Use of Eykona 3D Wound Measurement device for clinical assessment of Diabetic Foot Wounds

Yorke M1, Waller A1, Crossland V2 and Bowen G1

**Background**

Wound measurement is a key tool in assessing wound healing and is usually included in clinical guidance and best practice statements for wound management. To date, the most usual methods used in clinic are manual paper ruler, ordinary digital photography, planimetry or ‘questioning’ which are either highly subjective, have poor accuracy, consistency and reliability or are time consuming.

Increasingly digital wound measurement systems are coming to the market offering solutions to these issues. Eykona Medical Limited have released a 3D wound measurement system ("WMS") that has been shown to address many previous limitations of digital technology and offers good intra- and inter-rater reliability.

**Aim**

This study sought to evaluate the usefulness and applicability of the Eykona 3D Wound Measurement System in a high risk diabetic foot clinic.

**Method**

Since February 2013, patients referred to Solent’s Intensive Wound Care Clinic (IWC) have had their ulcers measured with the Eykona WMS.

The Eykona WMS uses a single use target attached to the foot and in-built features to ensure comparability between images by ensuring the same distance and angle is used each time (see Fig 1).

Photos are then analysed using Eykona software which enables a variety of wound measurements to be calculated including surface area and volume, percentage wound area covered by slough or granulating tissue. Data can also be plotted as a time-graph to allow assessment of progress over time (see Fig 2).

**Results**

Capturing images was found by the investigating team to be easy and manageable within clinic appointment times although data transfer and subsequent processing initially required a little more time (about 5-10 minutes per photo). Due to internal networking issues, it was not possible to carry out the wound measurement chairside but was done at the end of clinic. This has been a limitation to the trial to date but will soon be remedied. Even with this limitation, use of the graph and other data produced by the Eykona WMS has enabled more accurate and objective monitoring of wound healing status allowing more timely interventions to be provided.

Using the graph and other data produced by the Eykona WMS enabled more accurate and objective monitoring of wound healing status by identifying subtle but significant deteriorations in wound healing much earlier and with more confidence than would normally be possible. This in turn triggered a prompt reconsideration of treatment interventions which improved wound management and healing outcomes.

The other key benefit was that output data provided a forum for patient participation and education by enabling clinicians to objectively demonstrate the benefits of compliance and the detrimental effects of non-compliance. Graphical presentation was especially useful for patients who refused to look at their foot wounds.

**Limitations of the Eykona WMS identified by this study**

- Provides objective data to support clinical decisions
- Reduces the need to rely on memory/clinician’s instinct to assess progress
- Helps prompt re-evaluation of what is happening to the patient as a whole
- Improved communication between team members and patients.
- The WMS is easy to use and ensures comparability of photos
- Data in graph and video format also allows quick and easy assessment of healing progress for both clinicians and the patient
- Potential for remote consultations.
- Can be used chair-side as an educational tool to maximise patient participation.
- Offers the potential to assist clinical audit and performance monitoring.

**Conclusions**

The Eykona system is easy to use, provides objective data on which to base clinical decision: 1st it facilitates communication with both the patient and other members of the multidisciplinary team. The 3D data provides a wide range of information not easily available from traditional wound measurement methods. The system offers not only a tool for active wound management but also potentially can provide timely data for clinical audit and performance monitoring.

**References**


