Institution: The University of Oxford

Unit of Assessment: 2

Title of case study

SHAPING INTERNATIONAL AND UK TOBACCO POLICY AND PRACTICE

Summary of the impact

Oxford's research has helped reduce smoking prevalence and tobacco-related mortality worldwide. Our epidemiological studies have documented the varied ways in which smoking causes death in many countries, as well as the large benefits of smoking cessation, and have strongly influenced the WHO/Bloomberg 2008 MPOWER package, the key document guiding governmental tobacco policy worldwide. Oxford University researchers have also coordinated the systematic reviews that underpin effective evidence-based policies for encouraging smoking cessation both in the UK and worldwide, for example providing evidence supporting NICE guidance for smoking cessation.

Underpinning research

The underpinning research comes from two departments of UoA2 in Oxford University. Following major epidemiological studies of smoking in developed countries in the 1970s and 1980s, the Nuffield Department of Population Health (NDPH, Peto, Co-Director CTSU) developed its work throughout China, showing that smoking was far more important than all other known causes of cancer combined. This affected UK, US and Chinese tobacco control strategies. The families of one million dead people across China were interviewed to determine the decedent's smoking habits and relate them to the disease that caused death, showing that smoking was already causing 12% of all deaths in Chinese men [1]. In collaboration with others, this method of interviewing families of large numbers of decedents was extended to Hong Kong (showing that the epidemic there was at a more advanced stage than in mainland China), to South India (showing that smoking was a major cause of death from TB), and then to a random sample of all adult deaths in India [2] (showing that the main diseases by which smoking kills in rural and urban India are, respectively, TB and heart attacks, and that smoking is causing almost one million deaths per year in India alone).

As well as assessing the full hazards of lifelong smoking among men and among women in many different populations, retrospective studies of lung cancer and the 50-year results of Richard Doll's prospective study of smoking and death among male British doctors have established the lifelong benefits of cessation at various different ages [3, 4]. Both demonstrated that stopping smoking before age 40 avoided more than 90% of the excess risk among those who continued to smoke. This epidemiological research has been complemented by the work of the Cochrane Tobacco Addiction Review Group (Lancaster, CTARG Director) within the Department of Primary Health Care Sciences, Oxford University. Since 1995, CTARG has provided reliable, regularly updated summaries of the evidence for interventions designed to help tobacco users to quit, and to prevent people from taking up tobacco. The CTARG produces systematic reviews, including meta-analyses where appropriate, of individual and population-based interventions for tobacco control. More than 60 reviews were completed within the reference period.

Examples of this work include:

- *Systematic review of nicotine replacement therapy (NRT)*: The first version of the Cochrane review assessing the evidence for NRT was published in 1996 and has grown from 72 studies at inception to over 150 studies now. This work has investigated different forms, delivery methods and settings, schedules, and dosages of NRT in a range of subgroups, and has shown definitively that all commercially available forms of NRT increase the proportion of people able to quit smoking (RR 1.60, 95% CI 1.53 to 1.68) [5].

- *Systematic review of physician advice*: Despite many doctors' initial reluctance, physician advice to quit has become part of everyday practice. The Physician advice review was first published in 1996, been updated eight times, and currently includes 41 trials. It shows that brief clinical advice significantly increases the rate of quitting (RR 1.66, 95% CI 1.42 to 1.94). In addition, the effect was found to be stronger with more intensive advice [6].

References to the research

[1]. Liu BQ, Peto R, Chen ZM, Boreham J, Wu YP, Li JY, Campbell TC, Chen JS. Emerging tobacco hazards in China: 1. Retrospective proportional mortality study of one million deaths. BMJ 1998; 317: 1411-1422. PubMed ID: 9822393. ***This paper quantifies the effect of smoking on mortality in China.***

[2]. Jha P, Jacob B, Gajalakshmi V, Gupta PC, Dhingra N, Kumar R, Sinha DN, Dikshit RP, Parida DK, Kamadod R, Boreham J, Peto R for the RGI-CGHR Investigators. A nationally representative case-control study of smoking and death in India. New Engl J Med 2008; 358: 1137-47. PubMed ID: 18272886. ***This shows that key causes of mortality in India are tuberculosis and heart attacks with smoking a key risk factor for deaths from such causes.***

