

# Centre for Online Health

## Telepaediatric Service as an Outpatient Enabler

Phil Johnson

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THE UNIVERSITY  
OF QUEENSLAND  
AUSTRALIA

# Centre for Online Health

- University of Queensland – since 1999:
  - research group - closes links with RCH
- Mission/purpose - eHealthcare:
  - teaching
  - service delivery → research (clinical service)
  - broad interest in online / eHealth generally
  - consulting

# Telemedicine/Telehealth

- What is telemedicine?
  - *Any medical activity involving distance.*
- Can be done in several ways
  - real-time (e.g. videoconferencing/phone)
  - pre-recorded (e.g. email)



# Telemedicine

## How is it done?

- **Real-time:**
  - synchronous
  - information is shared instantly
  - telephone and videoconferencing
  - interactive

# Telemedicine

## How is it done?

- **Store-and-forward:**
  - Asynchronous (pre-recorded)
  - information is stored and sent for interpretation at another time
  - general postal service, fax and email
  - not interactive

# Telemedicine Protocol

- It can be more convenient to arrange a telehealth consultation than to transfer a patient through the conventional system.
- One of the factors required for an effective telehealth service is a single point of contact - **telehealth coordinator**

Smith AC, Isles A, McCrossin R, Van der Westhuyzen J, Williams M, Woollett H and Wootton R. The point of referral barrier - a factor in the success of telehealth, *Journal of Telemedicine and Telecare* 2001; 7 (Suppl.2): 75-78

# Telepaediatric Service/Research

- Service/Research - Delivery of specialist paediatric services to children and adolescents in rural and remote areas of Queensland
- Started - November 2000
- Centralized call centre – Brisbane
- Evaluation:
  - Feasibility
  - Cost-effectiveness

# Telepaediatric Service/Research

- Unique service model in Queensland
- 1800 phone to a centralised call centre and services coordinator – clinical episode focus:
  - RCH
  - Mater Children's Hospital
  - The Prince Charles Hospital
- Guaranteed response within 24h

# Telepaediatric Service/Research

- Remote locations:
  - Gladstone Hospital (robot)
  - Mt Isa Hospital (robot)
  - Emerald Hospital (robot)
  - Gympie Hospital (robot)And 50+ sites across Queensland.

