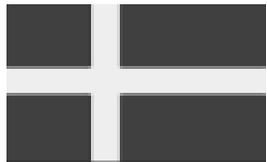


*Research to help
spread improvements
more effectively*

This PPT and other resources from
<http://public.me.com/johnovr> Thanks



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Poll Question:
Ever been in serious pain in the hospital?

Yes.
Definitely
a bit
No.

"Over the past 20 years there have been huge developments in treatment of pain" (Details - APS 1995)

"Pain in hospital is avoidable

- patients reporting extended high level pain is an indicator of poor quality care"

Variations, and opportunities to improve

Does "throw over the wall" research change enough services fast enough?

Messages

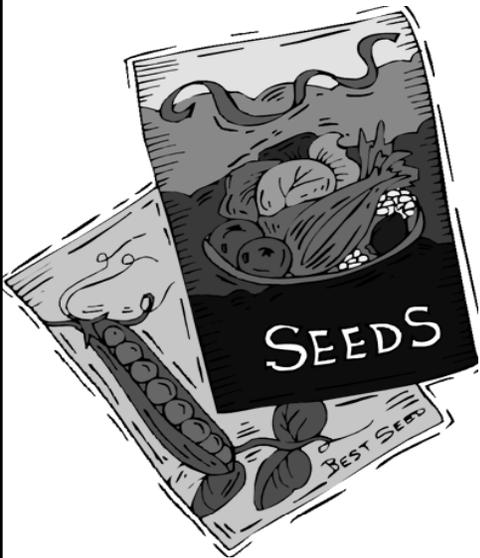
- Needed: Faster spread of proven improvements
treatments, service delivery models, PHIs (change content),
...and of proven methods for enabling change
implementation methods (change processes)
- Needed: Better evaluation of promising improvements
- *Relevant* research can help – poorly communicated hinders
- *Designs and practices* for this research & how *we* need to change
- Spread research the frontier of implementation science – central
issues of adaption, attribution, generalisation

Outline

- Analogy anchor – spreading plants
- Examples
- Issues
- Research designs and practices
- Implications

Spreading plants to different settings?

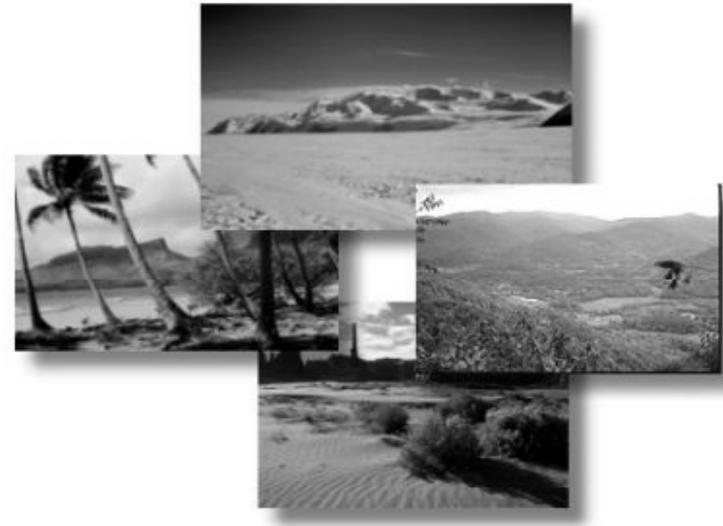
Seed



Gardener/planting & nurture



Climate / soil



Modify seed for setting?
Can an ordinary gardener do this?
(Change content)

Modify gardening techniques for the situation?
(to those where the seed grew before?)
(Change process)

Can the gardener or others change parts of the context?
Sustainable?

Spread example 1- VHA TIDES PHC depression care

- Researchers gave practitioners evidence about effective changes, drawing on proven chronic care model.
 - + frameworks for using quality improvement methods to implement and test these changes.

