"Building an evidencebased public health system – the UK experience"

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Some important context.

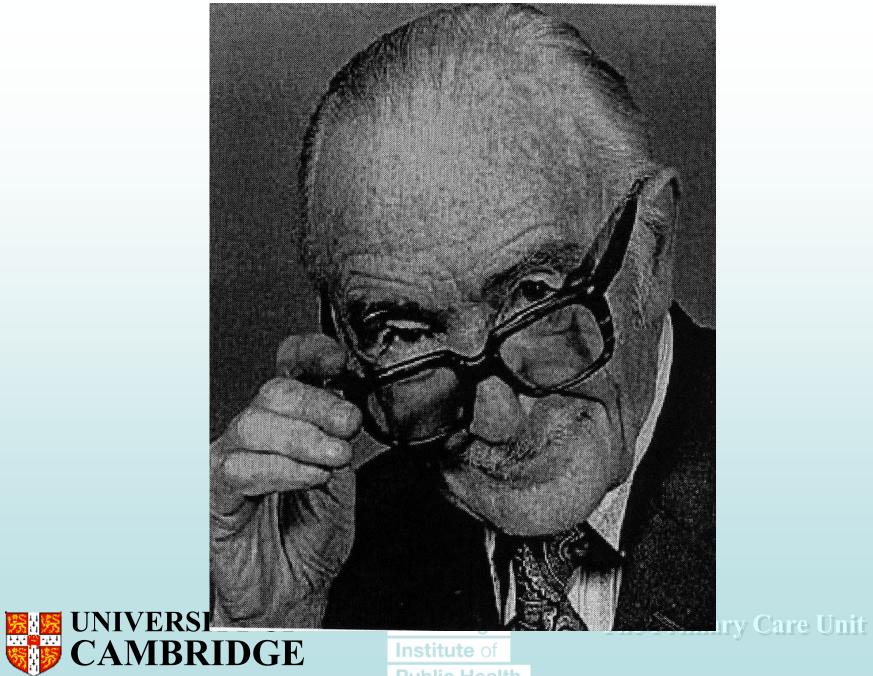




- Cochrane, A.L. (1972) Effectiveness and Efficiency: Random Reflections on Health Services, London: British Medical Journal/Nuffield Provincial Hospitals Trust.
- http://www.nuffieldtrust.org.uk/sites/files/nuff ield/publication/Effectiveness and Efficiency.p df







Institute of **Public Health** Do we know whether intervention x for problem y is effective?





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David Sackett and the McMaster School





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- evidence must inform practice;
- practice should be continuously evaluated.





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- The principle was that not only should trials themselves be conducted to the very highest standards, but so too should the review and appraisal and synthesis of the results of those trials.
- Failure to publish results, especially negative ones, was a particular weakness in the evidence base.
- Objectivity, accurate measurement, honest reporting, and the importance of accumulating evidence to get towards more and more precise answers to clinical questions.





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- Soon afterwards, NICE began developing clinical guidelines.





Applying EBM to Public Health.

 Department of Health (2001) A Research and Development Strategy for Public Health. London: Department of Health.





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- Establishment of the Health Development Agency.





Evidence Briefings





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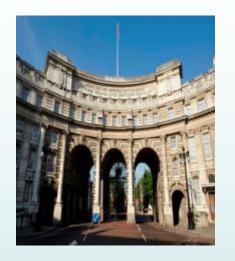


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- Development of appropriate methods.
- 2005 the Health Development Agency amalgamated with NICE.





The National Institute for Health and Care Excellence (NICE) then became the independent organisation in the UK responsible for providing national guidance to the NHS and the wider public health community on the promotion of good health and the prevention and treatment of ill health.







Cambridge Institute of Public Health

NICE development of Public Health Guidance

www.nice.o rg.uk

Third edition October 2012.



National Institute for Health and Clinical Excellence The NICE public quidance development process overview for stakeholders, including practitioners, policy makers and the public

Cambridge The Primary C
Institute of
Public Health

The original guiding principles for public health at NICE.





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- Evidence assessed to maximise internal validity.
- Cumulative evidence synthesis.





The process

- Evidence review.
 - Broad inclusive searches.
 - Pluralistic approach to evidence.
- Evidence appraisal.
 - Quality of the evidence not the quality of the method.
 - Does it help answer the question?









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- In many arenas there is a dearth of good outcome studies answering the question "What works or does it work?"
- Still fewer studies answer the questions "What works, for whom and under what circumstances?" (Pawson)
- The evidence, such as it is, is often too imprecise to determine the relationship between the intervention and the outcome.









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- Research questions and guideline questions are different.
- Gaps in the evidence.
- The evidence does not say what you thought it said.





The limits of the evidence

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- Evidence does not speak for itself it always requires interpretation.
- There are well defined scientific protocols for methods of scientific interpretation.
- The methods for understanding processes of inference and judgement less well understood or articulated.





