

# Enabling Technologies for the Provision of Integrated Wound Care and Diabetic Foot Care Services



**Silhouette System**, digital wound assessment and information management



**Wound Care Buddy App**, digital wound management guidelines and formulary

Information for Commissioners and Providers of  
Wound Care and Diabetic Foot Services



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## About Entec Health and our Digital Technologies Portfolio

Entec Health is a specialist healthcare technology business, dedicated to selling, marketing and supporting innovative technologies and transformation solutions for healthcare innovation. The company's vision is to enhance healthcare quality, outcomes and cost-effectiveness in partnership with healthcare provider clients and their patients.

Entec Health's current portfolio:

**The Silhouette® digital wound assessment and information management solution** is designed for frontline clinical management of patients. The Silhouette solution transforms the way wound outcomes are monitored, documented and reported to support delivery of clinical quality, patient safety, optimal patient experience, cost-effective services and new models of care for sustainable health systems.

Entec Health is an appointed distributor for Silhouette in the UK, with successful partnering with ARANZ Medical, the developer and manufacturer of Silhouette, an award-winning company based in New Zealand.

Silhouette, SilhouetteStar, SilhouetteConnect, SilhouetteCentral and SilhouetteLink are registered trademarks of ARANZ Healthcare Limited.

**The Wound Care Buddy App and Platform** is a new cloud-based service launched by Entec Health in 2017. The Wound Care Buddy solution allows clients to publish their own custom wound management guidelines and formulary information as mobile app rapidly and cost-effectively.

Developed, hosted and supported by Entec Health, the Wound Care Buddy App equips and empowers health professionals at all levels on delivering consistent wound care practice and optimising value for money of wound care dressings spend.

## Why use Entec Health Digital Technologies in Integrated Services?

Commissioners are seeking to deliver patient-centric services offering improved patient outcomes and experience, whilst supporting staff and maintaining high standards of knowledge and care.

The Entec Health digital technology solutions outlined in this document can support single or multiple provider delivery of Integrated Wound Care and Diabetic Foot Care Services, involving multiple locations. Entec Health partners with service providers as a technology and transformation enabler, by implementing Silhouette and Wound Care Buddy App as system facilitators.

**Silhouette® Digital Wound Assessment System**, an innovative digital technology, would facilitate a single point of access, standardise referral and reporting and enable evidence-based outcomes-led practice and provide **strategic oversight on a system level**.

Silhouette is an electronic wound assessment and information management system. The Silhouette system comprises a digital wound camera, wound assessment software and a secure, web-enabled information database.

Silhouette shifts current wound assessment practice from a largely paper-based, manual and subjective process to a progressive, digital, automated and objective approach.

Silhouette is fully portable and can be used in any setting where care is delivered, from private homes and residential care to NHS clinics.

Silhouette capability will enable delivery of the following core service goals:

- Delivery of safe and equitable service across the patient pathway
- Improvement of referral and diagnosis
- Increased levels of satisfaction for service users and carers
- Service user engagement
- Clear pathways of care delivery
- Enablement of direct, informed communication and record-sharing across healthcare professionals

### SilhouetteStar wound camera

- Novel 3D laser technology – digital wound imaging and accurate objective 3D wound measurement with images uploaded and saved to report automatically
- Non-contact imaging and measurement – supports infection control

### SilhouetteConnect wound assessment software

- Enables 3D wound measurement- area, perimeter, depth and volume – objective, quantitative data on wound status and wound healing progress
- Plots wound size change over time chart – clear, indicator of wound healing progress
- Percentage Area Reduction reported versus baseline – immediate indicator available on response to wound treatment plan
- Electronic clinical notes – capture wound assessment data at point of care
- Generates automated PDF wound assessment reports – professional documentation that can be shared with care team

