



Dressings for Minor Burns in Children

Dr Matt Brown



Dressings for Burns

Full Thickness

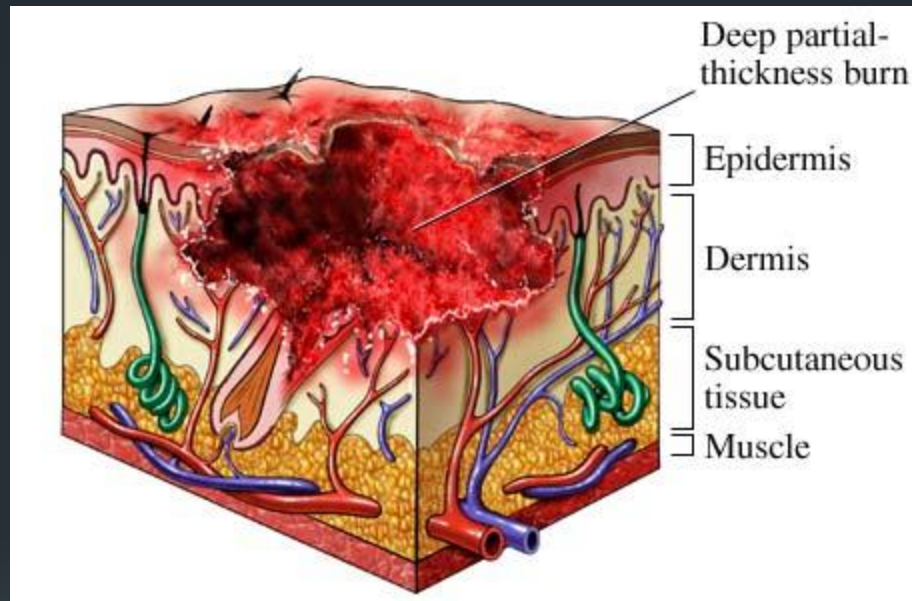




Dressings for Burns

Deep Partial Thickness



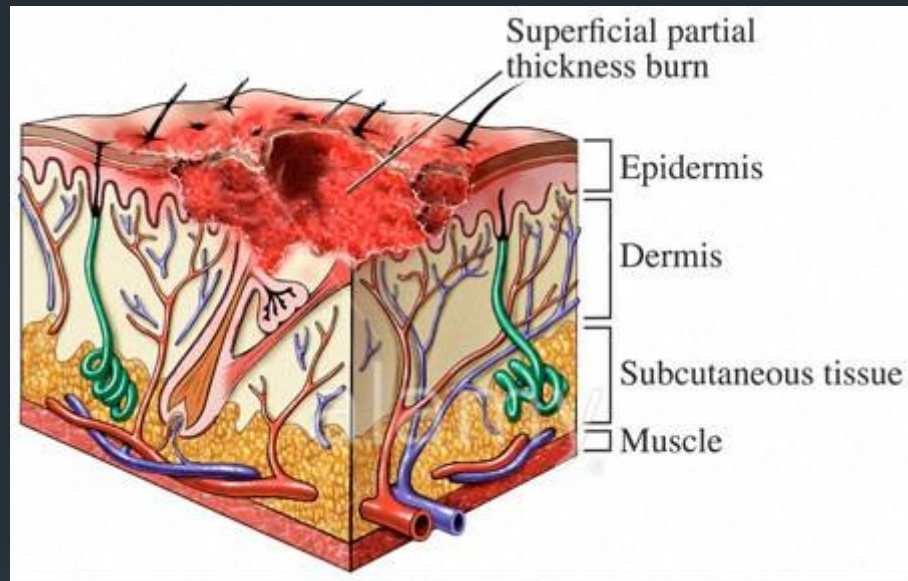




Dressings for Burns

Superficial Partial Thickness








Silver based burns dressings: Silver as an antimicrobial

- Elemental silver is biologically inactive
- Ionic silver is biologically active
- Ionic silver
 - Disrupts the bacterial cell membrane
 - Binds intracellular proteins
 - Binds DNA
 - Interferes with bacterial adhesion and the biofilm
 - Exhibits some of these effects on epithelial cells
 - May delay wound healing



A randomised controlled study of silver based burns dressing in a paediatric emergency department.

