

The HERG Payback Framework: or Hanney's 39 Steps for assessing/achieving research impact

Steve Hanney

**Health Economics Research Group,
Brunel University London**

Impact of Health Services Research

**HSRUK Winter Meeting 2015
Swansea, 15 Oct 2015**



Overview of presentation

- ❖ Asked to refer to Payback Framework for assessing impact to address overall session theme: what is impact, and how can you achieve it?
- ❖ Increasing emphasis on research to meet healthcare needs since 1970s; we built factors to achieve impact into the assessment framework
- ❖ Payback Framework: 2 elements - multi-dimensional categorisation of impacts & assessment model; use framework to organise impact studies
- ❖ Examples of 2 programme assessments and 3 case studies: use them to further analyse factors associated with achieving diverse impacts
- ❖ Latest reviews of research impact include widening scope of impact: focus on impact from research engagement; monetary value; and REF

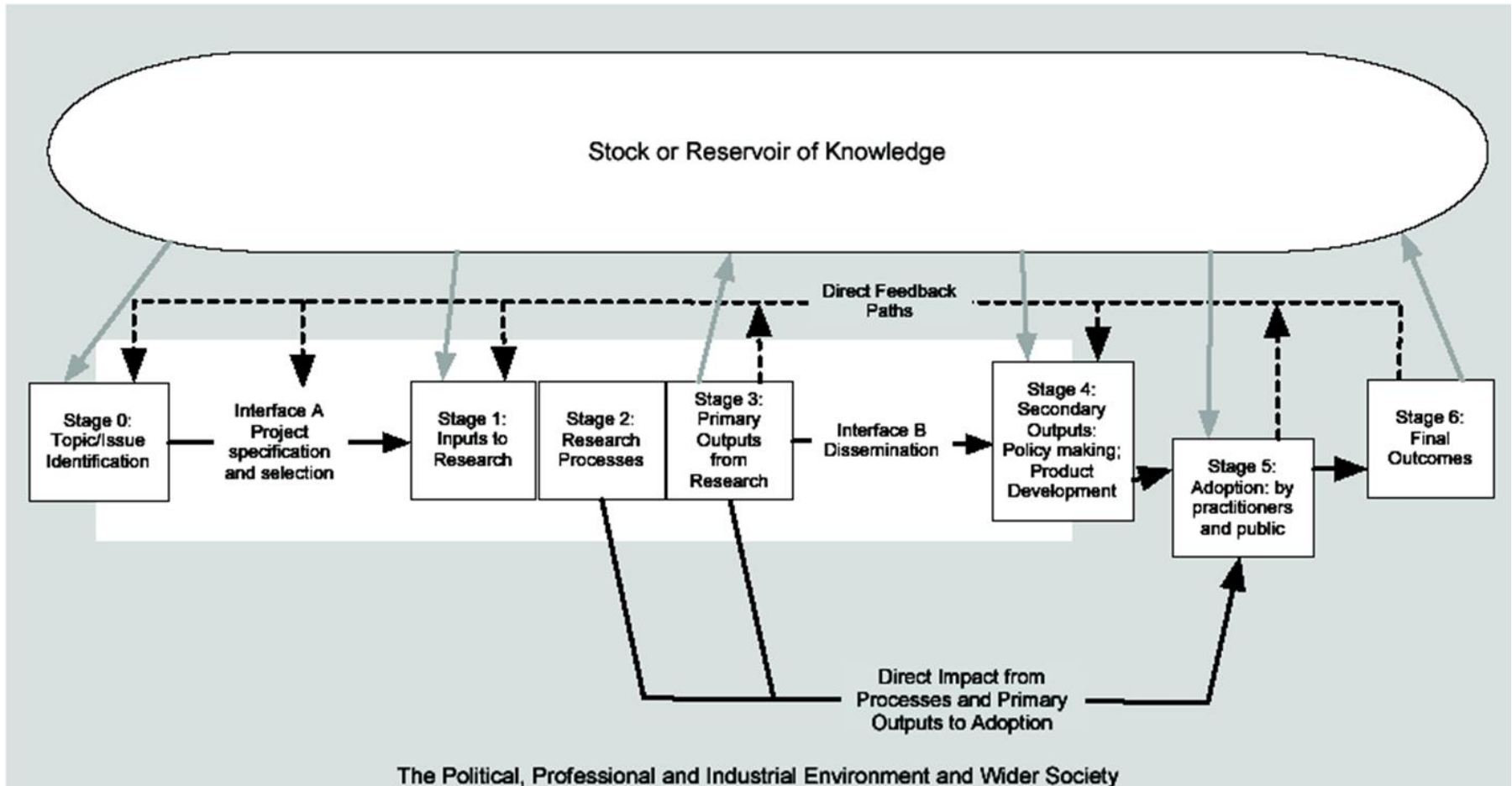
Background to impact assessment: research to meet needs of NHS

