

Reducing Unwarranted Clinical Variability through Patient Visit Frequency

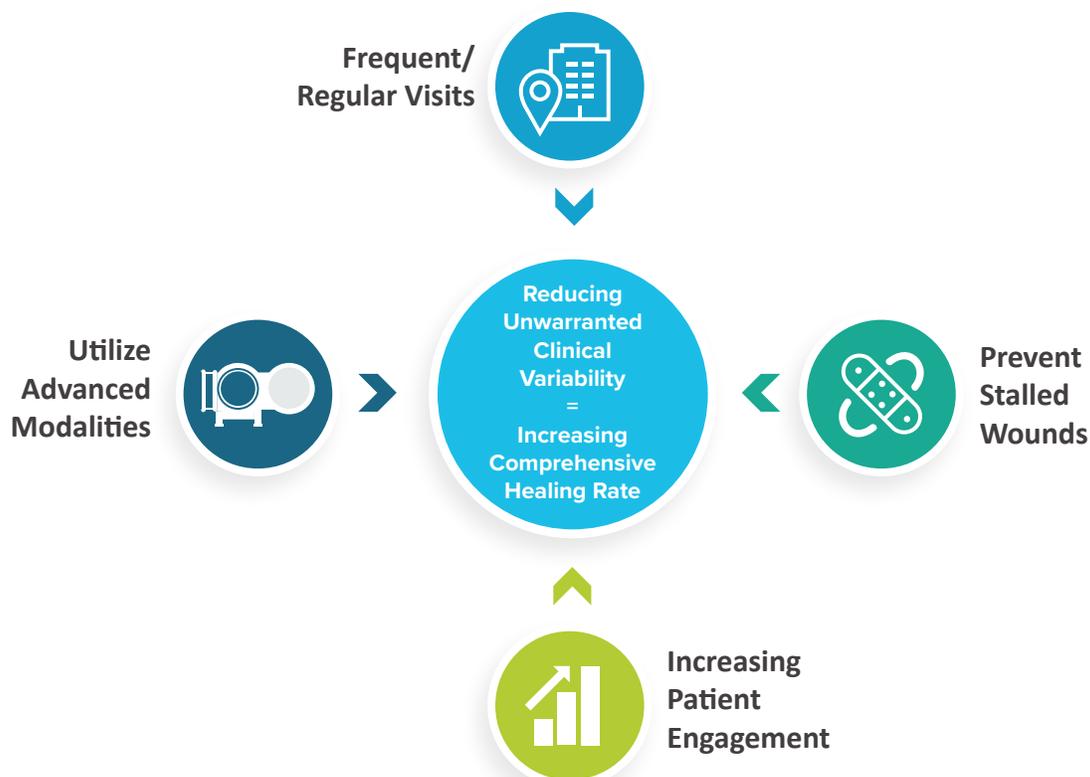
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INTRODUCTION

As part of our Patient First focus, Healogics® is dedicated to continuously improving patient outcomes. A process was developed to identify and evaluate critical topics to determine the levers which would result in reducing unwarranted clinical variability across our organization and improve Comprehensive Healing Rates (CHR) amongst our patients. Four levers were identified utilizing the “CLEAR” (or Clinically-Led, Evidence-based, Analytically-driven, Research-informed) Approach, which involved reviewing internal and external research to identify evidence-based recommendations.

Patient visit frequency, along with preventing stalled wounds, increasing patient engagement and utilizing advanced modalities, were identified as four key levers to reduce unwarranted clinical variability and improve CHR. The focus of this paper will be on the evidence and research supporting patient visit frequency, as it is the core foundation which supports the other three levers.



Visit frequency is often poorly understood, and the clinical impact on the patient's outcome can be heavily influenced by a provider's decision to see a patient regularly or on an intermittent basis. Oftentimes the decision to see a patient in follow-up reflects the provider's schedule, clinic capacity, the distance a patient has to travel or simply a gut feeling that the provider has surrounding how often follow-up is necessary. Rarely, however, are these decisions based on data and evidence. When reviewing the data from our electronic medical record database, we find widespread variability in visit frequency amongst our providers, despite a consistent pattern correlating increased frequency of visits and higher healing rates.

