Overcoming Inertia In The Cancer System: Why Don't We Do What We Know Works?

Chair: Dr. Craig Earle

Innovative approaches to optimal cancer care in Canada

Why we‘re not applying what we know

David Currow FAHMS
Chief Cancer Officer, NSW
CEO, Cancer Institute NSW

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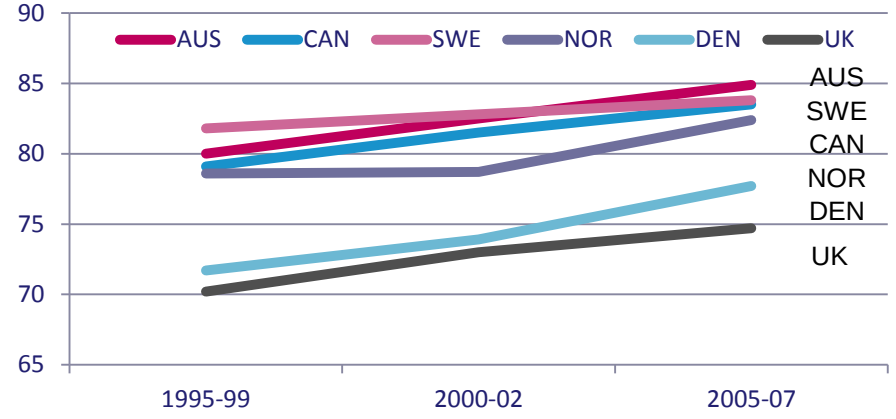
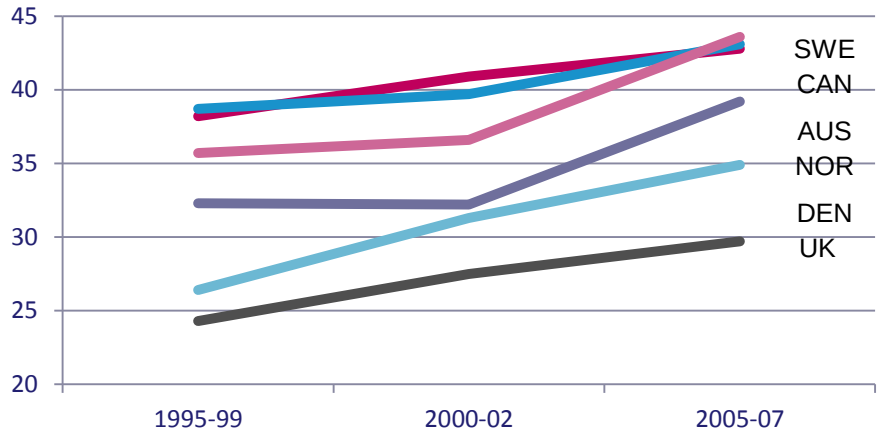
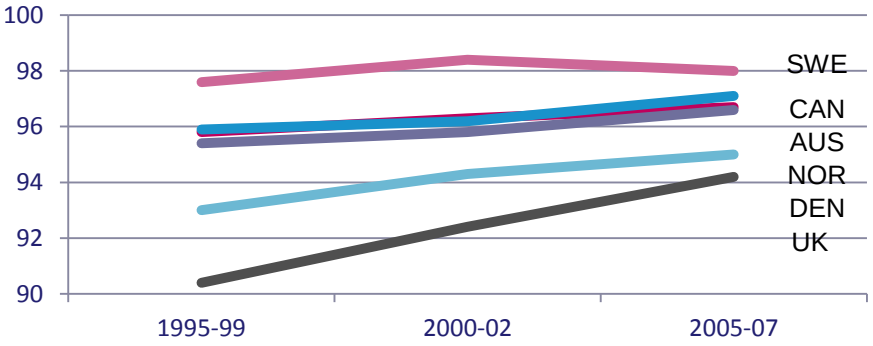
Survival differences between countries comparable countries using one analysis



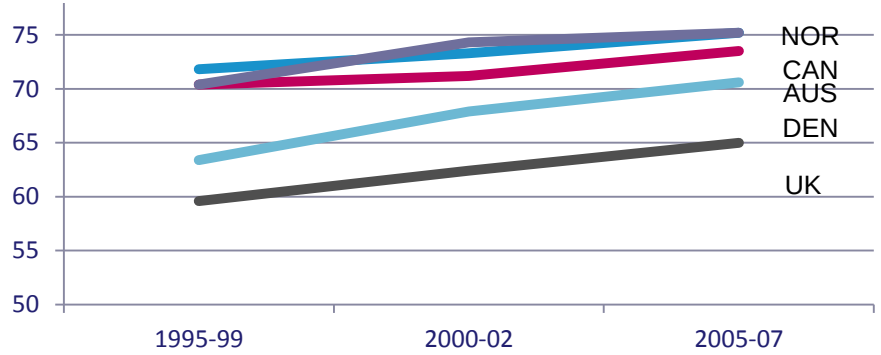
Colorectal Cancer 1yr Relative Survival



Lung Cancer 1yr Relative Survival



Breast Cancer 1yr Relative Survival



Ovarian Cancer 1yr Relative Survival

CANCER RESEARCH UK

Coleman MP, Forman D, Bryant H et al. Cancer survival in Australia, Canada, Denmark, Norway, Sweden and the UK, 1995-2007 (the International Cancer Benchmarking Partnership): an analysis of population-based cancer registry data. The Lancet 2011, 377: 127-138

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Why we're not applying what we know

- **Half-life of knowledge: the time in which knowledge may be superceded or be shown to be untrue**
- Fritz Machlup, 1962;
- Knowledge Production and Distribution in the United States. Princeton University Press

- **Half-life of facts: the time for half the facts in a discipline to become obsolete**
- Samuel Arbesman, 2012;
- The Half-Life of Facts: Why Everything We Know Has An Expiration Date

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Why we're not applying what we know

1. Young arts, young sciences

2. How do we change (and how don't we change)?

3. What does it take to build sustainable change?

Why we're not applying what we know

1. Young arts, young sciences
2. How do we change (and how don't we change)?
3. What does it take to build sustainable change?

Why we're not applying what we know

- Young art; young science

- 'Evidence based' Eddy DM JAMA (1990)
- 'Evidence based medicine' Guyatt G JAMA (1992)
- Evidence-based medicine: 'the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients…integrating individual clinical expertise with the best available external clinical evidence from systematic research.' Sackett D (1996)

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Why we're not applying what we know

We have a whole generation of practitioners for whom critical appraisal and evidence based practice tools were not part of their curriculum

Good PD et al. Aust Fam Physician. 2006 Apr;35(4):261-4.

Why we're not applying what we know

…a whole generation…

National survey including level of evidence for the use of opioids for analgesia – year 2000

Palliative care physicians

Level 1	43%
Level 2	12%
Level 3	9%
Level 4	9%
Level 5	27%

Good PD et al. Aust Fam Physician. 2006 Apr;35(4):261-4.

Why we're not applying what we know

Teaching an existing workforce critical appraisal skills

Critical appraisal as an integral part of health workforce education;

- Nursing;
- Pharmacy;
- Medicine; and
- Radiation therapy

Why we're not applying what we know

In the uptake of what we know but don't do:

- **What is generic to all clinical practice?**
- **What is specific to cancer care?**

Why we're not applying what we know

In the uptake of what we know but don't do:

- **What is generic to all clinical practice?**
- **What is specific to cancer care?**

Issues specific to cancer

- **rate of change**
- **complexity of clinical assessment**

Why we're not applying what we know

Beyond the peer-reviewed evidence…

Health systems are:

- **Data rich**
- **Information poor**

Develop and grow the pipeline of:

Data->

knowledge->

information->

clinical & systems change

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Why we're not applying what we know

What systems do we have in place to synthesize and distil new information systematically?

Innovative approaches to optimal cancer care

1. Young arts, young sciences

2. **How do we change clinical practices (and how don‘t we change)?**

3. What does it take to build sustainable change?

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Why we're not applying what we know

Implementation science - barriers to practice change

- Awareness and knowledge
- Motivation
- Acceptance and beliefs
- Skills
- Practicalities
- The external environment

'How to change practice' NICE 2007

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Why we're not applying what we know

Implementation science - barriers to practice change

- Awareness and knowledge

Lack for awareness of the latest evidence-based guidelines

Disregard even for the concept of clinical guidelines

His / her population is different to everyone else

'How to change practice' NICE 2007

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Why we're not applying what we know

Implementation science - barriers to practice change

- *Motivation*

Externally, what incentives or penalties are in place to drive particular behaviour?

Internally, what drives this clinician? What is that gets them out of bed each Monday morning?

'How to change practice' NICE 2007

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Why we're not applying what we know

Implementation science - barriers to practice change

- Acceptance and beliefs

Perceptions of the views of others is often important

Beliefs about the patient outcomes that the clinician already achieves

The ability or willingness to adopt change

'How to change practice' NICE 2007

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Why we're not applying what we know

Implementation science - barriers to practice change

- Skills

How does a clinician competently carry out change while in practice?

How can new skills be safely acquired?

(How good is the clinician in reaching out and asking for mentoring or assistance in this process?)

'How to change practice' NICE 2007

Why we're not applying what we know

Implementation science - barriers to practice change

- *Practicalities*

How can new services or approaches be supported so their uptake is more rapid and systematic?