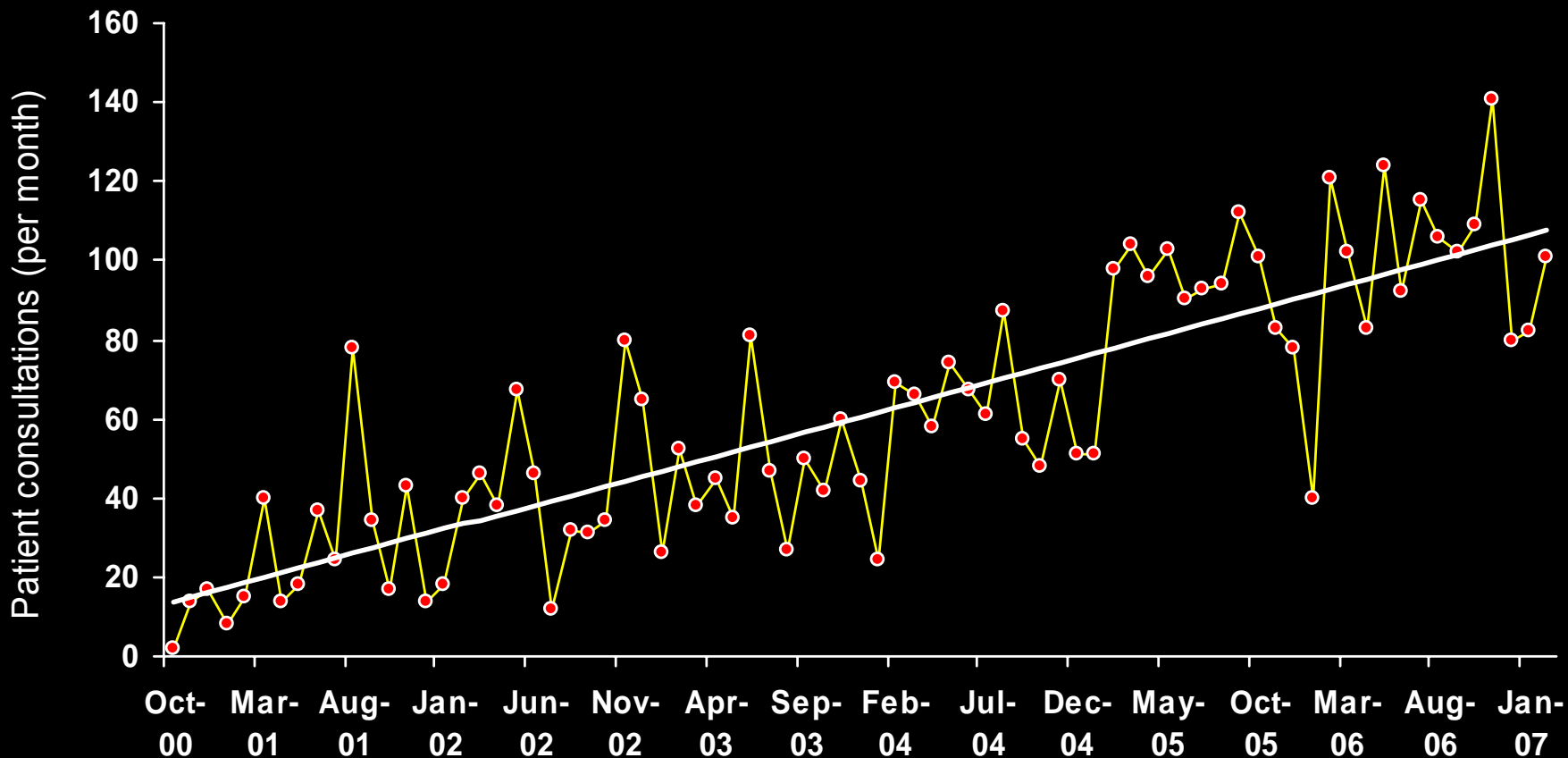
# Funding

- Commonwealth Department of Health and Ageing
- Medical Specialist Outreach and Assistance Programme (MSOAP)
- RCH Foundation
- Queensland Health

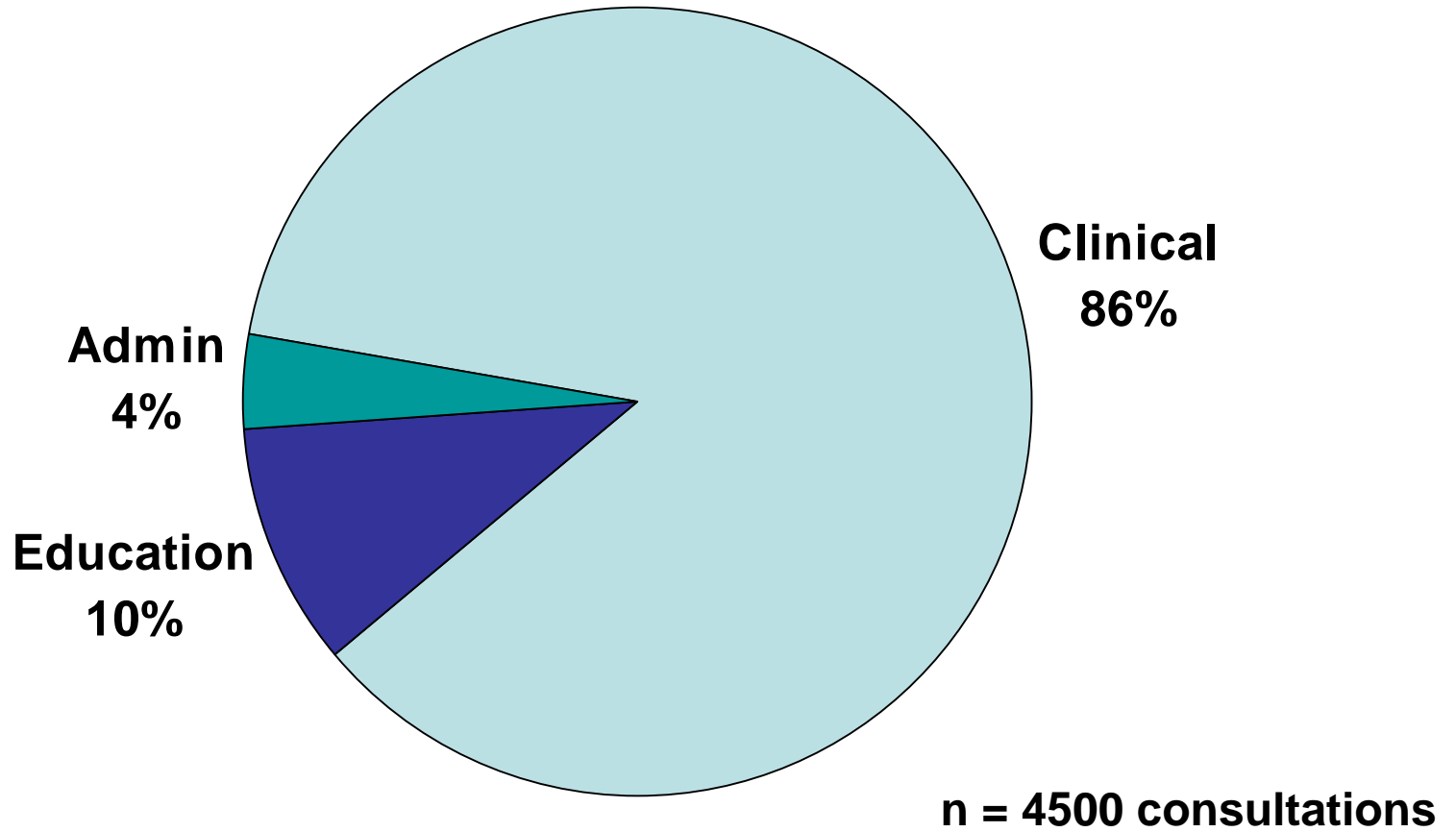
# Telepaediatric Activity (6y)

