

Institution: Brunel University London

Unit of Assessment: 3 Allied Health Professions, Dentistry, Nursing and Pharmacy

Title of case study: Supporting tobacco control decision making for improved health and economic productivity

Period when the underpinning research was undertaken: 9/2009 – 9/2016 **Details of staff conducting the underpinning research from the submitting unit:**

Name(s):	Role(s) (e.g. job title):	Period(s) employed by
		submitting HEI:
Subhash Pokhrel	Professor	08/2005 – present
Doug Coyle	Professor	10/2013 – present
Paul Trueman	Professor	01/2010 – 05/2011
Catherine Meads	Reader	09/2012 – 11/2015
Teresa Jones	Research Fellow	06/2004 – 05/2017
Marta Trapero-Bertran	Research Fellow	08/2007 – 09/2012

Period when the claimed impact occurred: 8/2013 – 12/2020

Is this case study continued from a case study submitted in 2014? No.

1. Summary of the impact (indicative maximum 100 words)

Reducing the burden of ill-health from tobacco is a key Sustainable Development Goal. Brunel's economic analysis of proven tobacco control interventions significantly influenced policies in England and Spain. The team's pioneering research with the National Institute for Health and Care Excellence (NICE), and stakeholders from smoking cession services, co-produced a new type of NICE guidance. This consisted of a Return on Investment tool (ie software package) made available on NICE's website to support tobacco control investment decisions. Policies of national bodies, including Public Health England, drew on and promoted the website tool (updated in 2014). Its use by many local policymakers contributed to reducing rates of smoking with the aim of improving health, health equity and economic productivity. It also informed a WHO Tobacco Control implementation roadmap. Brunel researchers made the tool relevant for EU countries through EU-funded research collaboration involving stakeholders. This informed spanish policies implemented in early 2020 that led to a rapid 300% increase in dispensed smoking cessation drugs, with evidence emerging of reduced smoking prevalence.

2. Underpinning research (indicative maximum 500 words)

The importance of reducing the ill-health caused by tobacco has long been recognised, with tobacco control becoming Sustainable Development Goal 3a: *"Strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries, as appropriate."* Many ways to increase tobacco control had been proposed, but building support for resourcing prevention programmes was challenging, especially in periods of public expenditure cuts, as was identifying the most cost-effective package from among the available interventions.

Brunel's Trapero-Bertran, Pokhrel and Trueman, with others, applied economic analysis to these challenges. Three English regional tobacco control offices commissioned a Brunel-led study resulting in the Tobacco Control Economic Toolkit – it estimated *"the impact of investment in different 'packages' of measures"* (Trapero-Bertran et al, 2011). Pokhrel was corresponding author on a Brunel study, with Mattius Vogl and Reiner Leidl from Helmholtz Zentrum München in Germany, quantifying links between smoking and health-related quality of life (Vogl et al, 2012) **[Research (R)1]**. Valuable for evaluating tobacco control interventions, it considered factors expected to influence cost-effectiveness, such as lifestyles. According to a published open peer review, *"it was the first paper to do so in the context of smoking behaviour."*

Pokhrel then led a Department of Health-requested and NICE-commissioned project to build on the toolkit to develop a prototype model for local authority commissioners showing the potential Return on Investment (ROI) from tobacco control interventions. After publishing the resulting tool on their website in 2012, NICE continued to fund the Brunel team (now also including Coyle, Meads and Kathryn Coyle - a research assistant) through a series of grants to lead further research and refinements. In 2014, NICE published the third website version of the tool (ie the

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software), User Guide and Technical Report; the latter incorporated the research behind the tool (Pokhrel et al (2014) **[R2]**). Its acknowledgements highlighted diverse stakeholders who worked with Brunel to co-produce a tool appropriate for their requirements: *"A number of stakeholders (commissioners, service providers, representatives from the Local Authority and Smokefree Regional Offices, academics and public health directors) have contributed to the refinement of this tool at various stages of development"* (p.2).

