

Impact case study (REF3b)

Institution: Swansea University
Unit of Assessment: 3b - Allied Health Professions, Dentistry, Nursing and Pharmacy: Nursing
Title of case study: Economics of pain and pain management: impact on policy, practice and patients
1. Summary of the impact

This case study focuses on impacts that have arisen from research on the economics of pain and pain management established by Phillips on his arrival in Swansea in 1997. The impact of the research programme has been multifaceted, encompassing economic, public awareness, policy and practice dimensions and a reframing of priorities. It is exemplified by:

- engagement with pharmaceutical companies to introduce new therapeutic agents for the management of patients with chronic pain;
- re-focusing of patient management to embrace the impact of pain on whole persons and their communities;
- enhancing the status of pain and its management in the development of health policy and practice; and
- an increase in the awareness within the UK and EU political community of the range of consequences associated with pain.

2. Underpinning research (indicative maximum 500 words)
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It is known that around 20% of the population in the UK suffer with chronic pain – defined as pain that is experienced every day for at least 3 months within a 6-month period.

Phillips had led, and collaborated with colleagues at other universities, on earlier studies that had assessed the total costs and societal burden of a number of conditions, including those costs that occurred from treatment side effects, to derive strategies for patient management. The underpinning research programme arose from a study to assess the impact of major side effects from treating pain with non-steroidal inflammatory drugs (NSAIDs) [R1] and subsequently developed to impact on the four areas identified in Section 1. The study on the costs associated with treatment side effects in the management of pain was led by Phillips at Swansea and Moore at Oxford (Moore holds an Honorary Chair at Swansea) and was based on the utilisation of evidence, gleaned from systematic reviews in an economic modelling exercise. This considered the likelihood that patients prescribed NSAIDs would experience adverse gastrointestinal events that, in some cases, could lead to death. The costs of treating these events were derived from published sources and risk factors were obtained from prior work undertaken by the collaboration. The findings showed that for every patient prescribed an NSAID the additional cost to the UK NHS in managing the adverse consequences amounted to £48. The cost of NSAID prescribing ca. 24 million prescriptions at the time of the study was £220 million. However, when the overall cost associated with these therapies was estimated, incorporating preventive and treatment costs associated with adverse events, this was between £400 million and £600 million, comprising over £35 million in hospitalisations and between £140 million and £340 million in prescribing protective agents. Further work in relation to these phenomena was published in 2006 [R2].

The research programme developed through funding from organisations such the National Institute for Health Research (NIHR), Welsh Government and pharmaceutical companies. Studies included assessments of the costs of managing pain [R3-4], evaluations of interventions designed to secure pain relief and studies that examined the relationship between pain and work. An example of the latter was a NIHR funded project that explored the effectiveness and cost-effectiveness of strategies for managing patients with sciatica [R5] – a condition that has a lifetime prevalence rate of around 5% for men and 4% for women. The research involved both evidence synthesis and economic modelling, with the economic modelling undertaken by Phillips and Fitzsimmons at Swansea, who were also involved with colleagues in Cardiff on the evidence search and synthesis. The Welsh Government funded project (2008-09), led by Phillips, assessed the costs and benefits of a scheme designed to minimise workers’ sickness absence by introduction of early physiotherapy interventions to reduce the adverse effects of pain and improve work retention and return to work rates [R6]. The research demonstrated that the scheme produced: significant reductions in sickness absence and improvements in work-related performance; a substantial reduction in resource utilisation; marked benefits for employees with musculoskeletal problems and significant improvements in their quality of life.

3. References to the research

- R1 Moore A, Phillips CJ. Cost of NSAID adverse effects to the UK National Health Service. *Journal of Medical Economics*, 1999; 2: 45-55
- R2 Moore RA, Derry S, Phillips CJ, et al. Nonsteroidal anti-inflammatory drugs (NSAIDs), cyclooxygenase-2 selective inhibitors (coxibs) and gastrointestinal harm: review of clinical trials and clinical practice. *BMC Musculoskeletal Disorders*, 2006; 7:79 doi: 10.1186/1471-2474-7-79
- R3 Phillips CJ. Economic burden of chronic pain. *Expert Review of Pharmacoeconomics & Outcomes Research*, 2006; 6: 591-601.
- R4 Phillips CJ, Main CJ, Buck R, Aylward M et al. Prioritising pain in policy making: The need for a whole systems perspective, *Health Policy*, 2008; 88: 166-75
- R5 Lewis R, Williams N, Matar HE, Din, N, Fitzsimmons D, Phillips CJ et al. The clinical effectiveness and cost-effectiveness of management strategies for sciatica: systematic review and economic model. *Health Technol Assess* 2011;15(39):1–578
- R6 Phillips CJ, Phillips R, Main CJ, Watson PJ et al. The cost effectiveness of UK National Health Service Physiotherapy support for occupational health services. *BMC Musculoskeletal Disord*. 2012 Feb 23;13(1):29. doi:10.1186/1471-2474-13-29.