### SilhouetteCentral wound information platform

- Digital wound data platform for organisation –quality data available in real-time for users to review, share with the Multidisciplinary Team, and **facilitating the interdependence with other services and providers as required**
- Clinical notes management interface – configurable clinical notes function to enable client to customise electronic clinical data capture and reporting
- Data Extract function to support Population level reporting – **giving strategic oversight at a system level.**
- **Data can be accessed by multiple users from multiple locations, supporting MDT working, telehealth models of care, and audit**
- Hosting on NHS Trust server – patient data under Trust control, ownership and information governance

### Wound Care Buddy App

Wound Care Buddy App enables Providers to publish custom wound care formulary and treatment guidelines on a mobile app cloud platform The Wound Care Buddy App supports best practice and compliance with the organisation's wound dressing formulary and standards of care protocols.

- **Supports formulary compliance**
- **Reduces variation of care provision**
- **Equips and empowers wound care teams to achieve best practice**
- **Easy, instant access to essential wound treatment and recommended wound dressings information at the point of care**
- **Organisations can deploy the solution rapidly and cost-effectively**

## How do Entec Health Technologies support the workforce?

Entec Health technologies empower staff to work innovatively:

- enhancing communication across services and pathways
- evidence-based care
- providing data for outcomes-led service delivery
- supporting compliance with protocols and formularies

### Silhouette addresses staffing challenges through process improvements

offering standardisation; intelligence data sharing; outcomes-led practice and case-load prioritisation. Silhouette enables evidence-based, data-led, telehealth models of care, aligning with Local Digital Roadmaps (LDR) and addressing the following workforce and service quality challenges:

- Reducing potential duplication - District Nurses, Tissue Viability Nurses and Podiatrists
- Preventing Tissue Viability Nurse unnecessary travel to assess wounds, clarify treatment.
- District Nurses supported by Tissue Viability Nurses, remotely accessing digital wound assessment.
- Facilitating digital data sharing for continuity of care
- Standardised reporting - wound status and outcomes.
- Visibility of outcomes - response to treatment
- Healthcare Professionals delivering appropriate treatment, potentially reducing outcome variations.

### Referral by Silhouette

Referrals using the Silhouette digital wound assessment and information management system provides standardised digital assessment and reporting, digital wound images, measurements, wound healing graphs and clinical assessment notes. Access to real-time data, from any networked location potentially reduces the need for additional home visits. District Nurses receive guidance from Tissue Viability Nurses by phone, supported by the dataset for reference. Expected outcome: increase in patient coverage and efficiency from the nursing team to ensure value for money.

### Nurses' clinical practice confidence aided with the Wound Care Buddy App,

placing specific wound care formulary, protocols and pathways into the hands of the nursing team. The solution enables District Nurses to become more self-sufficient, with fast, easy access to advice, guidance and information. Tissue Viability Nurses' time can be released for high priority/complex cases and training. Potentially reducing wastage and saving money by adherence to the wound dressing formulary, reducing the need for repeat/duplicate home visits to clarify.

# Health Economics

## Wounds Impose Significant Health Economic Burden on the NHS

The scenarios below are based on Entec Health's experience of working with the NHS, for further information please see ["Entec Health's experience of working with the NHS"](#).

### Value for Money Scenario 1

**Silhouette in a new "Closer to Home" Diabetes Foot care model**, developed by Southern Derbyshire Acute and Community Trusts supported by EMAHSN. The new model of care resulted in efficiency gains and savings across the whole system. Independent evaluation and health economic model by EMAHSN forecasts five-year return on investment:

Scope: 5 cameras, expanding to 10 second year

Change from acute to community treatment: Gradual increase from 7% to 30% follow-ups in community

Five-year forecast for Southern Derbyshire:

- System & running costs: £199k
- Direct savings: £401k
- Net savings: £202k
- Breakeven 2.4 years
- On-going savings £110k p.a.