VISIT FREQUENCY IN CHRONIC DISEASE MANAGEMENT

Visit frequency and patient outcomes is not a topic unique to wound care. Support exists in medical literature for better outcomes in the treatment of chronic diseases with more frequent visits, such as in the management of hypertension control, diabetes and cholesterol.

Peer-reviewed research studies have demonstrated both short-term and long-term benefits of higher visit frequency. For instance, one retrospective study of over 5,000 patients with diabetes and chronic hypertension¹ demonstrated a direct relationship between blood pressure control and visit frequency. The more frequently patients had encounters during a hypertensive period, the faster their blood pressure decreased and was able to normalize. They also found that patients who were seen more frequently had a higher likelihood of maintaining blood pressure normalization two years after the onset of the hypertensive period. The greatest benefit was found in patients who were seen at the most frequent encounter intervals (≤ 2 weeks).

Additional studies of patients with diabetes have yielded similar results, demonstrating higher visit frequency led to a higher likelihood of meeting treatment goals², as well as faster achievement of their A1C, blood pressure, and cholesterol targets³.

The benefits of higher visit frequency are not limited to patients with diabetes. A study of patients with rheumatoid arthritis⁴ found that the number of annual visits to rheumatologists was directly correlated with improvements in pain scores and functional disability metrics. These studies are just some examples of how higher visit frequency has been shown to improve the management of chronic diseases.

VISIT FREQUENCY IN WOUND CARE

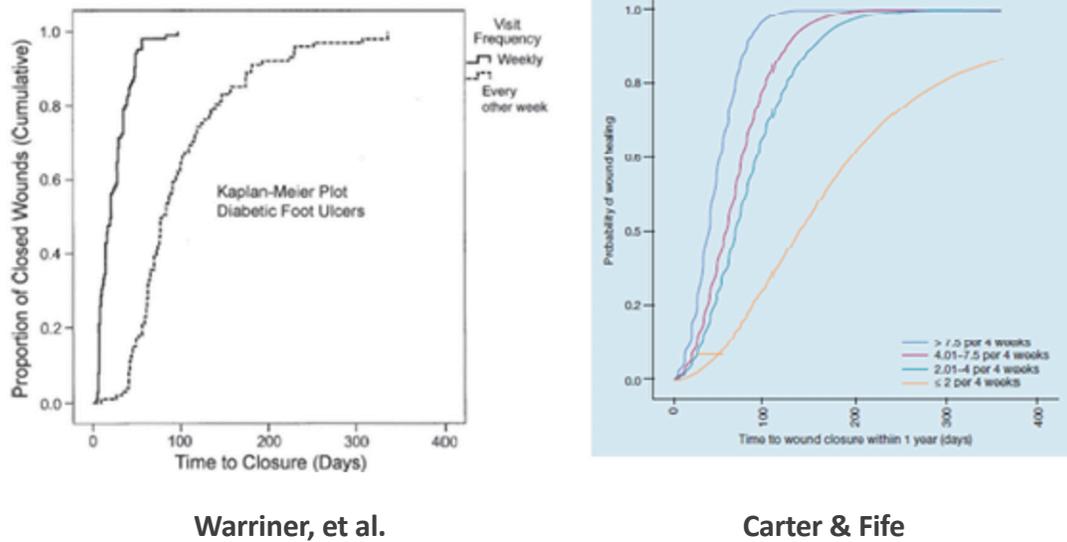
There have been few attempts to analyze the potential impact of visit frequency in wound care, although those that have addressed the question have concluded that a positive correlation does exist between visit frequency and overall healing rates.