- ❖ Kogan & Henkel (1983; Kogan et al 2006) evaluated Rothschild experiment in 1970s to fund research to meet needs of health service: analysed the great difficulties encountered
- ❖ Identified the need for collaborative research agenda setting between researchers and potential users in health department; also role for research brokers & receptor bodies; permeability at interfaces
- ❖ This helped inform new NHS R&D strategy in early 1990s; Michael Peckham as Director of NHS R&D also saw the need to show impact
- ❖ HERG funded to develop approach to impact assessment: Buxton & Hanney (1996) Payback Framework incorporated above thinking so that explored impact & the processes linked to achieving impact

HERG Payback Framework: categories and model

- ❖ Payback Framework: 2 elements: multidimensional categorisation of benefits - 2 academic & 3 wider; model for assessing benefits [First published in Oct 1995 Pre-launch issue of JHSR&P]
- ❖ Multidimensional categorisation of impacts or payback:
 - *knowledge production: traditional benefits measured by articles etc;*
 - *targeting future research, research capacity building, & absorption/use;*
 - *informing policies (messy & diverse: clinical, public) & product development*
 - *health & health sector benefits, eg health gain, health equity [Key impacts?]*
 - *broader economic benefits eg to GDP, value of any health gain*
- ❖ Model of where to look when assessing impacts (& how to identify project's contribution from that of other research & other factors):
 - *7 stages: include research activities & earlier/later stages in wider system*
 - *2 interfaces between research steps & other stages linked to wider context of policy/professional system, & the existing stock of knowledge etc*

The Payback Framework: model for organising studies assessing impacts



Adapted from: Hanney S, Gonzalez-Block M, Buxton M, Kogan M, 2003

Payback Framework: informing methods, moving forwards & triangulation

- ❖ Framework used to inform range of methods (surveys, interviews, documentary analysis, case studies) & data presentation
- ❖ Usually move forwards from context & stages of specific research to assess whatever impacts might arise (often identifies more impact than working backwards from impacts such as policies to research: possible causes - focused assessment, PI engagement, bias?)
- ❖ Examining both context of existing research & impact processes help explore degree of attribution/contribution (given all other research & other factors) & helps identify aspects linked to achieving impact
- ❖ Triangulation of methods: eg sometimes scored impacts from surveys then scored impacts from case studies on same research – similar scores. Used 2 dimensions: eg importance of research to the policy; level at which policy made: local-global (Hanney et al, 1999)

Payback Framework: application to programmes

- ❖ NHS Health Technology Assessment (HTA) Programme (Hanney et al, 2007):
 - *included a review: found studies conducted for a policy customer (receptor body) often had highest levels of impact*
 - *used full range of methods to assess impact of first decade of NHS HTA: similar scores for 16 case studies & scores of surveys of those 16 projects*
 - *some cases illustrated high level of impacts reported overall (impact on policy: 96% of TARs; 66% of others) but some projects had no wider impacts*
 - *cross-case analysis etc indicated factors linked to impact: agenda setting made research relevant for NHS; policy customer/receptor; scientific methods*

