



WELSH WOUND
INNOVATION
ARLOESED
CLWYFAU CYMRU

Innovation – Statements of Note

Sometimes when you innovate you make mistakes. It is best to admit them quickly and get on with improving your other innovations

Steve Jobs 1955 -2013

Money won't create success but the freedom to make it will

Nelson Mandela 1918 - 2013

We cannot solve our problems with the same thinking we used when we created them

Albert Einstein 1879-1955

If we always do what we always did we will always

.....get what we always got

? Keith Harding nty

Clinical Innovation - Definitions

Clinical Innovation is stuff that we do that makes a difference and benefits patients and society

Harding 2014

It consists of

Technological Innovation

and

Service and process Innovation

and

Social Innovation

Innovation in Medicine & Dressings

1900s – 1940s

1900–1929

1900 – U.S. life expectancy is 45
 1908 – Tuberculosis vaccine
1922 – Insulin for diabetes
 1924 – Tetanus vaccine
1928 – Discovery of penicillin

1930s & 1940s

1932 – First antibiotic (sulfa's)
 1935 – Discovery of cortisone
 1938 – First epilepsy Rx
 1948 – First chemotherapy Rxs

Source: Innovation.org,

1950s – 1970s

1950s

1950 – Discovery of prednisone
1951 – First Rx for depression
 1953 – First leukemia Rx
 1954 – Polio vaccine
1958 – First diuretic to treat high blood pressure

1960s & 1970s

1963 – Measles vaccine
 1967 – First beta blocker
1968 – First anti-rejection medicines for organ transplants
 1972 – Advances in anesthesia
 1977 – First non-surgical treatment for ulcers
1978 – First biotech product (synthetic human insulin)

1980s – 2000

1980s

1981 – First ACE inhibitor to treat high blood pressure
1986 – First monoclonal antibody treatment
 1987 – New class of depression medicines (SSRIs)
 – **First AIDS Rx**
 – First statins to lower cholesterol

1990s

1993 – First Alzheimer's Rx
1994 – New breast cancer Rx
 – **Polio eradicated in the Americas**
 1995 – AIDS Rx advance (HAART)
1995–97 – Four new classes of oral diabetes Rxs
 1997–98 – Advance in Parkinson's Therapies

1900 to 1940s

Most wounds treated by gauze dressings not changed since Egyptian times

1950s to 1970s

1950 – Development of Tulle Gras
 1962 – Discovery of Moist Wound healing by Winter
 1971 – First film dressings

1980s to 2000

1983 – First hydrocolloid dressings
 1985 – 2000 Multitude of different dressings, antimicrobial dressings
 1995 – First biological dressings

Innovation in Medicine & Dressings

2000–2012

2002

- New classes of blood pressure and cholesterol Rx
- New mAb Rx for rheumatoid arthritis
- New class for attention deficit/hyperactivity disorder

2000

- **First mAb-targeted chemotherapy**
- New class for macular degeneration
- First HIV Rx approved for children

2004

- New Rx for most common form of lung **cancer**
- New mAb treatment for colorectal **cancer**
- New class of treatment for depression
- First mAb treatment for multiple sclerosis
- First anti-angiogenic medicine for **cancer**

2006

- First medicine approved for chronic chest pain in 20 years
- First vaccine for the prevention of cervical **cancer**
- New option for a rare leukemia
- First once-a-day HIV medicine

2001

- First molecular targeted cancer Rx for leukemia
- First major advance in the treatment of blood poisoning in 20 years
- **Advance in treatment of hepatitis C**

2003

- First Rx for severe Alzheimer's
- **Human genome mapped**
- New class of HIV treatment – fusion inhibitors
- First biotechnology treatment for asthma

2005

- First new kidney cancer Rx in over a decade
- Advance in insomnia therapy
- **Three new therapies for diabetes**

2007

- U.S. life expectancy is 78
- New class to treat high blood pressure
- First treatment for fibromyalgia
- **Two new first-in-class HIV drugs**

* mAb = monoclonal antibody

Source: Innovation.org.

2000-2004

Proliferation of more active dressings (e.g. antimicrobials, biologicals) – adoption rapid but misused.

