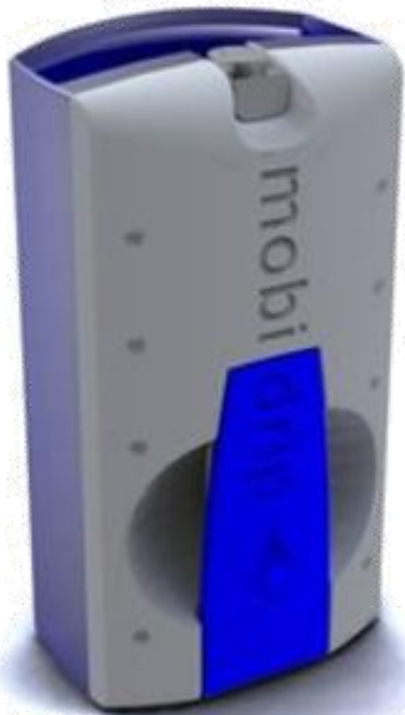
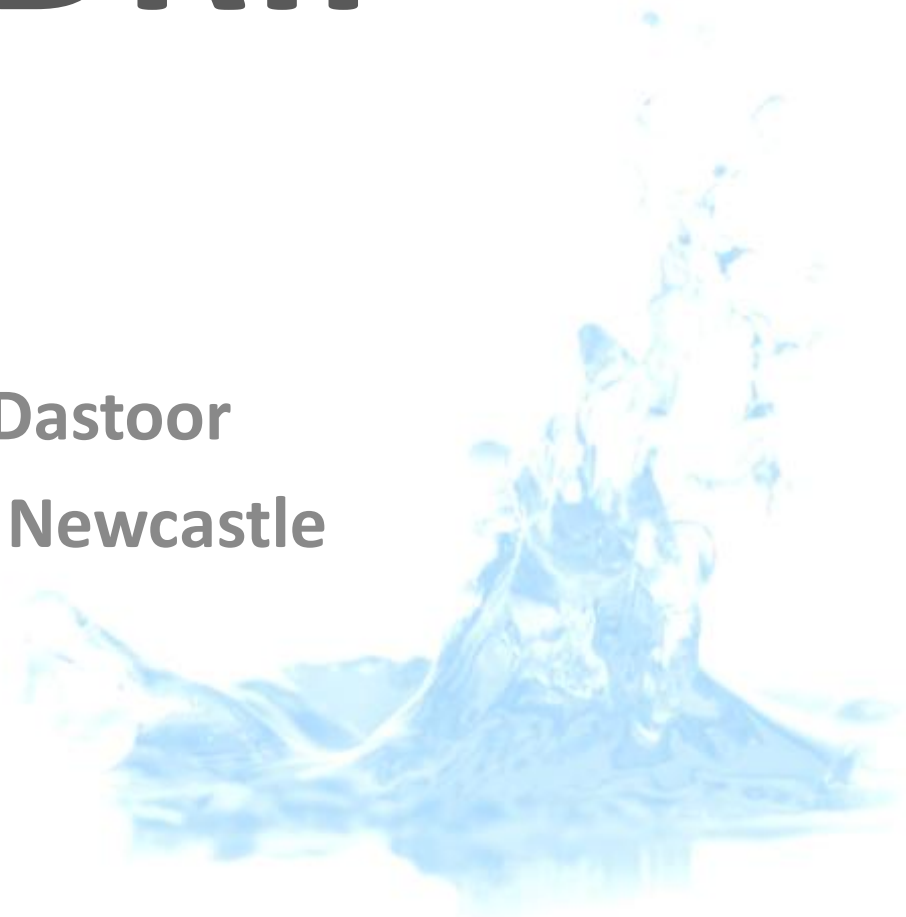


mobiDRIP



Prof Paul Dastoor
University of Newcastle



Executive Summary

- ❑ **Over the past 10 years the University of Newcastle has developed a unique device (MobiDrip) for medical infusion ambulatory care**
 - including military i.e. emergency, field hospital, patient transport
- ❑ **Compared to existing devices, the MobiDrip:**
 - is simple, reliable and convenient to use
 - is mobile and lightweight
 - **has significantly lower effective cost per infusion**
 - provides accurate and linear dosing performance
 - provides visible flow indication
 - does not rely on external power sources or batteries
- ❑ **Spin-off vehicle (mobiLIFE Pty Ltd) created to commercialise device**
- ❑ **Clinical trials successful – sales in 10 hospitals across NSW and QLD**
- ❑ **Strong interest for international export sales**