Brunel's further grants included an award from the EU to a consortium led by Pokhrel for the *European-study on Quantifying Utility of Investment in Protection from Tobacco (EQUIPT)* project (2013-2016). Team members included Jones, Coyle and Coyle with Trapero-Bertran, by then at Universitat Pompeu Fabra, Barcelona, leading the Spanish arm, and Leidl leading the German arm. The team also included leading tobacco control researchers and stakeholders like Robert West from UCL, Lesley Owen from NICE and Adam Lester-George from Lelan Ltd.

Evidence-based tobacco control was seen as a key societal priority as 700,000 Europeans died annually due to tobacco use. Smoking prevalence varied from country to country; so did social, political, cultural, economic, and psychological aspects of tobacco use. Lessons learnt in England from co-producing the research with stakeholders, including those working in smoking cessation services, were even more important for a multi-country study. Therefore, essential features of the EQUIPT project included analysing the needs of stakeholders, and the contextual factors, in England, again, and four more EU countries to inform the economic modelling required to produce relevant versions of the NICE ROI tool.

Of EQUIPT's 20 publications, three of the four outlined here are from *Addiction*. A key article described how the central Brunel team led on development of EQUIPTMOD, the economic model. It facilitated cost effectiveness assessment of smoking cessation strategies and indicated large potential benefits **[R3]**. Further papers described the research of the Brunel team working with researchers from the respective countries to apply the model to the context and preferences in each of the five countries, including England **[R4]**, and Spain where the analysis showed reimbursement for two smoking cessation drugs would be cost-effective **[R5]**. An EQUIPT paper illustrated how the project consulted stakeholders on requirements for their country-specific version of the model; stakeholders in Hungary and Spain wanted rapid application **[R6]**.

3. References to the research (indicative maximum of six references)

R1: Vogl M, Wenig CM, Leidl R, Pokhrel S. Smoking and health-related quality of life in English general population: implications for economic evaluations. *BMC Public Health*;2012;12:203. https://doi.org/10.1186/1471-2458-12-203.

R2: Pokhrel S, Owen L, Lester-George A. Coyle K, Coyle D. West R, Trapero-Bertran M, Meads C. *Estimating Return on Investment of Tobacco Control: NICE Tobacco ROI Tool Version 3.0.* London: NICE; June 2014 (Third edition). **See Pdf file Ev2**. (This Technical Report was based on the team's continuing research and accompanied the updated software.)

R3: Coyle K, Coyle D, Lester-George A, West R, Nemeth B, Hiligsmann M, Trapero-Bertran M, Leidl R, Pokhrel S & on behalf of the EQUIPT Study Group. Development and Application of an Economic Model (EQUIPTMOD) to assess the Impact of Smoking Cessation. *Addiction;*2018; 113(S1):7-18 <u>https://bura.brunel.ac.uk/handle/2438/15032</u> This paper and the following three are from the EU-funded EQUIPT project (EUR 2,047,908 grant). In 2016 EQUIPT won a European Network for Smoking Prevention (ENSP) Award for outstanding European health research.

R4: West R, Coyle K, Owen L, Coyle D, Pokhrel S, EQUIPT Study Group. Estimates of effectiveness and reach for 'return on investment' modelling of smoking cessation interventions using data from England. *Addiction* 2018;113(S1):19-31. <u>https://doi.org/10.1111/add.14006</u>

R5: Trapero-Bertran M, Muñoz C, Coyle K., Lester-George A, Leidl R...Pokhrel, S, Lopez-Nicolás, Á. Cost-effectiveness of alternative smoking cessation scenarios in Spain: results from the EQUIPTMOD. *Addiction*;2018;113(S1): 65-75 <u>https://doi.org/10.1111/add.14090</u>

R6: Vokó Z, Cheung KL, Józwiak-Hagymásy J, Wolfenstetter S, Jones T,....<u>Pokhrel</u> S <u>On behalf</u> of the EQUIPT Study Group</u>. Similarities and differences between stakeholders' opinions on using Health Technology Assessment (HTA) information across five European countries: results from the EQUIPT survey. *Health Res Policy* Sys;2016;14:38 <u>https://doi.org/10.1186/s12961-016-0110-7</u>

