

## 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) unit managed by Wound, Ostomy and Continence nurses (WOC nurses). After competitive trials, telmedx was chosen as the telemedicine partner for their Virtual Home Health WOC nurse 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 clinical team. Four key questions are addressed.

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

Over the four-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 WOC nurses 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.”

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

**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.

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 of other technology options 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. The number of users consistently increased. Significantly, the system 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 EHR. 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. High-resolution telemedicine images helped clarify his actual condition and a several-weeks’ long dermatitis cleared up within a week.

### 3. Does telemedicine have the flexibility to adjust to the bandwidth 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—and any network—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 WOC nurse
- The platform worked with typical cellular formats (3G/4G/LTE) as well as with Wi-Fi
- Variable lighting could be addressed by a WOC nurse 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?

Reimbursement for telemedicine consults is still a patchwork of rules from state to state as well as with the Centers for Medicare & Medicaid Services. 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.

Chart 2 illustrates the HH unit's capacity to conduct virtual consults. A net increase in consults of more than 10X 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 WOC nurse managed the HH Unit alone. Assisted by the new platform, the WOC nurse increased consult capacity by +40% versus pre-implementation year (2013), with concomitant improvements in care/ outcomes. In 2015, the HH Unit increased consults +162% versus 2014. Further, telemedicine-driven cost savings allowed addition of a second WOC nurse in December of 2015 to manage more field staff and more remote consults through 2016, and as a result, total virtual consults increased to 1,775, as compared to 300 before the platform was adopted.

In 2017, additional savings permitted the hiring of a third WOC nurse to manage virtual consults, and more than 3,200 remote telmedx virtual consults were conducted, an increase of more than 10X above 2013 performance. In 94% of these 2017 consults, an unnecessary ER visit, specialist consult or primary care visit was avoided.

#### 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 four-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

For more information on this study, or to discuss telmedx telemedicine support **please contact:**

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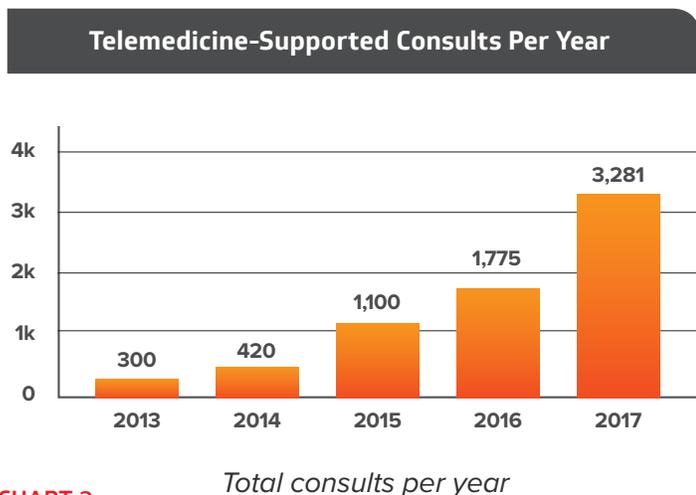


CHART 2