Integra Single Layer THIN is a single-layer IDRT, which has been developed to combine the proven technology of IDRT with a thinner scaffold, offering a complete solution for treating full-thickness skin defects in a one-step surgical procedure, while maintaining the same functional and aesthetic benefits of two-stage surgery (Integra, data on file).

The single-step procedure means that a thin layer of skin autograft (meshed or unmeshed) is applied directly over the Integra Single Layer Thin, which does not require additional waiting time for the formation of neodermis. This single-step procedure is indicated where the wound bed has adequate vascular supply to support the autograft through the Integra Single Layer Thin. This means that a second skin grafting procedure is not necessary, which benefits the patient and provides knock-on practical benefits to the clinician (i.e. reduced time and cost, potentially reduced hospital stay).

This may be of particular benefit to patients at extremes of age (elderly or paediatric), or those with comorbidities and/or poor general health, who may have limited tolerance to repeated procedures.

The expert group agreed that, based on their clinical practice, the progress from a two-stage to single-step procedure speeds healing and reduces hospital time, providing benefits to patients, practitioners and healthcare systems. Anecdotal evidence within the group also suggested that the increased speed of healing may be particularly beneficial to some patient groups — e.g. oncology patients, where expedited healing enables radiotherapy to commence more quickly.

It is also important to bear in mind that the surgical process involves a psychological (and psychosocial) aspect for the patient, and treatment must focus on the individual patient, their expectations, experience and quality of life.

**INDICATIONS AND CONTRAINDICATIONS**

Integra Single Layer Thin is indicated in the following clinical scenarios:

- Post-excisional treatment of full-thickness and partial-thickness injuries, where sufficient autograft is not available at the time of excision, or is not desirable due to the physiological condition of the patient.
- Reconstruction of post-excisional, full-thickness defects, where there is — in the opinion of the treating surgeon — a potential benefit to the patient by improving the reconstructive outcome or decreasing the risk of mortality/morbidity.

It should be noted that use of Integra Single Layer Thin is contraindicated in patients with a known hypersensitivity to bovine collagen, chondroitin or silicone materials; it should also not be used on clinically diagnosed infected wounds.

**3D MATRIX LAYER**

The technology of the 3D matrix layer guides healing at a cellular level, enhancing tissue regeneration, and thus providing long-term functional benefits (McMurray et al, 2015). In the normal wound healing process [Figure 1],
myofibroblasts align and contract to close the open wound, which results in healed tissue that is more prone to contraction and scarring (Schultz et al, 2011). The 3D matrix layer inhibits myofibroblast formation and actions, in order to block contraction [Figure 2]; this means that neodermis is regenerated with little or no scar formation.

**PRACTICAL TIPS FOR USE**
The expert group discussed and agreed on practical tips for use of Integra Single Layer Thin in practice, and how individual experience can be extrapolated to different wound types and clinical scenarios.

Importantly, it was noted that all patients should have a full holistic assessment prior to commencing any treatment, in order to assess suitability.

**Wound bed preparation**
A standardised wound bed preparation protocol (e.g. the TIME principles; Dowsett and Newton, 2005) should be used. In particular, it is vital that the wound bed is free of any infected or necrotic tissue.

It is important to note that, for
reconstruction, the wound should not be too tight at the edges — darts may be used if necessary.

**Fenestrations**
Creating fenestrations (i.e. small cuts) to the product can help to create a healthier environment that results in faster vascularisation and enhanced graft viability. The use of fenestrations can be of particular benefit where thicker grafts are required (i.e. to help to counteract thickness).

The expert group agreed that the material can be fragile and should be handled with care, but this does not preclude cutting where fenestrations are necessary – small cuts can be made without causing overall damage.

The group noted that while the thinness of the layer causes fragility, this also results in good conformability.

Caution should be used to avoid any extra space or gaps from forming, which may result in losing some of the benefits associated with Integra Single Layer Thin and increase the risk of overgranulation.

**DRESSING CHOICE**
The expert group discussed and agreed on basic principles of dressing choice and fixation that may be beneficial in practice.

**Wear time**
The expert group agreed that dressing wear time is of paramount importance, as it is necessary for the wound to remain undisturbed with minimum potential disruption.

In the majority of cases, the first dressing change should not be conducted until after 7 days at the earliest (although this may not be the case in some acute patients or where infection risk is elevated).

At the 7-day point, the wound should be inspected and clinical judgement should be used — in some cases, upon inspection, dressing change may be left for longer than 7 days.

Relatedly, immobilisation is absolutely key to healing. While the extent of immobilisation that is possible varies according to the patient and individual scenario, the greatest degree possible is advised. The timing of patient discharge can affect this (e.g. lower limb patients being discharged after 48 hours), but patients should be advised on how to continue their own care in the home setting.

**Negative pressure wound therapy**
It was suggested that using negative pressure...
Case 2: Orbital exenteration.

This was a 78-year-old female with a large rapidly progressive conjunctival squamous cell carcinoma (SCC) of the left eye. The patient underwent orbital exenteration with rim of orbital bone for margin; with the conjunctival SCC excised with clear margin. The orbit was lined with Integra Single Layer Thin, placed directly over the bone and remnant of optic nerve at the orbital apex. A split-thickness skin graft was placed in the orbit over Integra Single Layer Thin. A silicone dressing was applied over the skin graft, and proflavin soaked sponge packed into the orbit, with an occlusive dressing placed over the wound. The dressings were changed weekly for 3 weeks and the wound healed fully in 8 weeks, with excellent graft take. This was a particularly good outcome as there was no delay to starting adjuvant radiotherapy.

Case 3: Deep burn to the hand.

This was an 18-year-old female, who sustained a deep burn to the hand, which required excision and immediate graft at Day 5. Integra Single Layer Thin was successfully used: the wound went on to heal within 15 days and the long-term results were excellent — see Figure 13a, 13b and 13c.
wound therapy (NPWT) in conjunction with Integra Single Layer Thin may be useful in practice. NPWT was found to help reduce initial bleeding and stabilise the wound. However, it was noted that high levels of negative pressure should not be used and it was recommended that NPWT should be continued only to a maximum of 5 days’ duration. Additionally, moisture balance should be given particular consideration in cases where NPWT is used.

Fixation techniques
The expert group agreed that fibrin glue is not recommended for use. Staples are a good option in practice, as they are quick and efficient, and therefore reduce infection risk. Sutures may also be used where necessary.

EXPERIENCE IN PRACTICE
The expert group shared cases of patients where they have used Integra Single Layer Thin in a variety of different clinical scenarios, providing long-term follow-up results (of 1 year) where possible.

While clinical use and experiences varied, there were common factors that indicated a positive impact on patient outcomes:

- Generally good long-term results, for both functional and cosmetic outcome
- Reduced contraction and scarring.

It was agreed that this is a promising treatment, which requires more research and knowledge in order to create wider use in practice.

CONCLUSIONS
While it was agreed that further clinical experience and knowledge are still required, early case studies in practice have shown promising results. The availability of single-step surgical procedure has the potential to provide significant benefits to patients and practitioners, resulting in a positive impact on clinician time, resources and — crucially — patient outcomes and quality of life.

References