- ❖ Hong Kong Health & Health Services Research (Kwan et al, 2007):
 - *used surveys to cover impact categories & processes; 87% response rate but recognised dangers in relying solely on surveys*
 - *35% used in policy, 49% changed behaviour; multivariate analysis of factors*
 - *factors associated with impacts: investigators' liaison with potential users; and participation in policy committees as a result of the research*

Case study: Careers of women doctors

- ❖ Impact case study conducted on study by I Allen through interviews & documentary analysis & with PI, officials etc (Buxton & Hanney, 1996)
- ❖ Considerable impact identified from project:
 - *knowledge production: major well reviewed publications (Allen, 1988)*
 - *helped target further research by PI & others*
 - *had a major impact on policies from official committees set up to consider the findings by DH (known as the 'Isobel Allen Committee'), BMA etc, including on changes to the Retainer Scheme, careers in surgery etc*
 - *various changes were implemented but there were many influences including the general direction policy was going: this work made a contribution to the general direction, but within that certain steps can be attributed to Allen's work*
- ❖ Using framework helped identify various factors linked to impact:
 - *important liaison with receptor body (DH) at both interfaces: selection, dissemination*
 - *role of key broker in DH who promoted findings more widely*
 - *quality & timing of the research which helped Ministers have confidence to use it etc*

Case study: evaluation of Heartstart Scotland

- ❖ Random selection of case study: framework informed documentary analysis & interviews used in case study (Wooding et al, 2014)
- ❖ Presented using the various framework stages: eg *topic identification*:
 - *manual defibrillators (to give electric shock to restart heart) carried on a few ambulances but required extensive training, little used in UK by late 1980s*
 - *Automated external defibrillators (AEDs) required much less training*
 - *Heartstart Scotland scheme to introduce AEDs in all Scottish ambulances (first national coverage) led by ambulance service & BHF who fund-raised from public with support from Prof Stuart Cobbe who chaired evaluation committee*
 - *1990 he secured funding from BHF to collect & analyse data about results: this evaluative project is focus of this case study [& the project continued for many years including through becoming part of Cobbe's chair funding]*
- ❖ Impacts in all 5 payback categories, including academic (publications in BMJ etc – eg Cobbe et al, 1996; targeting further research) & wider (impacts on wide range of policies, health gains, economy.....)

Case study: evaluation of Heartstart Scotland – diverse impacts achieved *in various ways*

- ❖ Management decisions of Scottish Ambulance Service about the programme & policy of Scottish Office to fund renewal of defibrillators were informed by the evaluation: strong **collaboration** with Ambulance Service – leading members involved in project & researchers linked into programme
- ❖ Contributed to policy of ambulance services elsewhere in UK and abroad to introduce AEDs: key role played by a leading expert in England who became product champion for AEDs who used the evaluation as key evidence
- ❖ Publications cited in various parts of a range of local, national & international guidelines: dissemination by team members & champions; publications read widely before & after SR which relied heavily on this sustained evaluation
- ❖ Contribution to the increased survival rate following out-of-hospital cardiac arrest in Scotland & elsewhere: major credit should go to introduction of AEDs but continuing evaluation contributed to initiative's continuing impact

Case study: introduction of AAA screening

- ❖ The research behind the introduction of screening for Abdominal Aortic Aneurysms (AAA) analysed in MRC-funded study of timelags between research & wider benefits of policy, products & practice (Hanney et al, 2015)
- ❖ First study identified in the timeline - a small US study in 1983; here focus on key trial – Multicentre Aneurysm Screening Study (MASS): UK trial (Scott et al, 2002) widely cited & targeted further research
- ❖ UK National Screening Committee (NSC) recommended use in 2005; PM announced policy of national implementation in Jan 2008: factors:
 - *NSC asked for early presentation of MASS findings directly to them, research team also presented findings to clinicians etc at high profile meetings*
 - *MASS trial contributed well over 50% of men in Cochrane 2007 review (NSC already made recommendation which shows the significance of this study)*
- ❖ Screening phased in from 2009: 300,000 men annually: 75% uptake

