Health Innovation Wessex

Transforming Wound Care Technical Report 6: Quantitative metrics – methods

Health Innovation Wessex

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This technical report along with accompanying technical reports provides a full account of all data sources for the evaluation of the Transforming Wound Care programme and should be read in conjunction with the full evaluation report of that programme.

1. Introduction

Throughout the implementation of the Transforming Wound Care (TWC) programme across the eight Test and Evaluation Sites (TES), quantitative data, referred to as metrics data, were collected using a TWC programme metrics template developed by Unity Insights Limited. This data collection was carried out through manual intervention, an automated data process or a mix of both methods. The National Wound Care Strategy Programme (NWCSP) identified a set of 30 metrics with 45 data collection points for the seven First Tranche Implementation Sites (FImpS). The TWC programme revised these to a set of 16 metrics with 43 data collection points to serve as the foundation for understanding the TWC programme's impact. Due to the challenges of collecting patient level data, in October 2023, the TWC programme identified six 'key areas of focus' with 17 data collection points, reduced from an initial full set of 16 metrics (with 43 data collection points). The key areas of focus (hereafter 'critical metrics') were identified to support TESs with capturing data that could support the analysis of patient impact.

TESs joined the TWC programme on different dates and they generated aggregated data monthly throughout their implementation. The metrics include:

- Number of patients with a lower limb wound on the caseload.
- Number of new referrals for foot wounds/leg wounds.
- Full assessment and full care.
- Application of strong compression.
- Wound healing rates.

The metrics data were then collated by Unity Insights Limited on behalf of Health Innovation East and subsequently provided to the Health Innovation Wessex Insight team (the evaluators, hereafter referred to as 'we') for quantitative evaluation.

This technical report provides a detailed description of the methods applied by the evaluation team during the metrics data cleaning and aggregation process. It describes the approach to impact assessment, challenges, and lessons learned for the TWC programme.

2. Approach

This section provides a breakdown of data quality using the six dimensions introduced by DAMA (Data Management Association) in 2013[1]: data completeness, consistency and uniqueness, validity, accuracy, and timeliness. It aims to ensure the quality of the data prior to analysis, to establish the integrity of the analysis, and to provide transparency to the decision-making process. This section also serves as

[1] DAMA, https://www.gov.uk/government/publications/the-government-data-quality-framework/the-government-data-quality-framework

a detailed background to support the methods section and includes a table specifying each issue with data quality encountered during the evaluation.

This report contains data quality visualisations set out in tabulated form. In each of these, yellow shading indicates that the data has been checked with no risks highlighted by the sites or that data is useable with minor issues. Blue shading indicates data that is either not provided or unusable due to issues described in the table. In the following subsections, additional colours such as purple and grey are used. Purple and grey are used to indicate a specific metric (TWC011: Proportion of patients recorded as healed within 12 weeks, within 12 to 24 weeks, within 24 to 52 weeks, and after 52 weeks, after identification by a healthcare practitioner), where data is provided either by patients or by wounds.

2.1. Overview of data completeness

Data completeness refers to the extent to which all necessary data are present in a dataset, ensuring that all key data points are collected and available for a robust analysis of treatments and results. The metrics adopted from the NWCSP FImpS evaluation for the TWC evaluation are as follows:

- TWC001A: Number of patients with a lower limb wound currently on the caseload within community services each month.
- TWC001B: Number of patients with a lower limb wound currently on the caseload within primary care each month.
- TWC002A: Number of patients referred for new assessment of foot wound.
- TWC002B: Number of patients referred for new assessment of lower limb wound.
- TWC003A: Number of patients with a foot wound receiving full assessment in line with NWCSP lower limb recommendations.
- TWC003B: Number of patients with a lower limb wound receiving full assessment in line with NWCSP lower limb recommendations.
- TWC004A: Number of patients with a foot wound receiving full care in line with the NWCSP lower limb recommendations.
- TWC004B: Number of patients with lower limb wounds receiving full care in line with the NWCSP lower limb recommendations.
- TWC010: Number of adult patients with a lower limb wound and adequate arterial supply, where no aetiology other than venous insufficiency is suspected, being treated in strong compression (40mmHg) each month.
- TWC011A-H Proportion of patients recorded as healed 0-12 weeks, 12-24 weeks, 24-52 weeks, and over 52 weeks after identification by a healthcare practitioner. TWC011A-D is for lower limb wounds and TWC011E-H is for foot wounds.