Are new or transition resources needed for change to occur in a timely way?

'How to change practice' NICE 2007

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Why we're not applying what we know

Implementation science - barriers to practice change

- The external environment

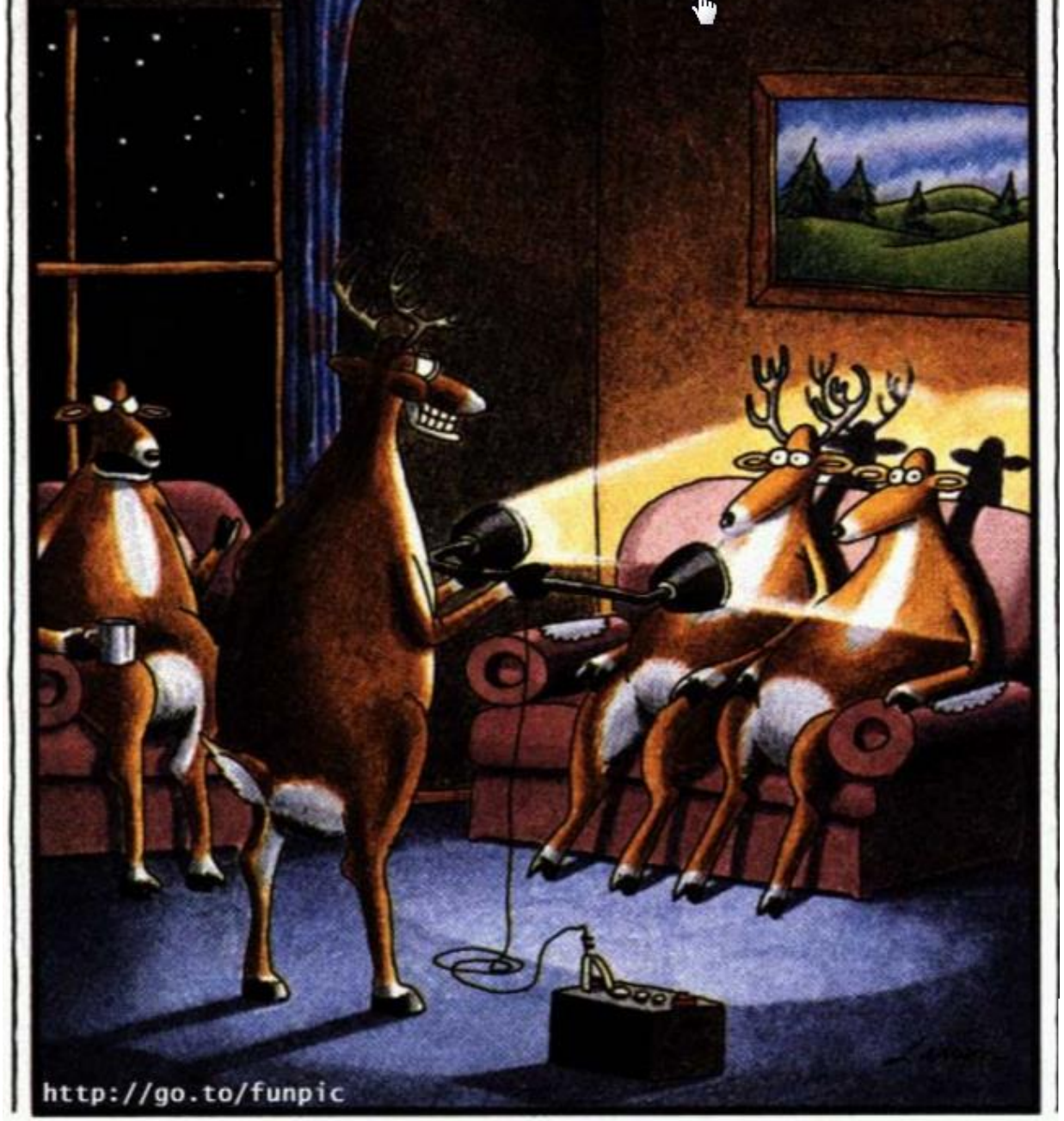
What is the financial environment?

What is the regulatory environment?

'How to change practice' NICE 2007

Why we're not applying what we know

- Implementation science
- Tsunami of new knowledge being generated (number of RCTs published daily)
- Need to synthesise rapidly, efficiently and effectively
- No single individual can keep abreast of new knowledge even in highly sup-specialised areas



"OK, Frank, that's enough. I'm sure the Jeffersons are quite amazed at your car headlight device."

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Why we're not applying what we know

- Growth in RCTs
  - 1965 – 39
  - 1976 – 1,000
  - 1994 – 10,000
  - 2019 – 50,000 (200 each working day)

http://blogs.trusttheevidence.net/carl-heneghan/how-many-randomized-trials-are-published-each-year. Accessed 2017 Apr 06

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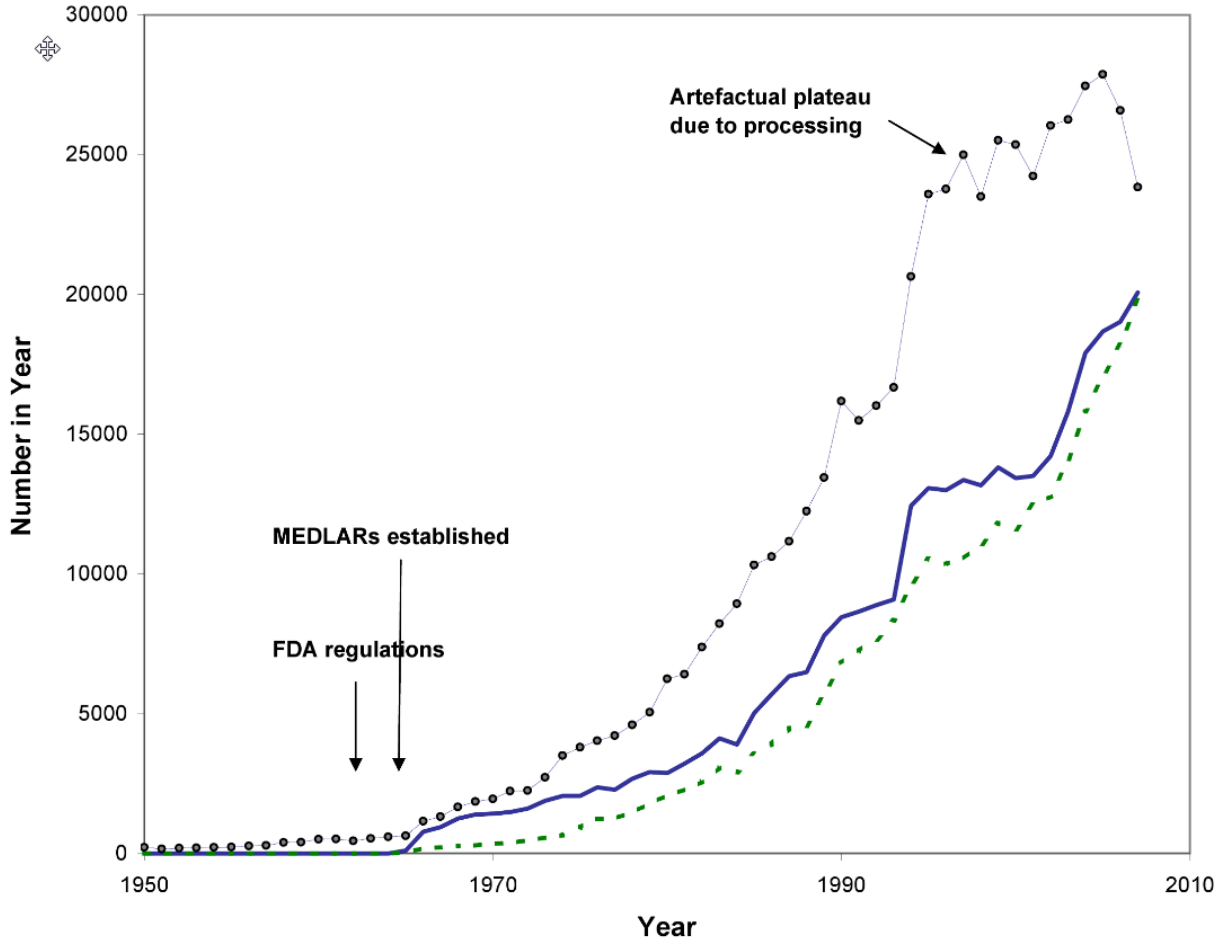
Why we're not applying what we know

- **2010 75 RCTs per day, 11 systematic reviews**



Bastian H, Glasziou P, Chalmers I. PLoS Med. 2010 Sep 21;7(9):e1000326.

