

<b>Institution: University of Bristol</b>
<b>Unit of Assessment: Philosophy</b>
<b>Title of case study:</b> Working with health professionals, schools, and the public, to dispel myths about vaccination and to make history of medicine relevant
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Professor Gareth Williams' research into the history of smallpox and polio, and his associated work for the public understanding of vaccination has influenced health professionals, teachers and educators, school children, medical students, and the general public. His work has had four sorts of impact:</p> <ul style="list-style-type: none"> <li>• furthering the understanding of the history of medicine by health professionals, medical and allied professions students, schoolchildren and the general public;</li> <li>• promoting the legacy of Edward Jenner, creator of the vaccine against smallpox, thereby helping to preserve an important but neglected part of the UK's intellectual heritage;</li> <li>• advancing the public understanding of vaccination and helping to dispel the myths which prevent full uptake of vaccines and informing public debate;</li> <li>• raising awareness of the residual impact of polio and particularly of 'post-polio syndrome'.</li> </ul>
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p>In 2008 Gareth Williams (Professor of Medicine &amp; Research Fellow in Philosophy, University of Bristol; henceforth, GW) researched the history of smallpox and vaccination. This work provided the basis for <i>Angel of Death</i> [1], which describes the history of smallpox. This 110,000-word book is a comprehensive account of smallpox and its eradication, from prehistory to the present day, covering the medical, scientific, social and political aspects of the disease. The scientific and medical basis of smallpox and vaccination are clearly explained and the historical and current arguments for and against vaccination presented in a balanced fashion. Primary sources included archives at the Edward Jenner Museum (Berkeley), the Royal College of Physicians and the Wellcome Library (London) and the Gladstone Library (Hawarden), and interviews with British experts in smallpox, vaccines and germ warfare. The book has been extremely well-received by medical professionals and historians (see section 4).</p> <p>During 2011-2, GW researched and wrote <i>Paralysed with Fear: the Story of Polio</i> [2] (128,000 words). This book is the first comprehensive history of polio for over 40 years; the medical, scientific and social aspects of the disease are covered comprehensively. The legacy of Polio is also examined. The research was assisted by a grant from the Wellcome Trust to visit the US to interview leading authorities on polio and vaccination. Archives consulted included the Thackray Medical Museum (Leeds), the British Polio Fellowship and the College of Physicians (Philadelphia); there were also interviews of polio survivors in Britain and Hungary.</p> <p>A central feature of GW's research has been to identify the sources of opposition to vaccination. Since vaccination was first invented by Edward Jenner, it has faced strong opposition from a variety of groups. GW has also been invited to write articles for the <i>Lancet</i> and the <i>British Medical Journal</i> about the history of vaccination, highlighting the importance (and neglect) of Jenner and the Edward Jenner Museum [j, k]. He supervised numerous medical student projects on the history of medicine, including a project on the role of Benjamin Jesty in vaccination, which was published as a full paper in the <i>Maltese Medical Journal</i> [3].</p>
<p><b>3. References to the research</b> (indicative maximum of six references)</p> <p>1. Williams, G. (2010) <i>Angel of Death: The Story of Smallpox</i> (Palgrave Macmillan) 448 pages. Listed in REF2.</p> <p>2. Williams, G. (2013) <i>Paralysed with Fear: the Story of Polio</i> (Palgrave Macmillan) 376 pages. Listed in REF2.</p>

## Impact case study (REF3b)

3. Jesty, R., Williams, G. (2011) Who invented vaccination? *Maltese Medical Journal* 23:1–5. (<http://www.um.edu.mt/umms/mmj/showpdf.php?article=323>).

**Grants:** Travel grant from Wellcome Trust (2011); Appointed member of the Wellcome Trust Expert Review Group in history of medicine and medical humanities.

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

**Publications.** Both of GW's books recount the history of major human scourges and the attempts to defeat them in a scientifically rigorous fashion, while engaging the general reader as well as health professionals. *Angel of Death* [1] has sold over 3,600 copies, making this the second best-selling title in the Palgrave Academic History series 2010-13, and the eighth bestselling history title for Palgrave since 2000. It was shortlisted for the Wellcome Trust Book Prize 2010, the BMA Medical Book Awards 2012 and for the Medical Journalists' Open Book Awards 2011. Historian Michael Neve described the book as "medical history at its absolute best". This book has led to over 60 invitations for GW to speak at schools, health professional meetings, history societies and literary festivals in Britain and abroad (see below). *Paralysed with Fear* [2] has also garnered positive reviews from the general public, professional publications and polio survivors in the short time since its publication. The book was reviewed in the *Lancet* as "an incredible story told by a great story-teller" [a]. Polio survivor and leader of the Post-Polio News Service, Chris Salter, explains that 'whilst bristling with information [the book] manages to read like a novel'.