Matthew Brown
Stuart R Dalziel
Eleanor Herd
Kathryn Johnson
Richard Wong She
Michael Shepherd



Methods

- Single Blind
- Parallel Randomised Controlled Trial
- 89 Patients
- Superficial Partial Thickness Burns



Methods: Inclusion / Exclusion

- Based on SSH burn practice guideline



Methods: Inclusion / Exclusion

- Based on SSH burn practice guideline
 - Superficial partial thickness
 - <10% BSA
 - Spares: joints, hands, feet, groin, face
 - Not circumferential or NAI-related
 - Present within 1 hour



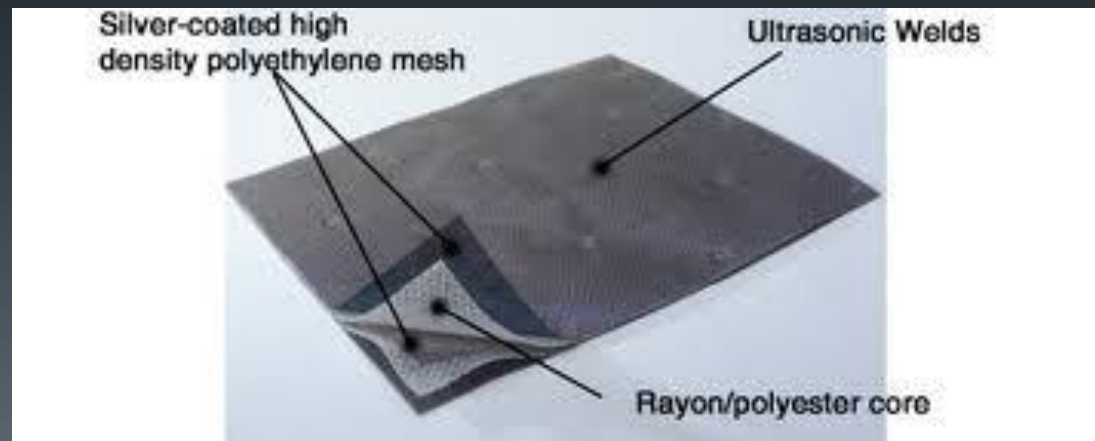
Methods: Study arms

Acticoat™ (45)



Acticoat™ 3

- Requires moistening
- Change after 3 days



Acticoat™ 7

- Requires moistening
- Change after 7 days





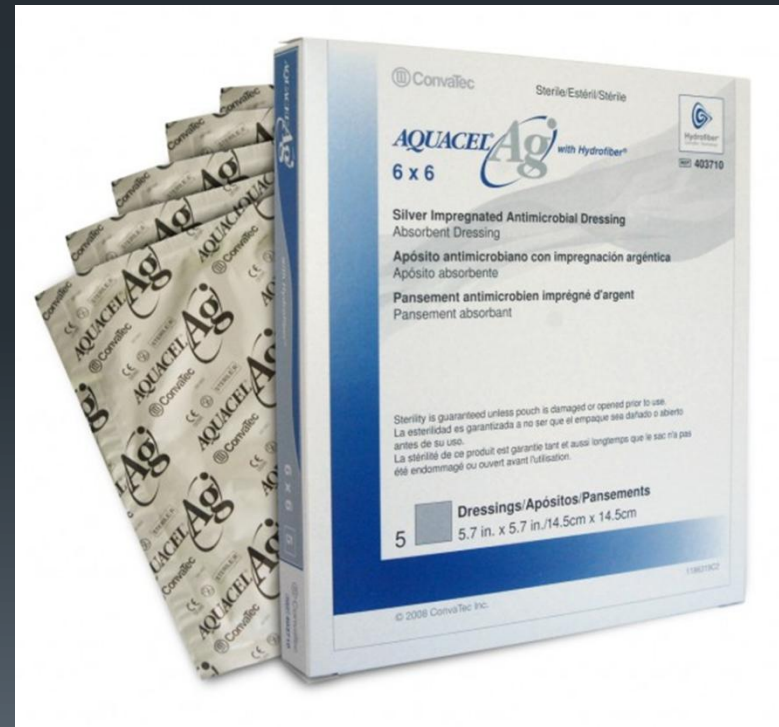
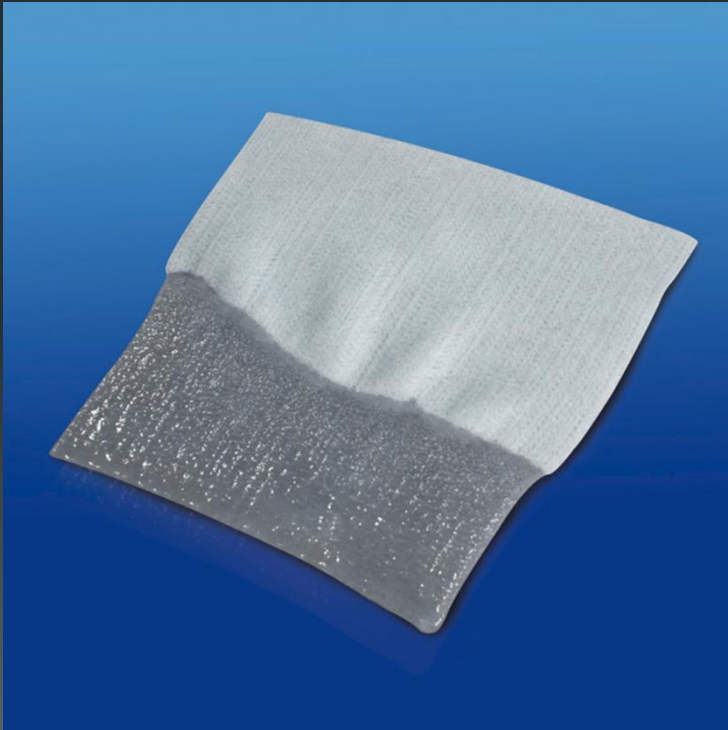
Methods: Study Arms