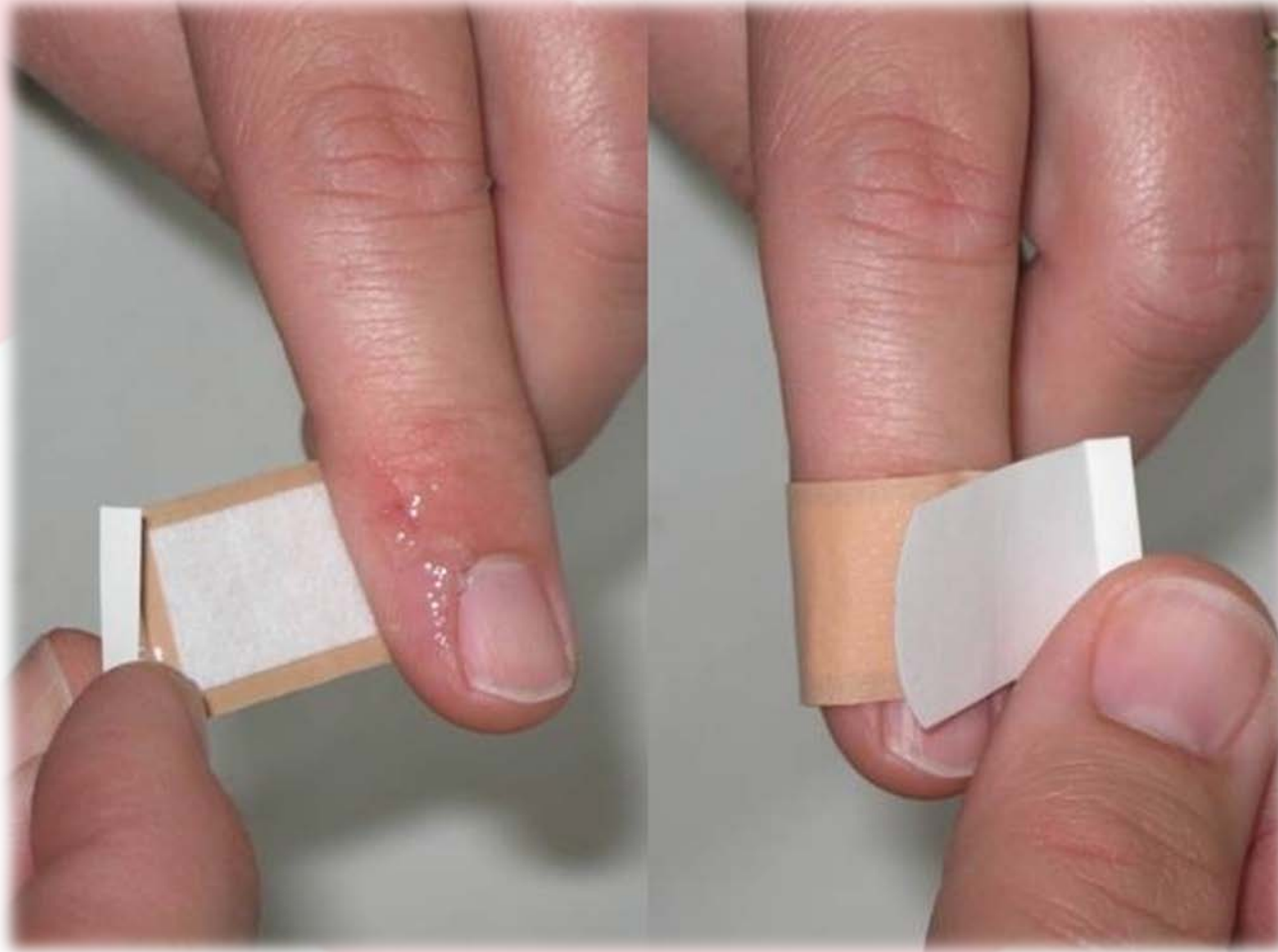
2005-2008

Development of many copycat advanced products

2009-2012

2011 – First wound diagnostic launched
2012 – Focus on copycat behaviour prevalent – little innovation

Public View of Wounds



The reality of Clinical Practice



THE PROBLEM

Types of Wounds

Acute Wounds

300+ Million

- Surgical Wounds
- Lacerations
- Skin Grafts
- Cosmetic



Chronic Wounds

20 Million

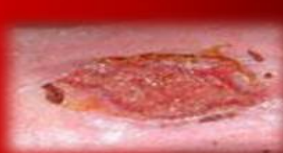
- Pressure Ulcers
- Leg Ulcers
- Diabetic Ulcers