Most TESs were developing their data collection methods or tools during the data collection period. Consequently, various methods were implemented across the TESs. For example, TESs (or a provider within a TES) such as Locala, Sussex ESHT, and Norfolk and Waveney NCH&C employed an automated data collection process while CLCH used manual intervention. The remaining TESs (or a provider within a TES) – Bromley Healthcare, Cornwall, Lincolnshire, Yateley, Norfolk and Waveney ECCH, Sussex SCFT and Sussex Pioneer – used a combination of automatic and manual data collection. Due to this ongoing development of data capture processes, and some level of manual handling, some metrics either were not provided or only provided partially in the monthly data submissions. Availability of metrics data by site greatly influenced our determination of whether it was possible to meaningfully aggregate data at the TWC programme level. For instance, there was inadequate data to analyse the number of new

referrals receiving full assessment for foot wounds (TWC003A) because only one TES provided this information.

The following chart (**Figure 1**) details whether each site provided the required critical metrics. Sussex is not included in the table below as this site had not implemented the NWCSP recommendations within the evaluation timescale and therefore it was not appropriate to include in the attempts to aggregate metrics data across sites.

	TWC001	TWC002A	TWC002B	TWC003A	TWC003B	TWC004A	TWC004B	TWC010	TWC011
Bromley (District Nursing)									
Bromley (Tissue Viability)									
CLCH									TWC011 A-D only
Cornwall									
Norfolk and Waveney ECCH									TWC011 A-D only
Locala									
Lincolnshire	Missing data points								TWC011 A-D only
Yateley									
Norfolk and Waveney NCH&C									

Figure 1: Data quality visualisation after assessment of data completeness: Yellow – data submitted, Blue – data missing or not useable

In general, all TESs were able to collect some critical metrics data during their daily operations. However, some metrics, such as TWC003A (the number of people receiving full assessment for foot wounds), TWC004A (the number of people receiving full care for foot wounds), and TWC004B (the number of people receiving full care for lower limb wounds), contains some missing data points. These missing data points (gaps in data collection) are due to several factors. For instance, Cornwall did not collect data for TWC004A and TWC004B due to the need for further clarity on the metric. CLCH did not collect data for TWC002A and TWC003A as the podiatry service was not part of their TES and was recorded as out of scope.

2.2. Overview of data consistency and uniqueness

This section discusses the consistency and uniqueness of the metrics data from monthly submissions. Data consistency refers to the uniformity of data across one or more datasets. Consistent data requires that data points remain the same and retain their value whenever and wherever they are accessed. Data uniqueness refers to the distinctiveness of the data within a dataset, ensuring that each data

point represents only one real person. Consistent data enhances the reliability of the data source, while unique data maintains data integrity. Both consistency and uniqueness are crucial for accurate data aggregation across multiple datasets.

During the evaluation, the TWC Central Team identified challenges and issues with the metrics submissions and introduced several proactive measures to support TESs to address data quality and improve metrics submissions (see technical report 5 and programme report section 3.2). Data Quality (DQ) statements were requested from each TES prior to data analysis to confirm each site's confidence in the accuracy of their reported data. It is assumed for this evaluation that all TESs have meticulously counted and verified their records to ensure there is no miscounting or double counting during data collection and all data points remain consistent when manually or automatically transferred to the monthly submission sheet. Additionally, some TESs updated their data retrospectively due to changes in TWC programme aggregated reporting templates, developed in partnership with Unity Insights. This was done from TESs' own electronic patient record EPR or through the completion of a system upgrade to automate data collection. Therefore, the data submissions for March 2024 were considered the final and most optimised and consistent version to serve as the primary raw data for the analysis.