In 2012, the first study specific to visit frequency and wound outcomes was published using a subset of data from Healogics wound database⁵. This study was limited in that only a small number of Wound Care Centers[®] and wounds were included, the size and depth of wounds were restricted, and visit frequency was only evaluated in the first four weeks. Despite limitations, it was found that patients seen weekly in the first four weeks of treatment had significantly higher healing rates and shorter time to closure than those seen less frequently.

In response to the 2012 Healogics publication, independent wound care researchers who were critical of the limitations of the study conducted a similar study using a wound registry database of wounds

not treated at Healogics Centers. Using a larger study sample of almost 40,000 diabetic foot ulcers, the researchers found similar results to the earlier Healogics paper, with those seen more frequently having higher likelihood to heal and faster time to closure.

Figure 1. Comparison of results from the two studies on visit frequency and wound care.

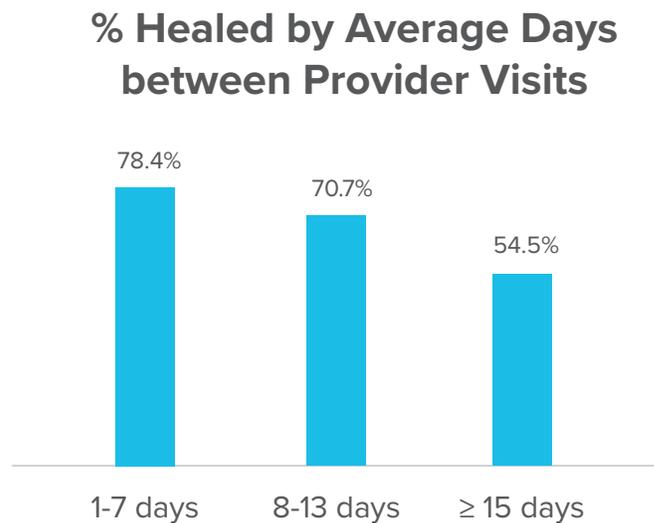


VISIT FREQUENCY IS IMPORTANT THROUGHOUT TREATMENT

In order to address the limited literature on visit frequency in wound care, Healogics has recently conducted additional research and has confirmed and expanded upon the findings referenced above. The prior literature on visit frequency in wound care focused exclusively on visit frequency in the first four weeks of treatment. However, we wanted to better understand the impact of visit frequency across the entire episode of care.

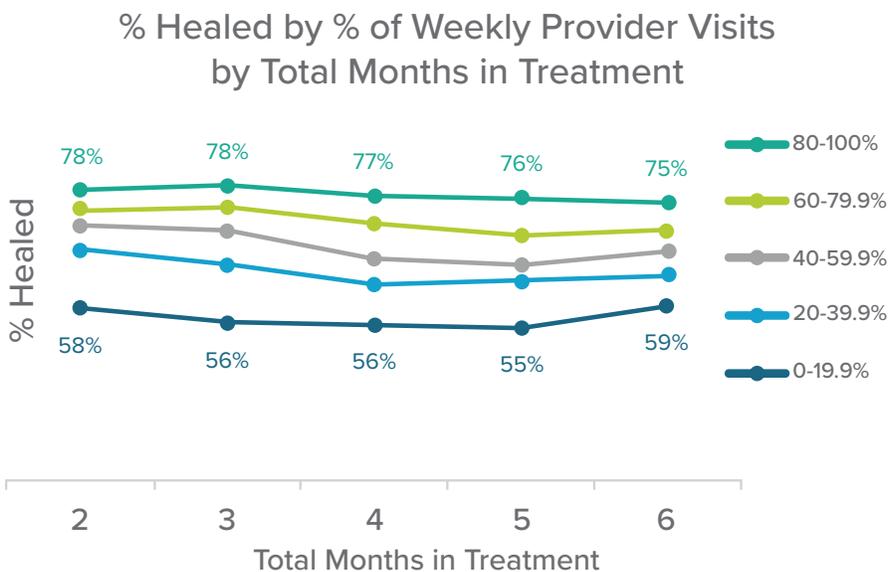
Of all patients who were discharged in 2019 and in treatment for at least 30 days but less than 6 months (n: 236,983), we found that those who were seen at least weekly throughout their treatment course had the highest wound healing outcomes. Additionally, as average time between visits increased, healing decreased.

