

Michael Russell's take on nicotine, smoking and harm reduction: how well does it stand up, 25 years on?

Martin Jarvis

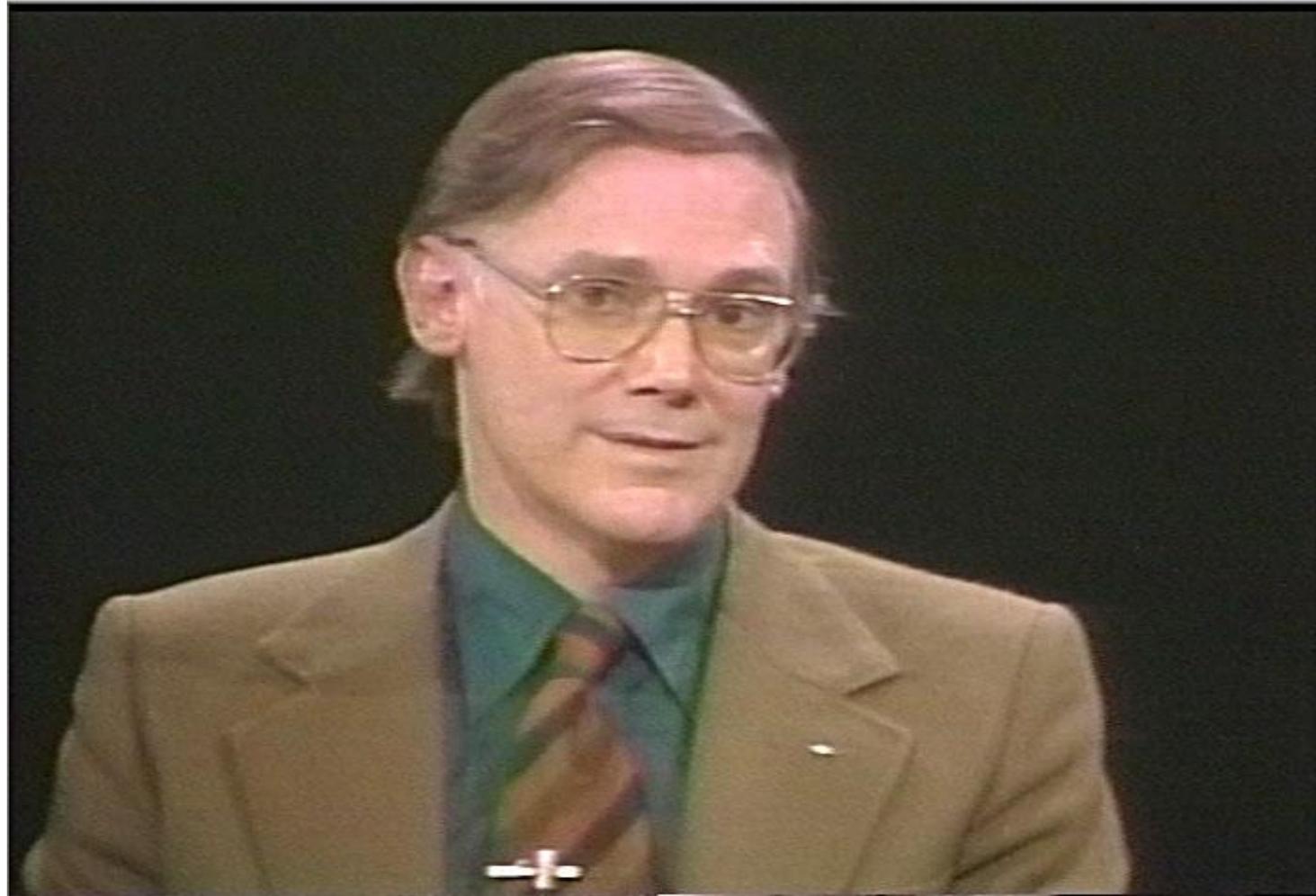
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Professor Michael Russell 1932-2009



Some areas where Mike led the way

- Blood nicotine assay
- Nicotine titration and compensation
- Price elasticity of cigarettes
- Dose measurement from passive smoking
- Effective pharmacological treatment (NRT)
- Brief advice from GPs
- Harm reduction

1970s epidemiological view: product determines dose

- “ Smokers in their 30s and 40s...if they must smoke, would be well advised to switch to a low-tar, low nicotine cigarette... Children and young people must be advised not to smoke. **If we can get children who must smoke to smoke only low-tar, low-nicotine, cigarettes, I think we may approach solving the whole smoking problem”**