QTS commenced (Nov 00)

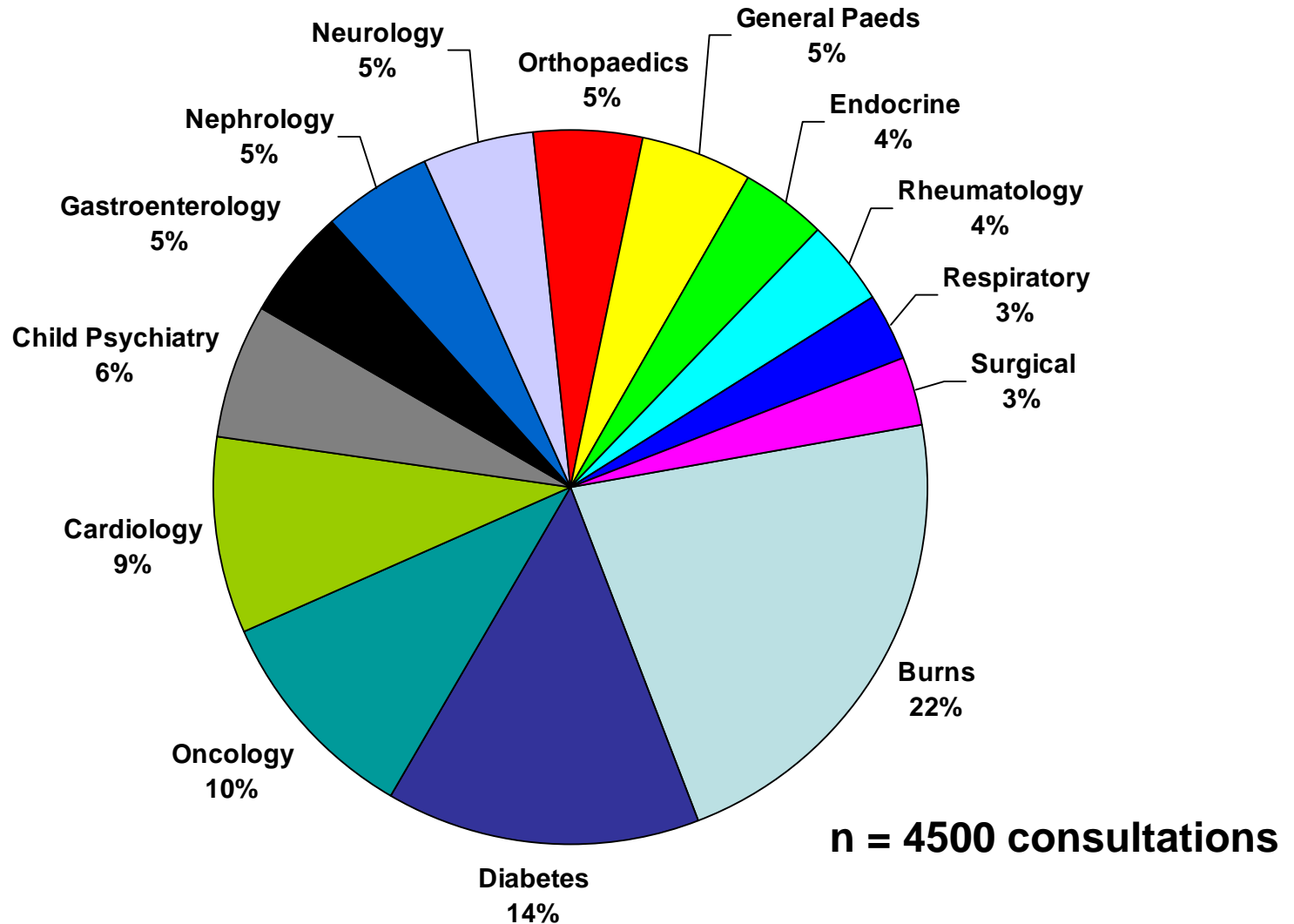
4800 consultations (March 2007)