Traumatic Wounds

100 + Million

- Burns
- Trauma



Total Wounds

400 + Million

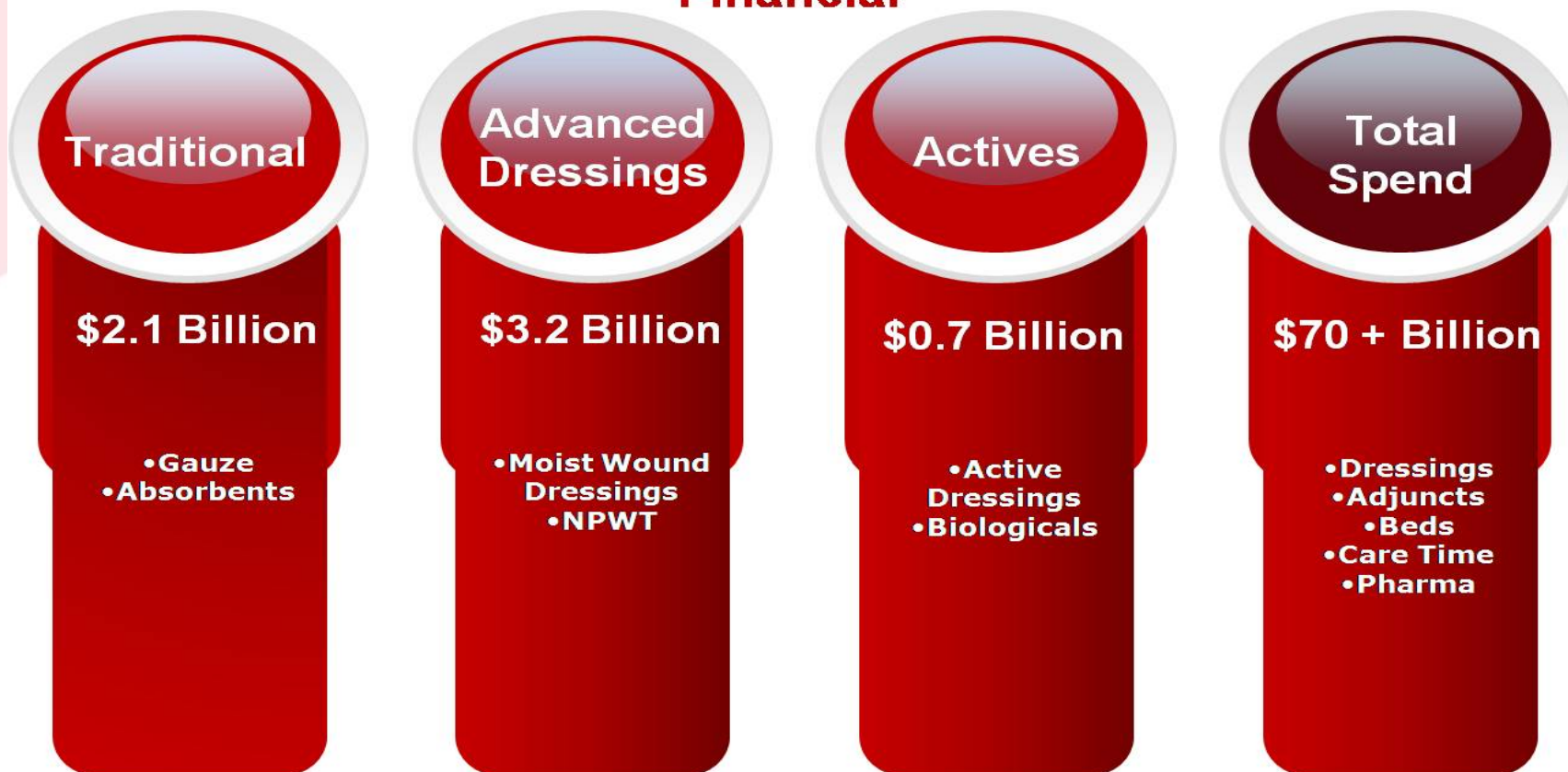
- Increasing
- Public Health
- Tolerance



Sources: S&N 2007 estimates, KCI Annual Report, EWMA, NPUAP
and other government sources

THE COSTS

The Market Financial



Sources: S&N 2007 estimates, KCI Annual Report, EWMA, NPUAP and other government sources (Ref: Harding KG & Queen D, 2009)

Evolution of Wound Healing as a Clinical Specialty

Source: Harding, Keith and Queen, Douglas (2012) – “A 25-Year Wound Care Journey within the Evolution of Wound Care” - Advances in Skin & Wound Care. 25(2):66-70