Acticoat™ (45)

Aquacel® Ag (44)

Aquacel® Ag

- Does not require moistening
- Remains in place until epithelialisation
- Will shrink (3-5cm overlap)





Methods – standard burn care

- Both arms received standardised care:
- Analgesia
- Cool under tap water 30 minutes (if <3hrs)
- Cover with clear plastic wrap
- Assess burn depth at 1 hour post-burn
- Debride loose tissue +/- release blisters
- Place dressing after photography
- Review in 3 days with dressing change*
- Review at 10 days with photography







Methods: Outcome measures

- PRIMARY

- Number of burns healed ($>95\%$) at day 10
 - Photographs assessed by 2 blinded burns surgeons

- SECONDARY

- Number of wound-contact dressing changes
- Number of unplanned representations
- Number of infections
- Number of tertiary centre referrals required

Results

Baseline

Table 1 – Baseline patient demographics

	Acticoat™ group (n=45)	Aquacel® Ag group (n=44)	P value
Age in years	4.3 ± 4.0	3.0 ± 3.5	0.10*
Gender			0.74^
Female	21 (47%)	19 (43%)	
Male	24 (53%)	25 (56%)	
Ethnicity			0.92^
European	17 (38%)	17 (39%)	
Pacific Island	10 (22%)	7 (16%)	
Maori	6 (13%)	5 (11%)	
Asian	5 (11%)	6 (14%)	
Other	7 (16%)	9 (20%)	
Type of burn injury			0.41^
Scald	41 (91%)	42 (95%)	
Hot object	4 (9%)	2 (5%)	
Time from burn to presentation			0.57^
< 6 hours	43 (96%)	43 (98%)	
6-12 hours	2 (4%)	1 (2%)	
% TBSA Burn			0.36^
0-1.9%	17 (38%)	15 (34%)	
2- 3.9%	18 (40%)	19 (43%)	
4-5.9%	9 (20%)	9 (20%)	
6-7.9%	0 (0%)	1 (2%)	
8-9.9%	1 (2%)	0 (0%)	
Mean	2.4% ± 1.6%	2.5% ± 1.5%	0.87*
Site of Burn			0.99^
Arm	7 (16%)	6 (14%)	
Leg	12 (27%)	10 (23%)	
Neck	1 (2%)	1 (2%)	
Trunk	11 (2%)	12 (27%)	
Mixed	14 (31%)	15 (34%)	