Additional savings observed, to be quantified:

Reduced - transport costs; reporting and admin costs

Further information is available at

<https://www.entechealth.com/diabetes-foot-management/>

### Value for Money Scenario 2

Entec Health has collaborated with the Tissue Viability Team at Central Manchester Foundation Trust, involving - **clinical evaluation and development of a Preliminary Health Economic Model for Wound Care Transformation.**

A number of opportunities have been identified for cost savings in the community setting, based on deployment of the Silhouette system:

- Reduced Tissue Viability Nurse visits (time, £)
- Reduced administrative burden (time, £)
- Reduced clinical burden (time, £)
- Litigation risk mitigation (penalty costs, £)
- More appropriate treatment (treatment costs, £)

Entec Health is able to collaborate with NHS CCGs and Wound Care Service Providers to establish a health economic model to project the potential efficiency savings that can be released by deploying the Silhouette solution.

# Risks and Mitigations for standard Wound Care Service delivery

## Risks

The traditional models of care for Wound Care and Diabetic Foot Care Services face challenges in meeting the demands and care standards of a growing and complex patient population, with high risk in the health system in achieving safe, effective and sustainable delivery of services.

Risk factors include:

- Growing elderly population
- Fragmented services
- High staff churn
- Variable staff competencies,
- Repeated inappropriate treatment
- Non-adherence to local guidelines and protocols
- Lack of system oversight
- Poor continuity of care
- Lack of capability of monitoring and reporting objective monitoring of wound outcomes

## Mitigations

This document puts forward an innovative, technology-enabled strategy to deliver the vision of integrated, patient-centred services closer to home, by addressing capability gaps and risks which Service Providers are facing.

Silhouette and Wound Care Buddy App will enable Service Providers to harness digital capability to effectively and efficiently deliver:

- A Single Point of Access
- An integrated Community Delivered Team service
- Reduced variation in care across the pathways
- System oversight
- Access to local guidance and protocols
- Achieve objective monitoring and reporting of wound outcomes

Adoption of the Silhouette Wound Care Buddy App digital technologies presents an opportunity for Service Providers to minimise risk in the delivery of Service Specifications, through enabling the following process improvements:

1/ By incorporating Assessment Protocols into the Silhouette user-configurable clinical notes software, providers can standardise how Healthcare Professionals perform and report risk assessments, and wound assessments for patients in any care setting.

2/ Silhouette digital wound images, wound measurements, wound healing progress data and charts give full transparency to every patient's progress and wound outcomes achieved per treatment mode. This will give the Service Providers and Commissioners intelligence on Service Performance and help to gain a strategic, system-wide oversight. This will help to

ensure robust safety, clinical governance and standards of care are being met or are targeted for improvement where needed.

3/Connect the service delivery by having a shared SilhouetteCentral wound care information platform. SilhouetteCentral is a web-enabled database which would be hosted on a secure server environment either within the Lead Provider's IT infrastructure or an approved 3rd party cloud server provider.

4/ Use of the SilhouetteCentral web-enabled platform means that fragmented legacy systems do not hold back continuity of care as access to the patient's referral and wound assessment record is facilitated through Healthcare Professionals having direct access to the SilhouetteCentral database from any clinical setting within the networked solution and with appropriate permissions to access the Silhouette system.

5/ The Wound Care Buddy App supports standardisation of care by providing HCPs equal and rapid access to the Health Provider's wound care formulary guidelines, protocols and pathways information as a Mobile App, using Android or iOS smart devices (phones, tablets). Out of hours and weekend support is assured to frontline staff and frees up reliance on Tissue Viability Specialists for routine information using a self-service digital information model. Tissue Viability Specialists can then focus on supporting higher risk patients.

## Entec Health's experience of working with the NHS

Entec Health has been working with the NHS to introduce digital health technologies since 2011.

The company has extensive experience of facilitating co-creation of solutions, working with leading technology partners and associates to develop and deliver progressive services, using digital and non-digital enablers. Engaging with STP and CCG leads, and stakeholders involved at Service Provider organisations, including: business managers, clinical leads, IT leads, finance and procurement.