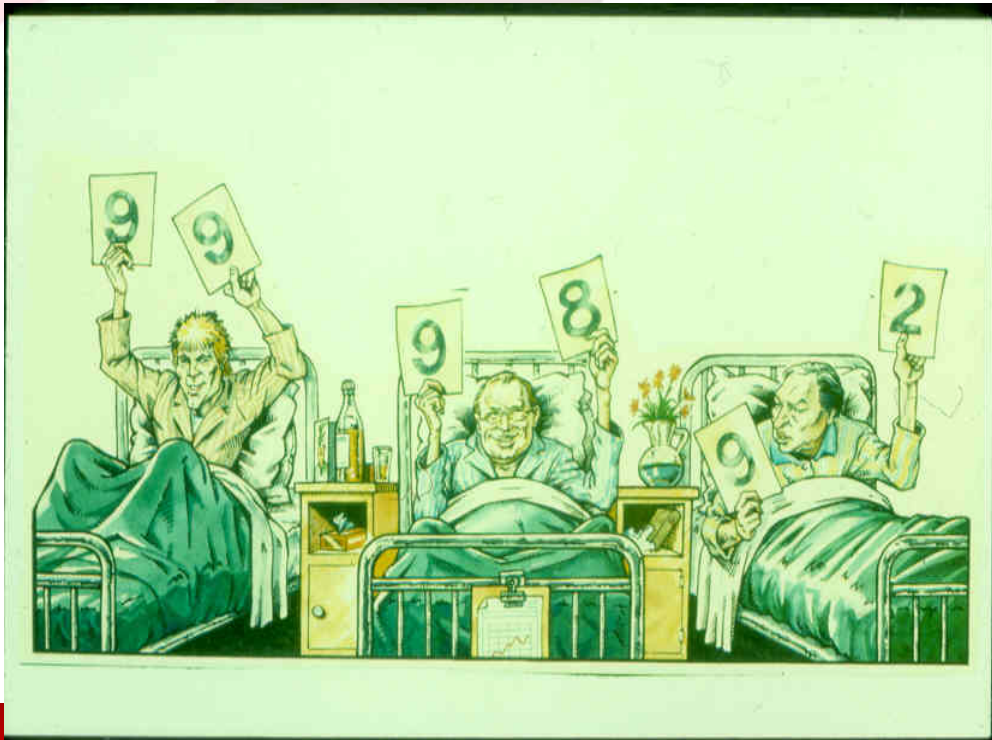


Market Drivers:

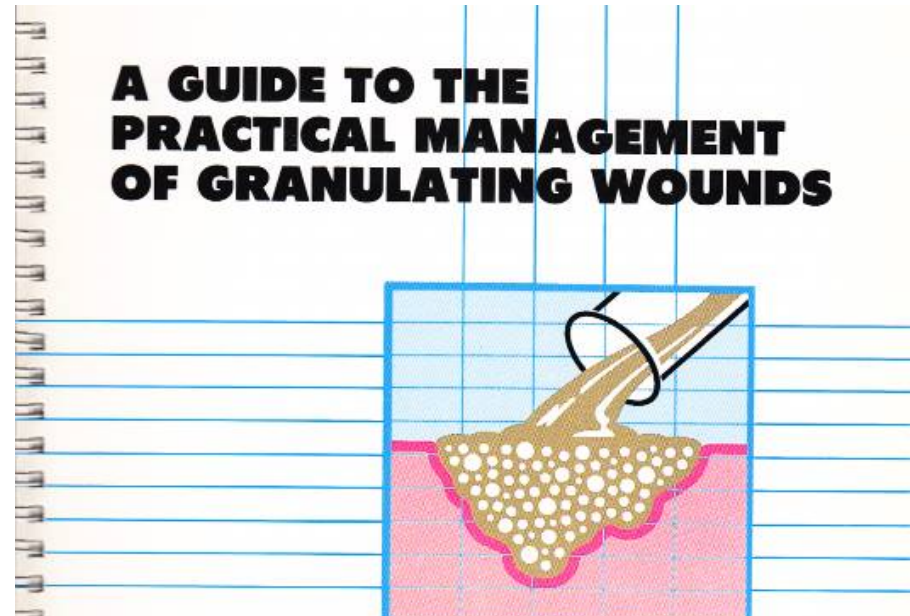
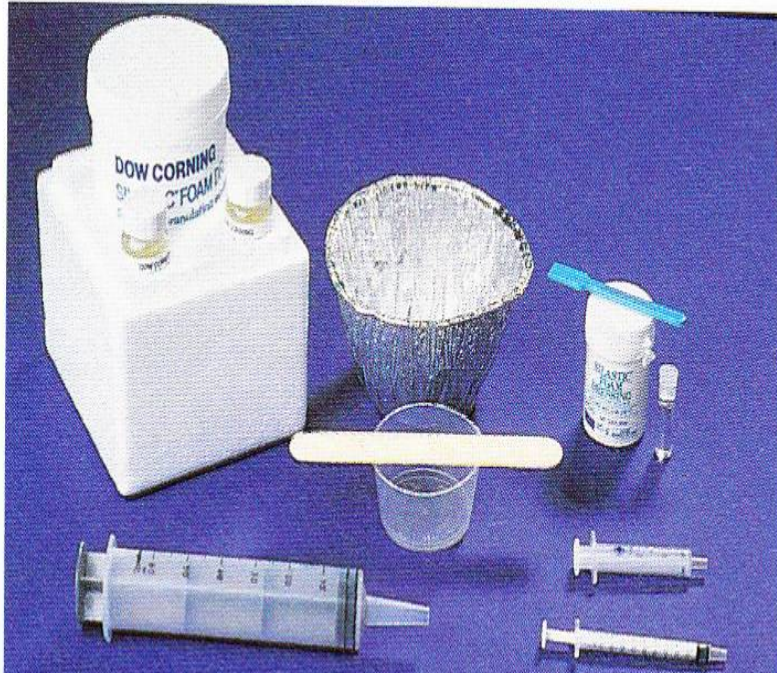
- Care providers and patients desire to reduce treatment burden and better outcomes.
- Healthcare desires to reduce hospital based treatments requires more procedures to be community based.
- Payers desire to reduce the cost burden of treating long term wounds or at a minimum capping costs with an increasing incidence.
- Government initiatives in the UK (and other geographies) now incentivising 'a return to community' or 'out of hospital'.
- Governments are restricting the usage of certain treatment options both from a cost (e.g. biologicals) and healthcare perspective (e.g. antibiotics and use of silver).