**Presentations, lectures, webcasts and broadcasts.** GW has given numerous lectures to a variety of audiences in the UK and overseas, on the history of smallpox, Jenner and vaccination, and the history of polio. The same qualities of clarity, scholarship and accessibility praised in his books have also been prominent in feedback from GW's lectures and presentations, by both health professional and lay audiences (see below). He has also appeared on national and international radio and TV to discuss vaccination and smallpox, including the Today Programme (18/5/11), BBC World Service, BBC World TV and BBC Parliament [b].

GW has recently given lectures on the history of polio at the Tavistock Festival (29/04/13), the Edward Jenner Museum (where he was Writer in Residence in June 2013), Gresham College (12/06/14), the Gladstone Library (03/10/13), and the Heswall Festival (02/10/13). Future presentations include the Thackray Medical Museum, Leeds (08/02/14). Dr Robert Spencer of the Health Protection Agency comments that the audience for GW's presentations is "very widespread – [including the] general public, scientists, medical both junior and senior grades" [c].

GW's research has generated impact in several domains:

1) *Engaging health professionals*

GW has given numerous talks on the history of smallpox and polio vaccination to physicians, nurses, and other health professionals. Selected talks: Milroy Lecture to the Royal College of Physicians, London (30/10/12); Anglo-French Medical Society (1/10/10); Royal College of Physicians of Edinburgh (10/11/10); Anglo-Swiss Medical Society, Geneva (16/2/11); Southmead Hospital, Bristol (5/9/11); Vaccine Development Group, Merck Pharmaceuticals, Pennsylvania, US (11/11/11); Infection Control Conference, South-West Region, Bristol (29/5/12); Rudolf Korec Memorial Conference, Topolcianky, Slovakia (21/2/13); International Day for Fighting Infection, Verona (23/4/13). Audience feedback from the 8<sup>th</sup> Annual Infection Control Conference (29/5/2012), delivered to 184 NHS professionals was very positive. 91% of delegates who responded thought that GW's talk was 'excellent' or 'very good'. Several commented that the talk was 'very interesting' and GW was described as a 'very knowledgeable and inspiring speaker' [d].

GW has run seminars for the Health Protection Agency (29/11/10); Centre Hospitalier Universitaire Vaudois, Lausanne (15/2/11); Research Summer School, Faculté de Médecine, Angers (10/7/11, 3/7/12, 1/7/13); Bloomberg School of Public Health, Johns Hopkins University, Baltimore (9/11/11). Dr D.A. Henderson (University of Pittsburgh and Johns Hopkins University) commented that in

engaging medical professionals GW “is an especially effective advocate” by his “open, friendly manner, and his internationally respected knowledge of immunization” [e]. Dr Trevor Thompson (Reader in Healthcare Education, University of Bristol) notes that GW “had a considerable impact on the [medical] profession’s awareness” of the history of vaccination [g].

#### 2) *Promoting the history of medicine to medical and allied professions students*

GW speaks at the Research Summer School, Faculté de Médecine, Université d’Angers (10/7/11, 3/7/12, 1/7/13). This annual EU-funded workshop brings together 70 students in medicine and allied professions from across Europe for a residential course. GW has given the introductory lecture at each course since its inception. GW lectures students in the Faculty of Medicine at the University of Bristol, their only formal lecture on the history of medicine.

#### 3) *Engaging the public and schools*

GW has spoken about vaccination in a wide variety of public fora, ranging from schools to internationally renowned literary festivals. He has addressed audiences of over 100 at the UK’s two foremost literary festivals, Hay Festival 2010 [g] and *The Telegraph’s* Way with Words festival 2011 [h]. Talks at schools include: St. George’s School, Montreux, Switzerland (14/2/11); Mockton Combe School, Bath (8/3/11); Marlwood School, Thornbury (11/5/11); Redland Green, Bristol (13/9/11); Clifton College, Bristol (4/5/12). Timna Lyons, Academic Mentor at Redland Green School, notes that student feedback was “unanimously very positive”, citing the following student comments: “the explanation and stories made [the workshop] very interesting”; “[the workshop] was very interactive”; “[GW] took real interest in everyone”; “use [GW] again”. This evidences the success of GW’s approach in engaging young people in the history of vaccination. He has also given other public lectures, including Thornbury Arts Festival (29/4/10); University of Bristol Twilight Talks, Watershed, Bristol (10/6/10); Cyder House Talks, Edward Jenner Museum (22/7/10); Gladstone Festival, St. Deiniol’s Library, Flintshire (9/9/10); Thornbury Science Festival (7/7/11); Tavistock Music and Arts Festival, The Wharf Arts Centre, Devon (23/4/12); Wellcome Trust series, ‘Matters of Life and Death’, Arnos Vale Cemetery, Bristol (4/4/13). GW addressed a public audience of over 100 at Gresham College, London. His talk has been viewed over 2,300 times [i]. Richard Taverner (r.taverner@gresham.ac.uk) reports that numerous requests have been received for a full transcript of the lecture. Widespread attention has also been given to GW’s media work. Public figures such as Clive Anderson (writer and television presenter) have positively advocated his work. Dr Henderson noted that *Angel of Death* was “widely reviewed and quoted” [e]. It has been warmly reviewed in the *Times Higher Education Supplement*, the *Lancet*, *BBC History Magazine*, *The Times*, *New Scientist*, *Laboratory News*, *The Week*, and at [www.historyextra.com](http://www.historyextra.com).

