



Lessons Learnt Using Integra® in Lower Leg and High Risk Foot Wounds

Donna Angel

Nurse Practitioner – Wound Management

Jo van Rooyen

Clinical Nurse Consultant – Wound Management





Wounds Australia 2018

ADVANCING HEALING HORIZONS:
TOWARDS THE CUTTING EDGE IN WOUND CARE



Declaration of Financial Interests or Relationships

Speaker Name: Donna Angel

I have no financial interest or relationship(s) to disclose



Integra® Dermal Regeneration Template

Bilayer membrane system for skin replacement

Layer one

Porous matrix of fibers crossed-linked with bovine tendon collagen
Glycosaminoglycan (chondroitin-6-sulfate)
(shark cartilage)
Controlled porosity and defined degradation rate

Layer two

Epidermal substitute layer – silicone layer
Control moisture loss from the wound
Barrier from microbes

Single layer

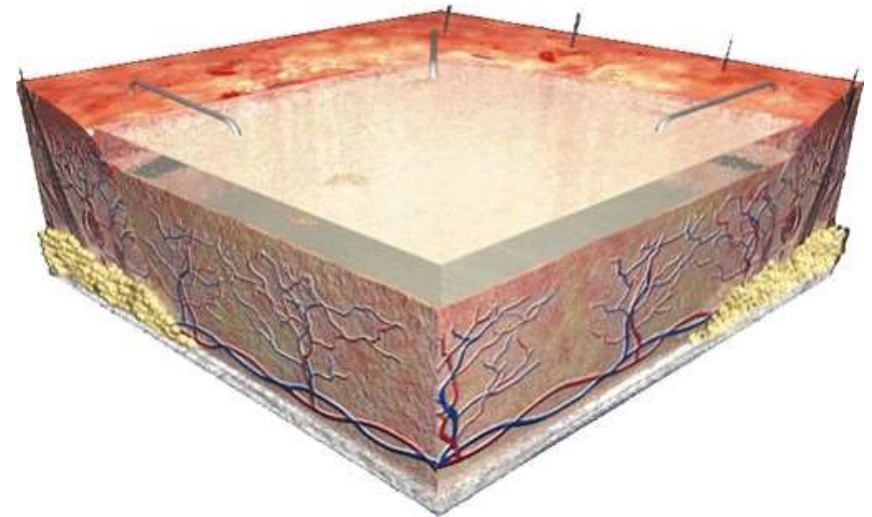
Dermal replacement layer only





Integra® Dermal Regeneration Template

The shark cartilage and collagen mimic the substructure of the dermis providing a framework for the blood vessels and cells to regrow a new dermal layer