The need to balance empirical evidence with other knowledge.

 Pawson, R. & Tilley, N. (1997) Realistic Evaluation, London: Sage.

What works for whom and under what circumstances?





A relational and dynamic approach.

 Individuals and populations interact differentially to interventions and these interventions are also implemented differentially.





The WWWWW test.





A relational and dynamic approach.

- Individuals and populations interact differentially to interventions and these interventions are also implemented differentially.
- Will it work on a wet Wednesday in Wigan?





The political imperative.

 Outright political opposition e.g. on alcohol recommendations from NICE.





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The role of vested interests.





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- It is seldom the case that one piece of evidence determines policy.
- The "commerce in ideas" in policy making. many actors involved.





 Smith, K. (2013) Beyond Evidence Based Policy in Public Health: The Interplay of Ideas. Basingstoke, UK: Palgrave Macmillan.





The tangled processes of policy making.

- It is seldom the case that one piece of evidence determines policy.
- The "commerce in ideas" in policy making. many actors involved.
- The "slow burn".





Conclusion.

 The ways in which interventions work in different segments of the population not well understood and should be an urgent priority.





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Conclusion.

- The ways in which interventions work in different segments of the population not well understood and should be an urgent priority.
- There remains a much greater focus in the evidence on aetiology rather than on prevention on assumption that if you know the former you will be able to do the latter.
- But cause is the necessary but not sufficient condition - it tells you what to do but not how to do it!





References

- KELLY, M.P., MORGAN, A., ELLIS, S., YOUNGER, T., HUNTLEY, J., SWANN, C. (2010)
 Evidence based public health: A review of the experience of the National Institute of
 Health and Clinical Excellence (NICE) of developing public health guidance in
 England, Social Science and Medicine, 71:1056 1062
 http://www.sciencedirect.com/science/article/pii/S0277953610005290
- TUGWELL,P., PETTICREW, M., KRISTJANSSON,E.A., WELCH, V., UEFFING,E., WATERS,E., BONNEFOY,J., MORGAN,A., DOOHAN,E., KELLY,M.P., (2010), Assessing equity in systematic reviews: realising the recommendations of the Commission on Social Determinants of Health, British Medical Journal., 341: 873-77. http://www.bmj.com/content/341/bmj.c4739.full.print?
- KELLY, M.P. & MOORE, T.A. (2012) The judgement process in Evidence Based Medicine and Health Technology Assessment. Social Theory and Health, 10:1-19.
- http://www.palgrave-journals.com/sth/journal/v10/n1/full/sth201121a.html
- FISCHER, A.J., THRELFALL, A., MEAH, S., COOKSON, R., RUTTER, H., KELLY, M.P. (2013) The appraisal of public health interventions: an overview, Journal of Public Health, 35: 488-494.
 - http://jpubhealth.oxfordjournals.org/cgi/content/full/fdt076?
- KELLY, M.P.., HEATH, I., HOWICK, J., GREENHALGH, T. (2015) The importance of values in evidence-based medicine, BMC Medical Ethics; BMC Medical Ethics.2015, 16:69. DOI: 10.1186/s12910-015-0063-3 URL: http://www.biomedcentral.com/1472-6939/16/69
- KELLY, M.P.(2018) The need for a rationalist turn in Evidence-Based Medicine. Journal of Evaluation in Clinical Practice; 24: 1158-1165.
- (DOI) 10.1111/jep.12974
- http://dx.doi.org/10.1111/jep.12974





The Primary Care Unit

References

- KELLY, M.P. & BARKER, M. (2016) Why is changing health related behaviour so difficult? Public Health, 136: 109-116 http://dx.doi.org/10.1016/j.puhe.2016.03.030
- KELLY, M.P. & RUSSO, F. (2018) Causal narratives in public health: the difference between mechanisms of aetiology and mechanisms of prevention in non-communicable diseases, Sociology of Health Illness. . 40 (1): 82–99. http://onlinelibrary.wiley.com/doi/10.1111/1467-9566.12621/pdf
- KRIZNIK, N.M., KINMONTH, A.L., LING, T., KELLY, M.P. (2018) Moving beyond individual choice in policies to reduce health inequalities: the integration of dynamic with individual explanations, Journal of Public Health. https://academic.oup.com/jpubhealth/advance-article/doi/10.1093/pubmed/fdy045/4931230?guestAccessKey=af9f5249-b3b7-4270-92db-421e9c8fb5ac
- KELLY, M.P, KELLY, R., RUSSO, F. (2014) The integration of social, behavioural and biological mechanisms in models of pathogenesis, Perspectives in Biology and Medicine; 57: 308-28.
- BLUE, S., SHOVE, E., CARMONA, C. KELLY, M.P. (2016) Theories of practice and public health understanding (un) healthy practices, Critical Public Health; 26: 36-50. DOI: 10.1080/09581596.2014.980396 http://dx.doi.org/10.1080/09581596.2014.980396