The Health Challenge

- ❑ **Major industry shift towards ambulatory infusion therapies**
 - Home healthcare – improved patient outcomes at lower cost
- ❑ **Existing market place provides two types of device:**
 - Expensive and technically complex electronic based pumps
 - Cheap simple devices with poor flow characteristics
- ❑ **Market pull:**
 - Mobile and lightweight infusion device providing reliable flow
 - Simple technology requiring little or no technical training
- ❑ **MobiDrip concept:**
 - Deliver fluid from pressurised **standard** fluid bag
 - Lower cost than the cheapest devices
 - More accurate than the complex electronic devices

Current Technology

Syringe Drivers

- Baxa
- Baxter Healthcare/Baxter International
- B. Braun/B. Braun Melsungen
- Excelsior Medical
- Harvard Clinical Technology
- Hospira
- I-Flow
- Medex/MedVest Holdings
- Smiths Medical/Smiths Group

Elastomeric disposable infusion pump

- ALARIS Medical Systems/Cardinal Health
- Baxter Healthcare/Baxter International
- I-Flow
- McKinley Medical/Broe



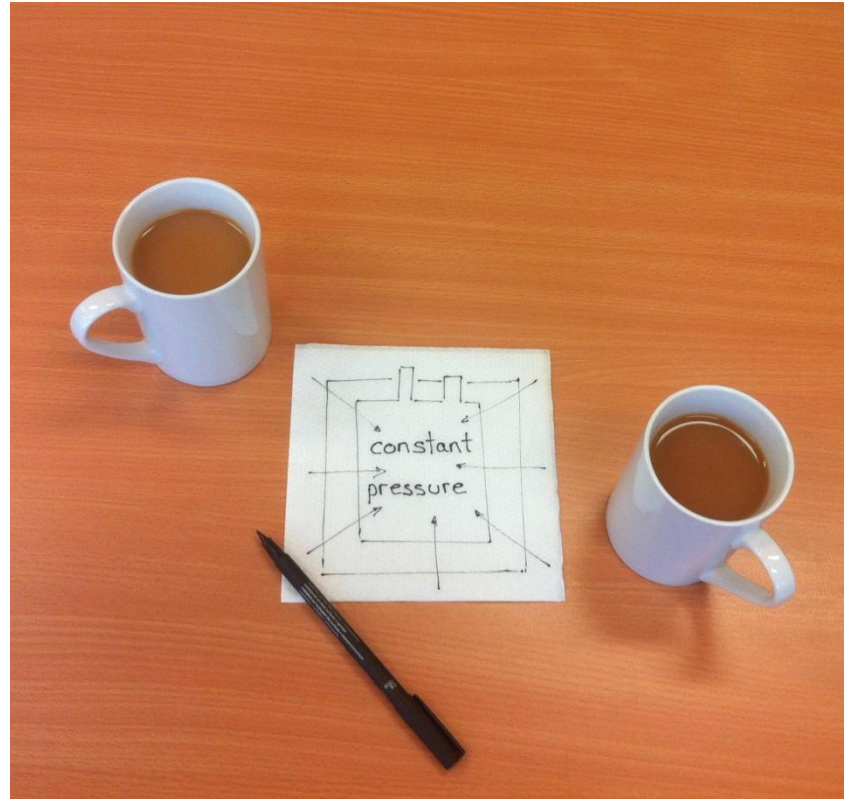
General-Purpose Volumetric

- ALARIS Medical Systems/Cardinal Health
- Baxter Healthcare/Baxter International
- B. Braun/B. Braun Melsungen
- Hospira
- Medex/MedVest Holdings
- Smiths Medical/Smiths Group

Mechanical infusion pump

Source: *U.S. Markets for Home Healthcare Medtech INSight*

How did the mobiDrip come about?