4. Details of the impact (indicative maximum 750 words)

Impact 1 is the significant and direct impact made by Brunel's research though the coproduction of NICE guidance in the form of the NICE ROI tool that it promoted on its website. **Impact 2** consists of the many further tobacco control policies from national bodies that, since Aug 2013, have been informed by, and promoted, the ROI tool. **Impact 3** is the impact made on local policymaking and practice through using the ROI tool and, in turn, the consequent reductions in smoking which should have contributed to improved health, economic productivity and health equity, particularly in North East (NE) England. **Impact 4** covers the research's increasing international reach on policies, including WHO's roadmap for Tobacco Control implementation (in line with SDG 3a). Spanish tobacco control policies, introduced in 2020, led to a 300% boost for the funded smoking cessation drugs, with evidence emerging of reduced prevalence.

Beneficiaries of these impacts included policymakers and practitioners in national and local bodies, and tobacco control services, who promoted and implemented tobacco control. The research-based ROI tool significantly improved the quality of information available to them when making decisions. People who stopped smoking benefited from resulting health improvements, which, in turn, should have reduced costs to the healthcare system and the economy.

The co-produced research was regularly disseminated through engagement with stakeholders, as described for development of the NICE tool in **R2** above, and throughout and following the EQUIPT project. The latter's dissemination was to stakeholders engaged in the project (see **R6**), and more widely, as illustrated by a testimonial from the President of the Spanish umbrella body for many groups interested in tobacco control: *"The EQUIPT project, right from the beginning has been presented in the National Conference of Tobacco Prevention [CNPT] in several times and also in international conferences such as the European Network for Smoking Prevention Conference. So, the informing and influencing channels of this project to stakeholders have been several all along the process of the project development" [Evidence (Ev) 1].*

Impact 1: Impact on NICE guidance through co-producing its tobacco control ROI tool NICE, the main source of NHS policy guidance, promoted the ROI tool on its website to provide guidance to local policymakers on tobacco control interventions. Here, therefore, Brunel researchers made a direct and continuing policy impact from August 2013 because the tobacco control ROI tool they had originally co-produced for, and with, NICE in 2012 was continuing to be accessed and used by local decision-makers. Following further research it was updated - in 2014 by the third co-produced edition. Hence, for this co-produced policy the source to corroborate the impact, **Ev2**, is the 2014 research listed as **R2**, ie the tool's Technical Guide, third edition. The majority of authors were Brunel researchers, led by Pokhrel.

Impact 2: Impact of the ROI tool on and through national health policies in England In addition to the researchers' own engagement activities, official tobacco control policies from NICE, and other bodies, were informed by, and promoted, the ROI tool as a key mechanism for encouraging and informing local tobacco control policies. In Sept 2013, a NICE Local Government Briefing (LGB10) promoted the ROI tool. It described NICE's illustrative application of it to Bury: *"To illustrate the costs of smoking – and the savings that can be achieved by tackling tobacco use, we ran an analysis for Bury Metropolitan Borough Council using NICE's return on investment tobacco model. This tool was developed to help local decision-making on tobacco control" (p.7)* **[Ev3].** NICE policy documents continued to draw on the current edition of the ROI tool and promote its use, for example in March 2018 *NICE Guideline 92 [NG92]: Stop smoking interventions and services* included a *Resource Impact Report* describing the tool and including a hyperlink to it (p.4) **[Ev4].** In Nov 2013, the Local Government Association's briefing, *Money well Spent,* encouraged use of the tool by providing a link and telling councils they could "get tailored estimates on the potential cost effectiveness of their own stop-smoking schemes using NICE's tobacco return on investment tool" (p.11) **[Ev5].**

Corroborating the impact, a senior programme manager at Public Health England (PHE) said: *"The success of the Brunel model led...(NICE) to produce similar Return on Investment tools for*