Cuyler Hammond

A Safe Cigarette? Banbury Report 3 (1980) page 18

1970s epidemiological view: product determines dose

- “ Thirty years ago, when we had a 40mg tar cigarette, if you smoked 30 cigarettes a day you were exposed to about 1200 mg tar a day. Today’s cigarettes have 20 mg tar, so you are exposed to 600 mg daily. If there’s one thing everybody can agree on, it is that all tobacco-related cancers are dose related.” Ernst Wynder (1980)

A Safe Cigarette? Banbury Report 3 (1980) page 163

Russell's challenge to the epidemiological view: product does not determine dose

- “ The quest for less harmful cigarettes has been dominated by an obsession with machine-smoked yields. **The tendency for smokers to regulate their smoke intake has been largely ignored**, even by those such as Gori & Lynch (1978) and Wynder & Hoffman (1979) who should know better. [We should] be more cautious about extrapolating too directly from smoking machine to smoker [and should] place as much emphasis on measuring the smoke intake of smokers as has been placed on the smoke output of cigarettes”

A Safe Cigarette? Banbury Report 3 (1980) page 297

Br. J. med. Psychol. (1971), **44**, 1

Printed in Great Britain

Cigarette smoking: natural history of a dependence disorder

BY M. A. HAMILTON RUSSELL*

“If it were not for the nicotine in tobacco smoke people would be little more inclined to smoke cigarettes than they are to blow bubbles or light sparklers”

Early days of tobacco control in UK

- 1973 Independent Scientific Committee on Smoking & Health (Hunter Committee)
 - To advise on product modification
 - Development of less hazardous smoking materials: New Smoking Material (NSM), Cytrel
 - Reductions in tar and nicotine yields
 - Membership representing: pharmacology, epidemiology, pathology, teratology, carcinogenic biochemistry, aerosol physiology, neurology, chest medicine. No behavioural science

Personal Paper

Comment on the Hunter Committee's second report

M J JARVIS, M A H RUSSELL

- Independent Scientific Committee on Smoking & Health established in 1973
- Committee's thinking "dominated by an obsession with machine smoked yields"
- "stunning naivety of its implicit model of smoking behaviour"
- Available evidence "should have made it place as much emphasis on measurements of the smoke intake of smokers as it has placed on the smoke output of cigarettes"
- **"An approach aimed simply at further reductions in tar and nicotine deliveries will do little to reduce the dangers of smoking.** This is not only because smokers compensate by increasing inhalation so as to leave their smoke intake relatively unchanged, but also because a point is reached where reduced deliveries meet with reduced consumer acceptance

A NEW AGE FOR SNUFF?

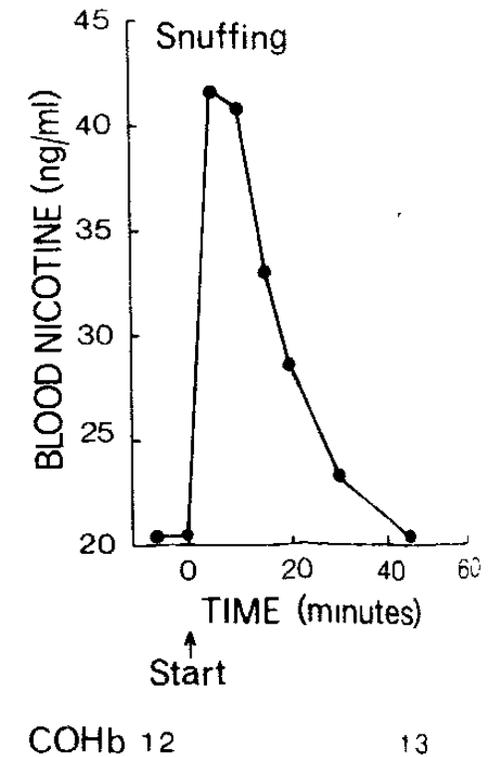
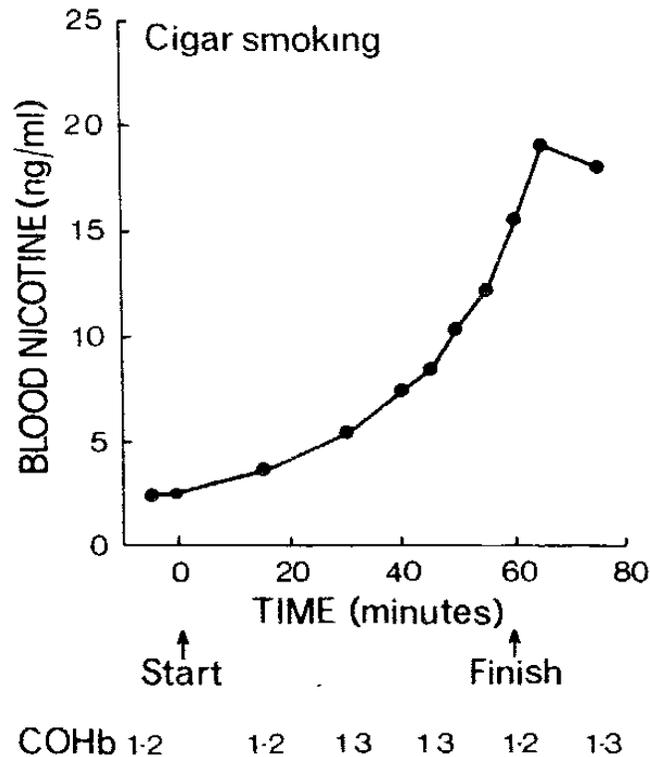
M. A. H. RUSSELL

