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Quitting unassisted: the 50-year research neglect of a major public health phenomenon

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Smoking cessation research today is dominated by the development and evaluation of interventions to improve the odds of quitting successfully. Yet little attention has been paid to the large majority of ex-smokers who quit without recourse to any formal assistance. To many, these unassisted quitters are of little interest other than as a comparator population against which to test the efficacy or effectiveness of pharmaceutical or behavioural interventions. The effect of this neglect is compounded by the preference for reporting intervention success as *rates* rather than as the *numbers* of ex-smokers generated across populations through such interventions. In so doing, researchers have insulated those in policy and practice from the importance of unassisted smoking cessation and the unparalleled contribution it has and will continue to make to reducing smoking prevalence.

In 1955, five years after Wynder and Graham's historic study of smokers and lung cancer was published in *JAMA*,¹ 7.7 million Americans (6.4% of the population) were former smokers. Ten years later, following widespread publicity surrounding the 1964 US Surgeon General's Report, the number of ex-smokers had ballooned to 19.2 million (13.5%) ex-smokers. By 1975, 32.6 million Americans (19.4%) had stopped smoking.² In 1979, the then director of the US Office on Smoking and Health noted in a *National Institute of Drug Abuse Monograph* "In the past 15 years, 30 million smokers have quit the habit, almost all of them on their own."³ Many of these quitters had been very heavy smokers.

The same monograph also stated that: "longitudinal studies should be designed to investigate the natural history of spontaneous quitters ... We know virtually nothing about such people or their success at achieving and maintaining abstinence"³ Thirty-five years later, very little has changed about that ignorance: knowledge of mass smoking cessation across 50 years reflects the "inverse impact law of smoking cessation".⁴ Far more is known about the "tail" of people who quit smoking via pharmacological and professionally mediated interventions than about the mass "dog" of ex-smokers who continue to quit unassisted.

Yet smoking cessation research has its roots in unassisted cessation. In the 1970s and 1980s, those grappling with why success rates for therapy seekers were no better than those for self-quitters turned their attention studying those who quit on their own.⁵ As a population, self-quitters were thought to hold the answers to the problem of smoking cessation. Studies throughout the 1970s and 1980s lead to the identification of strategies that successful self-quitters employed, and these approaches occasionally informed the design of both individual and mass-reach interventions.

In 1988, understanding of the effects of nicotine on the central nervous system and on the ability of nicotine replacement therapy (NRT) to mitigate withdrawal prompted the widespread belief that moderating withdrawal reactions would facilitate quitting. Four years later, a review of smoking cessation concluded that in light of this new knowledge, “what is required is a broader perspective and greater respect for the limited role of individual and even small group interventions. Over the past decade we have witnessed a sometimes grudging acknowledgement of and interest in the pharmacological aspects and addictive properties of tobacco.”⁶ Psychologists wedded to clinical models were making way for what they saw as the first potentially mass-reach effective approach to cessation.

Twenty-five years after tobacco use was officially labeled as an addiction and NRT heralded as the first big hope for smoking cessation, it is time to take stock of cessation pharmacotherapy. It appears that this ‘treatable condition’ is not responding as hoped either to NRT or to the prescription smoking cessation medications bupropion or varenicline that followed.⁷ Sadly, it remains the case that by far the most common outcome at 6 to 12 months after using such medication in real-world settings is continuing smoking. Undoubtedly, much smoker resistance to using cessation medication is due to many smokers learning from other smokers that real-world experience of using these drugs does not produce outcomes that remotely compare with benchmarks for other drugs they use for other purposes. Few, if any, other drugs for any purpose with such records would ever be prescribed.

Despite massive publicity and (in some nations) subsidies given to NRT, bupropion and varenicline during these decades, the additional tens of millions of persons (or hundreds of millions globally) who quit smoking in this time continued to dominantly include those who quit without pharmacological or professional assistance.^{8,9} For the congenitally optimistic this is perennially explained as sub-optimal reach or dissemination, with the solution being to facilitate greater access to assistance, improve smoker knowledge about the benefits of assistance, or further individualise treatment. However, after nearly three decades of pharmaceutical industry’s turbo-charged effort to increase physician engagement and erode population resistance to pharmaceutical-based cessation, can there be any more serious rabbits left in that hat?