Case study: introduction of AAA screening – further diverse impacts (reach & significance)

- ❖ MASS played a major policy role in recommendations in USA, Sweden etc & on guidelines from professional bodies in USA, European – factors:
 - *all the analyses show the high % of evidence coming from MASS*
 - *quality of the study: US Preventive Services Task Force (USPSTF) stated: 'the detailed micro-costing approach used in the MASS CEA, as well as its use of probabilistic sensitivity analysis, mitigated it being set outside the United States (it was conducted in the United Kingdom) and justified a "good" quality rating.'* (2005)
- ❖ USPSTF recommendation led to US legislation for Medicare: SAAAVE Act, 2006: Screening for Abdominal Aortic Aneurysms Very Efficiently
- ❖ DH's impact assessment required before policy implementation: estimated a health gain of 130,000 QALYs over 20 years; net value of health gain from screening option adopted estimated at £3.8billion

Lessons from recent reviews: wider approach - impact from engaging in research

- ❖ In studies we had made least progress in identifying the sub-category of impact covering the idea that through engaging in research clinicians were more likely to absorb & use findings from the body of evidence
- ❖ A 'research engagement - improved healthcare performance' link widely assumed & promoted, eg NHS Confederation/HSR Network Briefing 207 (Oct 2010) stated: 'NHS organisations that are research active appear to have better overall performance than non research active trusts'
- ❖ But no wide-ranging evidence synthesis until HS&DR study (Hanney et al, 2013) which included a focused review (33 papers) & wider review:
 - *28 of 33 papers broadly positive research engagement/performance link;*
 - *further support & analysis of mechanisms comes from wider review;*
 - *some evidence that organisations in which research function fully integrated into structure out perform other organisations (subsequent evidence mixed)*

Impact from engaging in research: how arises?

- ❖ **SPECIFIC IMPACT:** those who have engaged in research becoming more willing and/or able to provide evidence-based care that is related to the specific findings or processes of the research on which they were engaged:
 - *increased knowledge/understanding/trust of the findings & access;*
 - *unit infrastructure/procedures etc related to specific research processes;*
 - *findings from collaborative or action research of direct relevance*

- ❖ **BROADER IMPACT:** those who have engaged in research becoming more willing and/or able to provide evidence-based care in general:
 - *individual capacities to absorb research findings & willingness to use them;*
 - *enhanced absorptive capacity of unit through training, collaborative teams, culture infrastructure of unit*

Disclaimer: “This project was funded by the NIHR [HS&DR; and next page HTA]. The views and opinions expressed therein are those of the authors and not necessarily those of the NIHR, the NHS, or the Department of health”

Lessons from recent reviews:

Updated review for HTA covers growing field

- ❖ HTA programme funded an update and expansion of 2007 review of models & applications for assessing the impact of health research
- ❖ Submitted report (Raftery et al, forthcoming if reviewers accept changes) describes a growing range of approaches & applications of research impact assessment: goes much wider than HSR but some issues:
 - *again great diversity in levels of impact identified within & between programmes*
 - *again factors associated with an increased possibility of achieving impact include collaboration to set agendas relevant to needs of healthcare system etc*
 - *increased interest in assessing the monetary value of the health gain from research [while this covers a wide range of international research, Buxton et al 2008 in the “Medical Research: What’s it Worth” study of value of UK CVD research suggested UK research is key for the contextual cost effectiveness data relevant for guideline recommendations on applying clinical findings in the UK]*
 - *the REF has extended the focus & scope of research impact assessment...*