Results

Baseline

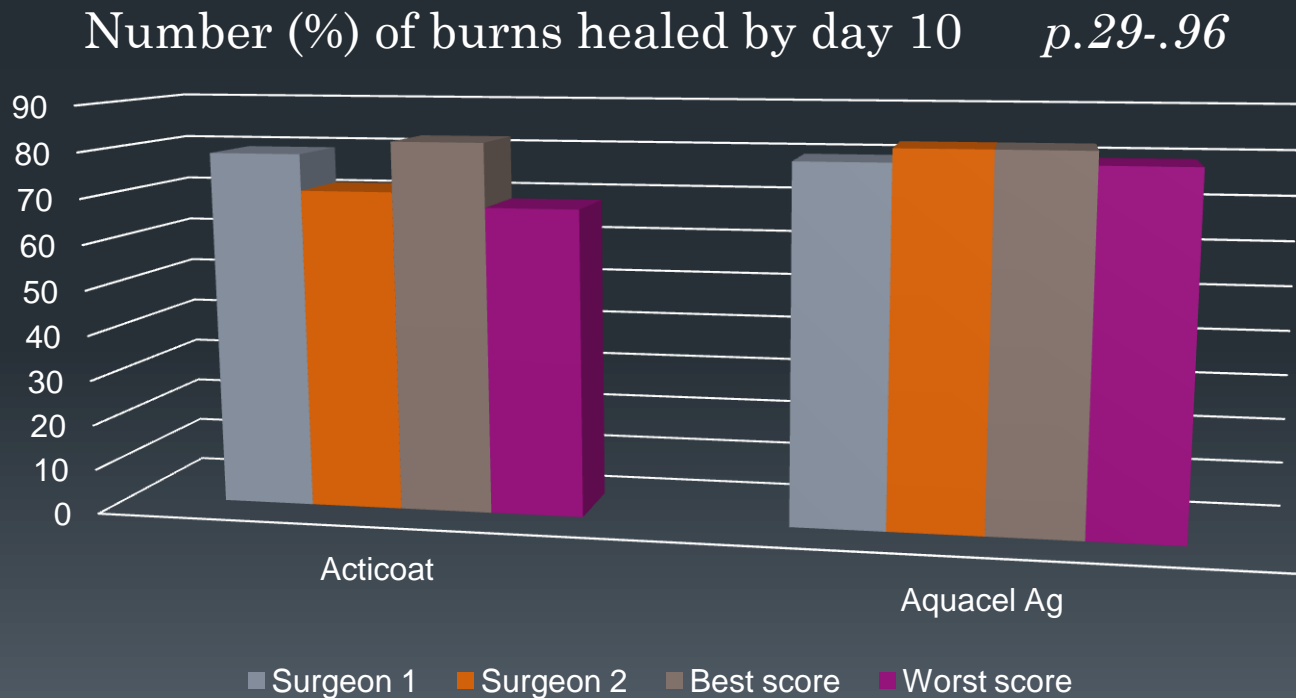
Table 1 – Baseline patient demographics

	Acticoat™ group (n=45)	Aquacel® Ag group (n=44)	P value
Age in years	4.3 ± 4.0	3.0 ± 3.5	0.10*
Gender			0.74^
Female	21 (47%)	19 (43%)	
Male	24 (53%)	25 (56%)	
Ethnicity			0.92^
European	17 (38%)	17 (39%)	
Pacific Island	10 (22%)	7 (16%)	
Maori	6 (13%)	5 (11%)	
Asian	5 (11%)	6 (14%)	
Other	7 (16%)	9 (20%)	
Type of burn injury			0.41^
Scald	41 (91%)	42 (95%)	
Hot object	4 (9%)	2 (5%)	
Time from burn to presentation			0.57^
< 6 hours	43 (96%)	43 (98%)	
6-12 hours	2 (4%)	1 (2%)	
% TBSA Burn			0.36^
0-1.9%	17 (38%)	15 (34%)	
2- 3.9%	18 (40%)	19 (43%)	
4-5.9%	9 (20%)	9 (20%)	
6-7.9%	0 (0%)	1 (2%)	
8-9.9%	1 (2%)	0 (0%)	
Mean	2.4% ± 1.6%	2.5% ± 1.5%	0.87*
Site of Burn			0.99^
Arm	7 (16%)	6 (14%)	
Leg	12 (27%)	10 (23%)	
Neck	1 (2%)	1 (2%)	
Trunk	11 (2%)	12 (27%)	
Mixed	14 (31%)	15 (34%)	

