemedicine platform used in the study was designed to be adaptive in operation—adjusting to the varied and changeable bandwidth conditions found within home visits without disrupting workflow or introducing additional cost.

The paramount operational requirement in a new telemedicine system was consistent delivery of high-quality voice, video and still images—in all conditions—and without interruption. The new platform enabled concurrent high-resolution video, voice, and still-image observation/capture, without loss of fidelity or risk of dropped connection, even in low or variable bandwidth conditions.

Additionally:

- No additional hardware was needed—only a telemedicine app downloaded to a smartphone connecting to a web browser
- The telemedicine app could be forwarded to a mobile phone without disconnecting a prior call to a physician or WOCN
- The platform worked with typical cellular formats (3G/4G/LTE) as well as with Wi-Fi
- Variable lighting could be addressed by a WOCN remotely turning on the phone's light from the web browser

4. Can telemedicine cost-effectively support enhancements to both clinical efficiency and patient care?

The Centers for Medicare & Medicaid Services does not presently reimburse for telehealth or telemedicine services to patients at home except under special preapproved conditions. To justify use of telemedicine, therefore, the provider looked to demonstrate both care improvements and net-cost neutrality or cost reduction per patient. The case-study provider conducted the telemedicine trial to determine if this model delivered enhanced care cost effectively.

Telemedicine-Supported Consults Per WOCN/Month

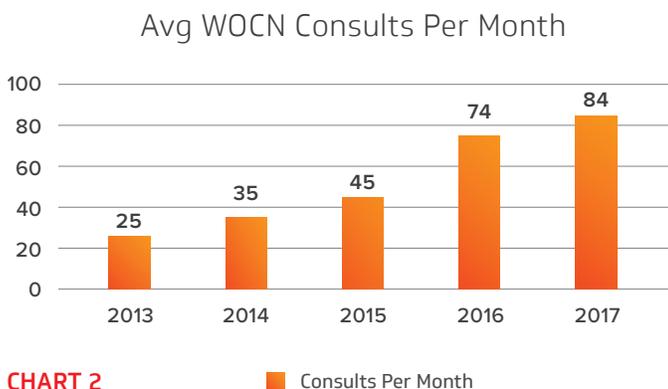


Chart 2 illustrates the WOCN's capacity to conduct HH consults. A net increase in consults per WOCN of +236% was reported over the course of the study for the new telemedicine system versus pre-implementation control—with reduction in care costs per patient.

Analysis of Operational Findings Per Year—and Outcomes

At implementation of the new telemedicine system in 2014 one WOCN was employed. Assisted by the new platform, the WOCN increased consult capacity by +40% versus pre-implementation year (2013), with concomitant improvements in care/outcomes. In 2015, the WOCN increased consults again. Total average patients per WOCN per month for 2015 increased by +29% versus 2014. Further, telemedicine-driven cost savings allowed addition of a second WOCN in December of 2015.

The addition of an additional WOCN—despite supporting an increase in number of annual consults—resulted in a slight reduction in consults per WOCN in 2016. This reduction in volume-efficiency was expected and welcomed. Prior to introduction of a second WOCN, the original WOCN was overextended, potentially impacting care and resulting in excessive overtime. The extra staff permitted a more efficient workload, reduced cost per patient and improved care and outcomes—while maintaining an impressive number of consults per WOCN. Moreover, as a consequence of accrued savings in 2016, the addition of a third WOCN in 2017 was made possible, and total patient evaluations increased to more than 250 per month.

Conclusions

Prioritizing of telemedicine to help deliver high levels of cost-effective HH clinician engagement, was key to this provider's capacity to care most effectively for its home-health-patient community.

The longitudinal study demonstrated how the telmedx system was able to meet the varied needs of the HH clinical staff while effecting anecdotal improvements in care for patients with improved outcomes. Quality of service was reproducible throughout the three-year study, and easily sustained among the new clinical staff added to the unit by virtue of telemedicine-driven cost savings. The telemedicine introduction and ongoing implementation was delivered successfully and consistent with expectations—and for this reason telmedx is the current partner of choice for the HH Unit. Additional opportunities to implement the telemedicine platform are also being evaluated for use outside of wound care, and in other expanded geographies.

Additional Insights

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