Aim

Prospective observational study

14 patients with complex wounds

Integra® dermal replacement template

To promote wound healing

August 2017 – May 2018

Ethics approval not required

Integra® available on the tender for use in complex wounds





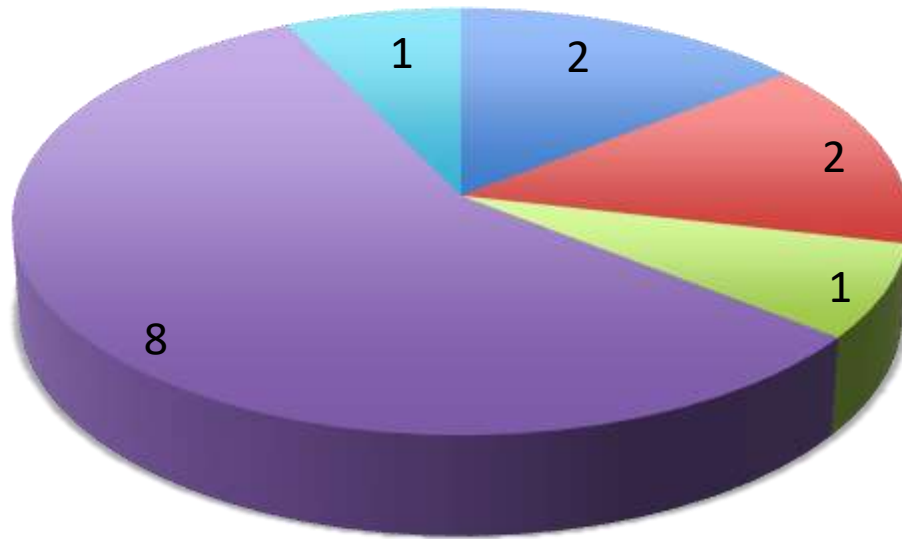
Demographics

Gender	Total	%
Female	3	23.07
Male	11	76.92
Age range	39 - 80	
Mean age	61.76	





Wound Aetiology

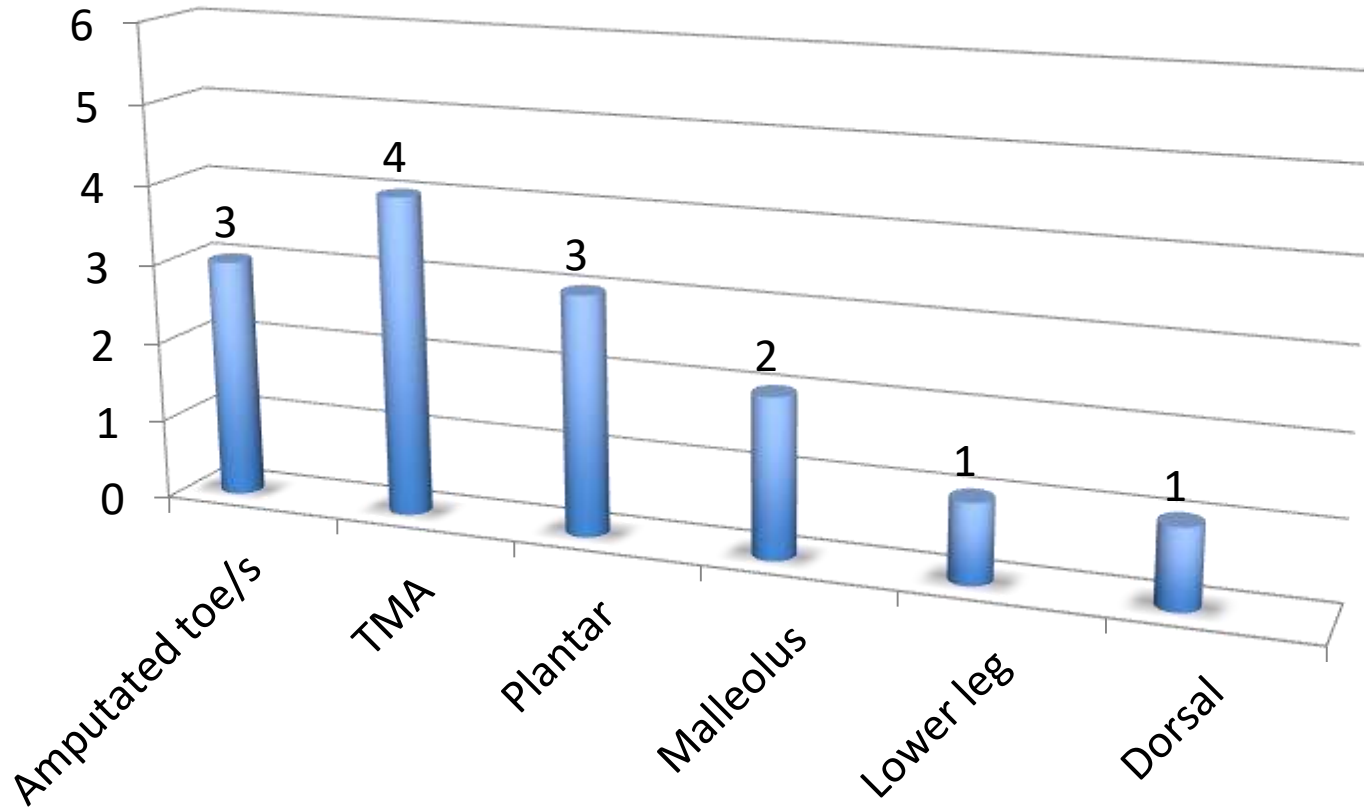


- Arterial
- Neuro-ischaemic
- Mixed
- Neuropathic
- Pyoderma gangrenosum



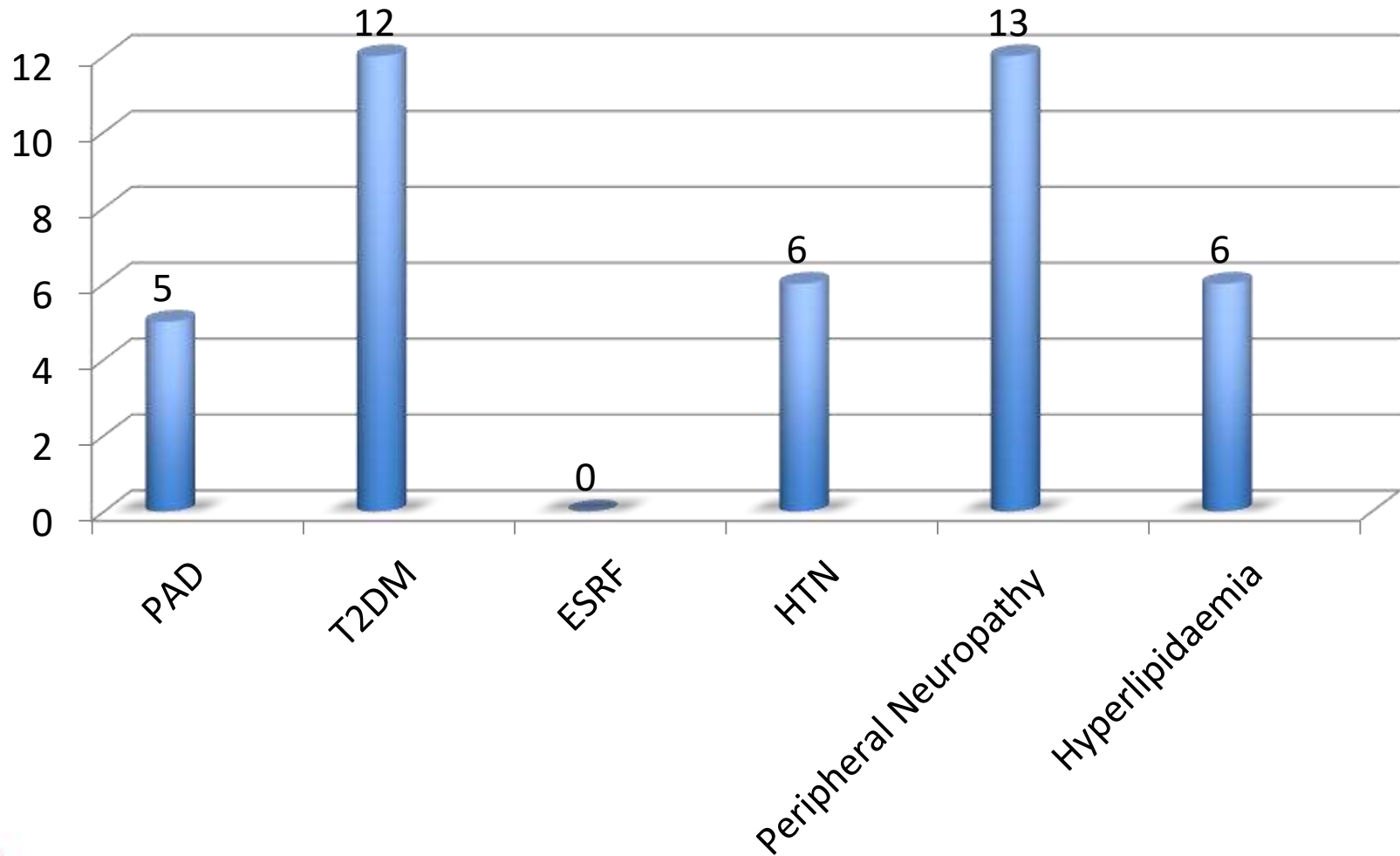


Anatomical Location





Co-morbidities



Single Layer Integra® Application

Theatre

- Two patients
Single layer
Integra®

Patient One

- Split skin graft
