WHITE PAPER

Digitising Wound Management:

A Standardised, Evidence-Based Approach to Healing

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Introduction

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Chronic wounds are a global epidemic, affecting almost 4 million people in the United Kingdom alone. Wounds that don't heal in a timely fashion typically impact an already vulnerable, chronically ill, and elderly population, taking a toll on both their physical and mental wellbeing. The prevalence of chronic wounds is associated with the ageing global population, the rise in the number of people living with diabetes and other comorbidities that contribute to poor circulation, and the surge in obesity. This upward trend is expected to continue over the coming years—and in the face of COVID-19, the challenges have become even more apparent.

Studies have demonstrated that an evidence-based approach to wound management can significantly improve healing rates and a patient's prognosis. However, the tools at the disposal of wound care clinicians are often rudimentary. The current methods of measuring, assessing, and documenting wounds make it difficult to gather the data required to make informed decisions about a patient's treatment plan.

The recent surge in televisits for wound care has introduced a new wave of patient-facing technology that does not necessarily address the burdens of wound management that existed long before the pandemic, such as variability in documentation between teams or providers, lack of coordination across settings, and inefficient review processes. Digitising wound management—from measurement to assessment to monitoring—can enable wound care professionals to streamline data collection, track healing progress, and support clinical decision-making to improve patient outcomes.

Introduction

Chronic Wounds: A Growing Problem

3.8 million
patients suffer from wounds in the United Kingdom, equivalent to 7% of the adult population—and a 71% increase over 5 years[1]

£8.3 billion
spent annually by the NHS on treatment of wounds and associated comorbidities in the UK[2]

£831 to £7886
cost per patient of unhealing wounds[3]

5-8 days
average increase to length of hospital stay as a result of development of hospital-acquired pressure ulcer[4]

£20m
annual cost to NHS of litigation related to pressure ulcers[5]

The Data Challenge
in Wound Care Today

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Traditional methods used for measuring and documenting wounds are often subjective and may yield inaccurate measurements, overestimating the area by up to 44%.6 These methods are also subject to variability between clinicians, or from one visit to the next, even when performed by the same clinician. This lack of standardisation results in a loss of clinical data that is critical for accurate tracking of wound healing over time.

**Some of the most common methods used today include[7]:**

Ruler Method: Disposable paper rulers are frequently used to calculate the wound area by measuring the greatest length and width. Despite its widespread use, the ruler method can be inaccurate and fails to account for changes in wound shape.

Clock Method: By positioning the patient's head at the 12 o'clock position, the length and width of the wound are measured in relation to times used to describe features of the wound (e.g., tunnelling at 3 o'clock). This method also fails to account for irregularly shaped wounds.

Combination Method: Combining the ruler and clock methods, this approach yields more accurate measurements than either method alone. However, it still does not provide an accurate depiction of irregularly shaped wounds.

Wound Tracing: By placing a transparent sheet over the wound and tracing its borders, clinicians compare wound size from week to week. This method may be painful for the

Same Wound, Different Measurements

2cm x 5cm
10cm²

3cm x 6cm
18cm²

4cm x 5cm
20cm²
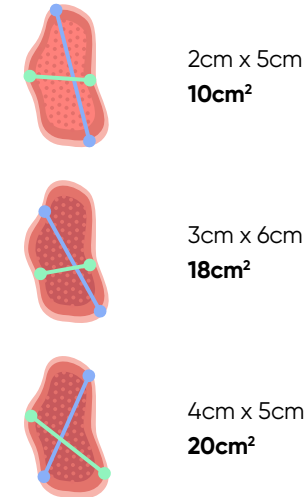
patient, depending on how tender the wound is, and also requires the tracing paper to come into contact with the wound. Accurately tracing the wound is difficult, leaving room for inconsistencies that some clinicians resolve by using different coloured markers to trace areas of nonviable tissue and discolouration.