Why we're not applying what we know

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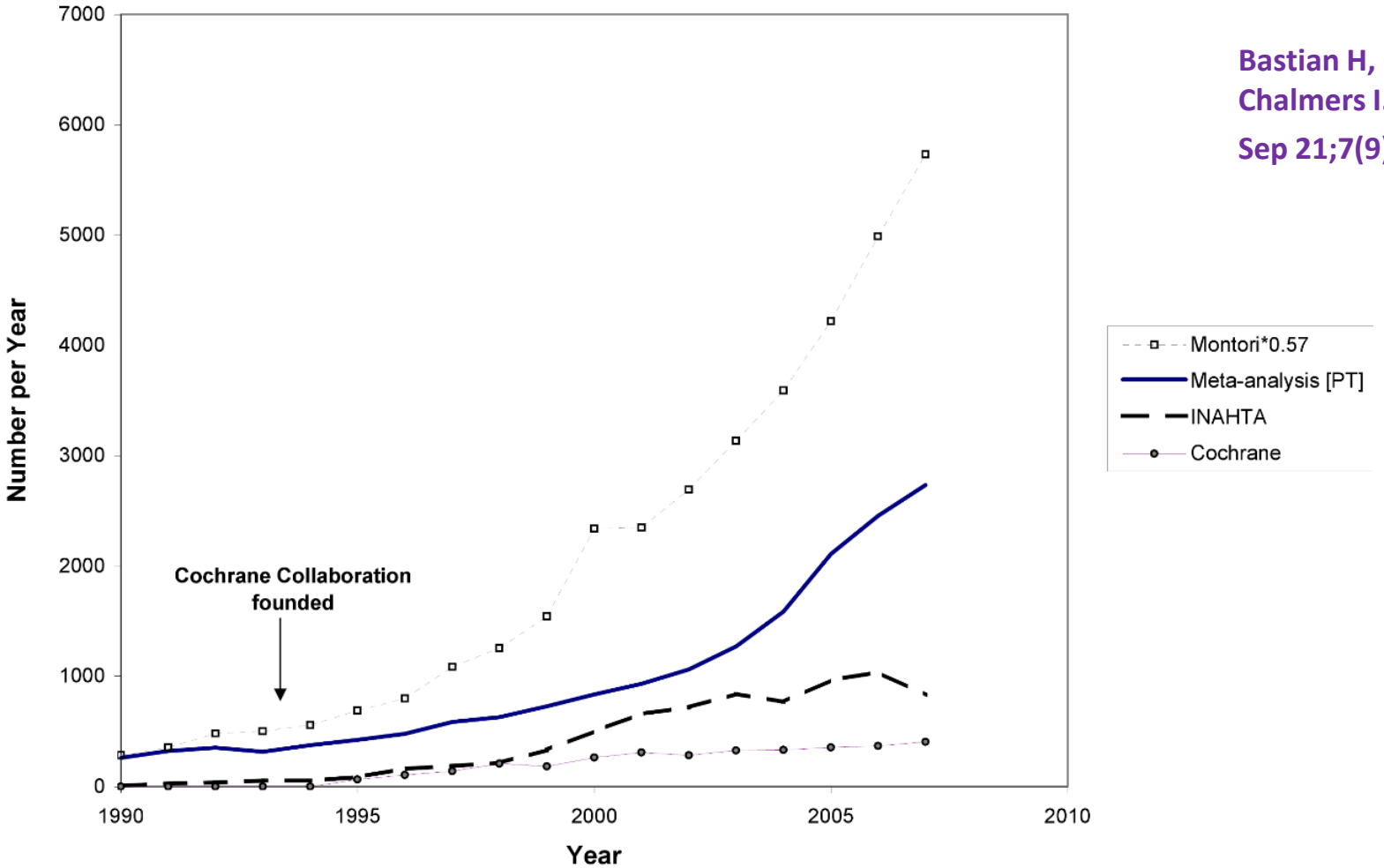

Bastian H, Glasziou P, Chalmers I. PLoS Med. 2010 Sep 21;7(9):e1000326.

Why we're not applying what we know

What does it take to build sustainable (lifelong) change with clinicians?

The most important question is how we prepare health professionals for life-long learning and support them to do this once they are in post.

What are the key tools that life long clinicians/learners need?

Why we're not applying what we know

Educational outreach visits (academic detailing) - Cochrane

69 studies / 15000 health professionals / 28 studies contributed to the main comparison

Median adjusted risk difference for compliance 5.6% (interquartile range (IQR) 3.0%, 9.0%)

For prescribing, 4.8% (IQR 3.0%, 6.5%)

Median adjusted relative improvement for continuous variables 21% (IQR 11%, 41%)

O'Brien MA et al. Cochrane Database Syst Rev 20017;(4):CD000409

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Why we're not applying what we know

Audit and feedback loops – Cochrane

72 studies included

Dichotomous variables - 5% improvement

(Inter-quartile range (IQR) 3%-11%)

Continuous variables – 16% improvement

(IQR 5-37%)

Predictors of greatest improvement:

- low baseline compliance
- intense audit and feedback cycles

Jamtvedt G et al. Qual Saf Health Care 2006;15(6):433-6.

Why we're not applying what we know

Continuing educational meetings - Cochrane

81 trials – 11,000 health professionals

Risk difference 6% (IQR 1.8%, 15.9%)

The more interactive, the more effective

The more complex the behaviour change, the less effective

Forsetlund L et al. Cochrane Database Syst Rev 2009;(2):CD003030

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Why we're not applying what we know

Key opinion leaders (KOLs)

18 studies

Median risk difference 12%

(range -15% to +72%)

Flodgren G Cochrane Database Syst Rev 2011;(8):CD000125

Why we're not applying what we know

Spaced education

Spaced education delivers case-based content in a structured, longitudinal electronic format with minimal time imposts on, or disruption to the learner.

This is therefore suited to busy clinicians

Bruckel J et al. Postgrad Med J. 2016 Mar;92(1085):137-44. Robinson T et al. J Cancer Educ. 2015 Nov 15. [Epub ahead of print]

Why we're not applying what we know

These studies demonstrate that even with costly and targeted approached, it is incredibly difficult to change existing practice, even with excellent evidence

Why we're not applying what we know

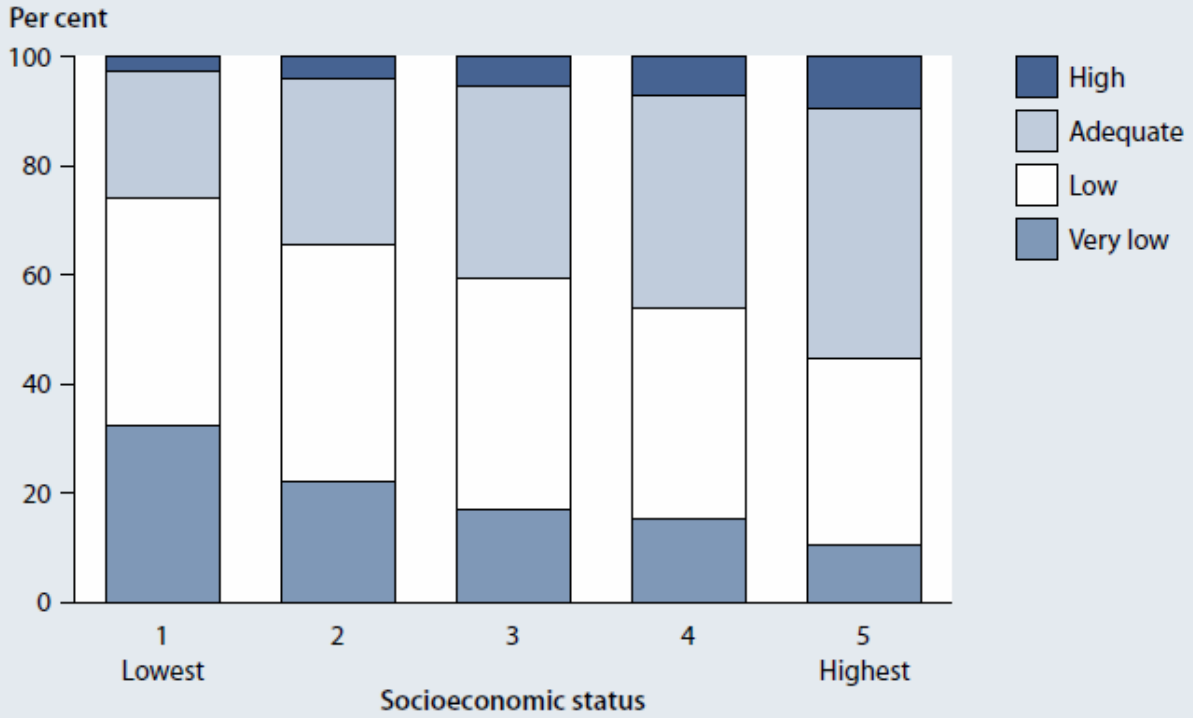
Levers for change

i. Funding

- public vs private
- per diem vs episode-based funding
- proceduralists vs non-proceduralists