Current Situation in Practice

- We cannot guarantee that any patient with a wound will be seen by an appropriate health care professional and receive a high standard of care including treatment that may benefit the patient



How it all started for us



BRITISH MEDICAL JOURNAL 18 OCTOBER 1975

131

Silicone foam sponge for pilonidal sinus: a new technique for dressing open granulating wounds

R A B WOOD, L E HUGHES

British Medical Journal, 1975, 4, 131-133

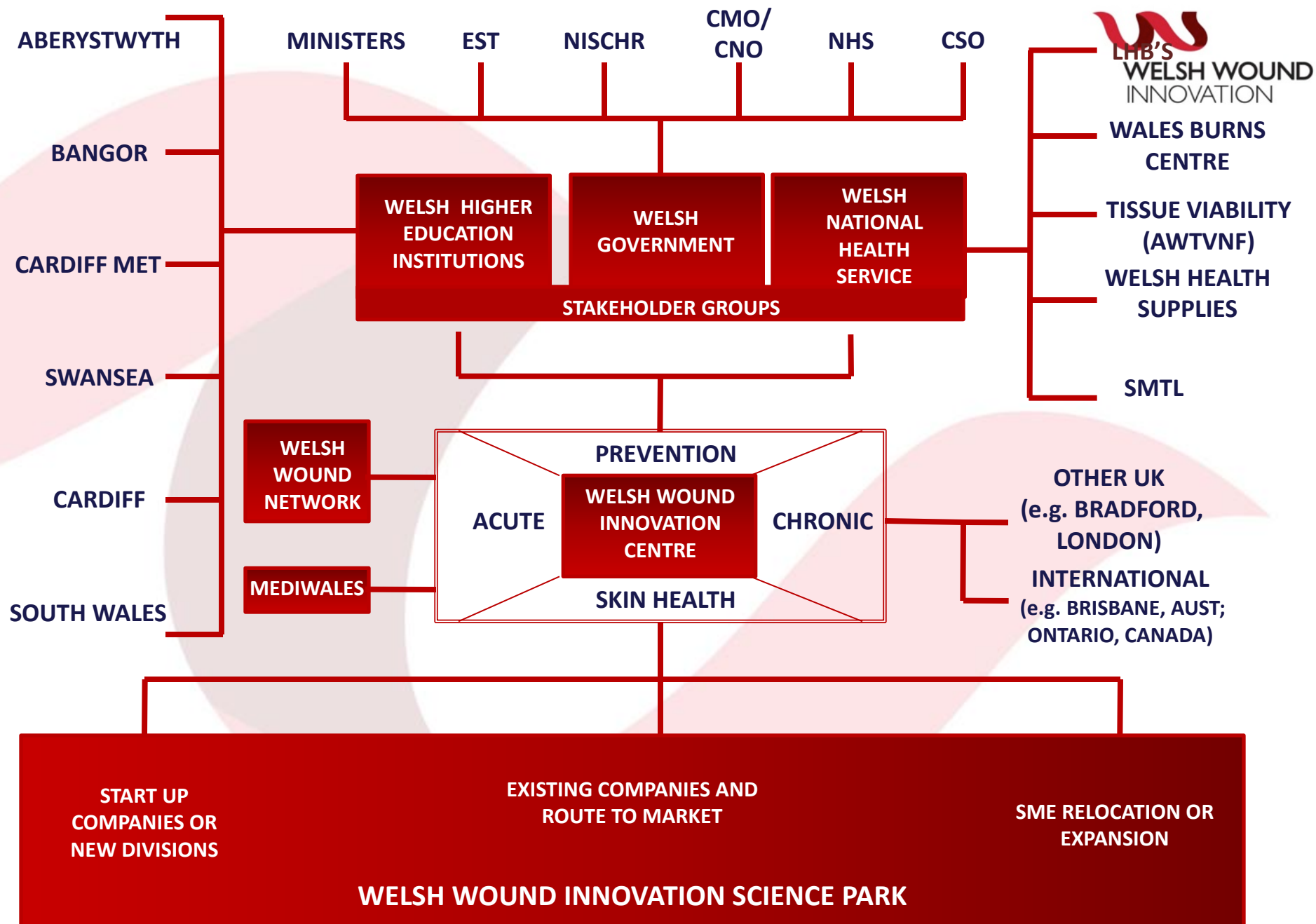
The Foundation of WHRU



Mistake to put sign on door.....

Academic Outputs & Self Sufficiency in Cardiff

- 1574 Publications 1975-2013
- WHRU in place since 1991
- First Masters course on Wound Healing
- 45 Grants & £15 million funding obtained
- 198 Clinical Studies Undertaken
- 56 Companies linked & £30 million obtained
- 45 MDs/PhDs
- National, European and International Societies.
- CITER, EWMA, EPUAP, ETRS, WUWHS.



“Health & Wealth For Wales”