Photographic Documentation: By placing a paper ruler near the wound and taking a picture, this method provides a more complete record of the wound. However, lighting, photo quality, and camera type can affect image interpretation. Technical barriers may also prevent images from being uploaded to the Electronic Health Record (EHR).

The Data Challenge in Wound Care Today

A lack of consistent assessment undermines optimal wound progress tracking. This can lead to inefficient interventions and delays in recognising complications, which are strongly correlated with negative health outcomes.

The accuracy and thoroughness of wound data are proportional to the amount of time invested in documenting it. On average, it takes more than 10 minutes to correctly assess and document a wound. Maintaining high-quality wound assessment and documentation has become increasingly difficult due to a rising shortage of nurses and other clinicians trained in wound care (there is an estimated shortage of 50,000 nurses in the UK[8]), growing documentation burdens, and decreased time at the bedside.

Complex documentation processes may also result in data silos, with acting clinicians unaware of other clinicians' assessments. One of the highest risk times for a patient is during a handoff of care between care teams.[9] These transitions carry a risk that documentation will not be transferred between teams. Without all of the data, clinicians may employ methods that have already failed to achieve outcomes, or may not implement timely interventions at all.

Continuity of care involves tracking wounds over time, and a disjointed approach to wound assessment may complicate accurate wound prognosis and assessment of the effectiveness of interventions.

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The Power of Data in Wound Care

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A standardised measurement and documentation system can enhance clinician satisfaction, improve compliance, streamline workflows, and improve patient outcomes. Better data collection not only allows for interventions to be modified for more effective wound healing but also influences long-term treatment approaches.[10]

A data-driven approach promotes:

Evidence-Based Decisions: Insights derived from meaningful, objective data combined with the clinician's professional judgment enhance the clinical decision-making process.

Patient-Centred Care: Data contributes to a more complete, holistic approach to wound care. It provides the clinical team with the resources necessary to more accurately personalise the patient's treatment plan, thereby improving the patient's quality of care and quality of life.[11]

Timely Access to Data: Accessing and identifying relevant data are vital to evaluating and responding to wound changes or stagnation. Data-driven approaches deliver data quickly to clinical teams and implement analysis methodologies to identify salient data.

Coordinated Care: Data-driven approaches to wound care provide all relevant stakeholders with access to the information they need to advance the care of the patient, reducing disruptions during care transitions.

Healthcare as a whole is benefiting from digital innovation and transformation. Advancements in electronic health records, imaging technologies, and telehealth are improving the quality of care globally, yet wound care has traditionally lagged behind. Amidst the COVID-19 pandemic, however, there has been a rapid shift towards the adoption of telehealth and smart wound tracking tools for wound care, empowering clinicians to finally take advantage of technologies that streamline care and improve patient outcomes.

Healthy.io's wound management technology addresses the challenges clinicians face in wound care by enabling them to take automatic measurements using a smartphone, improve the accuracy and efficiency of the documentation process, and monitor wounds over time from a centralised portal. Wound data obtained is immediately digitised and made accessible to any team member on the platform with access to the patient's medical records. This effectively breaks down care silos and propels coordinated care.
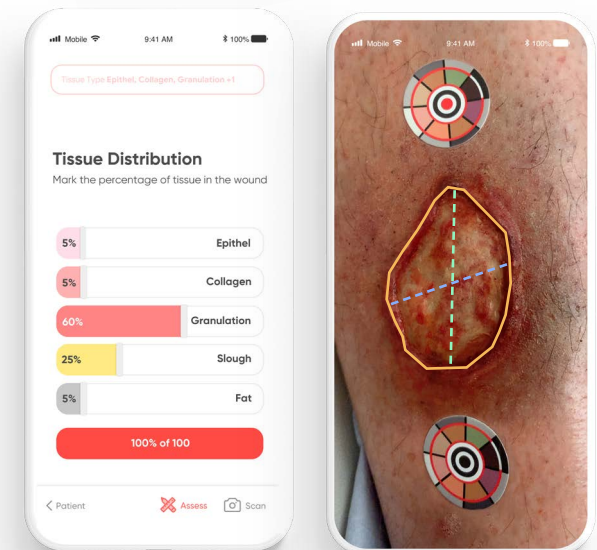
The Power of Data in Wound Care

Standardised Measurement and Assessment

Healthy.io's technology makes it easy to obtain accurate and consistent wound measurements. The solution is CE-marked, HIPAA compliant, and FDA-registered. All that is needed is a smartphone and two calibration stickers designed to gauge spatial orientation and deliver three-dimensional measurements of the wound. This method records real-time measurements of the true wound area—a vast improvement over estimations based on length and width.