Relevant grants

- 2002-03 Main CJ, Phillips CJ. Development of Wales Health Work Partnership Programme. Funded by Department of Work and Pensions/Welsh Assembly Government: £15,000
- 2003-04 Phillips CJ. Assessment of quality of life of patients with GI adverse events. Funded by Merck Inc: £50,000.
- 2005-09 Phillips CJ, Main CJ, Buck R. Well-being in Work Initiative: a series of projects designed to investigate the relationship between health and work, to develop and evaluate interventions aimed at improving work retention and rehabilitation. Phase I, Phase II and Phase III funded by Wales Centre for Health: £250,000.
- 2008-09 Williams N, Lewis R, Phillips CJ, Fitzsimmons D et al. Management strategies for sciatica. HHR HTA Programme: £250,000
- 2008-09 Phillips CJ, Davies S, Noble G, Aylward M et al. Development of a framework for the evaluation of the Occupational Health Physiotherapy Pilot Project. Welsh Assembly Government: £95,000
- 2008-10 Siebert S, Brophy S, Lyons R, Gravenor M, Phillips CJ, et al. A population-based ankylosing spondylitis project. MRC: £240,000.

4. Details of the impact

Impact 1. Engaging with pharmaceutical companies to introduce new pain therapeutic agents

Work relating to the first two papers referenced in section 3 [R1, 2] was instrumental in the development of a new class of therapies that significantly reduced the extent of gastrointestinal side effects evident in other therapies for pain relief:

“At the time of the development of the new therapeutic agents – Cox II inhibitors (coxibs) – for the management of chronic pain by the pharmaceutical industry, little was known about the scope and health economic impact of NSAID-related adverse experiences. Dr Phillips’ work studying the clinical impact of these types of AEs (adverse effects) and quantifying the healthcare resource utilization employed by clinical practice was very important to help gain an understanding [of] the economic impact of introducing coxibs to clinical practice. Dr Phillips, in collaboration with Dr Moore and Merck researchers, was instrumental in the development of the first health economic analyses of the coxibs.” (Head of Economics and Statistics, Merck Corporation) [C1]

There were some 940,000 prescriptions for coxibs in England, Scotland and Wales during 2012, which represents over 5% of total analgesic prescribing. The drugs are of major benefit to patients who previously had major problems in securing pain relief due to the side effects associated with the alternative therapies.

Impact case study (REF3b)**Impact 2. Re-focusing patient management**

Findings from the research programme on costs associated with chronic pain [R3-4] led to Phillips contributing to the development of NICE guidance for employers, NHS and other professionals and managers involved in the management of long-term sickness absence and incapacity. He has also contributed to clinical update sessions for medical professionals, including recent meetings at the Royal College of Anaesthetists and Royal College of General Practitioners. Further, a Welsh Government commissioned evaluation of costs and benefits of an early physiotherapy intervention [R6] which demonstrated significant improvements in clinical and quality of life measures and sickness absence rates. This work was a key component in assessing the need for a national occupational health service for Wales, and in informing the evidence base for Fit for Work pilots – a major component of the UK government’s policy of welfare reform:

“The impact of the Occupational Health and Physiotherapy Pilot [i.e., R6] was fed in, following Dame Carol Black’s Review, to support the evidence base for the Department of Work and Pensions ‘Fit for Work’ pilots - 11 pilots were introduced, with 7 being extended.” (Head of Workplace Settings, Welsh Government) [C2]

In addition, the impact of the research has been acknowledged by patient groups:

“... vouch that his work has greatly impacted on elevating the status of pain management within the UK and further afield from the patient perspective. Professor Phillips’ work on the impact of pain is recognised and valued within the EU pain community and has served to increase awareness of pain at a political level to support the patients’ voice in getting a higher priority for the management of pain” (Patient representative) [C2]

Impact 3. Enhancing the status of pain and its management in the development of health policy and practice

Research findings (R3-4) have also been widely used to influence policy developments in UK and overseas. For example, findings were used to inform a chapter in the Chief Medical Officer of Health Annual Report 2008 – entitled “Pain: breaking through the barrier.”