ii. Consumers of health care services

Levels of health literacy by socioeconomic status

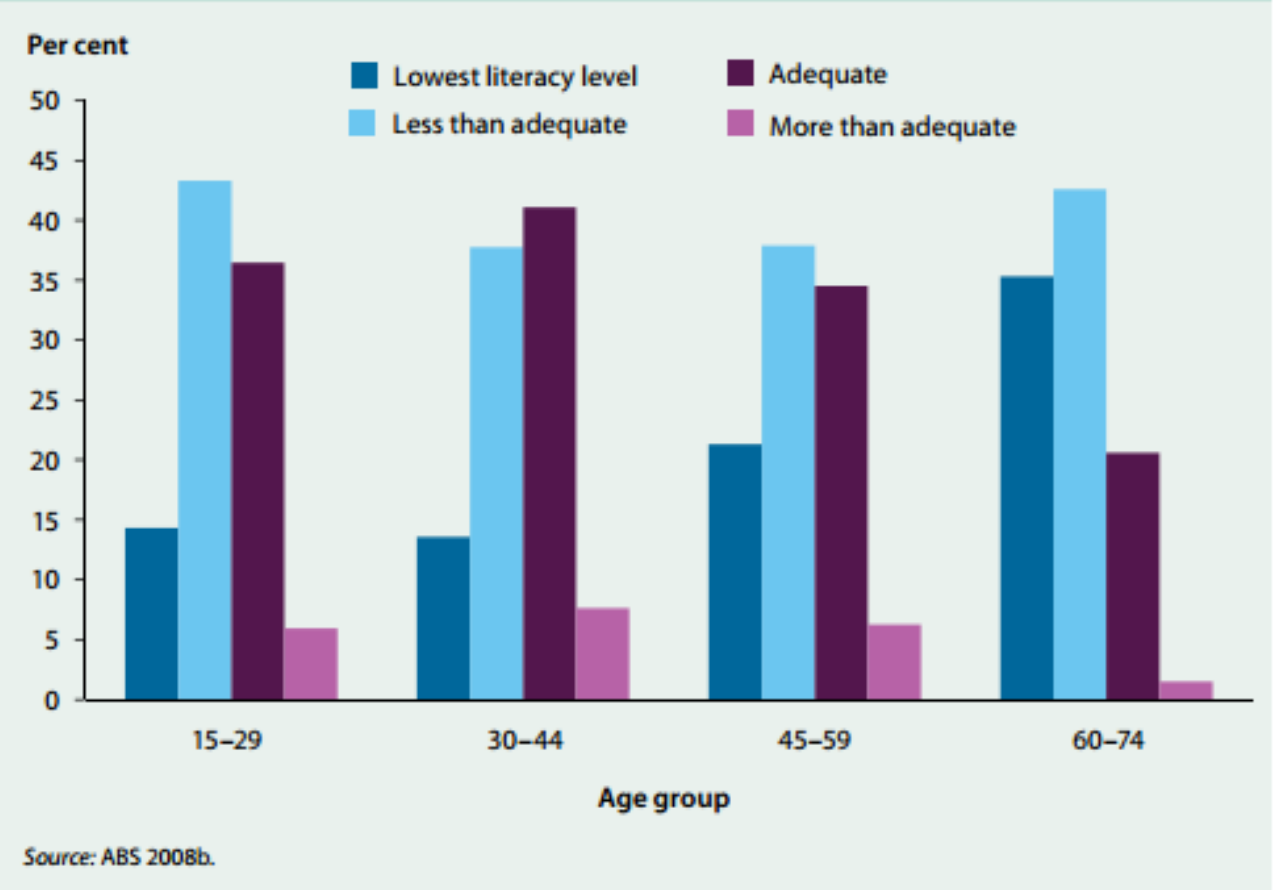


Note: This figure is based on the Index of Relative Socioeconomic Disadvantage (IRSD), one of the four Socioeconomic Indexes for Areas (SEIFAs) developed by the ABS. See Box 5.5 Chapter 5 for further explanation of SEIFA.

Source: ABS 2008d.

Source: AIHW – Australia's Health 2010

Levels of health literacy by age



Source: AIHW – Australia's Health 2016

Why we're not applying what we know

Super early adopters

Laparoscopic cholecystectomy →

- **1990-91 1% of cholecystectomies in Ontario**
- **1993-94 85.6% of cholecystectomies in Ontario**

(and a 30% increase in the absolute number of cholecystectomies performed in that time)

Cohen MM et al. CMAJ 1996;154(4):491-500

Why we're not applying what we know

In fact, clinicians work in an almost totally unregulated environment for the introduction of new procedures or treatments. This effect is potentially amplified in cancer where the eivdence base is changing rapidly

Frameworks exist, but are rarely used

Matched by poor post-introduction surveillance

Why we're not applying what we know

There is an almost universal lack of feedback on individual clinicians' performance with measures that reflect patient outcomes (and how to improve those outcomes)

Why we're not applying what we know

What do we have in place to provide a feedback loop on performance to:

- **Individual clinicians;**
- **Tumour streams;**
- **Institutions;**
- **Health regions; or**
- **Provinces or countries?**

Innovative approaches to optimal cancer care

1. Young arts, young sciences

2. How do we change (and how don‘t we change)?

3. **What does it take to build sustainable change?**

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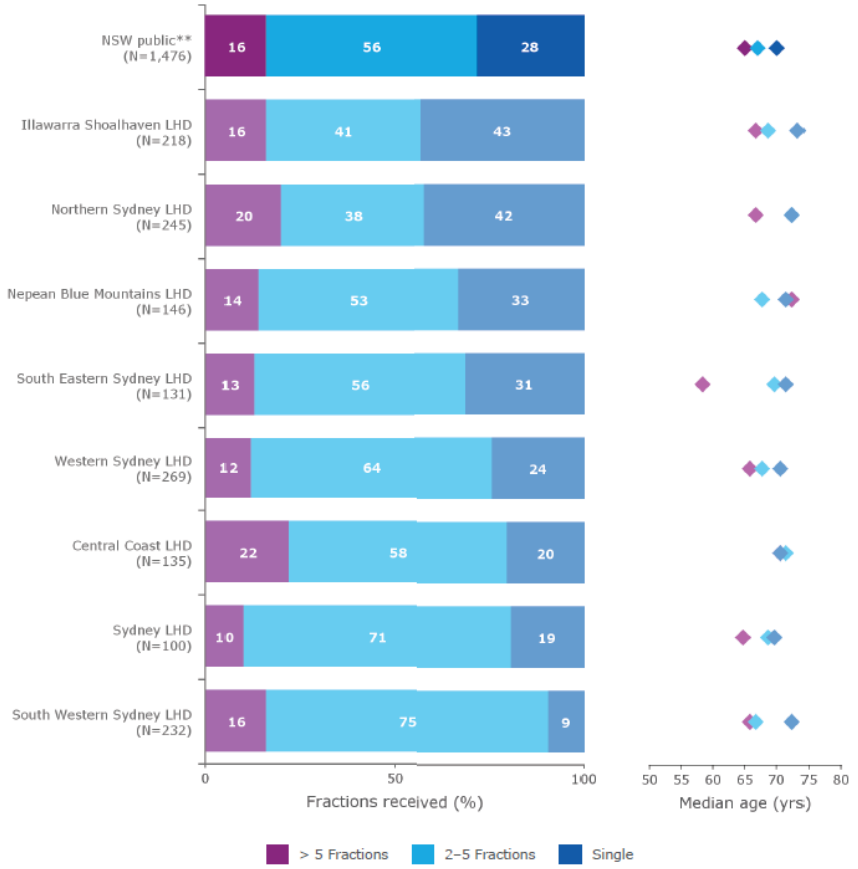
Why we're not applying what we know

What does a program of sustainable clinical / systems change look like?

i. Define the areas of care where the biggest impact (vs biggest improvement, vs most prevalent) change can be bought about
ii. Strategise – to understand current practice compared with best practice and why the gap exists
iii. Invest resources
iv. Successful approaches will be multi-faceted

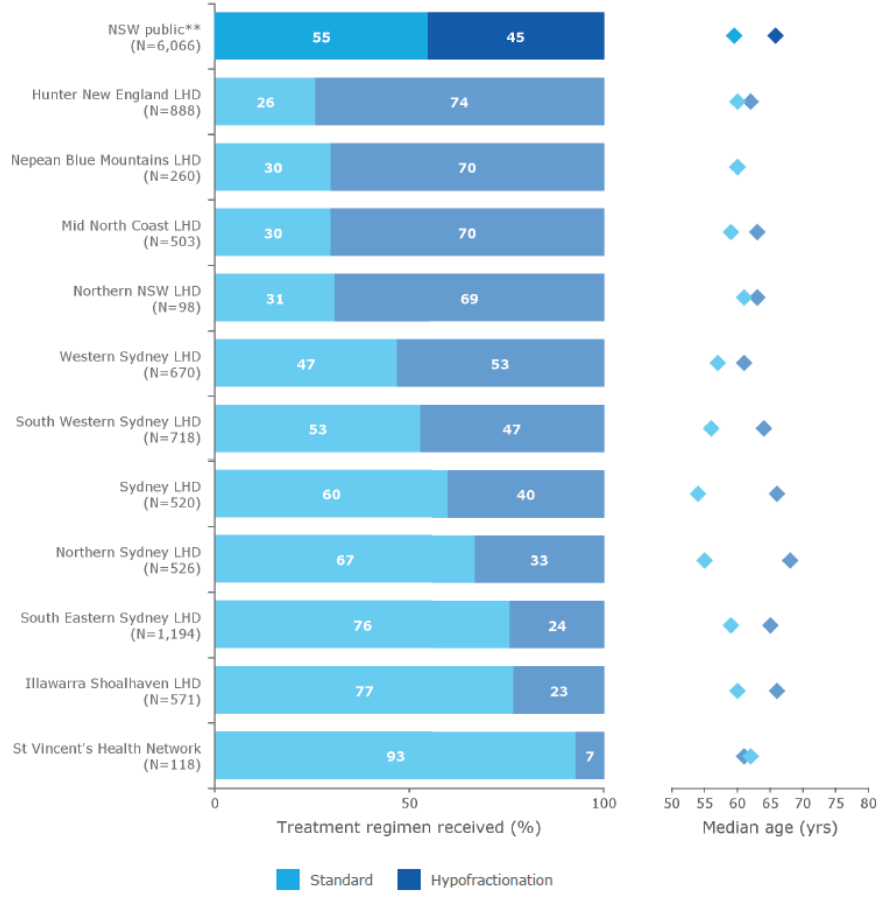
Why we're not applying what we know

Proportion of patients with bone metastases receiving single or multiple fraction regimens of external beam radiotherapy with palliative treatment intent in NSW public facilities, with median age, by LHD (ranked), FY 2013–2014



Why we're not applying what we know

Proportion of early-stage breast cancer* patients receiving standard or hypofractioned regimens of external beam radiotherapy in NSW public facilities, with median age, by LHD (ranked), 2008–2012



Why we're not applying what we know

If we make changes now, what is the lead time to benefits?