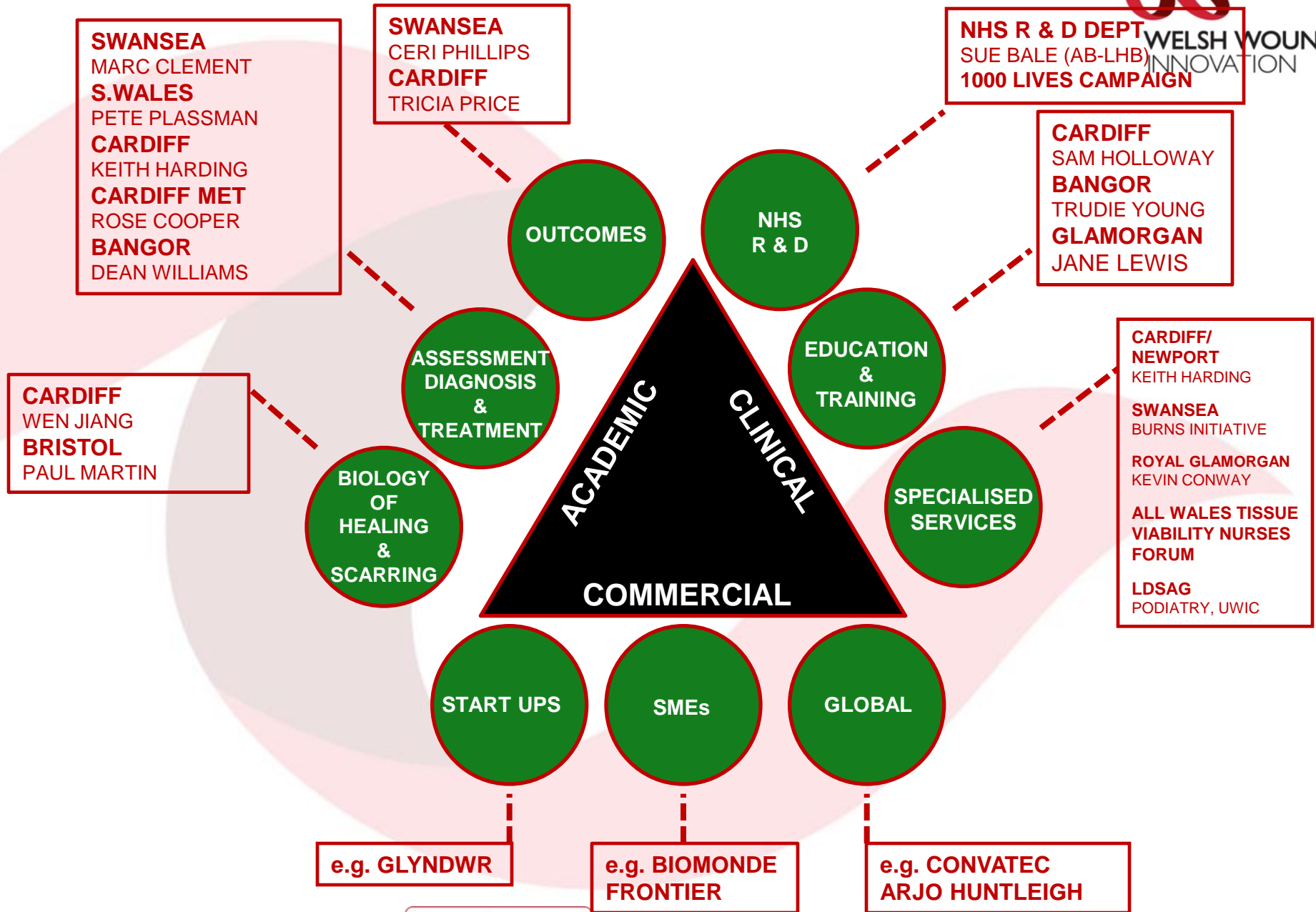
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