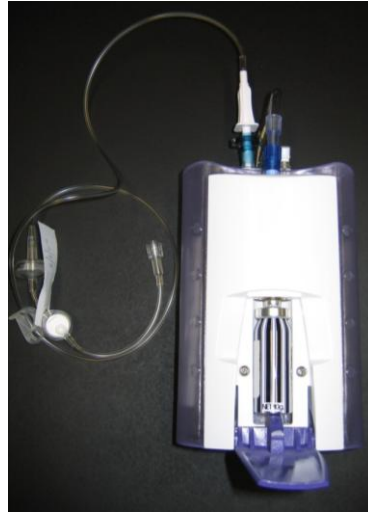


The mobiDrip story

2005



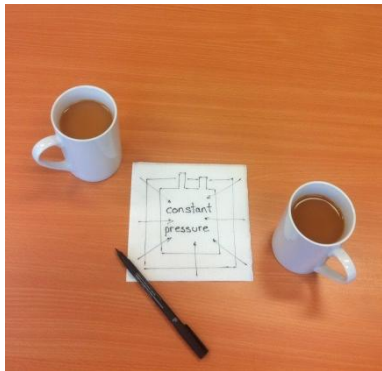
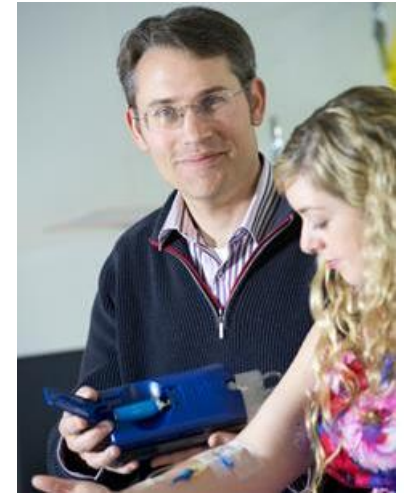
2007