2.3. Overview of data validity

Data validity is crucial to this evaluation as the same metrics data were collected independently by eight different TESs. Data validity refers to the accuracy and correctness of the data points in conforming to predefined metrics definitions, following the format of the data capture protocol and in representing real world situations. An assessment of data validity was important to determine whether the metrics definition was consistently adopted across all TESs. The comments left in the monthly data submissions, the meeting notes from the national metric meetings provided by Health Innovation East, the individual TES roadmap outputs[2], and the methods of capturing the data which were elaborated in the data quality statements have become the most important indicators for determining whether the metric definitions are being followed.

While assuming all TESs adhered to the definitions of the metrics and applied the same protocols, several risks pertaining to validity were highlighted:

- **Different understanding of 'full care'**. There were discrepancies in how TESs understood the definition of full care. Some TESs requested clarification of the definition and its distinction from full assessment. In some instances, TESs interpreted full care to mean the same as full assessment and strong compression. However, due to the variations in interpretation of full care, it was agreed with Health Innovation East that we would not include this metric in the overall analysis of the TWC data.
- **Difficulties in reporting the cohort size accurately in relation to the metrics criteria.** Several sites indicated that the numbers reported represented the entire patient population who partially met a criterion. For instance, in TWC002A, the definition requires the exclusion of diabetic foot wounds before reporting patient numbers. However, some sites were unable to separate different types of foot wounds due to the setup of their data capture system.
- **Data reported by wounds and by patients.** The TWC programme data submission template allowed TESs to report the metrics data either by patient or by wounds. While the option of reporting wounds and patients offers flexibility to the TES, the different units of measurement pose

[2] Road map outputs refer to submissions from TESs to the TWC central team updating on in scope metrics collected or not and related issues.

a challenge to data analysis during data aggregation. For instance, for TWC011 (patients healed within 12 weeks, between 12 to 24 weeks, between 24 to 52 weeks, and after 52 weeks) four sites reported by patients and four sites reported by wounds. To aggregate this data across all sites (reported by patients and reported by wounds), TESs would need to provide a conversion rate between wounds and patients.

- **Varied understanding of lower limb caseload.** It has been highlighted through queries we raised with TESs that there are differing methods of reporting. Some TESs reported the caseload by including all types of leg wounds, even those wound types not covered by the NWSCP recommendation but managed by their wound care teams, while others reported on a subset of their total caseload – for example, where they were delivering a pilot site for the TWC programme within a service or primary care network.

By taking these risks to data validity into consideration, the data quality visualisation is revised below (**Figure 2**).

	TWC001	TWC002A	TWC002B	TWC003A	TWC003B	TWC004A	TWC004B	TWC010	TWC011
Bromley (District Nursing)									Missing data points
Bromley (Tissue Viability)									
CLCH	Provided only pilot number								TWC011 A-D only
Cornwall									
Norfolk and Waveney ECCH		Inconsis-tent data							TWC011 A-D only
Locala	Used different unit than other sites						Inconsis-tent data		
Lincolnshire	Missing data points								TWC011 A-D only
Yateley									
Norfolk and Waveney NCH&C		Inconsis-tent data		Inconsis-tent data					

Figure 2: Data quality visualisation after assessment of data completeness, consistency, uniqueness and validity: Yellow – data submitted, Blue – data missing or not useable, Purple – data submitted in wounds, Grey – data submitted in patients

2.4. Overview of data accuracy

Data accuracy refers to the extent to which data correctly and precisely reflect real-world patient data or TES data. It significantly impacts the accuracy and effectiveness of subsequent analyses. During the evaluation, each data point was individually assessed to ensure it fell within a normal range and to

investigate any anomalies, such as sudden drops in values. This process helps identify whether there are valid explanations for these anomalies.