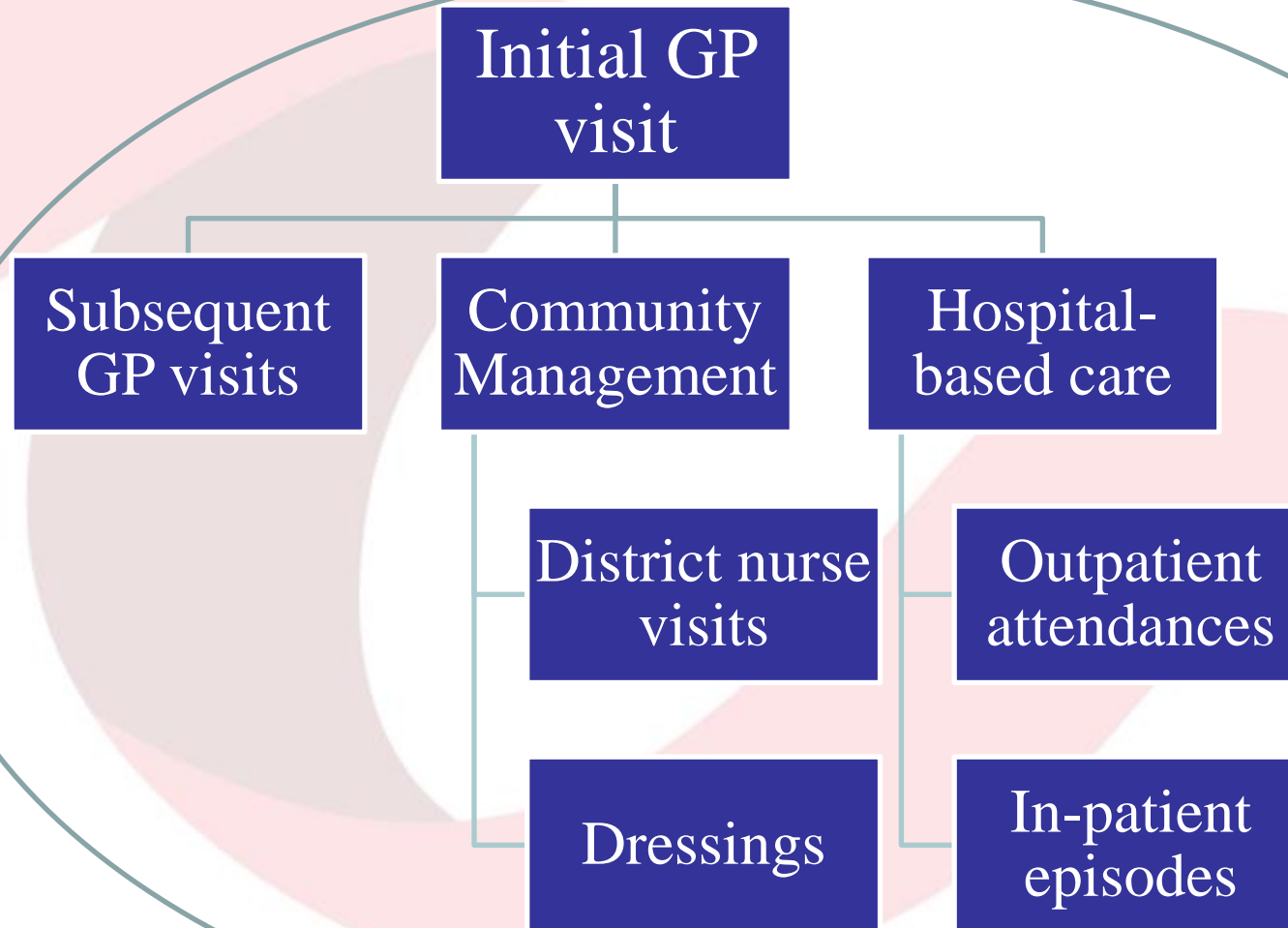
“Health & Wealth For Wales”