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other public health topics" [Ev6]. PHE's own 2015 national guidance on tobacco control, *Health* matters: smoking and quitting in England, drew on, and promoted, the benefits of using the ROI tool. It included a worked example from Sunderland, an area with high smoking prevalence and lower health equity indices (p.10/11) [Ev7]. In 2018, PHE published, *Tobacco commissioning* support 2019 to 2020: principles and indicators, listing questions for local tobacco control partnerships to use to check if they were "following evidence and best practice". Questions included: one about WHO's Framework Convention on Tobacco Control; and, "have the partners identified the potential return on investment for funding tobacco control interventions and does this include any economies of scale that could be achieved by commissioning with other local authorities? See the NICE return on investment tool" (p.11) [Ev8].

Impact 3: Impact on local policymaking and smoking rates, especially in the North East Starting in 2015-16, PHE regularly published an outline joint strategic needs assessment (JSNA) support pack for tobacco control. This included a ROI section encouraging local authorities and others to apply Brunel's NICE ROI tool in local strategies. PHE published the packs with relevant ROI data completed by authorities across England, from Northumberland to Plymouth. For example, the ROI section in Coventry's 2017-18 version suggested investing GBP1,064,089 in local stop smoking services, plus the sub-national service, would, according to the tool, provide a ROI after 5 years of GBP1.7 for every GBP invested (p.9) [Ev9].

The importance of NICE's 2014 tobacco control ROI tool to policymakers was seen in the 2015 HM Treasury report on its tobacco levy consultation **[Ev10]**. Of the 58 responses, 13 from across NE England cited the tool, including those from County Durham Health and Well-Being Board; Gateshead Council; NE Trading Standards Association; Newcastle Upon Tyne Hospitals NHS Foundation Trust; and Fresh - Smoke Free North East, the region's stop smoking service. NE England not only saw public bodies draw on and promote the ROI tool, but was also the region with *"the biggest drop in smokers nationwide…*[the rate] *fell from 22.3% of people smoking in 2013 down to 19.9% in 2014"* **[Ev11]**. In this press release, the tool's importance to Fresh's work was shown by its use as the reference at the end of a paragraph stating: *"Ambitious plans to cut smoking rates to 5% across the North East by 2025 were backed by health and local government leaders and young people in the North East earlier in the year. It was estimated getting down to 5% would save thousands of lives and an estimated £100 million a year" [Ev11].*

The Director of Fresh corroborated the impact: "The tobacco control ROI tool developed by Brunel has been particularly valuable to us in Fresh in our activities in promoting tobacco control.... The tool allowed local commissioners...to make more informed investment decisions to improve the health and health equity through adopting the most cost effective package of tobacco control interventions. I believe our local promotion of the ROI tool has contributed to making the North East the region of England where there was most progress in reducing the rate of smoking, which in turn leads to improve health and health equity" [Ev11]. The senior PHE manager also stated: "I can verify that the tools that Brunel has developed have allowed local commissioners (both within the NHS and local government) to better understand the estimated impact of various packages of interventions, and to make more informed investment decisions to improve the health and health equity of local populations" [Ev6].

Impact 4: Impact of the ROI tool and EQUIPT on policies and smoking rates in Europe WHO Europe used the tool in their 2015 roadmap of actions to strengthen implementation of the WHO Framework Convention on Tobacco Control as the sole reference for saying: *"In addition to the health gains, there are substantial returns on investment from effective tobacco control measures with significant productivity gains and savings to health and social care"* (p.4) [Ev13].

The increasing reach is also seen in EQUIPT's stakeholder engagement to develop ROI tools for Germany, Hungary, Spain and for The Netherlands **[R3,5,6]**. The President of Spain's CNTP described EQUIPT's impact on policy: *"the EQUIPT project has influenced and informed many stakeholders about the efficiency of the different smoking cessation interventions, and jointly with other actions in the country, has convinced the [Spanish] Government for financing smoking cessation medications for quitting smoking."* **[Ev1]**. Similarly, the Director General of Public Health in the Spanish Health Ministry said of EQUIPT, the *"project and its results, has influenced"*

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and informed decisions on the Ministry of Health in Spain and, it has been the key factor for financing the use of the two medicines for quitting smoking at National level" [Imp14].