[3]. Peto R, Darby S, Deo H, Silcocks P, Whitley E, Doll R. Smoking, smoking cessation, and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. BMJ 2000; 321: 323-29. PubMed ID: 10926586. ***This study combines data from hospital patients with and without lung cancer to that from case control studies from 1950 and 1990 and shows that people who stop smoking before middle age avoid more than 90% of the risk attributed to tobacco.***

[4]. Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. Br Med J 2004; 328:1519-28. PubMed ID: 15213107. ***This paper, with over 800 citations to date, shows that amongst men born around 1920 prolonged cigarette smoking in adulthood tripled age specific mortality rates but cessation before age 50 halved the hazard.***

[5]. Stead LF, Perera R, Bullen C, Mant D, Hartmann-Boyce J, Cahill K, Lancaster T. Nicotine replacement therapy for smoking cessation. Cochrane Database of Systematic Reviews 2012, Issue 11. Art. No.: CD000146. DOI: 10.1002/14651858.CD000146.pub4. PubMed ID: 23152200. ***This systematic review demonstrated the efficacy of nicotine replacement therapy, a common treatment for smokers wishing to quit.***

[6]. Stead LF, Bergson G, Lancaster T. Physician advice for smoking cessation. Cochrane Database of Systematic Reviews 2008, Issue 2. Art. No.: CD000165. DOI: 10.1002/14651858.CD000165.pub3. PubMed ID: 18425860. ***This systematic review summarises the evidence for the efficacy of physician advice for smoking cessation.***

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Details of the impact

Impact on International Policy

Work from UoA2 at Oxford University has provided a spectrum of studies ranging from epidemiological evidence of the hazards of smoking through to evidence of the effectiveness of quitting and the best available evidence of the success of interventions that encourage quitting. These studies have strongly influenced international policy on tobacco control. In 2008 the WHO adopted a set of 6 strategic recommendations for tobacco control, which they refer to as MPOWER: Monitor tobacco use and prevention policies, Protect people, Offer help to quit, Warn,

Enforce bans, Raise taxes [A]. Many of the key epidemiological statistics on tobacco hazards in the report that defined the MPOWER strategy derive from NDPH work. The central claim, that during the 20th Century the tobacco epidemic killed 100 million worldwide and that during the 21st Century it will (on current smoking patterns) kill about one billion people, is derived from NDPH work. The MPOWER package has, since 2008, been the main vehicle by which WHO has encouraged tobacco control.

Similarly, the nicotine replacement therapy for smoking cessation review (NRT) provided evidence for a 2008 proposal for the inclusion of NRT in the World Health Organization (WHO) list of essential medicines. The WHO reports the review as "the largest database on the effectiveness of NRT" [B], approving the proposal in May 2009 supported by CTARG's "high-quality evidence of effectiveness" [C]. The WHO website predicts that inclusion of NRT on the essential medicines list will advance guideline development and improve access to NRT in developing countries [C].

Impact on International Guidelines

The CTARG's NRT review has been cited in three key UK national guidelines in recent years, and continues to shape practice today. The evidence review [D] underpinning NICE guidance on Brief Interventions and Referral or Smoking Cessation recommends the use of NRT based on the Cochrane review. Guidelines published from the US and Australia also cite the review, using it as consistent evidence for use of NRT to aid smoking cessation and using it to support the specific recommendation that heavily dependent smokers use higher doses of oral NRT [E, F].

Many physicians were initially reluctant to advise patients not to smoke, as they doubted the efficacy of the approach and were concerned it would affect the doctor-patient relationship. The Cochrane review of physician advice for smoking cessation has been used in many guidelines as evidence for the efficacy of this approach. The NICE Rapid Review of Brief Interventions and Referral for Smoking Cessation [D], the US Public Health Service guidelines [E] and the Australian Royal College of General Practitioner guidelines [F] all cite the review as evidence that brief advice from a physician is effective and should form part of routine clinical care. The Australian guidelines cite the Cochrane review as the key evidence against the belief that "I am not effective", one of 7 barriers to engagement of health professionals with smoking cessation identified by the guideline.