We received data quality statements from each TES and conducted several follow-up queries. However, when aggregating data, it was not possible to verify all data points which would have achieved the highest level of accuracy. Several discrepancies were identified during data analysis. These discrepancies limited the approach to analysis and must be considered carefully when interpreting data reported at programme level. The following section details the data discrepancies, inconsistencies, and inaccuracies [3] identified and highlighted in **Figure 3**.

- Bromley Healthcare March 2024 submission shows a sudden drop in TWC002B (number of patients referred for new assessment of lower limb wound) due to a data error followed by on-site data cleaning. However, the data for previous months cannot be retrospectively verified.

- Bromley Healthcare March 2024 submission contains a calculation error where the total number of healed cases was incorrectly generated by summing the number of healed wounds and healed patients without applying a conversion rate.

- Cornwall March 2024 submission indicates a double counting issue where patients who underwent mild compression were subsequently counted again if they also had strong compression or vice versa. This issue is mitigated because mild compression is out of scope for our analysis.

- CLCH, while the number of patients on the caseload was reported as 256, we were informed that this was the total number of patients on the caseload, comprising leg wound patients, patients on medications, and pressure ulcers. On request for further information, the TES advised that 37 of the 256 patients had a lower limb wound in March 2024 data submission.

- Lincolnshire March 2024 submission indicates that the number of new referrals receiving a full assessment for a certain month exceeds the number of new referrals. This discrepancy could be due to data errors or the fact that some patients introduced later in the month are assessed in the following month. This is addressed by either shifting the excess number of full assessments from that month to the previous month if the full assessment rate of that month exceeds 100% or by using the overall average which can offset where the proportion rate surpasses 100%.

- Norfolk and Waveney NCH&C reported that 'there are ongoing challenges with reporting of healing rates (TWC011A-D) as this is a staff / reporting artefact, not a representation of lower limb healing'. This statement later led us to exclude this data as it was not possible to conclude that the data was an accurate reflection of wound healing at this site.

[3] Discrepancy means when two data points in different metrics conflict with each other.
Inaccuracy means when the TES indicates that the provided data does not represent the TES's actual situation.
Inconsistency means incorrect data due to the TES mixing different units in the reporting.

	TWC001	TWC002 A	TWC002 B	TWC003 A	TWC003 B	TWC004 A	TWC004B	TWC010	TWC011
Bromley (District Nursing)									Data errors
Bromley (Tissue Viability)									
CLCH	Provided only pilot number								TWC011A-D only
Cornwall								Double counted data points existed	
Norfolk and Waveney ECCH		Inconsistent data							TWC011A-D only
Locala	Used different unit than other sites						In-consistent data		
Lincolnshire	Missing data points				In-accurate data		Inaccurate data		TWC011A-D only
Yateley								Missing Data points	
Norfolk and Waveney NCH&C		Inconsistent data		Inconsistent data					Inaccurate data

Figure 3: Data quality visualisation after assessment of data completeness, consistency, uniqueness, validity and accuracy: Yellow – data submitted, Blue – data missing or not useable, Purple – data submitted in wounds, Grey – data submitted in patients

2.5. Overview of data timeliness

Data timeliness refers to the degree to which data is available for use at the time it is needed. It is an important measurement for data analysis. Achieving a high level of timeliness requires a combination of advanced technology, frontline support, and effective process design. The TWC Central Team look substantial steps to ensure optimal data timeliness by promoting and assisting all TESs in transitioning to automatic data extraction where possible. However, several TESs had to continue to collect the data manually.

Despite several challenges during implementation of the metrics, all TESs managed to make progress and gather at least six months' data for analysis. However, due to the ongoing development of data extraction processes, sites were unable to provide baseline data or post-implementation data, which significantly influenced the choice of evaluation methods. Please see section 3.1 below for our consideration of baseline data.