- **Avoiding early iatrogenic mortality - benefits seen this year compared with**
- **Changing from one adjuvant therapy to one with marginally better net effects – benefits may take decades to be seen**

Why we're not applying what we know

International data

- Oesophageal cancer (NSW n=93)

Meta-analysis 27,843 surgical resections

Low volume (4 to 78) vs

high volume (>9 to >346)

- in hospital mortality (8.5% vs 2.8%)
- 30 day mortality (2.1% vs 0.7%)

Sheraz RM et al. J Gastrointest Surg 2011. DOI 10.1007/s11605-011-1731-3

International data

- ✓ Medicare data 1999-2008 in the USA
- ✓ Increased institutional case load

Oesophagus

- **decreased number of hospitals**
- **1734 in ‘99-’00 to**
- **1309 in ‘07-’08 performing the procedure**

Finks JF et al. N Eng J Med 2011;364(22):2128-2137.

International data

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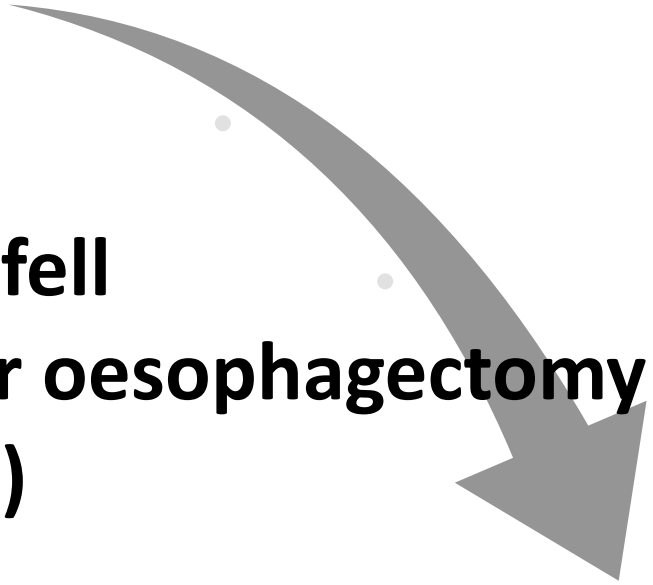
- ✓ Increased institutional case load



Mortality fell
by 32% for oesophagectomy
(n=43,756)

Finks JF et al. N Eng J Med 2011;364(22):2128-2137.

Variations in cancer outcomes in NSW

2. Local knowledge

- **Results adjusted for:**
  - **age;**
  - **sex;**
  - **co-morbidities;**
  - **pre-operative level of function;**
  - **extent of spread at presentation;**
  - **urgency of admission;**
  - **private / public; and**
  - **year of separation.**

- Results presented by hospital volume.

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Variations in cancer outcomes in NSW

Mortality **(30, 90 day)**

Survival **(1 year conditional (survived 30 days),**

5 year survival)

Percentage of people with length of stay >21 days

Readmission within 28 days of episode of care

- (Definitions are taken from the Ministry of Health or Australian Council on Healthcare Standards)

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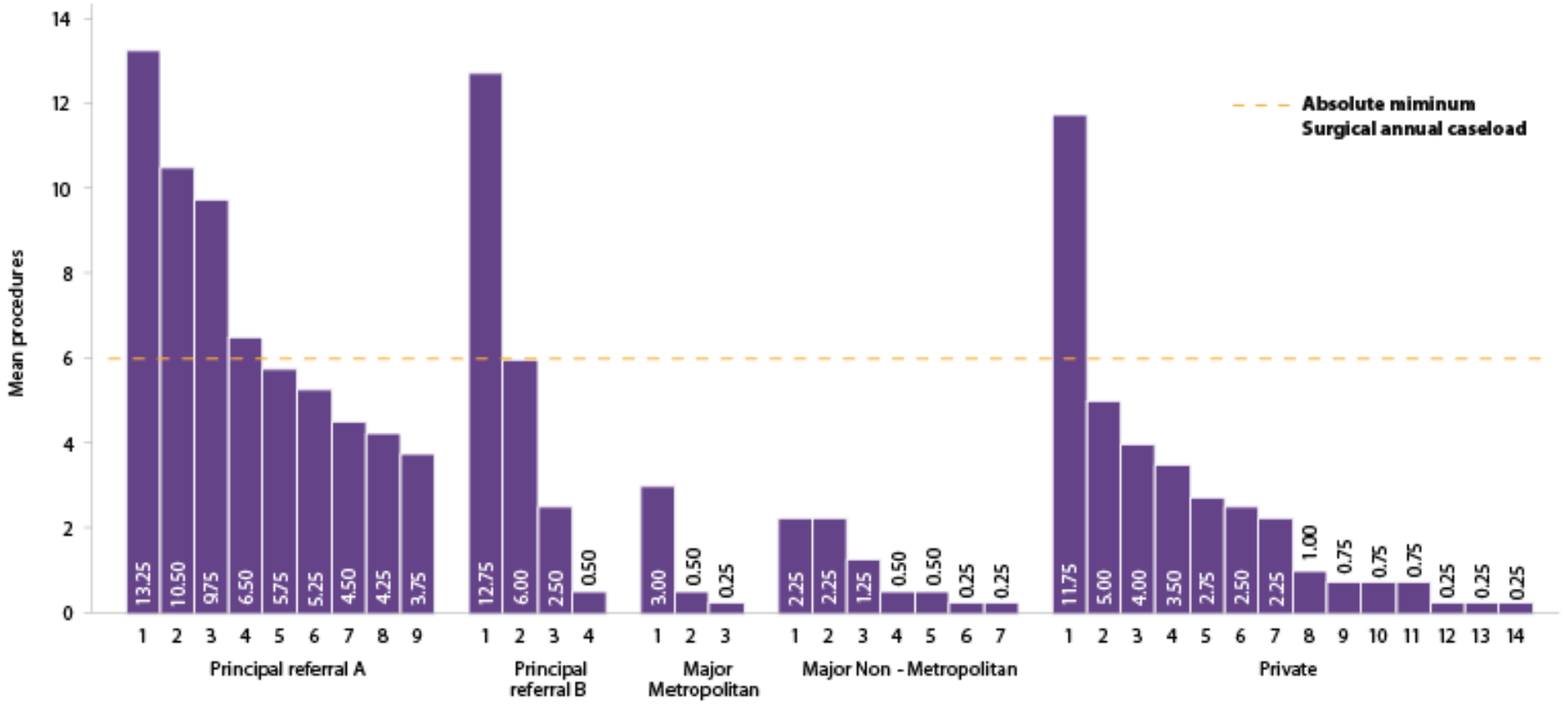
OESOPHAGUS CANCER SURGERIES
Mean procedure volume in NSW, 2005-2008



Oesophagus – mortality by average annual hospital volume, NSW, 2005-2008

Average annual volume	Procedures (n)	Facilities (n)	30-day mortality (%)	90-day mortality (%)	1 year conditional survival
0-3	20	19	4.6	9.4	76.1
>3-6	32	8	3.2	4.7	72.8
>6	41	5	2.7	5.5	81.2