# Telepaediatric Activity (6y)



# Telepaediatric Activity (6y)



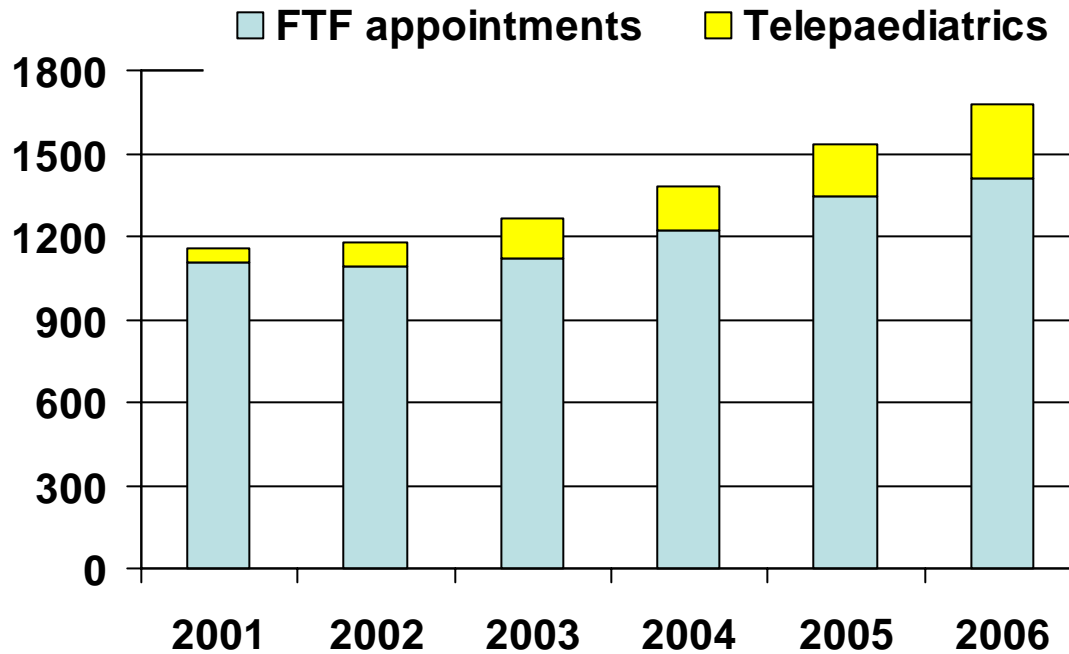
# Post-acute Burns

- 1034 consults/64 regional centres (6 yrs)
- 5 RCH consultants
- ~ 8 videoconference clinics per month



# Post-acute Burns

17% of all burns outpatients



# Virtual Ward Rounds

- Virtual paediatrician
- Mobile, wireless videoconference system
- Daily ward rounds with Gladstone doctor and RCH specialist(s)
- Direct to bedside



Smith AC, Coulthard M, Clark R, Armfield N, Taylor S, Goffe R, Mottarely I, Youngberry K, Isles A and Wootton R. Wireless telemedicine for the delivery of specialist paediatric services to the bedside. *Journal of Telemedicine and Telecare* 2005, 11 (Suppl. 2): 81-5

# Service Costs – 5 years

- **Fixed costs**

Costs	VC (\$)	FTF (\$)
Equipment	128,191	Nil
ISDN Installation	2655	Nil
ISDN Line Rental	32,400	Nil
Coordinator salaries	475,000	Nil
<b>Sub total</b>	<b>\$638,246</b>	<b>\$0</b>

Smith AC, Scuffham P and Wootton R. The costs and potential savings of a novel telepaediatric service in Queensland? *BMC Health Services Research*. 2007 (in press)