M. J. JARVIS

C. FEYERABEND

- “Our findings suggest that a new age for snuff is a feasible alternative to cigarette smoking. Snuff could save more lives and avoid more ill-health than any other preventive measure likely to be available to developed nations well into the 21st century.”

Lancet 1980 474-5

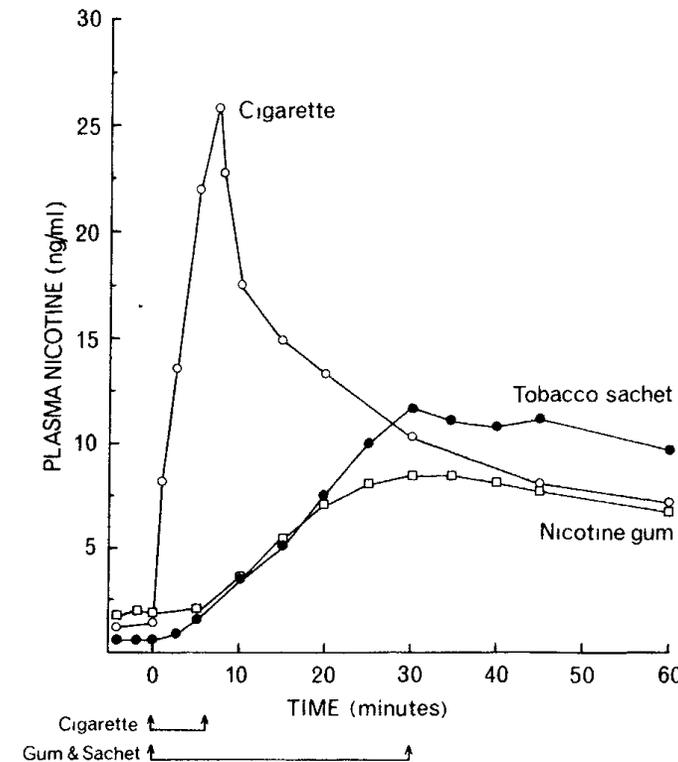


BUCCAL ABSORPTION OF NICOTINE FROM SMOKELESS TOBACCO SACHETS

M. A. H. RUSSELL, M. J. JARVIS, R. J. WEST, C. FEYERABEND

THE LANCET, DECEMBER 14, 1985

- “Our results suggest that this new product could help people trying to give up smoking. It might be cheaper than nicotine chewing gum and would not require a prescription. **If all smokers in Britain switched to sachets about 50 000 premature deaths per year might eventually be saved** at an annual cost of less than 1000 deaths from mouth cancer.”