Figure 2. CHR by the average days between provider visits for patients discharged in 2019.



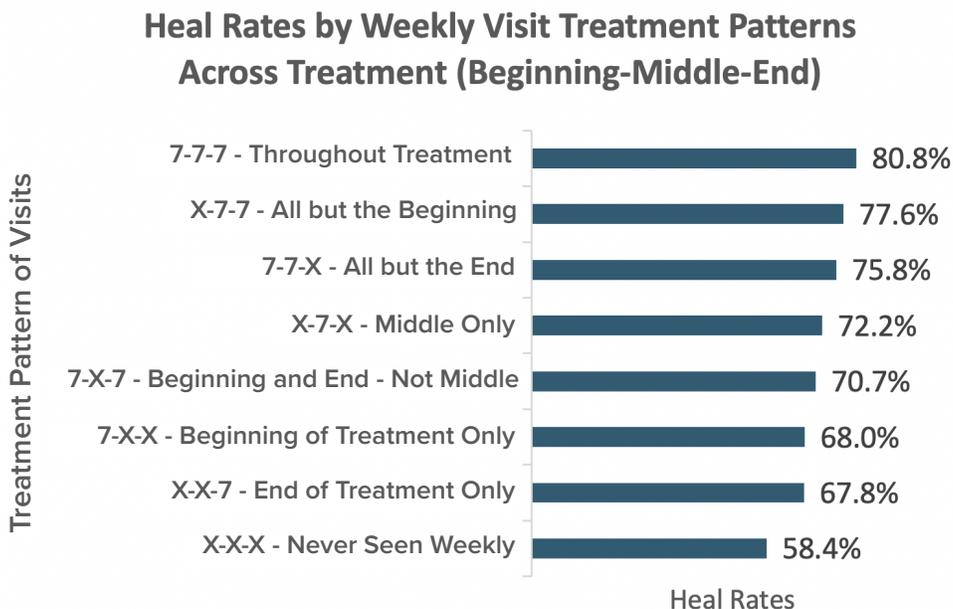
These patterns persisted regardless of total time in treatment, with those having a higher percent of all their visits weekly having the highest healing rates, and those with the fewest weekly visits having the lowest healing outcomes.

Figure 3. CHR by the percent of visits that were weekly across their episode of care by total months in treatment for patients discharged in 2019.



Patients having weekly visits throughout treatment had the best outcomes, with a healing rate of almost 81%. Those having more consistent time periods of weekly visits across treatment, whether it be in both the middle and end, or beginning and middle, also had better outcomes than those who only had weekly visits at the beginning of treatment or end of treatment.

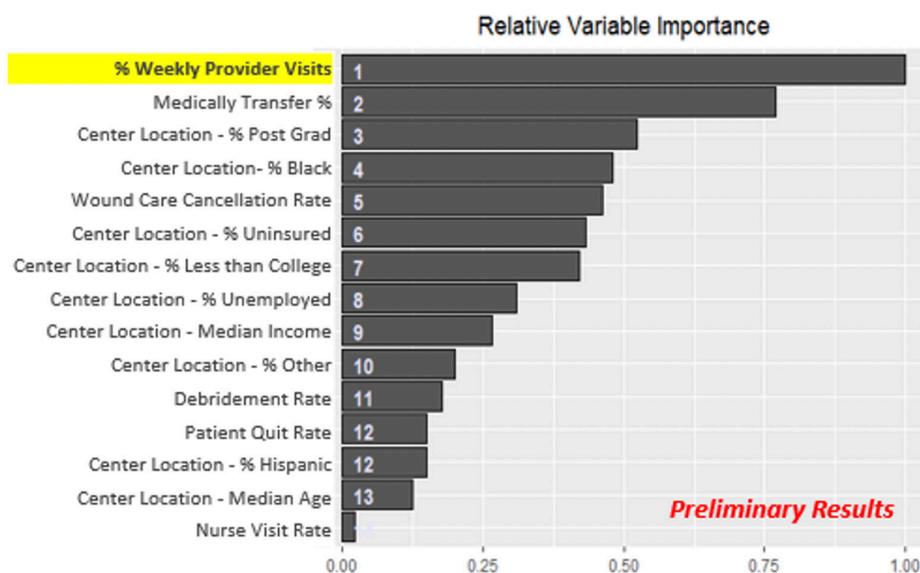
Figure 4. CHR by the patterns of weekly visits across the episode of care in for patients discharged in 2019 and in treatment a minimum of 3 months.