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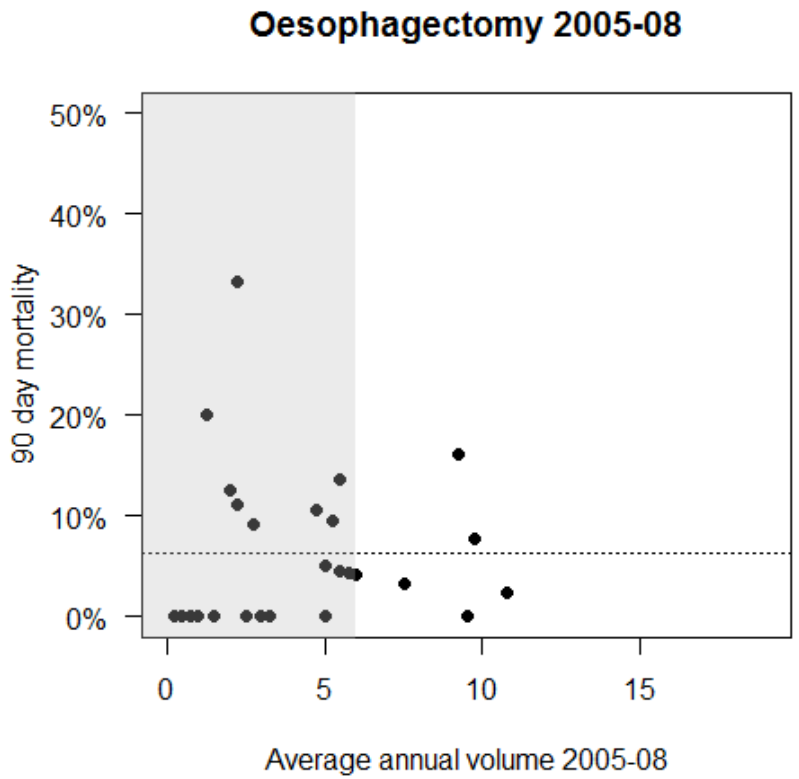
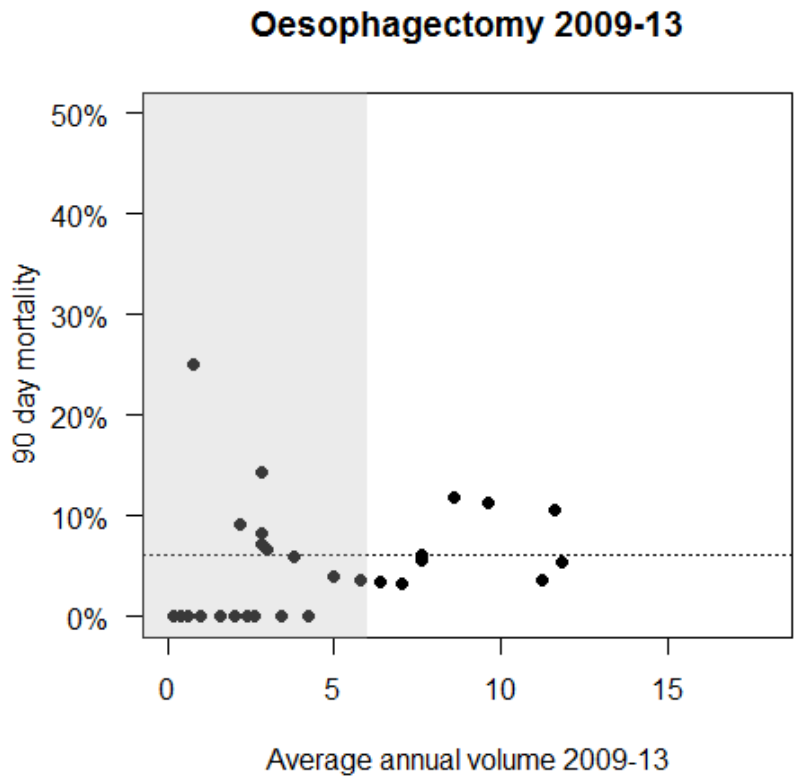
Oesophagectomy

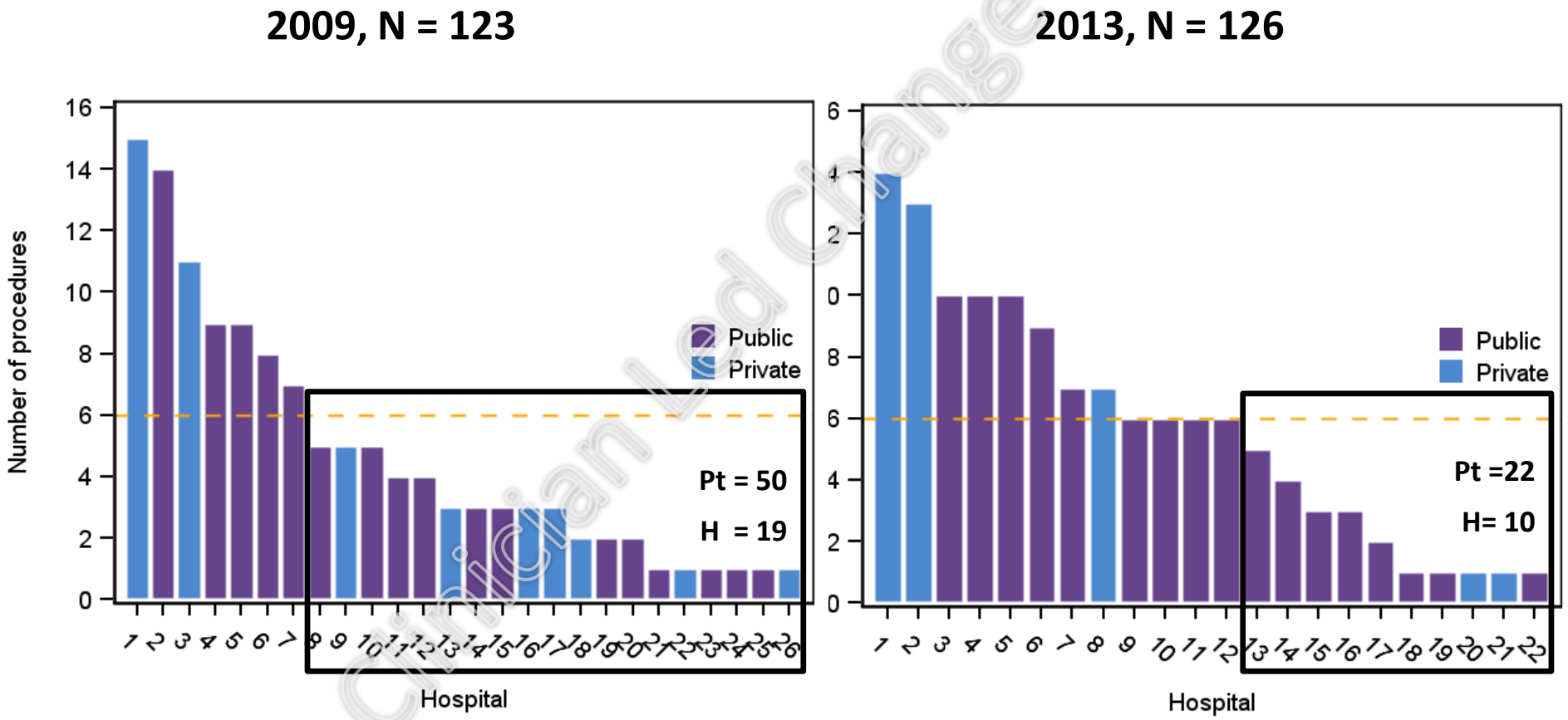
90-day mortality by volume



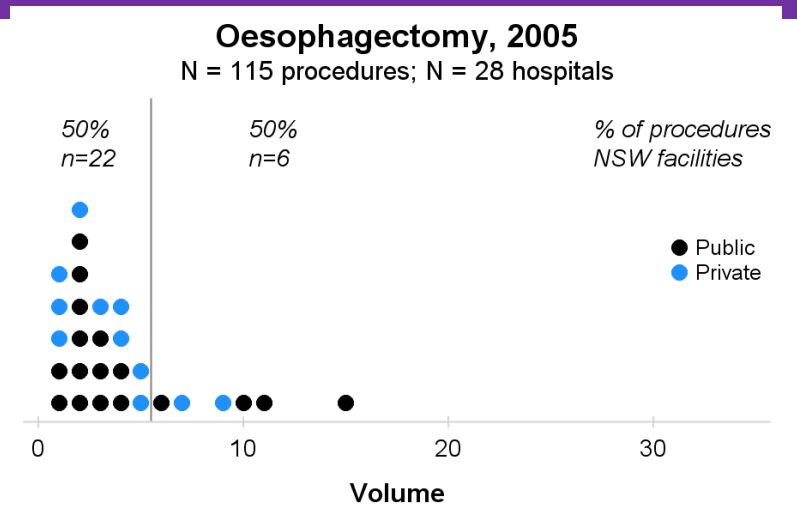


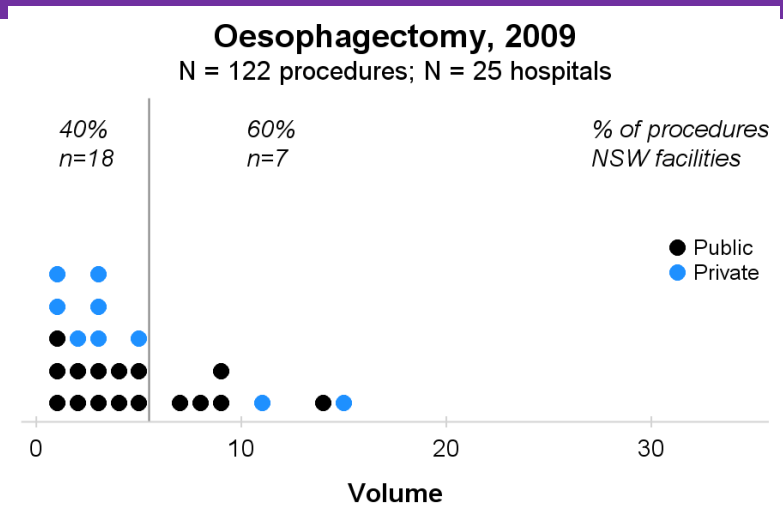
Hospitals performing these procedures at very low volume