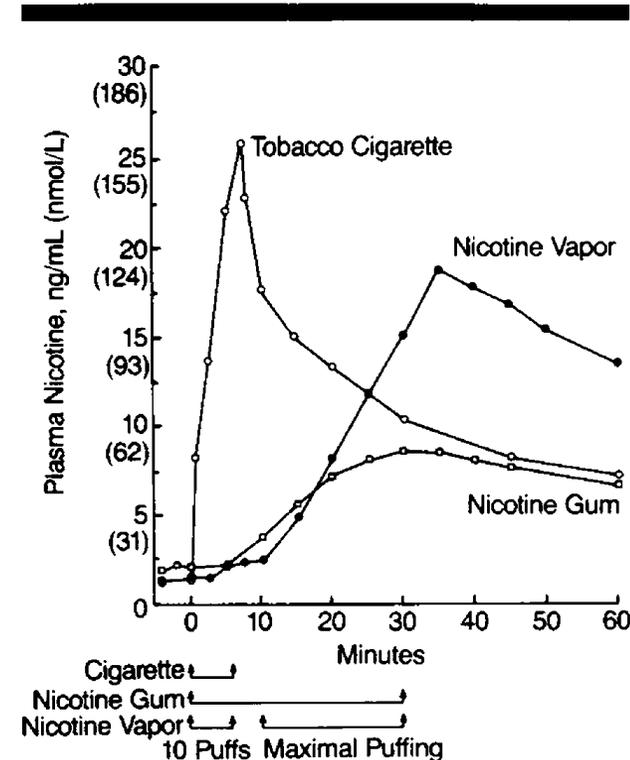
Average plasma nicotine concentrations in three men produced by sucking one tobacco sachet for 30 min and in three subjects who smoked one middle-tar cigarette (1.4 mg nicotine yield) and chewed one piece of nicotine gum ('Nicorette', 2 mg).

Nicotine Replacement in Smoking Cessation

Absorption of Nicotine Vapor From Smoke-Free Cigarettes

Michael A. H. Russell, FRCP; Martin J. Jarvis, MPhil; Gay Sutherland, MPhil; Colin Feyerabend, PhD

“Even with intensive puffing and inhalation, there was evidence that most of the nicotine vapor failed to reach the lung alveoli and was presumably deposited in the mouth, throat, and large airways.”



Average plasma nicotine concentrations of eight subjects who inhaled nicotine vapor from smoke-free cigarette, compared with those of different sample of three subjects who smoked conventional cigarette (17-mg tar, 1.4-mg nicotine) and chewed one piece of 2-mg nicotine gum (Nicorette).

Nicotine use after the year 2000

VOL 337: MAY 18, 1991

THE LANCET

“If a strategy were adopted to sanction and encourage the use of purified nicotine products as substitutes for smoking, and at the same time impose stringent regulations on permissible constituents of cigarette smoke and progressively lower limits for deliveries of harmful components such as nitrosamines and nitrogen oxides, as well as of tar and carbon monoxide, the virtual elimination of smoking could become a more realistic health promotion target.”

Michael Russell

The future of nicotine replacement

MICHAEL A. H. RUSSELL

British Journal of Addiction (1991) 86, 653–658

“It will be assumed throughout that our main concern is to reduce tobacco-related diseases and that moral objections to the recreational and even addictive use of a drug can be discounted provided it is not physically, psychologically or socially harmful to the user or to others.”

The future of nicotine replacement

MICHAEL A. H. RUSSELL

British Journal of Addiction (1991) 86, 653–658

“The case advanced is that selected nicotine replacement products be made as palatable and acceptable as possible and actively promoted on the open market to enable them to compete with tobacco products.... Everything possible should be done to give them a competitive edge over tobacco, for they may not be as pleasant or palatable and will depend on other incentives. They should be advertised and actively promoted even after advertising of tobacco has been banned. There should be health authority endorsement to enable exploitation of their health advantages, and taxation should be adjusted to give them a clear price advantage over tobacco products.”



[Simon Chapman AO @SimonChapman6](#)

Bombshell: venerated nicotine addiction harm reduction pioneer Michael Russell forecast to tobacco company "encouraging" results that would "cast favourable light on things" & suggested he could "lose records"

[http://tobaccocontrol.bmj.com/content/early/2018/06/06/tobaccocontrol-2018-054433 ...](http://tobaccocontrol.bmj.com/content/early/2018/06/06/tobaccocontrol-2018-054433)

“It is time for the FDA and others to stop starting every talk on nicotine policy with a quote from Michael Russell and recognize that, like much of the harm reduction agenda, the tobacco companies were hiding in the shadows working to manipulate the debate”

Glantz June 11th 2018

Invisible smoke: third-party endorsement and the resurrection of heat-not-burn tobacco products

Jesse Elias,¹ Pamela M Ling^{1,2}

- Revisits RJR's experience with Premier in late 1980s and the 1991 Lancet editorial on Nicotine Use after the Year 2000

“**Russell's conduct** (eg, soliciting funding from RJR and stating a priori that publication of the study results in an English journal could go a long way to ‘casting a favorable light on things’ offering to “lose” records’ of reimbursement from RJR and suggesting RJR pay him to undertake research on a product he later anonymously endorsed while representing *The Lancet* **raises serious questions of integrity.**”

“folly of partnership with the tobacco industry”

[**Public health organisations and practitioners**] “**should consider the ethics of endorsing tobacco industry attempts to preserve profits with products claimed to be, but not yet demonstrated as reduced risk... also bear in mind past experience with industry-backed ‘safer’ cigarettes**”