2011



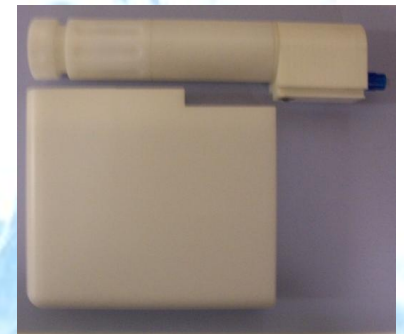
2013



2002



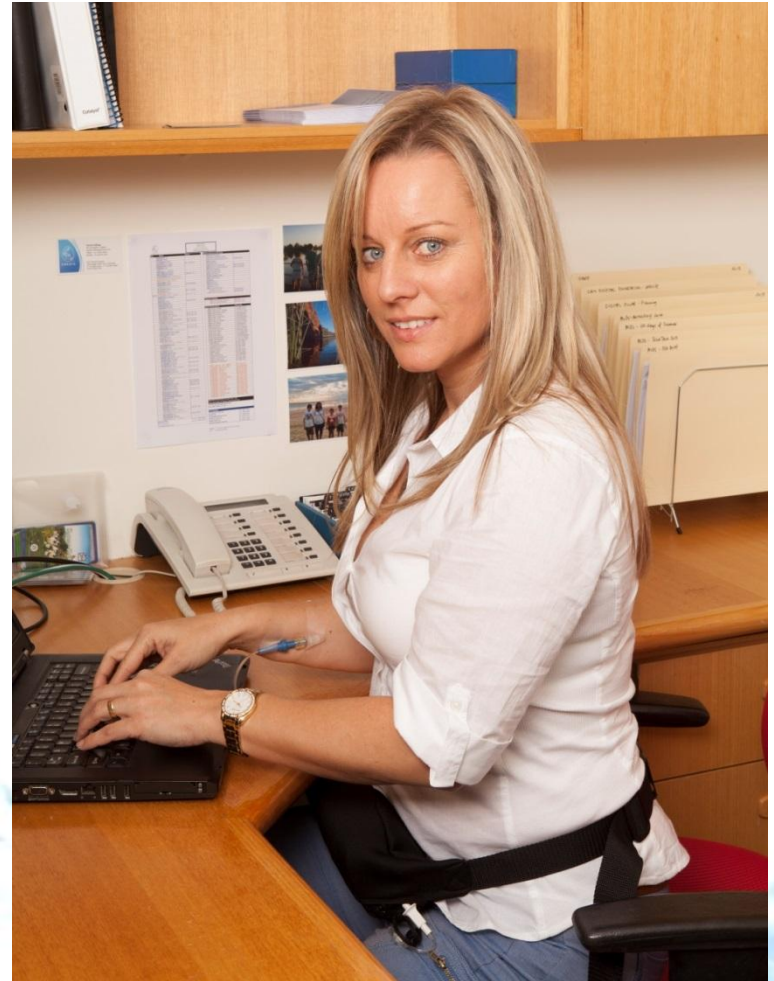
2003



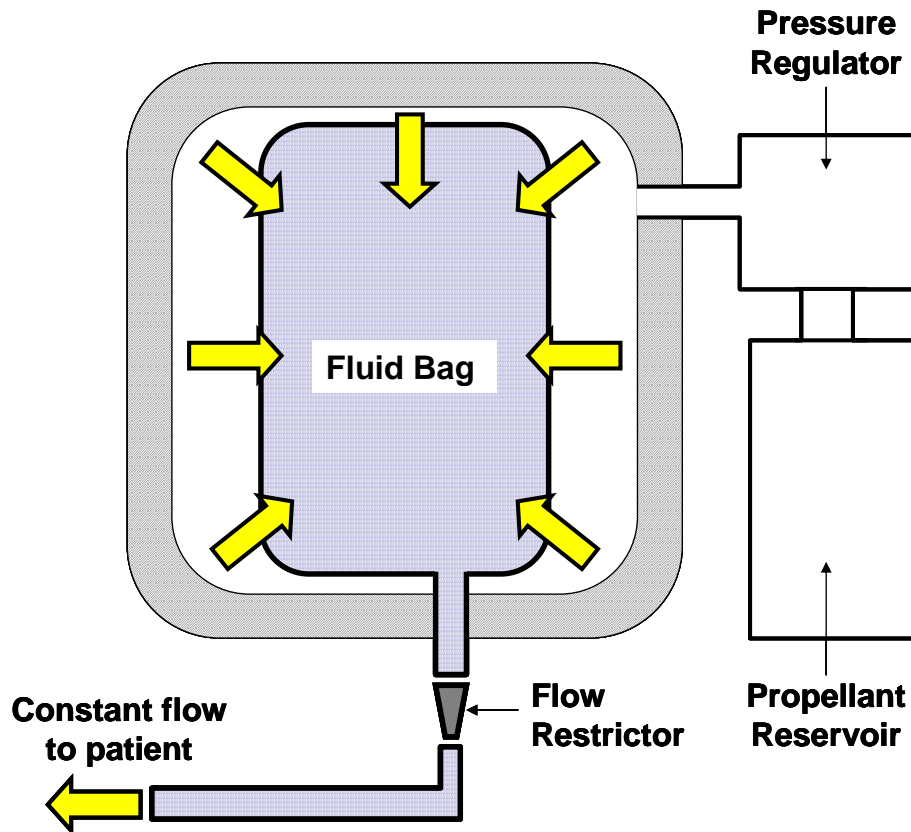
2004

MobiDrip: Features and Benefits

- ❑ Constant flow rate
- ❑ Lightweight and portable
- ❑ Simple technology
- ❑ No electrical power required
- ❑ Low capital costs
- ❑ Low disposable costs
- ❑ Flexible volume delivery
- ❑ Allows immediate patient release