Implementation of the new policy began on 1 Jan 2020. On Feb 7 2020, Diariofarma, a newsletter providing pharmacy information in Spain, reported that Cofares, the Spanish Pharmaceutical Cooperative made up of over 10,000 pharmacy partners, claimed that demand for the two pharmacological treatments being provided under the new policy *"skyrocketed in these first weeks of the year"* [Ev15]. Cofares alone dispensed 18,700 units throughout January, *"a figure well above the 4,700 units that were dispensed in January 2019. Therefore, the increase recorded is around 300% compared to the same month last year."*

Referring to the new policy's introduction on 1 Jan, the President of CNPT noted: "Since then, there has been a dramatic increase in the number of units of these therapies dispensed, mainly varenicline. This, in turn, should imply a reduction in smoking rates....There is no official published data in terms of decreased prevalence, but studies on Autonomous Communities indicates so" [Ev1]. The Director General of Public Health also said: "For this first year there has had a large increase in the number of dispensed units, mainly varenicline. Although it is pending yet to do a evaluation of the results...it is expected a reduction in smoking rates, which should eventually contribute to a reduction in mortality and morbidity in medium and long term" [Ev14].

5. Sources to corroborate the impact (indicative maximum of 10 references)

Ev1: the President of Spain's CNTD wrote a testimonial (for an EU-impact award) in 2019 on EQUIPT's extensive stakeholder engagement and policy impact; in Jan 2021 he scanned it onto an update about the impact of the 2020 implementation; pdf submitted **[Impact (Imp) 4]**

Ev2: NICE, 2014 (3rd edition) ROI tobacco control tool: Technical Guide; pdf submitted Imp1]

Ev3: NICE, Local Government Briefing 10, Sept 2013: *Judging whether public health interventions offer value for money;* pdf submitted **[Imp2]**

Ev4: NICE, Guideline 92, 2018: see the Resource Impact Report; pdf submitted [Imp2]

Ev5: Local Government Association, briefing Nov 2013, Money well Spent; pdf [Imp2]

Ev6: testimonial from a PHE manager corroborates significant Brunel impact on national and local policies through producing the NICE ROI tobacco control tool; pdf submitted **[Imp1/2/3]**

Ev7: PHE, guidelines, 2015: Health Matters -smoking and quitting in England; pdf [Imp2]

Ev8: PHE, guidance, 2018: *Tobacco commissioning support 2019 to 2020: principles and indicators.* pdf submitted **[Imp2]**

Ev9: PHE, JSNA tobacco control pack for Coventry 2017-18; pdf submitted [Imp3]

Ev10: HM Treasury, 2015: *Tobacco Levy: response to the consultation;* of the 58 responses listed on p.2/3, and included in the Treasury's report, the 13 from NE England citing the NICE ROI tool were numbers: 11,12,16,17, 21,27,29-31,36,37,51,52; pdf submitted **[Imp3]**

Ev11: Fresh - Smoke Free North East, press release, 8 Oct 2015 : *North east has biggest drop in smoking in the country*; pdf submitted **[Imp3]**

Ev12: testimonial from the Director of Fresh corroborates the tool's policy impact; pdf [Imp3]

Ev13: WHO Europe, 2015: *Making tobacco a thing of the past: Roadmap of actions to strengthen implementation of the WHO Framework Convention on Tobacco Control in the European Region 2015 – 2025;* in the main reference set, #6 is to the NICE ROI tool - see p.4; pdf submitted **[Imp4]**

Ev14: testimonial from the Director General of Public Health, Spanish Ministry of Health, confirming EQUIPT's policy impact with benefits emerging; electronically signed pdf **[Imp4]**

Ev15: Diariofarma, 7 Feb 2020: Sales of drugs funded to quit smoking increased 300% in January according to Cofares; web translation of Spanish online article; pdf submitted **[Imp4]**