- **Mepital®** as interface layer
- Smith and Nephew – Renasys™

Patient Two

- Split skin graft
- **Acticoat** as interface layer
- Smith and Nephew – Renasys™



Patient one



Patient two



Bilayer Integra® Application

Theatre

- Eight patients bilayer Integra®

Seven patients

- Acticoat interface layer
- **KCI ActiV.A.C®**
- Sealed for 7 days

One patient

- Acticoat interface layer
- **Smith and Nephew – Renasys™**
- Sealed for 7 days





Bilayer Integra® Application

Ward

- **One** patient Bilayer Integra®
 - Acticoat interface layer
 - KCI ActiV.A.C®
 - Sealed for 7 days

Outpatients

- **Three** patients Bilayer Integra®
 - **One** patient: Acticoat only
 - **Two** patients: Acticoat interface layer, KCI ActiV.A.C®





Bilayer Integra® Silicone Layer Removal

Silicone layer removed in 12 patients	Time to removal
Minimum	7 days
Maximum	27 days
Average	17.62 days
Not recorded	2 patients



Wound Healing

Largest wound size

Circumferential



Smallest

1.6 x 1.1 cm



Bone on view

4 patients

Tendon on view

2 patients

Wound Healing

Wound Healed within 4 months

7 patients

One patient
neuro-ischaemic
revascularised

Single layer Integra®

SSG – failed

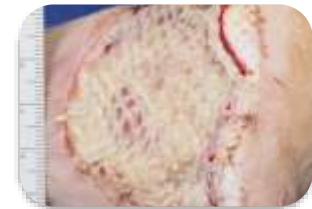
Subsequent wound healing

Almost healed!

5 patients

One patient - BKA

One Patient -AKA



Losses

41 year old male

Chronic ulcer 2nd MTPJ

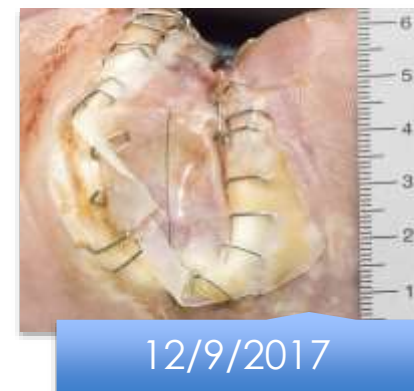
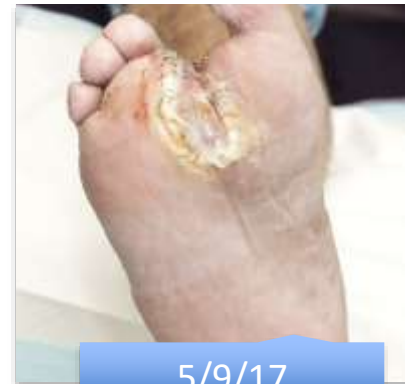
Washout – April 2017