Impact on Smoking Prevalence and Subsequent Mortality

Though the direct relationship between research, subsequent guidelines, practice, smoking prevalence (and thereafter mortality) cannot be quantified, both smoking prevalence and male mortality have fallen in the UK and in many other European countries during the REF reference period. In the 1990's, the decline in UK smoking prevalence that began in the 1970's had stalled. In 1996, 28% of the adult population smoked and there had been no decline in prevalence from 1992, In response, the UK government published its 1998 White Paper 'Smoking Kills' which set out a range of interventions for reducing smoking prevalence in the UK, including a substantial investment in smoking cessation services. This White Paper was based on UK national guidelines [I] based on evidence from CTARG's reviews. In the subsequent 14 years, the prevalence of adult smoking in the UK has fallen to 20%, with over two million fewer adult smokers in the UK [G]. Similarly, before the mid-1990s there was no material decrease in EU-wide tobacco-attributed mortality, but in recent years male tobacco-attributed mortality in the EU has decreased by about 10% every 5 years [H].

There is substantial evidence of the impact of the Oxford's UoA2 researchers on the policies that have been implemented during this period, and the above highlights the use of selected research outputs and Cochrane reviews in recent (and current) guidelines and practice shaping documents.

Sources to corroborate the impact

[A]. WHO report on the global tobacco epidemic, 2008: The MPOWER package. Geneva, WHO http://whqlibdoc.who.int/publications/2008/9789241596282_eng.pdf Page 31 (NRT) [Accessed 18/09/2013]. ***This WHO document describes 6 strategic policies for tobacco control.***

[B]. 17th Expert Committee on the Selection and Use of Essential Medicines, World Health Organization. Proposal for Inclusion of Nicotine Replacement Therapy (NRT) in the WHO Model List of Essential Medicines. Geneva: 2008. Page 15 (NRT) http://www.who.int/selection_medicines/committees/expert/17/application/NRT_inclusion.pdf [Accessed 15/09/2013]. ***The proposal for inclusion of NRT on the WHO Essential Medicines list, which relies heavily on the CTARG's NRT review.***

[C]. World Health Organization. Two forms of nicotine replacement therapy chosen as WHO "Essential Medicines". http://www.who.int/tobacco/communications/highlights/note_nrt_therapy/en/index.html [Accessed 18/09/2013]. ***A summary of the successful addition of NRT to the WHO Essential Medicines list, including predictions about its impact.***

[D]. Academic and Public Health Consortium, Rapid Review of Brief Interventions and Referral for Smoking Cessation, November 2005. Page 10 (physician advice) and page 15-16 (NRT) http://www.nice.org.uk/nicemedia/pdf/SmokingInterventionsReviewFINAL25-01-061.pdf [Accessed 18/09/2013]. ***Evidence review for NICE guideline PH1, 'Brief interventions and referral for smoking cessation in primary care'.***

[E]. Tobacco Use and Dependence Guideline Panel. Treating Tobacco Use and Dependence: 2008 Update. Rockville, MD: US Department of Health and Human Services, 2008. Page 14. http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/clinicians/treating_tobacco_use08.pdf [Accessed 15/09/2013]. ***US clinical practice guidelines for treating tobacco use.***

[F]. Supporting smoking cessation: a guide for health professionals. The Royal Australian College of General Practitioners, 2012. Pages 21 (NRT) and 33 (physician advice) http://www.racgp.org.au/download/documents/Guidelines/smoking-cessation.pdf [Accessed 18/09/2013]. ***Australian clinical guideline for smoking cessation.***

[G]. Office for National Statistics. General Lifestyle Survey, March 8 2012. http://www.ons.gov.uk/ons/rel/ghs/general-lifestyle-survey/2010/index.html [Accessed 18/09/2013]. ***Recent statistics on smoking prevalence in the UK.***

[H]. Thun M, Peto R, Boreham J, Lopez AD. Stages of the cigarette epidemic on entering its second century. Tob Control 2012; 21: 96-101. PubMed ID: 22345230. ***Paper assessed whether qualitative predictions from the 4-stage model of the cigarette epidemic matched recent trends in smoking and smoking deaths across the world.***

[I]. Raw M, McNeill A, West R. Smoking Cessation Guidelines for Health Professionals. A Guide to Effective Smoking Cessation Interventions for the Health Care System. *Thorax*, December 1998, 53, Supplement 5. http://thorax.bmj.com/content/53/suppl_5/S1.full.pdf+html [Accessed 4/11/2013] ***The first British national guideline on smoking cessation. CTARG reviews formed the main evidence base. Page S3.***