Healthy.io wound tracking technology captures a standardised, digital record of the wound, regardless of the user, the environment, or the lighting—without any subjective variations. Algorithms detect a wound's contour and surface area, reducing the challenges around subjectivity and human error. Computer vision, 3D imaging, and machine learning technology are used to help clinicians analyse wounds with optimal accuracy. Wound images are automatically calibrated for size, depth, lighting, and dimensions to create a 3D rendering of the wound.

The Power of Data in Wound Care

Faster Documentation

Healthy.io's digital solution reduces documentation time by 55% on the first visit and 85% for follow up visits by automatically capturing wound measurements and tissue type. The in-app documentation process securely stores the relevant data from one session to the next, and is fully configurable with clinicians' workflow and EHR. A dynamic assessment flow within the app adapts based on the clinician's goals and course of treatment. Embedded features such as autofill and automated clinical summary make it easy to produce accurate and thorough documentation significantly faster than current methods (about 1.5 minutes for follow-up visits including the scan and assessment). The less time that's spent on documenting leaves more time for patient-centred care.
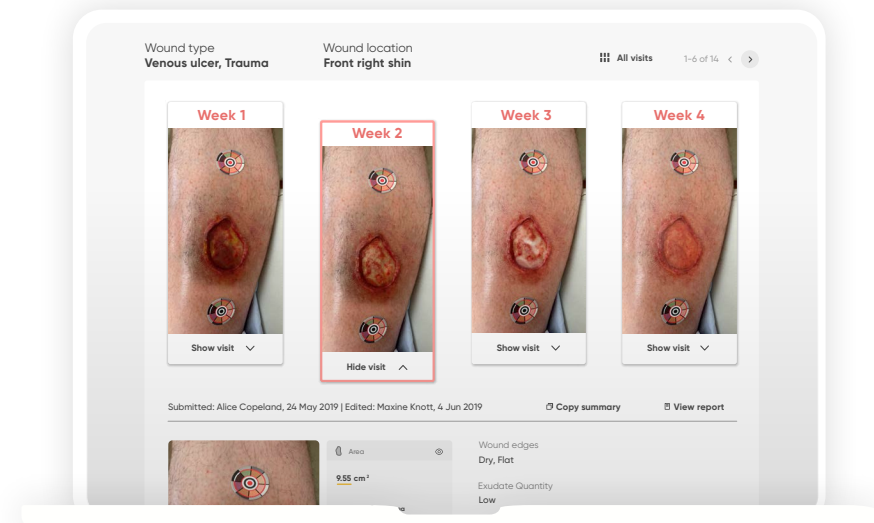
Centralised Wound Data

Healthy.io consolidates all of the data collected by clinicians into a single web-based portal, which can be accessed by all members of the care team. This centralised portal serves as a single source of truth, preventing fragmented documentation and variability caused by multiple sources of information.

Centralised wound data also allows specialists to evaluate wounds remotely and advise on new or modified interventions, including discontinuing unnecessary treatments for wounds that have sufficiently healed. With all of the data in one location, clinicians can get the full picture of the patient and make confident, cohesive decisions for improved patient care.