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Routine data from SAIL database



Resource utilisation 2013-2014

Resource utilised	Number in cohort	Unit cost (£)	Cost (£)	Cost at all-Wales level (£)
Initial GP visit	78,090	45	3,514,050	8,570,854
Subsequent GP visits	1,249,809	13	16,247,517	39,628,090
Number of dressings	2,344,930		3,964,537	9,669,602
Number of district nurse attendances	703,479	35	24,621,765	60,053,085
Number of out-patient attendances	68,662	120	8,271,711	20,174,905
Number of in-patient episodes	14,697		78,204,577	190,742,871
Total expenditure			134,824,157	328,839,408
Average cost per patient				1726.53

The future

In conclusion, these four review papers describe advances in wound-healing research of relevance to the care of patients with wounds throughout the world. These expert authors confirm that a better understanding of the biology of wound healing is essential for therapeutic advances that will impact on patient care. As with other areas of dermatology, the prospect of precision medicine with targeted therapies for specific patients is also a realistic prospect for wound healing. However, the most important issue is to develop healthcare systems to widen access for patients with wounds to multidisciplinary teams of wound-healing clinicians. The evidence suggests that significant benefits to patients will accrue when wounds and wound healing receive the attention they need.

Harding BJD Aug 2015

The Welsh Team (aka The Taffia!)

- **Medical 37**

- Including-Les Hughes, Joe Marks, David Leaper, Joe Grey, Girish Patel

- **Research 38**

- Including-Tricia Price, Mike Clark, Chris Lawrence, Keith Moore, Ceri Phillips



- **Admin 15**

- Including-Rachel Davey, Susan Taylor, Jane Hopkins, Sam Osbourne, Maureen Fallon, Karen Bradley

- **Nursing/Clinical 54**

- Including-Nicky Ivins, Sue Bale, Sue Hagelstein, Nia Jones, Ceri Harris, Helen Crook, Kirsty Mahoney,

- **Education 11**

- Including- Sam Holloway, Vanessa Jones, Jacqui Fletcher, Trudie Young

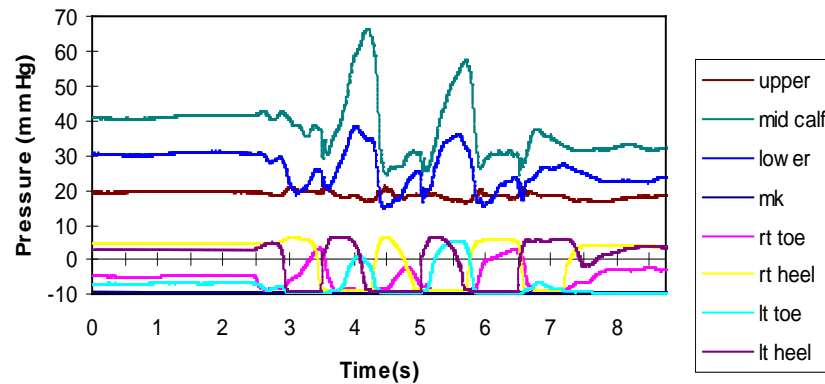
Main areas of activity

- Wound and skin assessment and the performance of medical devices (laboratory and clinical)
- Wound and skin health diagnostics
- Wound and skin health outcomes research

Assessment and Performance



Example of Changes in Pressure When Walking



Outcomes research

- Electronic capture of process and outcome data (WWIC wound registry)
- Interrogation of Secure Anonymised Information Linkage (SAIL) database - the total cost of managing patients with chronic wounds in Wales amounted to **£328.8 million** - an average cost of **£1727 per patient** and **6% of total expenditure on the health service in Wales.**

Scaling up

- WWIC wound registry
- National wound audit 2015
- Educational module on pressure ulcers and skin tear
- First Minister confirmed that the Welsh Government will introduce a new system to record and publish incidents of avoidable pressure sore damage in care homes.
- **Expand and integrate with health service as a whole rather than as single projects**



Thank You!

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