Emerging lessons from the REF

- ❖ Finally, to continue the history and link into later sessions: REF origins informed by health research impact assessments, eg HEFCE told House of Commons Science and Technology Committee (2010):
 - *‘In developing our proposals we drew heavily on existing evidence’;*
 - *the evidence came in particular from health area, eg Payback Framework & Medical Research: What’s it Worth;*
 - *‘There is no requirement on individual academics to demonstrate impact from all their work. A selected number of case studies will represent the portfolio of activity’ (p.Ev.66) [ie it is highly selective]*
- ❖ Database of REF impact case studies can inform further discussion
 - *enormous diversity in terms of what is impact and how it is achieved*
 - *sub-panel B: ‘outstanding examples included cases focused on national screening programmes for the detection and early diagnosis of conditions....and contributions related to changes in national policy and legislation...The range of studies submitted was extensive. The majority were related to impacts on policy and practice.’ (p.30)*

Some take-home points

1. Achieving (& assessing) impacts fits with major reasons why health research is funded
2. Early work identified some of the factors making it more likely, if still difficult, to achieve impacts from research to meet healthcare needs
3. Approaches to assessing impacts such as the Payback Framework are informed by ideas such collaboration, needs; then assessments in turn can provide further light on how impacts can be achieved
4. Health research impact is highly diverse in nature, levels & how achieved; the range of approaches to assessment also increasing
5. Within the diversity this presentation has shown some of the comparatively more positive & direct examples: but there's more to it...

Selected references

- Allen I (1988) *Doctors and their Careers*. London: PSI
- Buxton M et al (2008) *Medical Research: What's it Worth*. London: MRC, Wellcome Trust, Academy of Medical Sciences.
- Buxton M, Hanney S (1996) How can payback from health services research be assessed? *J Health Serv Res Policy*, 1:35-43.
- Cobbe S, et al (1996) Survival of 1476 patients initially resuscitated from out of hospital cardiac arrest. *BMJ*, 312:1633-37.
- Hanney S, Davies A, Buxton M (1999) Assessing the benefits from health research projects: can we use questionnaires instead of case studies? *Res Eval*, 8: 189-99.
- Hanney S, Gonzalez-Block M, Buxton M, Kogan M (2003) The utilisation of health research in policy-making: Concepts, examples and methods of assessment. *Health Res Policy Syst*, 1:2.
- Hanney S, Buxton M, Green C, Coulson D, Raftery J. (2007) An assessment of the impact of the NHS Health Technology Assessment Programme. *Health Technol Assess*, 11(53).
- Hanney S, Boaz A, Jones T, Soper B (2013) Engagement in Research: an innovative three-stage review of the benefits for health-care performance. *Health Serv Deliv Res*, 1:8.
- Hanney S et al (2015). How long does biomedical research take? Studying the time taken between biomedical and health research and its translation into products, policy, and practice. *Health Res Policy Syst*,13:1.
- House of Commons Science & Technology Committee (2010) *The Impact of Spending Cuts on Science and Scientific Research*. Vol 11. HC 335-11. London: The Stationery Office.
- Kogan M, Henkel M, Hanney S (2006: 2nd ed) *Government and Research: 30 Years of Evolution*. Dordrecht: Springer. (1st ed Kogan & Henkel, 1983)
- Kwan P, Johnston J, Fung A, Chong D, Collins R, Lo S (2007) A systematic evaluation of payback of publicly funded health and health services research in Hong Kong. *BMC Health Serv Res*;7:121.
- Scott A, Ashton H, Buxton M, Day N, Kim L, Marteau T, Thompson S, Walker N (2002) The Multicentre Aneurysm Screening Study (MASS) into the effect of abdominal aortic aneurysm screening on mortality in men: a randomised controlled trial. *Lancet*,360:1531-39.
- Wooding S, Hanney S, Pollitt A, Grant J, Buxton M (2014) Understanding factors associated with the translation of cardiovascular research: a multinational case study approach. *Implement Sci*, 9:47