3. Methods

This section provides more details on the evaluation methods adopted, and the decision-making process employed. As elaborated in Section 2, not all the TESs were able to provide data across all six critical metrics. Furthermore, not all the metrics provided were assessed as being suitable for aggregation, following consideration of data quality statements, described in greater detail below.

3.1. Evaluation of available baselines (benchmarks)

The intention of the analysis was to identify a relationship between implementation of the NWCSP Lower Limb Recommendations (LLRs) and patient outcomes (healing rates). A baseline is the starting point for demonstrating change that would establish if a relationship could be observed. Typically, a baseline is used to compare effects or measure the impact of a change. In this evaluation, a baseline was intended to evaluate a correlation between strong compression and healing rates at within 12 weeks, within 12 to 24 weeks, within 24 to 52 weeks, and after 52 weeks. However, due to the absence of pre-implementation data, several methods were considered to establish a baseline for comparison but were ultimately rejected due to lack of information, data, or incompatibility with the evaluation.

The first approach considered was the use of the baseline as reported in the evaluation of the evaluation of the NWCSP First Tranche Implementation Sites (FImpS)[4]. This approach was initially deemed appropriate because the FImpS implemented the same NWCSP LLRs and collected some of the same critical metrics, including the number of new patients receiving full assessments within 14 days and the number of venous leg ulcers healed within 12 weeks. The evaluation of the FImpS, conducted by PA Consulting, does not provide all baseline data. While the proportion of full assessments is missing, PA Consulting applied 37% venous wounds healing rate as the baseline in their evaluation. This baseline is generated from 3,000 patients randomly selected from The Healthcare Improvement Network (THIN) database in 2017/2018, (Guest et al, BMJ Open[5]). Due to the longer study period in the BMJ Open study and the lack of unhealed rates reported in the TES datasets, it is challenging to apply this study's baseline to compare the proportion of healed cases stated with data for the TWC programme.

We attempted to use individual site data to provide an illustrative example that uses the baseline reported in the BMJ Open study. However, none of the sites reported data that met all three key requirements:

- Healing rate data spanning over 12 months.
- Inclusion of both healed and unhealed wounds.
- Reporting that is specific to wounds alone.

The Locala TES dataset is closest to these requirements and consequently was used to illustrate the healing rate.

[4] Implementing the Lower Limb Recommendations and Learning from the First Tranche Implementation Sites, Final Evaluation Report, April 2024. Available on request from Health Innovation East

[5] Guest JF, Fuller GW, Vowden P. Cohort study evaluating the burden of wounds to the UK's National Health Service in 2017/2018: update from 2012/2013. BMJ Open 2020;10:e045253. doi:10.1136/ bmjopen-2020-045253. https://bmjopen.bmj.com/content/bmjopen/10/12/e045253.full.pdf

Figure 4 shows the proportion of lower limb wounds identified as healed compared to the total caseload per month for Locala TES from Aug 2023 to March 2024. The Y-axis represents the proportion of healed cases with absolute numbers for each category within each bar and the X-axis represents the months. The figure shows most patients are healed within 12 weeks. However, no clear trends were observed from Locala's dataset in terms of healing rate. Given the short reporting period and aggregated level of data, it is not appropriate to apply the BMJ Open study baseline conclusively to Locala's dataset. As such, the BMJ Open study baseline should be treated as a reference point only.