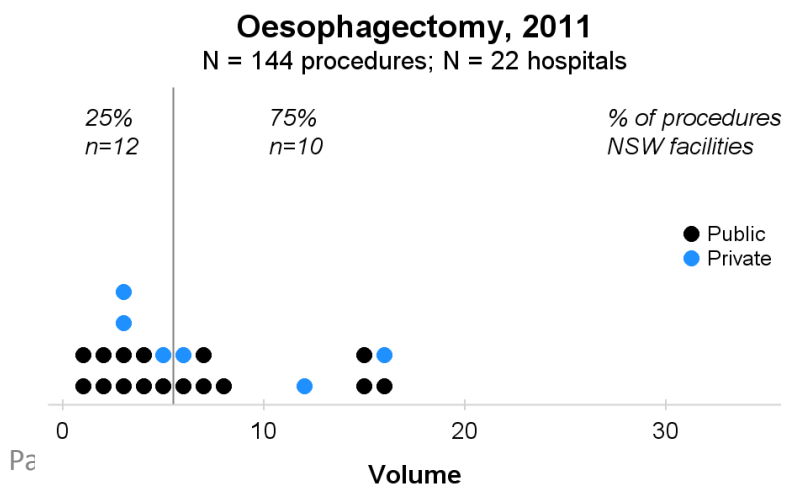
Oesophagectomy for invasive oesophago-gastric cancer

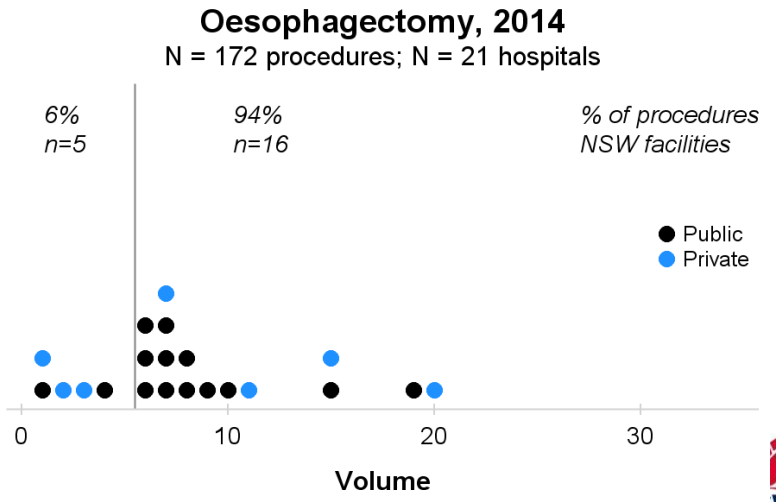


2005 compared to 2014



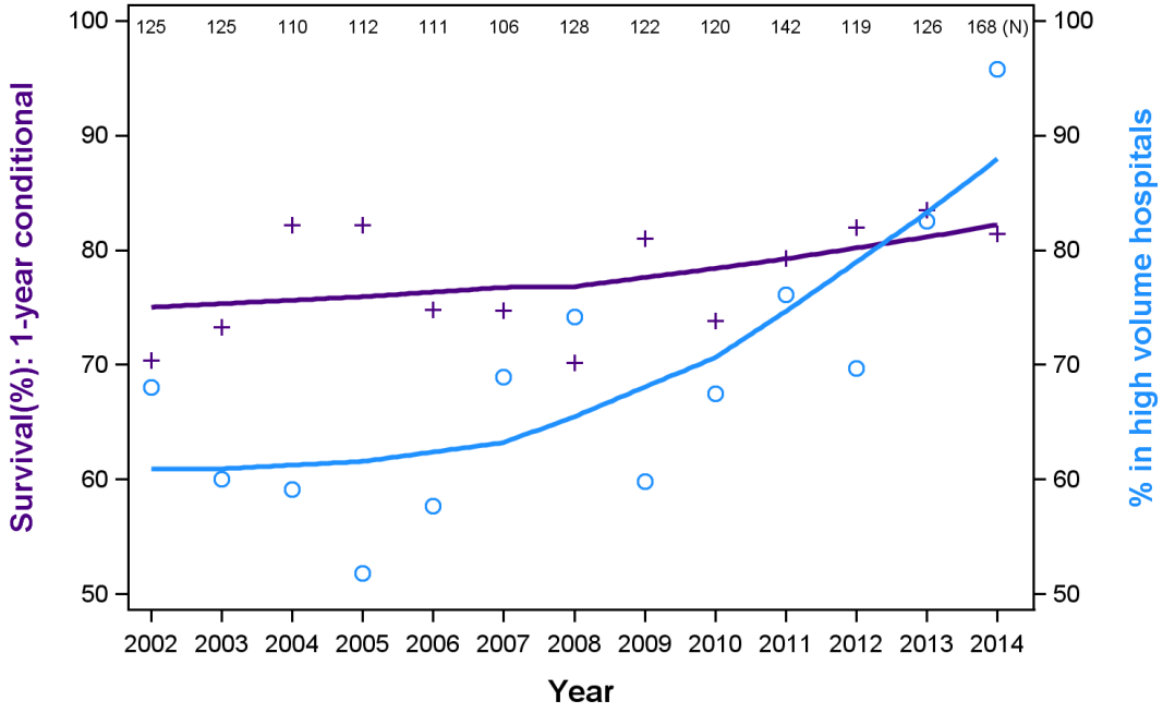






One year conditional post-operative survival, 2002-2014

Oesophagectomy



One-year conditional survival (conditional on surviving 30 days)

% of resections in higher volume (≥6 per year) hospitals

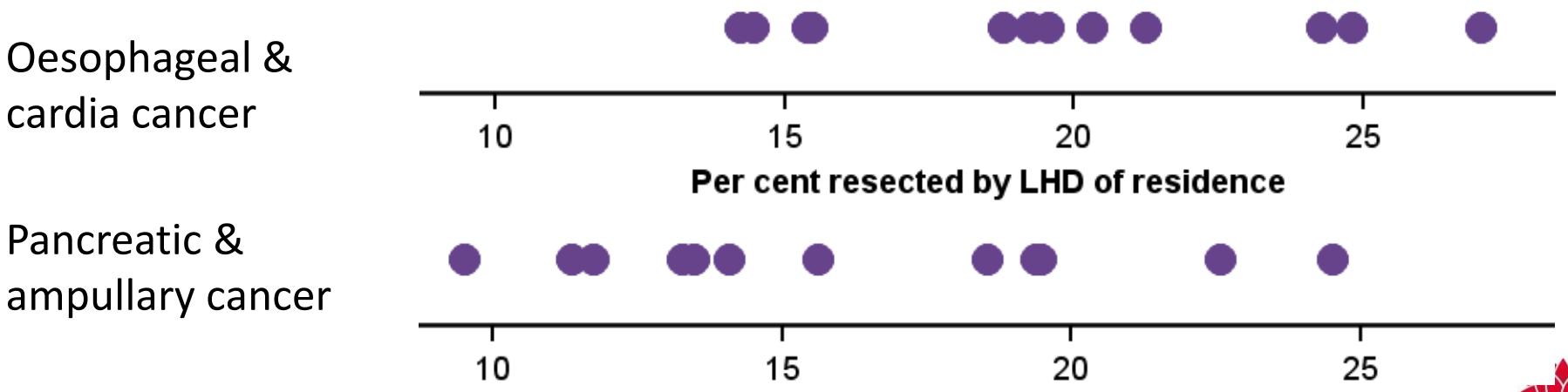
Why we're not applying what we know

We're good at describing the people who make it through our door and the outcomes for them and, potentially, for the whole population

What about the people who don't make it through the front door, but should?

Percent resected by LHD with curative intent, 2010-2012

- For people with a first admission for cancer between 2010 and 2012:
- 14-27% for oesophagus
- 9-24% for pancreas



Northern NSW, Southern NSW and Far West LHDs are excluded.

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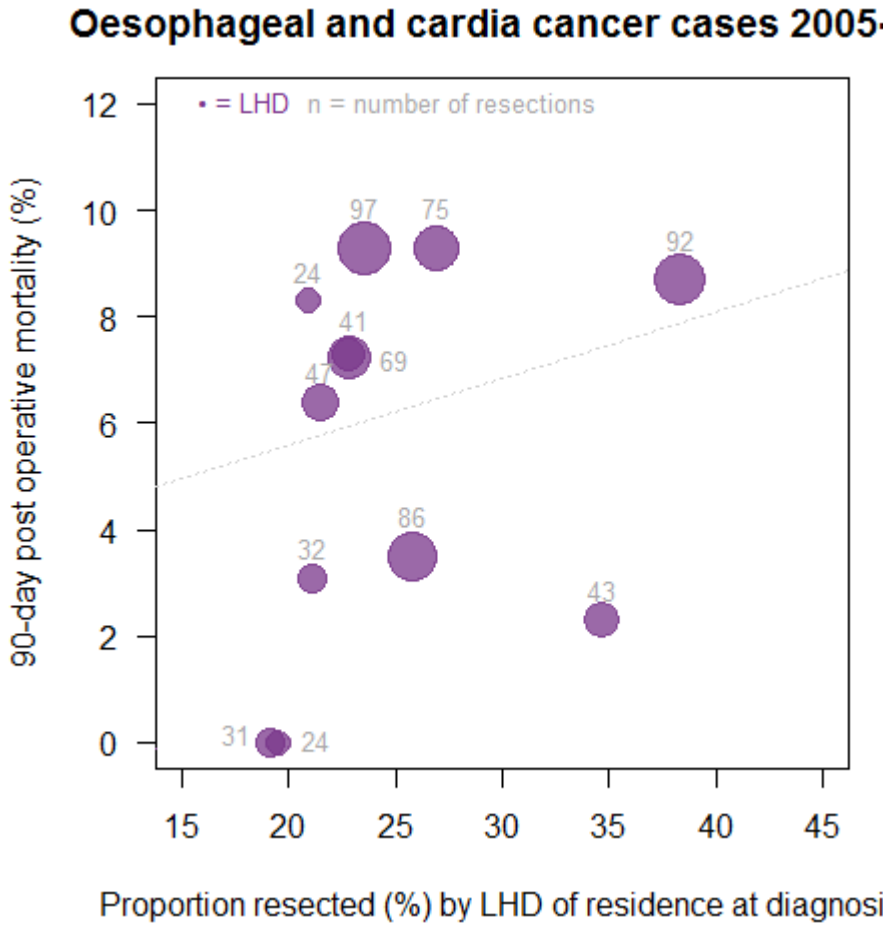
Oesophagus: per cent resected and 90-day post-operative mortality