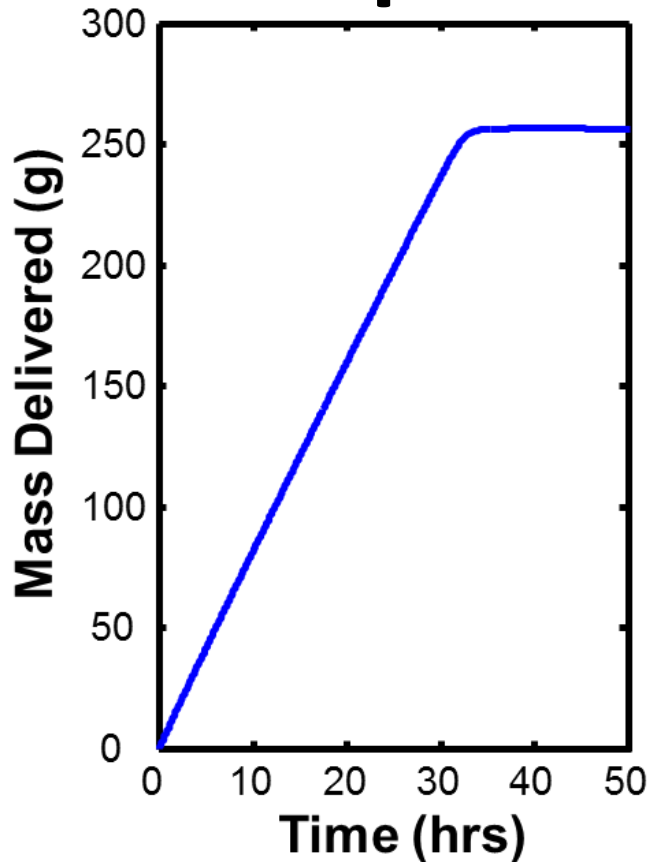


How does the MobiDrip work?



- ❑ The gas pressure supplied from small canister of R134A liquid propellant
- ❑ Pressure regulator: delivers constant, accurate and predetermined pressure
- ❑ Flexible pressure cuff designed to accommodate a range of standard, flexible 50,100 & 250ml IV bags
- ❑ Flow restrictor defines final flow rate

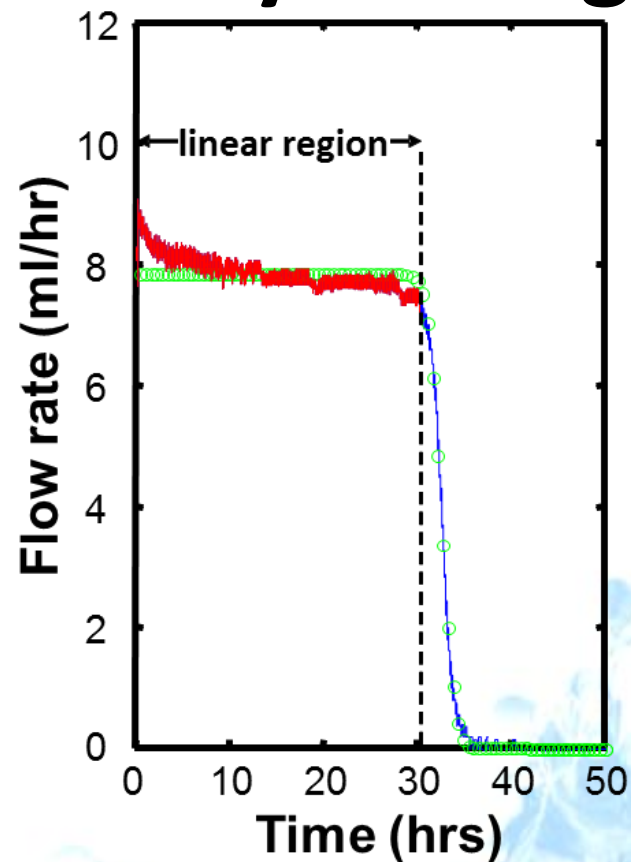
MobiDrip: Laboratory Testing



Typical elastomeric pump:

Typical electronic pump:

Mobi-Drip infusion pump:



Flow rate accuracy = $\pm 20\%$

Flow rate accuracy = $\pm 6\%$

Flow rate accuracy = $\pm 4\%$

Royal Perth Hospital HITH Unit Trial 2009

- ❑ Prospective randomised controlled trial comparing the accuracy of the Baxter elastomeric infusor to the mobiDRIP ambulatory infusor.
- ❑ CI: Professor Nick Santamaria
- ❑ Sample: 93 sequential 24-hour infusions of IV antibiotics (Vancomycin & Timentin)
- ❑ Endpoints: Total volume of drug delivered and costs
- ❑ Measurement: Weight of infusor pre and post infusion
- ❑ Analysis: t Test

Infusor	n	Delivery (mls/24 hrs)	SD	p	Total Cost (\$)
Baxter	41	205.27	23.00		4018
Mobi-Drip	52	239.02	25.86	<0.01	2340

Net saving with
mobiDrip:
54 %

- ❑ mobiDRIP delivers better vol/dose in 24 hrs at around half the cost.

Automated Calibration Facility



MobiDrip Market Penetration

Wesley Hospital, Brisbane



Westmead Children's Hospital



Nepean Public Hospital



Lismore Base Hospital

Hospitals

- Wesley
- WestMead Children's
- Nepean
- Lismore
- Ballina
- Coffs Harbour
- Tweed Heads
- Darwin

Pharmaceutical Service Development



- Clean room facility complete
- Capacity for six different drugs
- TGA GMP licence
- Compliments mobiDrip

Hospitals

- John Hunter
- Sydney Adventist
- Prince of Wales
- NEPEAN
- Northern NSW
- Campbelltown
- Prince Alexandra
- Mid -North Coast
- Wesley



Comparison

Product/ Functionality	mobiDRIP	Disposable Elastomeric (e.g. Baxter or I-Flow)	Volumetric Electronic (CADD or Equivalent)
Functionality	majority of HITH applications +/- 4% Accuracy ✓	low duty therapy only +/- 15-20% Accuracy ✓	Complexity and frequent alarms disadvantage for HITH ✗
Unit Cost	Lowest cost \$40/day empty, \$80/day compounded ✓	Highest cost \$40/day empty, \$130/day compounded ✗	Similar to mobiDRIP Sets sold for \$30/set ✓
Capital Cost	Nil: mobiDRIP provided at no cost. ✓	Nil ✓	High - \$2000-\$6000 each + annual maintenance ✗
Logistics	Immediate HITH patient placement. ✓	48 hour delivery time delays HITH placement. ✗	As per Mobi-Drip ✓
Wastage	Infusion set and bag. Pump re-used ✓	Infusion set and plastic bottle ✗	Infusion set and bag. Pump re-used. ✓

Summary

- ❑ The mobiDRIP mobile infusion device is simple, robust and economic
- ❑ Strong value proposition: lower per night cost than any other product
- ❑ Diverse applicability – several global applications (healthcare, military, health NGOs, emergency, remote)
- ❑ Clinical evaluations successfully completed
- ❑ Commercialisation commenced and sales across NSW and QLD
- ❑ Rapid transition to HITH key to improving patient choice and outcomes

Key Learnings

- ❑ Need a multi-skilled team committed to success of MobiDrip
- ❑ Broad IP portfolio with ongoing development
- ❑ University host provides wide-range of additional benefits
- ❑ Healthcare innovation involves change practice
- ❑ Need early engagement with decision-makers and pathway to change