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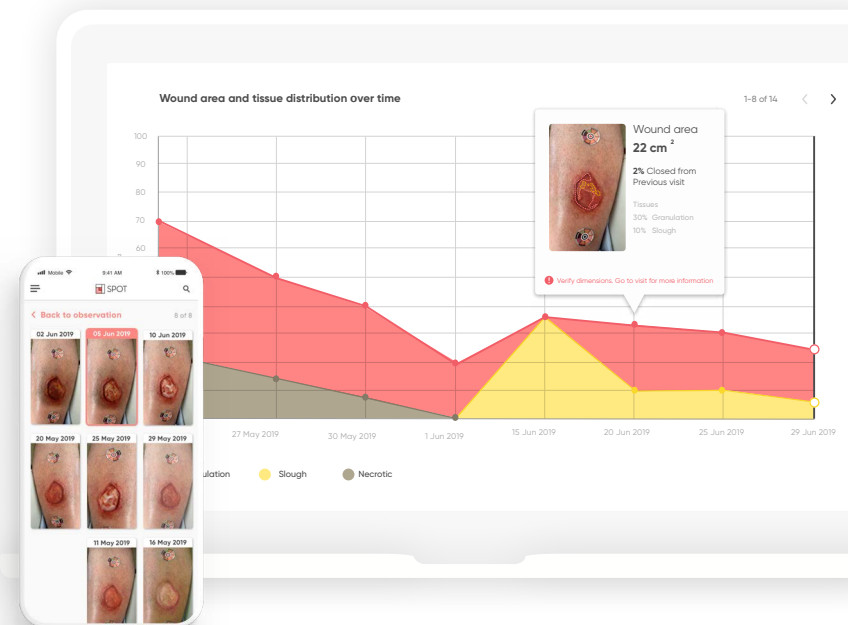
The Power of Data in Wound Care

Track Healing Progress

The wound management technology developed by Healthy.io enables clinicians to quickly and easily track wound healing progress over time. Advanced algorithms automatically capture wound measurements and analyse tissue distribution in real time within the app. This ensures that wounds are evaluated consistently and objectively, whether or not the clinician is a wound care specialist.

Wound data is transferred to the portal for continuous monitoring and assessment, allowing easy review of historical wound states and real-time tracking of stagnating wounds or other significant changes that require specialist intervention. Moreover, visual representations of previous wound states also provide tangible feedback to patients on their healing progress and help them feel more involved in their care.

Improve Patient Outcomes

The most important benefit of digitising wound management is improved patient outcomes. Clinical teams with accessible, consistent, and objective data can provide personalised treatment, and respond more quickly to changes. This results in shorter treatment times and lower costs. Providing patients with an objective, visual timeline of the healing process can also help them overcome the psychological effects of chronic wounds.

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Conclusion

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We are in a data-driven age, yet the resources available in wound care are lagging. Wound care clinicians work tirelessly to provide the best care for their patients, but are frustrated by the limitations of clinical technologies and the burden of documentation.

The disruptive effects of the COVID-19 pandemic, coupled with an increasing demand for quality care, have placed an ever-growing premium on clinician's time and resources, which are limited to begin with. While COVID-19 has helped usher in a new normal of telehealth in wound care, it has further exposed the core challenges of chronic wound management.

Digital wound management solutions can transform best practice in wound care by standardising documentation, facilitating continuity of care, streamlining workflows, and reducing cost of care. Healthy.io brings digital transformation to wound care, improving the clinical decision-making process with critical and consistent data. By digitising wound care, clinicians can make a difference in the lives of their patients every day, during the current pandemic and beyond.

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About Healthy.io

Healthy.io delivers healthcare at the speed of life. Using image and colour recognition technology, we transform the smartphone camera into a medical device to provide clinical results at moments when it matters most. Our at-home urinalysis and digital wound management services create new clinical pathways and streamline existing ones to benefit patients and providers alike. We were recently recognised on Fast Company's Top 50 Most Innovative Companies for 2020, CNBC's Disruptor 50, CB Insights AI 100, and won the Financial Times Boldness in Business Award.

www.healthy.io | wound-uk@healthy.io

Contact us to find out how you can transform your wound care practices without interrupting your existing clinical workflows.

Digitise your wound care programme.

Healthy.io