### Case Studies

#### **A: Entec Health collaborating with EMAHSN, Derby Teaching Hospital NHS FT, Derbyshire Community Healthcare Services NHS Trust and Derbyshire CCGs - Digital Diabetes Foot Ulcer (DFU) imaging and assessment solution.**

Silhouette has been deployed as an enabler of Diabetic Foot Ulcer treatment in the Community, with over-sight from the Acute Multidisciplinary Team. Resulting in significant improvement in:

- reducing reporting time
- patient experience
- savings across the whole system

*Silhouette is being expanded across the county, supported by Derbyshire STP.*  
<http://bit.ly/2rmxN8y>

#### Client Testimonial

*"As a result of implementing the Silhouette system, we have been able to safely transfer an increasing portion of patients for treatment in community clinics and have improved waiting times in our out-patient clinic. Importantly, patients are happy with the new model of care. In*



*a survey following introduction of digital ulcer assessment, 71% of patients reported a greater confidence in the care they had received."*

*Professor Fran Game, Consultant Diabetologist, Clinical Director R&D, Derby Teaching Hospitals NHS Foundation Trust*

### **B: Norfolk Community Health & Care NHS Trust - Developing a patient-centric wound care service.**

Following a successful evaluation managed by Entec Health, ARANZ Medical and NHS stakeholders, Silhouette is supporting the Norfolk Community Health and Care NHS Trust to develop a new, patient-centric service.

The Trust's Investment rationale - expected benefits, which will be validated ahead of a potential wider roll-out of Silhouette across the Trust:

- Patient –centric digital technology; adopt to improve engagement, experience, outcomes
- Meet workforce planning goals
- Potential efficiency savings, optimise dressings spend, nursing travel time,
- Quality and Safety improvement
- Demonstrable outcomes for CQUIN
- Can support effective triage across large region

Client Testimonial

*"Clear pictorial evidence of the wound and whether it is improving or not is useful for clinicians and patients and can help patients to realise the true picture and help with compliance if needed."*

Silhouette Evaluation Feedback, Clinical Lead Nurse, NCHC NHS Trust

### **C: Collaboration led by Entec Health supported by GMAHSN and Trustech, - Tissue Viability Service at Central Manchester Foundation Trust (now Manchester Foundation Trust) successful evaluation of Silhouette 2016/2017.**

Central Manchester Foundation Trust's business rationale was to deploy Silhouette as an enabler of Wound Care Transformation for Manchester Foundation Trust, with projected benefits identified:

- Improved continuity of care across acute and community settings
- Reduced length of in-patient stay
- Ability to track healing rates
- Delivery of more targeted education
- Increased formulary compliance
- More efficient use of TV team resource
- Quality baseline data informing future research quality improvement strategy
- Savings identified based on target improvements

There is restructuring activity currently underway at Manchester Foundation Trust, however, there is a commitment to secure budget for implementation in FY 2018/2019.

## **D: Hounslow and Richmond Community NHS Trust - Wound Care Buddy App implemented July 2017.**

### Client Testimonial

Adult Community Services Director and Tissue Viability Clinical Manager reported benefits during a review meeting held in Feb 2018:

*“The Wound Care Buddy App is proving to be a very helpful, quick clinical reference guide for our nurses.”*

*“The Tissue Viability Nurse Team is now receiving fewer calls about basic wound care advice as district nurses can find the information when needed”*

*“Analytics such as users per month and screen views is helping us understand what information is regularly being accessed and demonstrating active use of the Trust’s Wound Management Formulary”*

## Estates Requirements

Estates and premises are not required to run the Silhouette solution or the Wound Care Buddy App. Both solutions are designed for mobile working. Users will have access to real-time wound assessment data on the centrally hosted Silhouette database from devices which can access secure NHS network location. The Wound Care Buddy App gives access to Wound Management Formulary information via mobile devices.