(gave proven change content and change-adaption process EBQI)

- Evaluated the changes, and developed “packages” to help others copy and test changes
- Hand-over to operations hierarchy for top-down spread, supported by central development unit
- No research descriptions of later stages of spread (but internal documents tracking results)

Spread example 2 – CLABSI at JH and Michigan

- Historical context: Death, mothers campaign, Hospital leaders, charismatic clinician
- CLABSI “light” version of CDC guidelines with checklist in safety-change- friendly culture
- Evidence of “bundle” effectiveness
- Publicised, then taken-up by leaders in Michigan MHA
- Collaborative breakthrough
- Later, combined with campaign approach, for national and international spread

Points about the 2 examples

1 CLABSI

- Clinical researchers did QIR studies
- Spread description (Watson et al 2009)

2 VHA TIDES PHC depression care

- Pilot stages described and evaluated using quasi-experimental designs
- Collaborative research practice

Both need more research into later spread – description, details of variations of implementation and results between sites, and explanations

VHA HIV/AIDS collaborative Asch et al

“Substantial variation across facilities on virtually all measures...”

Analogy: growing oranges in california, texas, florida and virginia

Substantial variation in quantity and quality of fruit from seed plant, why? The seed plant, or the gardening technique or both?

- Is there one orange seed plant which will grow in these different environments? Or,
- Gardeners use a modified seed plant proven for the environment?
- Or gardeners themselves modify a seed plant – how?

Or does success depend on gardener’s techniques:

- Follow exactly the proven methods for planting and nurturing
- Or modify both the seed plant and gardening technique to the situation?

Issues – fidelity or adaption?

“Substantial variation across facilities on virtually all measures...”

? Some sites lower performance because:

- Did not copy exactly the proven change content?
- Did copy, but change content needed to be adapted
- Did adapt, but did not use proven change process to make adaption

Example 1 – research found fidelity essential

- Better outcomes with Hi Fi implementation of these
 - Employment for people with mental health problems (Resnick et al 2003).
 - Substance abuse (Noel 2006)
 - Smoking prevention (Thomas et al 2007).
 - Parent training (Forgatch et al 2005).

Example 2 – research found adaption essential

Treatment effective in outpatients for adolescents who have substance use disorders, adapted for a residential therapeutic community.

- For 24hr setting, with “positive reinforcement culture” the senior therapists made small modifications to 17 treatment procedures
- Part of intervention used by less trained staff & supervision audit modified

Without modifications nothing could have been implemented, so possible degradation of effectiveness is irrelevant, in practice

Wanted – answers from research to customers questions

When is adaptation needed, and of which aspects?

1 *Adaption of some components of the change content?*

- Eg Rapid response team
 - Do not adapt call criteria to trigger team
 - Adaption latitude for team composition (eg some with physician, some without)
 - Bundles for preventing stroke and health disease? (karier/right care)

2 *Adaption of the implementation method? Change process*

Eg is effective treatment for heart disease best implemented through academic detailing, or active CME, or point of care computer reminders? (PHC Grol)

Do you define the intervention as only the change content, or this plus method of implementation?

Questions

3 Which methods are best for adapting a proven intervention?

Probably:

- “a systematic approach”, using ideas from other’s adaptations (“evidence-based adaption”)
- change barrier analysis or change-readiness methods
 - to assess and address likely hindrances to change before and during implementation (Flottorp & Oxman 2003, Baker et al (2010), or,
- quality improvement methods,
 - which provide the implementers with feedback on outcomes so that they can check if their modifications are effective (Langley et al 1996).

Questions

4. Which approach to spread is best for which interventions in which situations

What is “an approach to spread” anyway?

Implications for researchers

Which research design and research practice
...to answer the implementation/spread
questions?

How close are we to answering these questions?