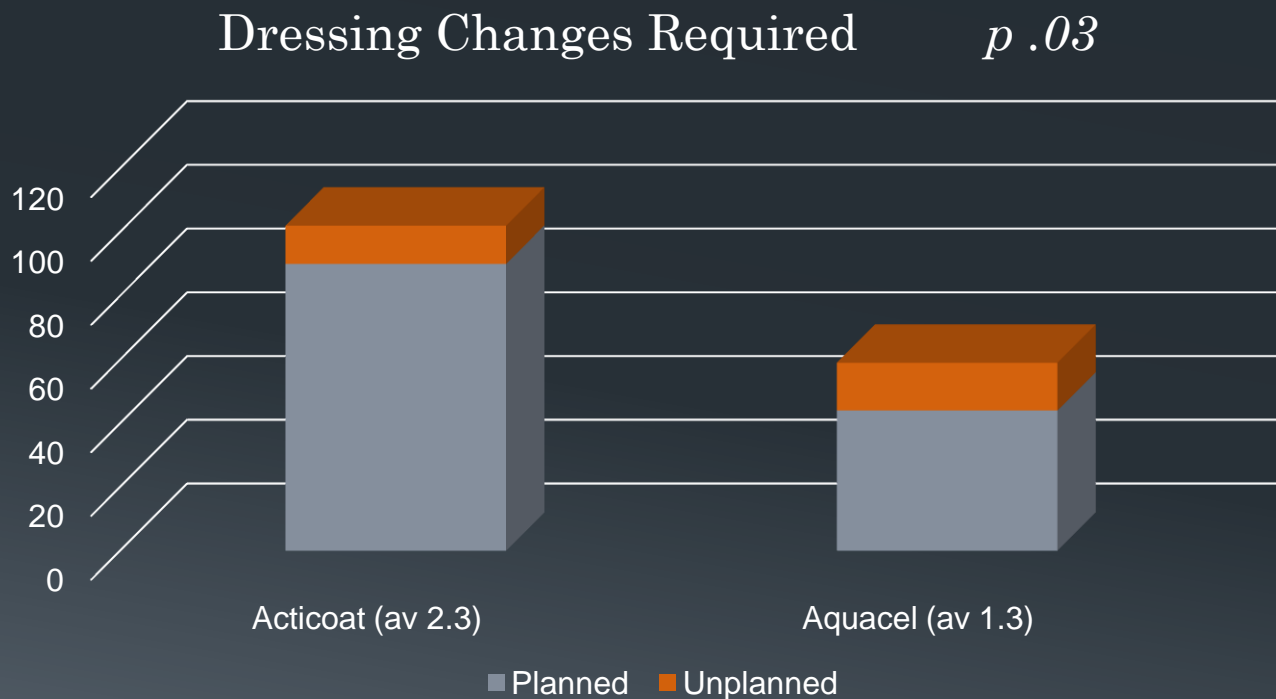


Results: Primary

Results: Primary

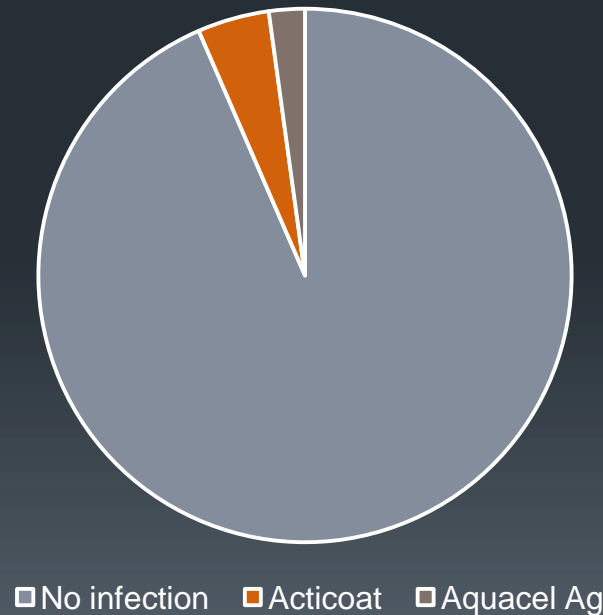


Results: Secondary



Results: Secondary

Infection





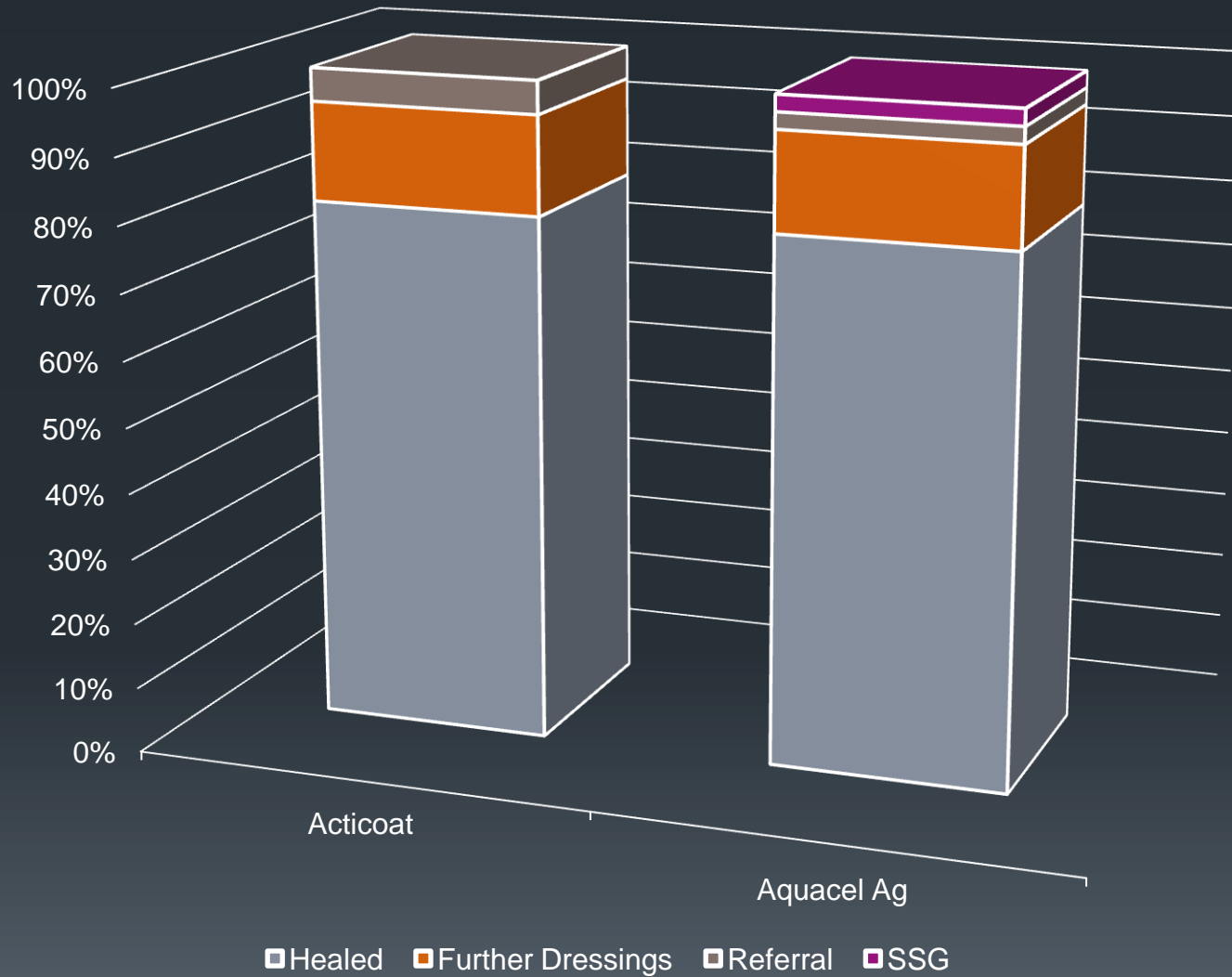
Results: Secondary

Escalation of care

4 patients (2+2) required referral to MMH Burns

1 (Aq) required SSG

Outcome



Bottom Line

- Groups well matched
- Burns healed equally well
- Adverse outcomes were rare
- Aquacel dressing review at day 3 not required
- Expert review at day 10 is recommended
- Aquacel® Ag was our preferred dressing
 - Less caregiver intervention required
 - Less (painful) dressing changes required
 - No more expensive (est. \$770 v \$494)



Thank you.

$\%TBSA \times \text{weight(Kg)} \div 4$ (modified Parkland)

This is the rate (ml/hr) for 8 hours, halve it for the next 8.