## Deployment and Mobilisation

Entec Health are experienced providers of Transformation Services for Healthcare Innovation.

For Silhouette deployment, Entec Health and our technology partner (ARANZ Medical) would complete an assessment of the IT infrastructure of Service Providers involved. A discovery and define phase would be needed to establish feasibility of the technical implementation of Silhouette in the context of the proposed pathway, IT infrastructure, digital maturity and data integration requirements of the Service Providers involved. We would work with the Service Provider to plan and install the Silhouette software components and cameras for operational readiness, and delivery of the total solution, including finding pragmatic solutions to creating system interfaces that allow sharing of Silhouette results across a connected clinical pathway in the form of a PDF assessment summary report.

For Silhouette mobilisation, Service Providers would need compatible computer and server hardware and also IT capacity and competencies to support implementation.

For mobilisation of the Wound Care Buddy App, Service Providers would need smart mobile phones or tablets (iOS or Android). The Wound Care Buddy App cloud platform is hosted by Entec Health and ready to mobilise through uploading and curating of the Provider’s Wound Management Formulary content.

## Efficient use of staff time

Providers can deploy Silhouette and Wound Care Buddy App solutions as innovative, technology-enablers for delivery of Wound Care and Diabetic Foot Care Services.

By making more efficient use of time enabled through telehealth innovations there is potential for:

- Healthcare Professionals to have more time for clinical delivery of services
- Data sets to be readily available for service performance management and audit
- More straightforward assessment of patients
- Standardised referrals
- Reductions in inappropriate referrals
- Reductions in inappropriate repeat or duplicate visits
- Standardised treatments, and reduced variation in care

The Silhouette solution makes it possible for Healthcare Professionals to manage patient flow and generate wound outcomes intelligence across geography and care organisations. Remote access to real-time digital data on Silhouette, encompassing images and summary reports on Wound Care assessments, enables Healthcare Professionals to stratify patients by risk status and efficiently triage, refer and treat patients. The Wound Care Buddy App empowers frontline nurses to reference the Service Provider's formulary, protocols and pathways on their mobile devices at any time from any location, making it faster and easier to refer, manage and treat patients efficiently to meet target timelines.

## Patient Experience and Outcomes

**The Silhouette solution and Wound Care Buddy App** are technology-enablers for Service Providers to develop and deliver patient-centric, evidence-based, outcomes-led clinical practice and health care services.

We would work with the Provider(s) to deploy **Silhouette** and the **Wound Care Buddy App** as technology enablers, throughout the process using our transformation experience to support improvements in patient experience and outcomes through the following:

### Technology-Enabled Service Improvements

- **Right treatment, right place, right time** - visibility of Silhouette outcomes reporting supports the right treatment as soon as possible – Silhouette's measurement data immediately alerts Healthcare Professionals when wound status is static or deteriorating, objectively and early, allowing for rapid intervention and change of treatment at the **right time**.
- **Wound Care Buddy App** means that the Healthcare Professional can check which treatment is the **right treatment** according to Trust formulary and protocols whilst on the move.
- The **right place** is that most appropriate for the patient – **Silhouette** and **Wound Care Buddy App** facilitate mobile Multidisciplinary Team working, offering the same skills and service at the patient's home, care facility or clinic.
- **The same treatment protocols for all** -Patient experience should also be improved if treatment variations, between different healthcare professionals on the same case and between different patients are reduced, and best practice guidelines are followed. **Wound Care Buddy App** supports compliance with formularies and

protocols through a smart phone app, giving direct access to the local wound care formulary, protocols and guidelines at all times, which should reduce variations in care and outcomes

- **Transparency and responsiveness - Silhouette** wound progress data demonstrates a transparent and responsive treatment programme, reinforcing the patient's experience of responsive and proactive care.
- **Building community capability** -For the most frail, elderly and disabled, referrals to hospital clinics mean an ambulance journey, with potential for long waits and associated high costs to the NHS. Silhouette supports community- based care with oversight from specialists as needed to support optimal patient experience, outcomes, service access, convenience and safety.