Conclusions from reviewing spread research

3 studies noted differences between “spread approaches” -:

- McCannon et al 2009 : **8 “approaches”** Natural diffusion; Breakthrough Series Collaborative model; Extension agents; Emergency mobilization ; Grass roots organizing; Wave sequence; Campaign model; Hybrid models. (see also Massoud et al 2010)
- Øvretveit 2011: **3 underlying assumptions** Hierarchical direction, participatory adaption, facilitated evolution
- Splunteren et al 2011: **6 “scenarios”** Central direction; professional; institutional; supporter; consumer; insurer scenarios.

Conclusions from reviewing spread research

Limitations give great opportunities for VA researchers

- Descriptions “add hoc”: “hindsight over-coherence”
- Stronger evidence from studies of breakthrough collaboratives
 - more standardised and understood than other spread methods.
- Few spread programmes based on evidence about effective spread from research,
 - or designed to test such evidence prospectively,

Conclusions from reviewing spread research

Little exchange between knowledge domains

Paradigm alienation & allergic reactions

- Diffusion of innovation
- Knowledge translation
- Experimental clinical research applied to QI
- Programme evaluation/case study

... between like-minded researchers in similar sectors
(eg healthcare education, public health)



Why customers don't use spread research?

Literature confusing and dispersed

No economics of implementation programmes

Patient adherence not viewed as part of implementation

No comparative effectiveness research on spread approaches. Push oriented rather than user-uptake

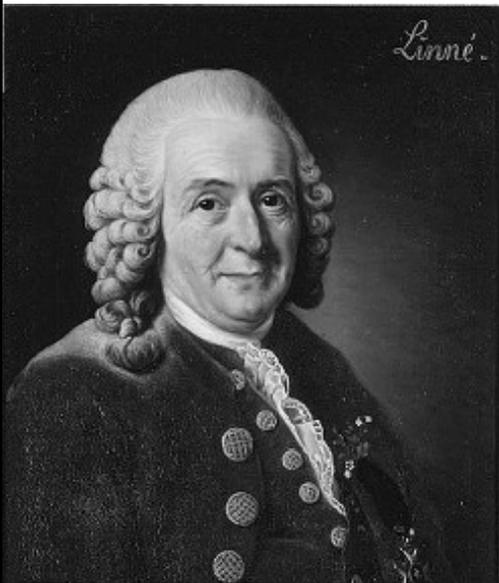
Some case study descriptions ...but Russian novels:

Cases cannot be compared – different terminology and data collected

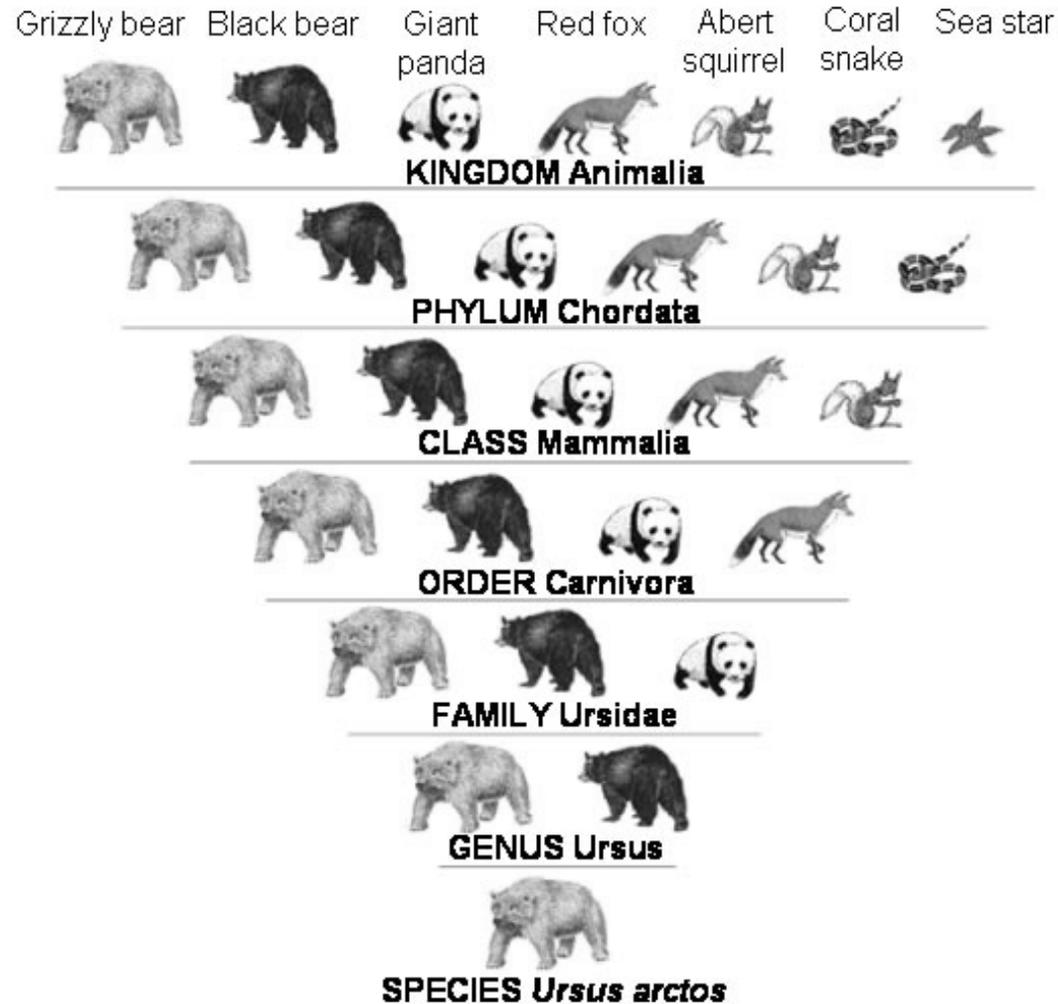
Poor cumulation of knowledge and duplication of studies

Early stages of description and classification

“One of these things is not like the other” - Sesame Street song



Review started considering dimensions for



Research needs to answer wider range of questions

Practitioner's questions about “improvements”

- 1 Is this “improvement” change efficacious ?
 - (in treatment, service delivery model, or method for improvement)
- 2 Is this change effective in most routine services?
- 3 How do we implement it quickly here?
 - What “implementation intervention” is effective for achieving this change locally?
 - (eg training, payment incentives, measurement and feedback?)
- 4 How do we implement it quickly, everywhere? (spread)
- 5 How much does it cost/are the outcomes worth the costs?

Answers from review and personal observation -1

- Directives from above slow for changing core clinical practice and introducing service delivery models
 - Such changes need investment
 - Support infrastructures to provide
 - Expertise, information, measurement, feedback on performance, reports
 - Infrastructure can be research-based, or development unit based (main line (generic) or clinical entrepreneur (specific))
 - Incentives (project grant, revenue)
 - Comparisons with others to make laggards visible
- (assuming other basics covered eg credible evidence of effectiveness)

Answers -2

1. For intervention proven effective in different settings - copy exactly

Eg CLABSI content and implementation process

- Spread activity and infrastructure focus on measurement and supervision/audit

2. For intervention proven efficacious for one patient group/setting

Eg some disease management models

- Spread infrastructure to adapt-test-implement:
support and require reports of adaption and results and use this knowledge to assist later implementers

3. Same for promising interventions (eg some care transitions or handover models)

Recommendation for research-partnerships

VHA initiative to build knowledge about appropriate adaption & comparative effectiveness of fidelity vs adapted implementation of the same intervention

- Choose an intervention proven efficacious for one patient group/setting, or where we know adaption is essential eg you suggest one
- Support implementers (with finance and skills)
 - to document their adaption
 - evaluate results
 - make a report to a VHA website, or do deal with AHRQ for innovations exchange section for this VHA adaption experiment.
- Analyse project reports, and provide guidance to later implementers about when and how to adapt for different patients/settings

Better answers from research to help speed spread:

Matching research to question

Change ourselves first

Accept

- these questions cannot all be answered by experimental research designs
- other research designs can provide answers which are not misleading
- we may need to work with research users to agree questions answerable by research, and to answer them

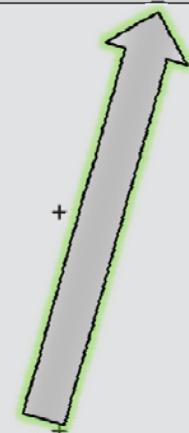
To provide more actionable research

- we and our units need skills in a variety of research methods
- and in research practices

Petticrew, M & Roberts, H Evidence, hierarchies, and typologies: horses for courses J Epidemiol Community Health 2003;57:527-529

Table 1 An example of a typology of evidence (example refers to social interventions in children) (adapted from Muir Gray²⁴)

Research question	Qualitative research	Survey	Case-control studies	Cohort studies	RCTs	Quasi-experimental studies	Non experimental evaluations	Systematic reviews
Effectiveness Does this work? Does doing this work better than doing that?				+	++	+		+++
Process of service delivery How does it work?	++	+					+	+++
Salience Does it matter?	++	++						+++
Safety Will it do more good than harm?	+		+	+	++	+		+++
Acceptability Will children/parents be willing to or want to take up the service offered?	++	+			+	+		+++
Cost effectiveness Is it worth buying this service?					++			+++
Appropriateness Is this the right service for these children?	++	++						+++
Satisfaction with the service Are users, providers, and other stakeholders satisfied with the service?	++	++	+	+				+



Here
be
dragons

Implications for researchers -2

Match research practice to needs

- Traditional detached objective study reports findings after 1,2,3 yrs

At other extreme

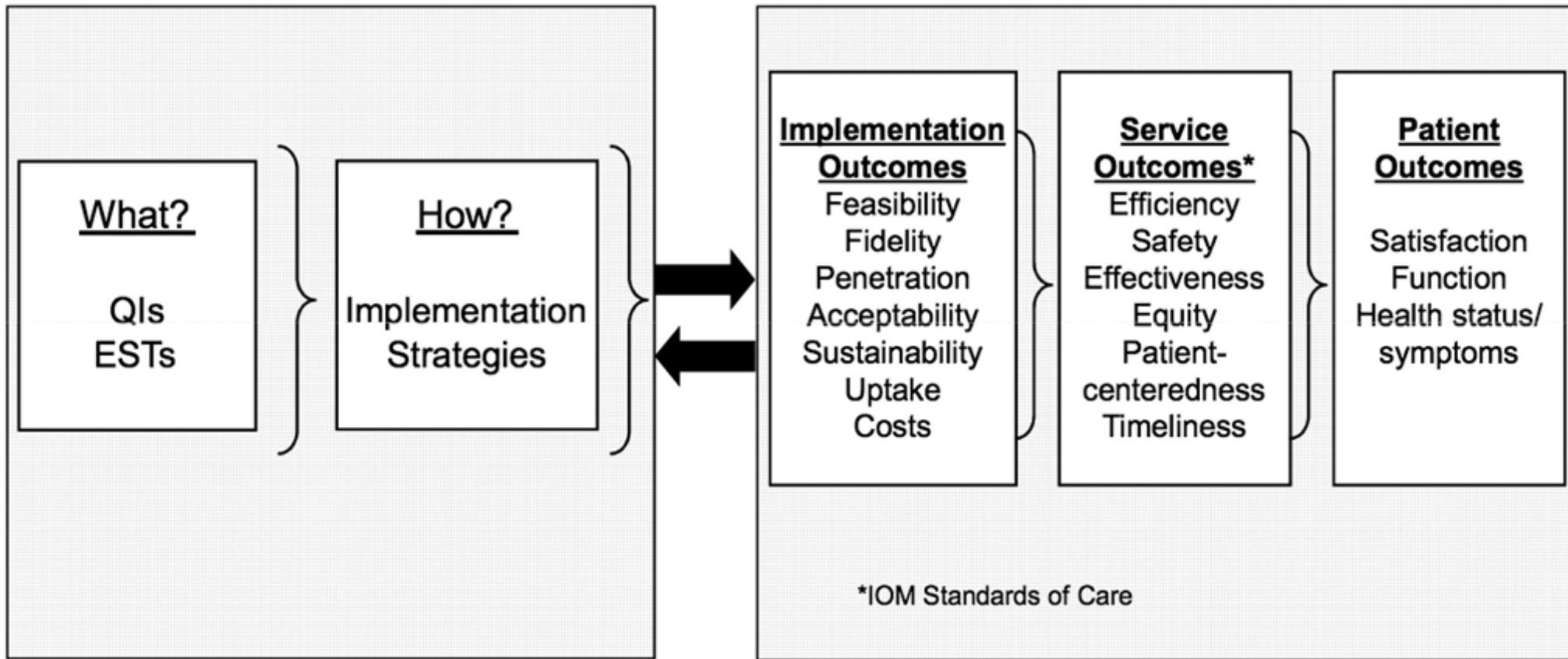
- Collaborative engaged action research, agrees questions, data gathering responsibilities, provides interim findings