# Service Costs – 5 years

- **Variable Costs**

Costs	VC (\$)	FTF (\$)
ISDN line charges	65,400	Nil
Staff salaries	234,350	152,600
Patient travel	Nil	1,391,670
Patient accommodation	Nil	8,994
Project costs	18,000	Nil
<b>Sub total</b>	<b>\$317,750</b>	<b>\$1,553,264</b>

# Service Costs – 5 years

- **Total costs**

Costs	<b>VC (\$)</b>	<b>FTF (\$)</b>
Fixed	638,246	0
Variable	317,750	1,553,264
<b>Total</b>	<b>\$955,996</b>	<b>\$1,553,264</b>

Average cost per consult      **\$638**      **\$1036**

Variable cost per consult      **\$212**      **\$1036**

# COH Model Economics

- Telepaediatrics is cheaper at a workload above 774 consultations
- Actual workload = 1499 consultations
- Estimated saving ~ \$600,000

# COH Model Summary

- Telehealth – delivers value and benefits –  
(above minimum volume of 774 consults)
- Telehealth creates health service teams that work collaboratively and efficiently through coordinated clinical care episodes.

# Observations re Telehealth

- COH research is providing key insights into the future of health care services delivery models in Australia
- Telehealth – an opportunity to improve health services support in rural, remote, outer metropolitan areas.

# Health System Drivers

- Cost management/reduction
- Quantity and capacity
- Quality
- Risk management
- Political imperatives
- Ageing population/chronic disease
- Technology

# Future Factors

- Health workforce – relative decrease.
- Health services – increased specialisation
- Health services – increased expectation
- For rural and remote patients/communities:
  - ? Access to GPs and/or specialists
  - ? Climate change
  - ? Peak oil

# Workforce Shortages

- Average GP age is now 54 (AIHW)
- Rural, remote and outer metro are all areas of GP shortage (AGPN)
- Australia could employ 5,000 nurses today (ANF)

# Future of Health Care

- Health Services Industry revolution – including, or especially, outpatients:
  - Increasing capacity and flexibility
  - Maintaining quality (and community trust)
  - Increasing efficiency (workforce/resources)
  - Outpatients, aged care and primary care and primary prevention (GPs, community health, others) will blur : (GPs – large chronic disease and post hospitalisation workloads - ?acute/prevention).

# Future of Health Care

- Rural and remote:
  - Sustaining rural/remote health professionals
  - Longer term, safeguarding the economy
  - Eliminating unnecessary patient transport

# Future of Health Care

- Indigenous:
  - Sustaining indigenous health professionals
  - Utilising local language and culture alignment
  - Eliminating unnecessary patient transport
  - Child, adult, women's, chronic disease issues
  - Community care, primary care, prevention, education, aged care (if we are lucky) will blur

# Future of Health Care

- Growing cities - the “outer metropolitan” health service will be (is) treated as rural:
  - Specialist services via telemedicine
  - Outpatient services via telemedicine
  - Aged care, community care and outpatients will blur – supported by telemedicine

(limited access to transport)

(health workforce rationalisation)

(general resources rationalisation)

# Potential Economic Risk

- Families are essential to keep rural, remote and provincial economies alive:
  - Agriculture
  - Mining
  - Defence
  - Services (energy, water, etc)
- Families are risk averse – and look for effective health care (including rural and remote locations) - ? telehealth

# Future HS Management

- Focus – maintaining primary care, prevention, outpatients capacity and quality
- Resources ROI
- Flexible delivery
- Sustaining rural, remote, other communities
  
- \*\* Health care – being delivered within communities where continuous rapid change and high levels of utilisation of technology and information is becoming commonplace.\*\*

# Other Challenges

- New society and hyper-connectivity
- Economic stability/instability ?
- Terrorism and threats
- Climate change:
  - Temperature
  - Water
  - Disease vector distribution and range
  - Environmental refugees – from within Australia ?

# Telemedicine for Flexibility

- Telemedicine potential – mitigating threats:
  - Outpatients (as with the COH model)
  - Health services design
  - Ageing population/generational change
  - Remote populations – especially indigenous
  - Workforce
  - Transport
  - Environment

# Importance of Telemedicine to Outpatients in Australia

- Australia's economy is heavily leveraged into the "international growth market". (World Bank President, Robert B. Zoellick – Aug 2007)
- Without a population willing to live in remote areas Australia's economy, relying on export earnings, is at risk.
- Outpatients services to rural and remote communities, using telemedicine, is the economic vision we have no choice but to pursue.

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