VISIT FREQUENCY IS A TOP DRIVER OF CLINICAL VARIABILITY

In order to better understand the causes of clinical variability in healing rates, researchers at the University of Southern California proposed and conducted a retrospective study utilizing Healogics data. More than 100 potential variables, including zip code population data, Center characteristics, hospital partner characteristics, and treatment and operational metrics, were examined to help explain why certain Centers have different healing rates than we would expect. Interestingly, the percent of patients seen weekly was the top predictor explaining why Centers do not perform as expected on CHR. In other words, above all other Center and demographic characteristics of the Center locality, the biggest factor in clinical variability was the percent of patients seen in the Center on a weekly basis. Centers who saw more patients on a weekly cadence were more likely to have higher CHR than we would expect based on their patient mix, and Centers that saw fewer patient's weekly were more likely to have CHR below where we would expect. This study will be submitted for peer review in the Fall of 2020.

Figure 5. Relative importance of Center attributes in explaining clinical variability in CHR.



OTHER CONSIDERATIONS DRIVING POSITIVE OUTCOMES WITH MORE FREQUENT VISITS

The underlying mechanisms in which higher frequency visits drive positive wound outcomes may be deeper than just receiving regular wound care itself. Intuitively, having more frequent visits allow patients more opportunity for earlier assessment and detection of issues that can impede the healing process, like infections, or non-adherence to home care. This alone may be enough to improve one's likelihood to heal.

The potential inherent benefit of frequent visits independent of treatment modalities is highlighted in the results of a randomized clinical trial⁷ of human cell-based therapy on venous leg ulcers (VLU) that failed to improve healing outcomes over the standard of care. Both the treatment and standard of care control groups were required to visit weekly and both attained a higher than average healing rate for VLUs at week 12. With the standard of care group reaching high heal rates and rates similar to those with advanced treatment, this demonstrates the potential positive impact of close patient follow-up over the potential advantages of advanced treatment modalities.

There is further evidence that more frequent visits can provide additional pathways for improved healing via increased social interaction and support. A randomized controlled study of those with leg ulcers⁸ found that those who were treated in a model emphasizing socialization and peer support had significantly better healing rates as well as well-being than those treated via home visits. The results of this study suggest that the social environment may have advantages other than just the provision of consistent, evidenced-based care. As is often seen in our own Centers, a bond can be formed between the patient and the care team across their episode of care. As suggested by this study as well as other researchers⁶, social interaction and support may be additional mechanisms by which visit frequency can drive improved wound healing beyond the effects of consistent care.

SUMMARY AND CONCLUSIONS

Healogics is focused on improving patient care by reducing unwarranted clinical variability and increasing CHR. One lever to do so is by ensuring patients are seen frequently. The medical literature across various chronic diseases, including wound care (by both Healogics and independent researchers), demonstrate better outcomes with more frequent visits, particularly in those who are seen weekly. Frequent visits throughout the course of care allow any potential disruptions to healing to be identified and intervened upon earlier. Additionally, research suggests visit frequency can also evoke other positive mechanisms on wound healing, including reduced social isolation and increased social support.

In order to heal more patients, reduce time to closure and reduce unwarranted clinical variability, it is important to identify opportunities to maintain and/or improve visit frequency throughout patients span of treatment.

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