It has been argued that NRT and smoking cessation medications are less effective under real-world conditions than in research trials.⁷ In Australia, data on the real-world experiences of varenicline indicate stark differences from experiences under research conditions.⁷ For example, adherence is far lower: in Australia, 44–50% of patients who received subsidised prescriptions for varenicline failed to commence the last 8 weeks of treatment (no data were available to indicate what proportion of the remainder completed the last 8 weeks of treatment) in contrast to 12-week completion rates of 68–76% in clinical trials. Yet between January 2008 and October 2009, the Australian government spent \$93 million on varenicline prescriptions. This compares with \$59 million allocated over four years to social marketing campaigns designed to promote quit attempts in Australia. Given this relatively high spending on pharmacotherapy, it is essential that we are realistic about its potential impact on population smoking prevalence and whether attention would be better focused on boosting the campaigns known to stimulate mass cessation.¹⁰

It may be time to place greater value on the lived experiences of the millions of ex-smokers who have successfully quit smoking, particularly in recent years. A 2013 national Gallup poll reported that only 8% of ex-smokers attributed their success to NRT patches, gum or prescribed drugs.¹¹ In contrast, 48% attributed their success to quitting “cold turkey” and 8% to willpower, commitment or “mind over matter”. Nearly 40 years earlier, a 1974 Gallup survey reported that most smokers would not attend formal cessation programs and preferred to quit on their own.⁶ Unassisted cessation has always been both the most preferred way of quitting and the method used by most ex-smokers on their final, successful quit attempt, yet quitting unassisted is routinely denigrated as being not “evidence based”.

The 1964 US Surgeon General's Report kick-started the first significant and sustained period of antismoking activity and public consciousness of smoking and health issues. Compared with today's plethora of comprehensive tobacco control policies, the subsequent smoking exodus was driven by only a handful of anti-smoking policies. For many smokers, having a reason to quit (a *why*) was more important than having a method to quit (a *how*). The key may therefore be to focus on motivating more smokers to try to quit and to try to quit more frequently, regardless of whether these quit attempts are assisted or unassisted.

A recent review attempting to shed light on the apparent failure of contemporary obesity prevention policy and practice concluded that the fundamental flaw in obesity research is that 'medicine today is taught untethered from its history'.¹² Smoking cessation, in looking to its future, should not forget the ever-repeated important lessons from its past.

References

1. Wynder E, Graham E. Tobacco smoking as a possible etiologic factor in bronchiogenic carcinoma. A study of six hundred and eighty-four proved cases. *JAMA* 1950; 143:329–36.
2. Horn D. *Who is quitting – and why*. Schwartz JL. Progress in smoking cessation. Proceedings of International Conference on Smoking Cessation. New York: American Cancer Society, 1978.
3. Krasnegor NA. *Cigarette smoking as a dependence process*. National Institute on Drug Abuse. Research Monograph Series 23. 1979.
4. Chapman S. The inverse impact law of smoking cessation. *Lancet* 2009; 373: 701-3.
5. Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: applications to addictive behaviors. *Am Psychol* 1992; 47:1102–14.
6. Lichtenstein E, Glasgow RE. Smoking cessation: what have we learned over the past decade?. *J Consult Clin Psychol* 1992; 60:518–27.
7. Walsh RA. Australia's experience with varenicline: usage, costs and adverse reactions. *Addiction* 2011; 106:451–2.
8. Fiore MC, Novotny TE, Pierce JP, *et al*. Methods used to quit smoking in the United States. *JAMA* 1990; 263:2760–5.
9. Pierce JP, Cummins SE, White MM, *et al*. Quitlines and nicotine replacement for smoking cessation: do we need to change policy?. *Annu Rev Public Health* 2012; 33:341–56.
10. Wakefield MA, Durkin S, Spittal MJ, *et al*. Impact of tobacco control policies and mass media campaigns on monthly adult smoking prevalence. *Am J Public Health* 2008; 98:1443–50.
11. Newport F. Gallup Wellbeing. Accessed August 29, 2013; <http://www.gallup.com/poll/163763/smokers-quit-tried-multiple-times.aspx>
12. Taubes G The science of obesity: What do we really know about what makes us fat? An essay by Gary Taubes. *BMJ* 2013; 346:f1050.