(and sometimes support for change – “consultancy research” or “clinical sociology”))

Don't stop the research at the spread stage!

3 More use of Theory-informed spread-programme evaluation (TISPE)

Environment influences which help and hinder



TISPE

For documenting and evaluating spread strategy/structure, where effectiveness of intervention known

- First make theory of influences expected to affect outcomes
 - intermediate and end outcomes, including the intervention content and implementation process
- Use theory to decide which data to gather, and to use to test hypotheses about how much each influence affects outcomes
- Use theory to enable research users to generalise to their setting:
 - can we reproduce that principle or causal process and how much does our context enable us to do this?

■

Implications 3 - *Research Capacity Development*

- For funders
 - to assess non-traditional designs in relation to the questions
- For researchers
 - awareness, range of convenience of different methods, some gain extra skills in other methods
- For research units
 - mix of expertise, or quick partnership-forming for proposals or JIT expertise

Challenge : *show 1\$ on spread research
brings more health improvement
than 10\$ on most drug treatment research*

- Research funders recognise implementation delay and variation
- Beginning to recognise potential value of spread research
- Not convinced that research designs proposed will answer questions or provide help to practitioners
 - When to adapt, attribution and generalisation
- Are you?

Poll

1) 1\$ on spread research *could*
bring more health improvement
than 10\$ on most drug treatment research

Yes

No

Don't know

Poll

2) Research methods and practice not sufficiently developed to begin to answer *Which approach to spread is best for which interventions in which situations?*

3) Yes No Don't know

Conclusions: Research to answer practical questions about spreading improvements to health services

Needed:

- Faster and better implementation & spread of proven interventions
- Better testing of promising ideas and changes
- Researchers can help practitioners do this
 - knowledge about when and how to adapt
 - research practice to generate knowledge while helping
- Match research design & research practice to user's needs and questions

Conclusions - 2

- Increase range of skills in different methods, especially collaborative QIR
- More use of theory-informed program evaluation designs
- Spread research the frontier of implementation science – central issues of adaption, attribution, generalisation

Your views

- 1 Must some changes be exactly copied to get the same outcomes?
Which ones?
- 2 Must some be adapted to be implemented to have any chance of causing improved outcomes? – Better dilution than none at all?
 - Is the adaption only in the method of how the change is implemented, but the change content the same?
 - Eg guideline same but implementation method different in different situations?
- 3 Best methods for answering these and other practical questions? Different views to John's 4 implications- suggestions?
- 4 Changes in research skills and practice needed and likely?

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Spread - More conclusions

- For action – see Øvretveit 2008,2010,2011
- For research – WIP (CIPRS/IHI project & San Diego heart/stroke network)