“**These insights may help public health professionals craft policy that anticipates reiterations of the tobacco industry's promotional strategies for its newest crop of products**”

FROM THE AMERICAN MEDICAL ASSOCIATION

Reducing the addictiveness of cigarettes

Jack E Henningfield, Neal L Benowitz, John Slade, Thomas P Houston, Ronald M Davis, and Scott D Deitchman, for the Council on Scientific Affairs, American Medical Association

- “One way to avoid compensatory oversmoking would be to make nicotine more available via less hazardous delivery systems. At this time, pure nicotine is available over the counter as nicotine gum and patches. Conceivably, nicotine in other medicinal forms, as well as nicotine delivered via genuinely “smokeless delivery devices”, might become available. The addicted smoker could be encouraged to use nicotine from these sources at the same time that nicotine in cigarettes is being reduced”
- “A controversial issue is the degree to which alternate nicotine-delivery systems need to be competitive with cigarettes with respect to their nicotine dosing characteristics”
- “A range of nicotine delivering medications may be needed, from readily available, very safe forms with a very low addictive potential to much more aggressive nicotine-delivering forms that might be treated as prescription substances”

Problems with potential cigarette nicotine reduction

- Attempts to address addiction issue at same time as transition to non-combustible
- Lacks logic: why target nicotine, when that is what people seek, while leaving toxins, which kill, untouched?
- Is there full sign up to wide availability and encouragement of effective new products – see Juul panic, snus MRTP rejection
- Does the FDA have the right structure? : uneasy cohabitation of CDER and CTP
- Paradox: If new products are good enough, nicotine reduction may not be needed; if they are not, policy is a disaster

The Russell recipe for novel pure nicotine products, and the response

- Make them as palatable & acceptable as possible ✓✓
- give them a competitive edge over tobacco ??
- should be advertised and actively promoted even after tobacco advertising banned ??
- should be endorsed by health authorities - RCP, PHE ✓✓
- taxation should give them a clear price advantage over tobacco products ??

Russell 25 years on

- The Russell model of what drives tobacco use still looks good
- Developments in nicotine delivery technology in past decade are finally beginning to enable consumer acceptable products with potential to topple cigarettes from market dominance
- Research is struggling to keep up with changing technology and with the pace of market developments
- Deep divisions in underlying aims and goals are resulting in regulatory and policy failures

Nicotine use after the year 2000

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THE LANCET

“There is no good reason why a switch from tobacco products to less harmful nicotine delivery systems should not be encouraged. Smoking-related deaths after the year 2000 would fall steadily and substantially if this can be achieved. There is no compelling objection to the recreational and even addictive use of nicotine provided it is not shown to be physically, psychologically, or socially harmful to the user or to others”

Michael Russell

Why does the UK lead the world in policy on tobacco harm reduction?

- Coherent and plausible model of nicotine seeking
- Pragmatic approach: health impact of cigarettes, not addiction, is the problem
- A shared vision among researchers
- Leadership (ASH) and sign-up from key organisations – RCP, PHE, NICE
- Political will

The future of nicotine replacement

MICHAEL A. H. RUSSELL

British Journal of Addiction (1991) 86, 653–658

“It is argued here that it is not so much the efficacy of new nicotine delivery systems as temporary aids to cessation, but their potential as long-term alternatives to tobacco that makes the virtual elimination of tobacco a realistic future target. Their relative safety compared with tobacco is discussed. A case is advanced for selected nicotine replacement products to be made as palatable and acceptable as possible and actively promoted on the open market to enable them to compete with tobacco products. They will also need health authority endorsement, tax advantages and support from the anti-smoking movement if tobacco use is to be gradually phased out altogether.”

Comprehensive Nicotine Regulation to End the Combustible Tobacco Epidemic

Neal L. Benowitz, MD

“On 28 July 2017, FDA announced a new plan for tobacco regulation. The focus of the regulatory plan is nicotine itself. It combines the idea of reducing the nicotine content of cigarettes to non-addictive levels with promotion of the availability of noncombustible sources of nicotine.

In essence, the FDA has proposed a policy acknowledging the importance of nicotine in tobacco addiction and emphasizing the public health goal of transitioning sources from the most harmful to less harmful alternatives—from combustible tobacco to medicinal nicotine and electronic nicotine delivery devices.....When faced with reduced-nicotine cigarettes, many smokers will quit, but for those who continue to seek nicotine, acceptable sources will be readily available, including e-cigarettes and other electronic nicotine devices”