“The research findings [i.e., R3] were influential in framing the chapter on pain in the CMO Report and the data his work has produced on costs and burden of pain provided a useful background to the chapter and the need for concerted action to initiate evidence-based policies and treatments to grapple with the problem. His direct input discussing the direction and content for the chapter and offering support and suggesting refinements was greatly valued at the time. His on-going involvement in UK-wide discussions about public and health policy to reduce the burden of ill health from chronic pain remains greatly appreciated” (Senior Clinical Advisor to Chief Medical Officer, England) [C3]

The opening section of the chapter – entitled Impact on Lives – was largely drawn from the data synthesised in references R3 and R4. Further, the research helped to formulate policy development in Canada:

“We are just beginning discussions here in relation to a provincial policy strategy for the management of chronic pain.....Your paper on chronic pain burden [R3] will be very useful....please let us know if we can share your document” (Head of Pain Management, Calgary Health Region, Alberta, Canada) [C3]

and was widely utilised in developing the Welsh Service Directive and Commissioning Directive (2008) on chronic non-malignant pain – a key strategic document in establishing and developing pain services in Welsh hospitals. Thus Phillips’

“.....contribution was invaluable in helping to ensure that we were able to outline an approach for Wales which was evidence based taking full account of both the clinical and cost effective impacts on improving the management of this across Wales. This was pioneering work at the time with Wales the first country in the UK to produce such policy guidance” [C3]

A written response to an Assembly question given by the Welsh Minister on 9th July 2013 indicated that Health Boards had achieved 87% compliance with the actions within the above document to establish more robust community pain services linked with secondary care to support more effective pain management.

Impact 4. Increasing the awareness within the political community of the societal burden of pain

Research findings [R1-R6] have also been used to raise political awareness of pain and its management. Presentations at the Parliamentary Health Group (House of Commons, 2003 and

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2004) were instrumental in the formation of the Chronic Pain Coalition - a forum established in 2006 to unite patients, professionals and parliamentarians in a mission to develop an improved strategy for the prevention, treatment and management of chronic pain and its associated conditions.

“Through his research into the socio-economic impact of pain and its treatment modalities, he is acknowledged nationally as the leading health economist in our speciality area. His detailed research work has been instrumental in establishing pain as an important long term condition, with profound impact on patients' quality of life, NHS workload and costs, as well as wider societal costs through loss of productivity and benefits/pensions” (Past President, British Pain Society) [C4].

Phillips also presented sessions at a Europe against Pain Conference (Brussels 2010) and Societal Impact of Pain Conference (Brussels 2011) – to increase awareness among politicians and policy makers at a European level of the impact of pain on society and the need for concerted action to alleviate the impact on individuals and societies. A testimonial to the impact of the work from one of the main sponsors of the initiative is provided below:

“The concept of ‘Societal Impact of Pain’ can be traced to your analysis, presentations and publications and led me to invite the European Federation of IASP Chapters board to enter a dialogue in Brussels with policy makers on the prioritization of pain management in the health care system. The roadmap for action on pain management that emerged from the series of meetings in Brussels was inspired by your publications and you have fuelled the discussion in a far wider sphere of influence than the UK” (Head of Political Affairs, Grünenthal GmbH – major pharmaceutical company in pain management) [C4].

The methods developed in assessing the full range of costs and benefits (including the adverse events) of pain management have been subsequently applied, with funding from a number of sources, to other conditions and healthcare interventions, including cancer, dentistry, multiple sclerosis, public health and wound management, impacting on policy, practice and therapeutic developments in each of these areas.

5. Sources to corroborate the impact

C1. Stimulating pharmaceutical companies to develop new pain therapeutic agents

- Moore RA, Phillips CJ, et al. Economic Evaluation of Etoricoxib versus Non-Selective NSAIDs in the Treatment of Osteoarthritis and Rheumatoid Arthritis Patients in the UK. *Pharmacoeconomics*, 2004; 22: 643-60
- Moore RA, Phillips CJ, Pellissier J, Kong S. Health economic comparisons of rofecoxib versus conventional nonsteroidal antiinflammatory drugs for osteoarthritis in the United Kingdom. *Journal of Medical Economics*, 2001: 4:1-17.
- quote from Head of Economics and Statistics, Merck Corporation

C2 Re-focusing patient management

- <http://www.nice.org.uk/nicemedia/live/11779/43545/43545.pdf> (p.51)
- http://www.iasp-pain.org/SIGs/SystematicReviews/SIG-O_2012SymposiumProgram.pdf
- quote from Head of Workplace Settings, Welsh Government
- quote from patient representative

C3 Enhancing the status of pain and its management in the development of health policy and practice

- http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_096225.pdf
- <http://wales.gov.uk/dhss/publications/health/strategies/chronicpain/chronicpaine.pdf?lang=en> (p.38)
- <http://wales.gov.uk/docs/phhs/publications/090713occupationalen.pdf> (p.15)
- quote from Head of Pain Management, Calgary Health Region, Alberta, Canada
- quote from Head of Chronic Conditions Management, Welsh Government

C4 Increasing the awareness within the political community of the societal burden of pain

- <http://www.sip-platform.eu/plenary-4-may-sip-2010.html>
- <http://www.sip-platform.eu/plenary-3-may.html>
- Associate Parliamentary Health Group agenda
- quote from Head of Political Affairs, Grunenethal
- quote from Past President, British Pain Society