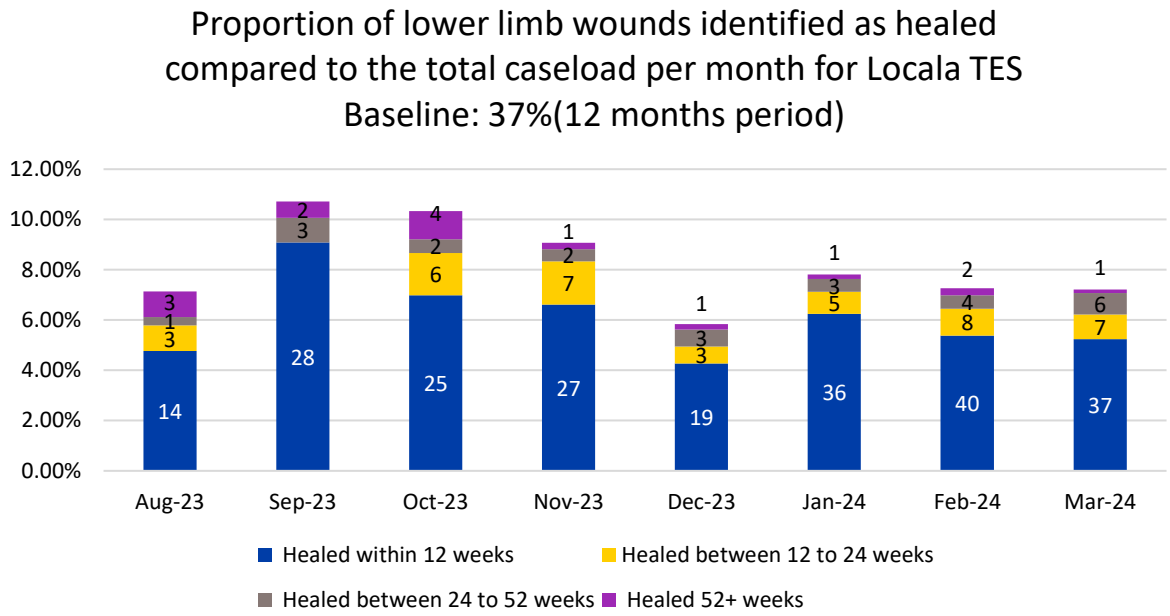

Figure 4: Proportion of lower limb wounds identified as healed compared to the total caseload per month for Locala TES, Baseline: 37% (12-month period)

The second baseline approach considered was the application of the NWCSP's 12-month measurement period for healing rates as cited in 'NWCSP Implementing the Lower Limb Recommendations' (2019)[6]. However, this approach was ultimately rejected due to a lack of sufficient data to establish a cohort from the TES data set that could accurately determine the proportion of healed patients. Most sites reported data exclusively on healed cases without providing information on unhealed cases, or the data did not cover the full 12-month period that would have enabled us to implement this baseline.

Additionally, while the NWCSP 2019 report includes an economic impact report with baseline data prior to the implementation of the TWC programme, it is important to recognise that this baseline reflects the general state of chronic wound care in England, which may differ from the specific pre-implementation conditions of the eight TESs. Given these differences in measurement periods, data quality, and local variability, we opted not to use the NWCSP baseline, instead citing it as a reference point.

[6] NWCSP-Implementing-the-Lower-Limb-Recommendations-15.12.20-1.pdf (nationalwoundcarestrategy.net)

Table 1 'Baseline healing rates' NWCSP Preventing and Improving Care of Chronic Lower Limb Wounds Implementation Case

Wound Type	Healing Rate (12 months)
Arterial leg ulcer	0%
Mixed leg ulcer	42%
Venous leg ulcer	47%

The third baseline approach considered was to use data from the first month in the TES data set as a baseline. However, this approach was deemed impractical, as the data collected during this period reflects a time when system changes had already been implemented (as advised by the TWC Central Team). This accounts for the minor variations in wound healing rates observed in the data visualisation. Given that the first month's data was reported after TESs implemented the new process, we concluded that it is not sufficiently accurate to establish as a reliable baseline.

The fourth baseline approach entailed use of data from the Sussex TES, as this TES had not yet implemented the NWSCP LLRs during the evaluation data collection period and was submitting the same metrics data monthly to Unity Insights. This method was also found to be invalid due to the significant variations among the TESs, rendering Sussex's data unsuitable as a universal benchmark.