Long term oral A/B's

OM Dx August 2017

T2DM, HT, depression, sleeve
gastrectomy

Palpable pedal pulses



Losses

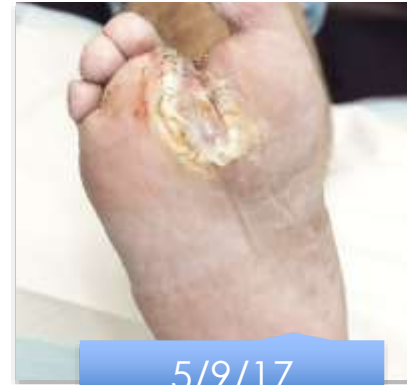
7/8/2017

Elective Right 2nd toe & MT
head amputation

D/C Day 7 post-op

Oral Moxifloxacin 4/52

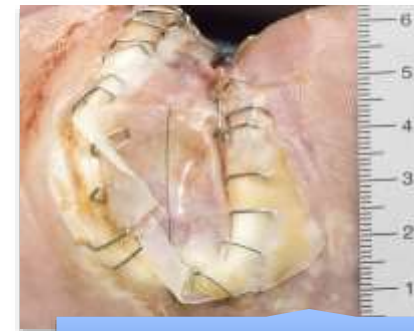
Integra® bilayer applied
day 22 in OPD (tendon on
view)



5/9/17



5/9/2017



12/9/2017

Losses

Acticoat flex and NPWT
(KCI-Acti V.A.C®)
for 7 days

Cam walker

Weekly review on MDFU

Silicone layer and staples
removed day 28



Losses

All progressing well until...

3 weeks later wound
deteriorated, probing to bone

Urgent white cell bone scan –
OM

Patient wanted a trial of
conservative Mx – A/B's

TMA 7/12/2017

June 2018 OM 3rd Mt Stump
Oral A/b's
Serial x-rays



6/10/2017



6/10/2018

Losses

64 year old female

Chronic leg ulcer

3 year duration

Prolidase deficiency

Pyoderma gangrenosum

Methotrexate

Infliximab

Prednisolone

Hyperbaric oxygen therapy



8/11/2017



8/11/2017

Losses

Although stable
recurrent admissions with cellulitis
pain ongoing issue

After much deliberation

Limb salvage procedure?

Debridement and application
of Integra® bilayer in theatre

Discharged with Acticoat,
NPWT (Renasys™ GO)



8/11/2107



Application in theatre



Losses

Followed up weekly in wound clinic

Silicone layer removed
1 month later

Wound care

Prontosan® cleanse
Acticoat

All appears to be going well...



Losses

March 2018

Gradual deterioration

Then rapid

Under regular review by
vascular, dermatology,
wound Mx

Unbearable pain

Infection

AKA 22/5/2018



ROYAL PERTH HOSPITAL - NO UNAUTHORISED USE

Win

37 year old female

Chronic ulcer plantar aspect
of foot

4 day Hx increasing pain,
swelling, fevers

Initially started as callous – no
trauma or FB

T2DM, HTN, ↑ Cholest

Palpable pedal pulses



30/8/2017



30/8/2017

Win

Presents 22/8/2017 septic foot, pus tracking to mid-foot

Urgent TMA

Further debridement 4 days later

Debridement and integra®
bilayer 4 days later

Acticoat and NPWT (KCI-Acti
V.A.C®)



30/8/2017



30/8/2017

Win

Discharged Day 11

4 days post Integra®
application

Oral A/b's

MSSA on proximal bone

Pseudomonas from wound
swab

Augmentin duo forte and
Ciprofloxacin 4 weeks



30/8/2017



Day 20

Win

Day 7 post-operatively
NPWT removed in wound clinic

Day 27
Silicone layer removed

Day 42
Split Skin Graft



Day 20



Day 27



Day 42



Win

3 months later
Wound closure

May 2018
Achilles tendon
lengthening

Regular podiatry review
Cam boot



28/11/2017



Win

62 year old male

6 day history increase pain and swelling

Referred by GP

Likely secondary to ill fitting work boots

T2DM, \uparrow Cholest,
hyperferritaemia

Palpable pedal pulses



ROYAL PERTH HOSPITAL - NO UNAUTHORISED USE

Win

6/10/2017

Incision and debridement
over right 1st and 2nd MT
heads (frank pus, necrotic
tissue)