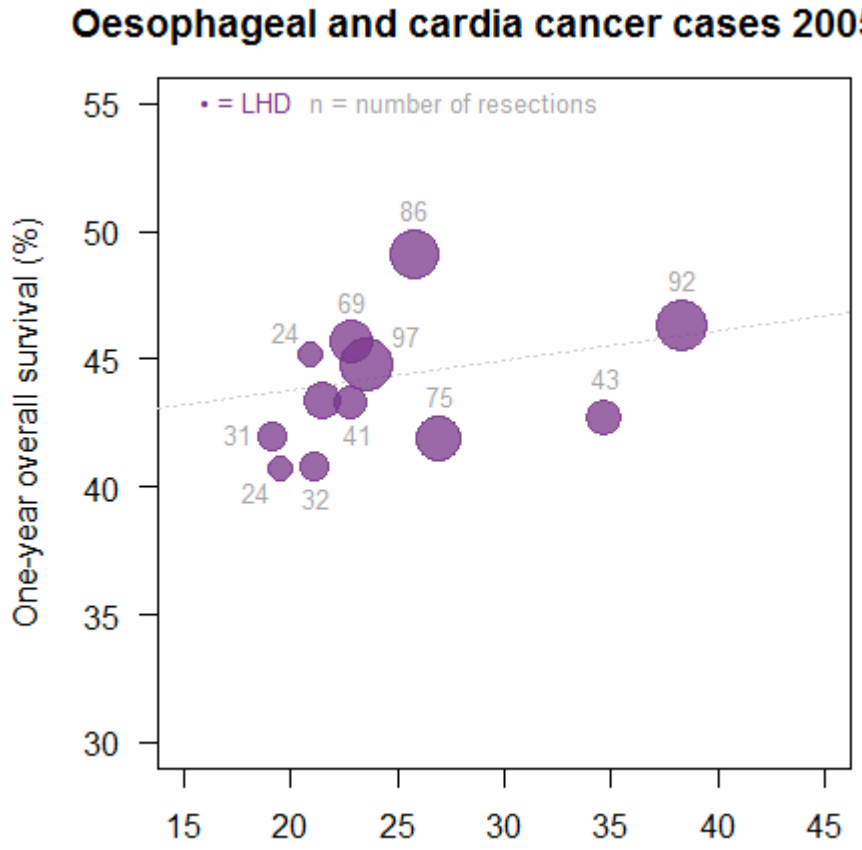


Data source: Central Cancer Registry linked to the Admitted Patient Data Collection and the Registry of Births, Deaths and Marriages. Excluding Northern NSW, Southern NSW and Far West LHDs.

90-day post-operative mortality following oesophagectomy was not associated* with the per cent resected

***Logistic regression model with risk adjustment**

Oesophagus: per cent resected and one-year survival



Data source: Central Cancer Registry linked to the Admitted Patient Data Collection and the Registry of Births, Deaths and Marriages. Excluding Northern NSW, Southern NSW and Far West LHDs.

- One-year survival following oesophagectomy was associated* with the per cent resected

- * Proportional hazard model with risk adjustment

Variations in cancer outcomes in NSW

Double jeopardy

If you live in an administrative health district with a centre that has low rates of resection, chances are you also live in an administrative health region where the proportion of all people diagnosed have lower rates of surgery

Why we're not applying what we know

1. Young arts, young sciences

2. How do we change (and how don't we change)?

3. What does it take to build sustainable change?

Multi-faceted, longitudinal and resource intensive

Overcoming Inertia In The Cancer System: Why Don't We Do What We Know Works?

Chair: Dr. Craig Earle

CANADIAN PARTNERSHIP AGAINST CANCER | PARTENARIAT CANADIEN CONTRE LE CANCER

10 years OF PROGRESS

5 things we should do right away

Craig Earle MD MSc FRCPC

Innovative Approaches to Optimal Cancer Care in Canada

April 7-8, 2017

The Westin Harbour Castle
Toronto, Ontario

Criteria

- # of times proposed
- How specific
- How ‘immediately’ feasible

Top 5, in order of cancer journey

1. Expand Diagnostic Assessment Programs
2. Organize cancer surgery
3. Have patient portals everywhere
4. Link, share, and use existing data
5. Integrate palliative care earlier

1. Expand Diagnostic Assessment Programs

- = Rapid referral/diagnostic centres, Yes/no clinic for <u>specific</u> cancers
- Centralized referrals/clinic/phone number <u>undifferentiated/other</u> for ‘probable cancer’
- Regionalized referrals for tests, scans, IR, surgery
- Pathways
  - that do not require frequent referral back to primary care to move through the process, e.g. radiologist referral
- E-Consults

Expedited diagnosis discussion points

- Is there a tension with the ‘CANTEST’ idea?
  - Keep FPs informed
  - Inappropriate staging etc
- Avoid overdiagnosis
  - Guidelines, gated reimbursement at intervals/age/surveillance indication

2. Organize cancer surgery

"it's not really a system"

- Establish cancer surgery standards

⇒Regionalization/reduce low volume activity for complex cancer surgery

  - Publish surgical mortality rates by hospital routinely

- Make it easy to know who has specialized programs for complex/rare conditions (goes beyond surgery)

3. Have patient portals everywhere (goes beyond cancer)

‘Consumer-directed health data exchange’

- if the patient can give us access to their records anywhere, anytime, there isn’t as much urgency to connect all the disparate EMRs
- Need to have access to everything, immediately

4. Link, share, and use existing data

Remove barriers to get better use of data across the country, for:

- Real-time care delivery
  - Link drug, lab, DI info
  - Point of care alerts, e.g., surveillance recs
  - PROs
- Performance measurement
  - Incl. satisfaction
- Program evaluation
  - Real World Evidence
  - Value for money
- Research
  - Learning health care system

5. Early palliative care

Better outcomes; reduced resource utilization/cost

- Systematic/automatic earlier integration
  - The surprise question
  - Anyone can refer
- Begin a discussion about patient preferences for care/treatment/no treatment and ask the 5 Atul Gawande questions with patients who have advanced disease:
  1. What is your understanding of where you are and of your illness?
  2. Your fears or worries for the future
  3. Your goals and priorities (‘what matters to you?’ Verna Yiu)
  4. What outcomes are unacceptable to you? What are you willing to sacrifice and not?
  5. What would a good day look like?
- Will require a HR strategy

Palliative care, cont.

- Paramedics trained to provide acute palliative care in NS and AB, instead of ‘stabilize and transport’

=> ~ half are able to stay at home

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HONORABLE MENTION

Innovative Approaches to Optimal Cancer Care in Canada

April 7-8, 2017

The Westin Harbour Castle
Toronto, Ontario

Chemotherapy safety

- CPOE for all
- pan-Canadian chemotherapy incident reporting system
- One drug at a time in the pharmacy hood
- Noise cancelling, bright earmuffs while writing chemo orders
- Independent checks during pharmacy processing of hazardous drugs
- Closed systems for RN administration and pharmacy preparation
- Vincristine doses in mini-bags to avoid inadvertent IT administration
- Blister packaging for oral drugs

Chemo toxicity management

- 24/7/365 phone access/triage
- Urgent care clinics
- Proactive calls

Honorable mention

- E-prescribing (not just for chemo drugs)
- Smoking cessation
- Develop national workforce standards for better HR planning and team development
- Integrate primary care into follow-up and transition care

Honorable mention, cont.

- Regulatory
  - Apply the same rigor to devices and biomarkers as we do drugs
  - Dynamic drug formulary
    - Remove things below a value threshold
- Payment reform, accountable care models

Discussion/next steps

1. Expand Diagnostic Assessment Programs
2. Organize cancer surgery
3. Have patient portals everywhere
4. Link, share, and use existing data
5. Integrate palliative care earlier

Innovative Approaches to Optimal Cancer Care in Canada Conference

This conference provides a unique opportunity for Canada's leaders in cancer control and quality to share insights and best practices from across the Country

CANADIAN PARTNERSHIP AGAINST CANCER
PARTENARIAT CANADIEN CONTRE LE CANCER

Why are we willing to make the effort to improve quality for cancer patients?

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PARTENARIAT CANADIEN CONTRE LE CANCER

Why are we willing to make the effort to improve quality for cancer patients?

Because we're all human

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- Dr. Terry Sullivan, Committee Co-Chair
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