#### 4) *Promoting Edward Jenner’s legacy*

GW has done much to promote the UK’s intellectual heritage by campaigning for greater recognition of Edward Jenner, the creator of the smallpox vaccine. Unlike Alexander Fleming, who played an analogous role in the history of bacterial disease, Jenner’s achievement in the prevention of viruses has not been sufficiently appreciated in this country. GW was a Trustee at Dr Jenner’s House, Berkeley (now the Edward Jenner Museum) from 2009-11 and was the Chair of the Trust from 2010-11 (<http://www.jennermuseum.com/>). GW appears in the introductory video at the Jenner Museum and *Angel of Death* is on sale. He is a regular speaker and fundraiser at the museum, which receives the royalties from his book. He also speaks at the annual Oxford Brookes infectious disease control nursing course held at the museum. GW also helped lead the campaign to have Jenner’s statue restored from Kensington Gardens back to Trafalgar Square from where it was removed by anti-vaccination groups soon after it was erected [k].

#### 5) *Patient advocacy*

In May 2013, the British Polio Fellowship appointed GW one of their six ‘Polio Ambassadors’. GW’s role as Ambassador is to promote an understanding of the historical importance of polio and the role of the patient support groups in the UK and elsewhere, and to raise awareness among health

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professionals and the general public of 'post-polio syndrome', which affects up to 120,000 polio survivors in the UK.

### 6) *Promoting public health by helping to dispel myths about vaccination*

GW helps to counter some of the myths surrounding vaccination and so promote greater acceptance of its value. He explains the science and the evidence base behind vaccination (especially against smallpox and polio), and presents both sides of the debate over vaccination in an accessible and lively way.

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

- a. 'Polio revisited'. Review of *Paralysed with Fear* by Paul Offit. *Lancet* 381 2013, 1805- 1806.
- b. BBC World Service, Health Check, interview with Claudia Hammond (17/5/10). Also interviewed on BBC World News on the same day. <http://www.bbc.co.uk/programmes/p007k3xd>
- c. Dr Robert Spencer, Health Protection Agency.
- d. Audience feedback from the 8<sup>th</sup> Annual Infection Control Conference (29/5/2012)
- e. Dr D.A. Henderson (University of Pittsburgh and Johns Hopkins University Distinguished Service Professor), who led the WHO global campaign to eradicate smallpox.
- f. Dr Trevor Thompson (Reader in Healthcare Education, University of Bristol).
- g. 'Angel of Death' Talk at Hay Festival 2010 (3/6/10) (<http://www.hayfestival.com/p-2273-gareth-williams.aspx?skinid=16>)
- h. 'The Great Vaccination Debate' Talk at The Telegraph's *Ways With Words* Festival (17/7/11) (<http://www.wayswithwords.co.uk/uploads/festivals/brochures/47.pdf>) (Audience figures provided by Kay Dunbar, Festival Director ([kay@wayswithwords.co.uk](mailto:kay@wayswithwords.co.uk))).
- i. 'From Jenner to Wakefield: The long shadow of the anti-vaccination movement' Talk at Gresham College (29/9/11) (<http://www.gresham.ac.uk/professors-and-speakers/professor-gareth-williams>) (Audience and download figures provided by Scott Morris, Gresham College ([s.morris@gresham.ac.uk](mailto:s.morris@gresham.ac.uk))).
- j. Williams, G. (2011) 'Dr Jenner's house: the birthplace of vaccination' *Lancet* 378(9788): 307-308. 1.8 million registered online users. Impact Factor 38.28 (source: [www.thelancet.com/lancet-about](http://www.thelancet.com/lancet-about)). ([http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(11\)61154-9/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)61154-9/fulltext)).
- k. 'Put Jenner's statue back in Trafalgar Square' Editorial, *British Medical Journal* 2010 340:665-6 (<http://www.bmj.com/content/340/bmj.c1582.full>). Weekly print circulation 122,000 (65,000 overseas); 1,222,712 unique browser downloads per month. Impact Factor 14.093 (source: [www.bmj.com/about-bmj](http://www.bmj.com/about-bmj)).