Day 3

Debridement and
application of Intergra®
bilayer

Acticoat and NPWT (KCI-Acti
V.A.C®)





Win

Day 7

Discharged Home
NPWT ceased
Acticoat

Day 21

Silicone layer removed

2 months later

Wound virtually healed





Win

80 year old male

4/52 hx non healing ulcer left plantar foot over 5th MTH

Initially started as callous

Progressed to tissue loss wife has been dressing the wound

T2DM – newly diagnosed on this admission

Palpable pedal pulses





Win

2 small ulcers on plantar aspect of foot, expressing pus

Cellulitis extending to dorsum of foot, dusky left 5th toe

Elevated inflammatory markers

BSL 21.4

Amputation left 5th toe

Discharged day 5 – IVA/B's



Win

One month later Integra®
bilayer applied in OPD

Acticoat and NPWT (KCI-Acti
V.A.C®)

Silicone layer removed day 14

Wound healed 3 months later



12/09/2017



19/09/2017



26/09/2017

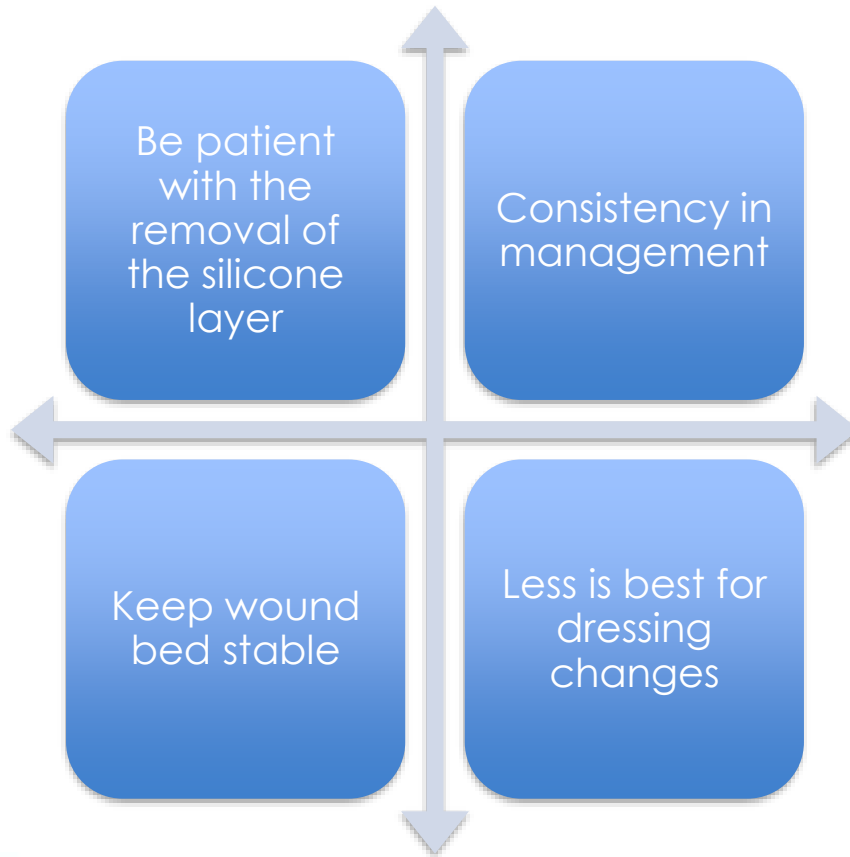


19/12/2017

Lessons Learnt



Lessons Learnt





Conclusion

Still early days

Careful patient selection

Wound bed preparation vital

There is a role for Integra® Dermal
Regeneration Template complex wounds