3.2. Evaluation of analytical methods

Analysis using correlation coefficients[7] or linear regression[8] to identify trends in healing rates with increased strong compression was dismissed for several reasons. Firstly, it was inappropriate to conduct this analysis for those TESs where the number of healed wounds exceeded the number of patients who underwent strong compression. Reports from TESs also indicated that some patients may have transitioned between mild and strong compression within the same month. Furthermore, the healing rates were reported by wounds, while the number of patients undergoing strong compression was reported by patient, complicating the analysis. Linear regression also necessitates subject-level data, which was not available. Moreover, when examining healing rates over time, no improvement was observed with the introduction of strong compression as per NWCSP guidelines, contrary to evidence from the Cochrane[9] database of systematic reviews. Consequently, a descriptive analysis was employed to provide a snapshot of the data and its potential impact.

3.3. Data analysis process

Our starting point for analysis assumed that all data would be included, and decisions on elimination of data from analysis would be based on details provided in each TESs' data quality statement. Following receipt of data from all TESs (up to and including March 2024), we approached TESs with additional queries where clarification on certain aspects of data collection were required, to mitigate for confirmation bias.

[7] A correlation coefficient is a statistical method that measures the strength and direction of a relationship between two variables.

[8] Linear regression is a statistical method that shows the relationship between two variables, so that when one changes, so does the other in a linear relationship.

[9] O'Meara S, Cullum N, Nelson EA, Dumville JC. Compression for venous leg ulcers. Cochrane Database of Systematic Reviews 2012, Issue 11. Art. No.: CD000265. DOI: 10.1002/14651858.CD000265.pub3. Accessed 18 June 2024.

In relation to aggregation of metrics data at a programme level (i.e. across sites), we set a threshold of half of the TESs (four) providing appropriate data for the relevant metric to account for sampling bias i.e. metrics data would not be aggregated across fewer than four TESs. Due to differences in reporting and use of the data provided by TESs, there is the risk of inferring inaccurate conclusions that are not representative of the whole population. Data were provided in aggregated format, with some metrics being reported as number of patients, and others as number of wounds. Due to differences between TESs, different metrics were reported depending on what was in scope for each TES.

Data analysis was informed by the information provided by the TESs in their data quality statements. These determined which data was suitable to be aggregated at a programme level and which data was appropriate for inclusion at TES level only. For example, it was not appropriate to aggregate data provided as number of wounds with data provided as patients; a single patient with multiple wounds would only be recorded as healed once, that is one or more wounds were healed, potentially resulting in a longer time for healing than if this were recorded on a wound-by-wound basis.

The denominators for healing rates and for the total number on the caseload did not match for some of the TESs such as Norfolk and Waveney NCH&C, Bromley Healthcare, and CLCH. This was due to inaccuracies in the number on the caseload, wounds being reported for these metrics and patients for the total caseload, or people remaining on the caseload for follow-up post wound healing. Furthermore, the proportion of the cohort healed within 12 weeks, and from 12 weeks to after 52 weeks, were reported by wounds or patients each month per provider (see **Figure 7** and **Figure 8** in programme report). Amalgamation of data for these metrics at a programme level was not possible due to the differences in data collection at each TES (see **Figure 3** in this report).

Furthermore, the data provided was aggregated, rather than by individual patient-level, which made it difficult to assume that all the patients that undertook strong compression in TWC010 (lower leg wounds treated with strong compression) are the same cohort reported healed in TWC011 (wounds healed within 12 weeks…etc). As such, we proceeded with descriptive analysis, producing two separate graphs to show the proportion of patients who have undertaken strong compression and the proportion of healed patients with different timeframes. The NWCSP LLRs for assessment, diagnosis, and treatment state 12 weeks as the optimal point for the assessment of healing, see for example NWCSP Leg Ulcer Recommendations[10]. Our analysis splits data relating to healing rates into within 12 weeks, within 12 to 24 weeks, within 24 to 52 weeks, and after 52 weeks (please see programme report). It is important to note that sample sizes in the post-12-week timeframes are small. These results should be interpreted with caution (See **Figures 7** and **8** in programme report).