## Entec Health's Service Transformation Experience

Entec Health has experience of providing a range of Transformation Services to support technology-enabled health care innovation.

Our approach brings in appropriate technology partner organisations and business associates with a high level of expertise to lead and facilitate successful change management and embedding of new practices.

Entec Health provides transformation expertise to support a wide range of organisations achieve their digital healthcare vision:

- NHS STP and NHS CCG Organisations
- NHS Service Providers – Acute, Community, Primary Care
- Private Healthcare Providers
- Healthcare Technology Industry
- Medical Devices, Life Sciences, Pharmaceutical Industries

**Patient engagement**-When deploying technology, we work with the Service Provider to use early patient engagement within the process of service mapping, design and mobilisation helping us to enhance overall patient experience and outcomes.

**Holistic patient care and connected pathways – we have expertise in achieving** clarity of pathway mapping, standardised clinical protocols and system-wide communication with our NHS partners. Our project management and mobilisation experience can bring engagement with all levels of staff and stakeholders across the system – giving consistent messaging and understanding of the service to patients, no matter at what point they contact the service.

**Impact Evaluation of transformation programme.** Entec Health has supported several evaluation plans to ensure robust monitoring of outcomes from technology-enabled transformation programmes to help create sustainability business cases.

## Placing Innovation at the Heart of Your Service

Entec Health's company vision is to enhance healthcare quality, outcomes and cost-effectiveness in partnership with healthcare service providers and their patients, through innovative technology and transformation solutions. We are fully committed to partnering with the NHS to support delivery of the Five Year Forward View and to enable realisation of Local Digital Roadmaps.

This document puts forward an innovative, technology-enabled strategy to deliver a vision of patient-centred, community-based integrated care delivered through a Multidisciplinary Team, by addressing capability gaps and risks which Service Providers are facing with traditional delivery models.

Entec Health can provide technology to enable Wound Care and Diabetic Foot Care Services to achieve a cohesive, responsive and sustainable service, deploying the following digital solutions:

**Silhouette** – digital wound imaging, 3D laser-assisted wound measurement and digital monitoring of wound progress; this provides for the first time, objective data on response to treatment and real-time data sharing across the MDT. Providers can generate intelligence to target improvements in chronic wound outcomes.

**Wound Care Buddy App** - mobilisation of wound care formularies and wound management protocols; reduced reliance on limited TV resources; empower staff on clinical decision making at the point of care.

There is clear potential to reduce costs of service delivery by using Silhouette Digital Wound Assessment Technology and Wound Care Buddy App digital information to optimise right care right time and supporting compliance with evidence-based, outcomes-led practice.

Entec Health would plan to develop a tailored Health Economic Impact Model, as part of any partnering programme of work.

## Solution Pricing

Guide pricing can be developed and proposed once the number of users and scale of deployment across an organisation is established. Pricing models are described below as a starting point for pricing discussions.

### **Silhouette System**

Silhouette pricing is based on licences for software components, purchase/rental of camera devices, one time costs for implementation services and annual fees for software support/maintenance and camera warranty.

The contract of supply and service for Silhouette would be with ARANZ Medical Limited, the developer and manufacturer of Silhouette. Silhouette pricing would be dependent on the scope of the solution required and would be priced after requirements have been defined. Silhouette and ARANZ Medical have qualified onto the London Procurement Partnership Clinical Decision Information Systems (CDIS) Framework Agreement, hosted by GSTT. Flexible pricing models are available, ranging from capital purchase, annual licence fee to subscription pricing.

### **Wound Care Buddy App**

Entec Health, the developer and provider of the Wound Care Buddy App offers the solution on a tiered subscription pricing model, dependent on number of users, number of organisations and length of subscription contract. The contract of supply and service would be with Entec Health Limited

## **Contact Entec Health to discuss your requirements**

For further information please contact:

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