The artefacts in the data collected by TESs (as described in Section 2) have introduced significant limitations to the analysis which prevents the evaluation providing conclusive findings. Notably, limitations with data quality (as described above) have constrained the evaluation to determine whether healing rates have improved, or not improved, as a consequence of the TWC programme facilitating the implementation of the NWCSP LLRs. Therefore, the data findings in this evaluation neither confirm nor disconfirm the evidence base for the application of strong compression[11].

[10] https://www.nationalwoundcarestrategy.net/wp-content/uploads/2023/08/NWCSP-Leg-Ulcer-Recommendations-1.8.2023.pdf

[11] De Moraes Silva MA, Nelson A, Bell-Syer SEM, Jesus-Silva SG de, Miranda Jr F. Compression for preventing recurrence of venous ulcers. Cochrane Database of Systematic Reviews 2024, Issue 3. Art. No.: CD002303. DOI: 10.1002/14651858.CD002303.pub4. Accessed 20 June 2024

As a result of the metrics, quality, and consistency issues, the data could not be used to demonstrate patient impact on wound healing, and a cost analysis was not viable. We considered using the percentage reduction in healing time to imply a percentage cost saving. However, this approach was not pursued due to several issues. Firstly, there was a lack of evidence and unified units required to accurately calculate the number of non-healed patients by subtracting the healed number from the monthly caseload. Secondly, the disadvantage of receiving aggregation-level data is that it is not possible to explain the low proportion of healed patients compared to the monthly caseload. Consequently, we determined that such an analysis would not accurately reflect any potential cost savings.

4. Lessons learned

This evaluation acknowledges the considerable efforts to standardise metrics data collection and offers recommendations below for ways to strengthen data collection that will enable impact measurement.

Patient-level data collection, rather than aggregated by month, would support data analysis. This approach has been taken by other national audit programmes, such as the National Respiratory Audit Programme or the National Vascular Registry. This approach would allow greater confidence in the results, including being able to account for 'loss to follow-up', and to give a more sensitive measure of improvements in wound healing time to any intervention or implementation of best practice.

A **longer data collection period** would also be of great benefit due to the length of time needed to assess improvements in aggregated wound healing given the approximate 12-week lag that would be reflective of optimal wound healing resulting from strong compression. Data relating to the number of days it takes for wounds to heal would provide sufficient data granularity to observe changes in wound healing time, as opposed to the aggregated data in three to six-month periods collected as part of this evaluation. For example, if the time it took for a wound to heal with strong compression reduced from, for example, 16 weeks to 13 weeks, it would be possible to report a change in time to heal if data were collected in days. However, this cannot be observed in the dataset collected for the TWC programme due to the aggregation of data by three to six-month periods. Appropriateness of relevant timeframes for data collection (e.g., use of referral or assessment date to discharge date) would be guided by experts in the field. Data collected at this level are likely to be more suitable for demonstrating any cost savings. While we appreciate that there may be additional challenges in collating this data, this report provides suggestions for consideration towards a pragmatic approach to balance ideal case scenarios and clinical availability of data.

Information on severity of wound would likely be an important confounder[12] with regards to time taken for wound healing and there could be benefits to including this in metrics data (with the assumption that a more severe wound would require a longer healing time than a less severe wound). Additional confounders identified with advice from subject matter experts will also improve the richness and applicability from collected data.

[12] Confounder refers to a variable that influences both the independent variable and dependent variable and leads to a false correlation between them.

Additionally, **standardisation either across or within sites** regarding the units in which data is reported (i.e. either wounds or patients, not both) would allow comparisons to be made between implementation and outcomes.

Version Control

Version	Status	Key Changes	Authorised by
V1 Oct 2024	Circulated for comment.		
V2 Nov 2024	Live	Final amendments completed.	Philippa Darnton