

Impact case study (REF3b)

<p>Institution: Queen's University Belfast</p>
<p>Unit of Assessment: 3a Pharmacy</p>
<p>Title of case study: Reduced prescribing of inappropriate medication in nursing home residents through a pharmacy intervention</p>
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>This work has formed the basis for a new pharmacy service that has now been commissioned for nursing homes in N. Ireland. It has been recognised that prescribing of medications for older people in nursing homes has been inappropriate, with overuse of medicines that are not clinically indicated. In collaboration with colleagues in the USA, the development and implementation of the Fleetwood Model, a pharmacy intervention service, has led to a reduction in the inappropriate prescribing of psychoactive medications (anti-psychotics, hypnotics and anxiolytics) which can cause sedation and other side-effects, and was shown to be cost-effective.</p>
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>In collaboration with colleagues in the USA, Hughes (Professor) has led the development and implementation of a service (intervention) to reduce inappropriate prescribing of psychoactive medications. Prescribing in nursing homes for older people has long been problematic. Concerns have been highlighted about overuse of psychoactive medications such as antipsychotics, hypnotics and anxiolytics. These medications were often being used to sedate and subdue older people, and have been described as 'chemical restraints'. There have been attempts to tackle this problem, notably through the use of legislation in the USA, where written confirmation is required to justify the use of these drugs and pharmacists are mandated to review their use on a monthly basis.¹ Hughes has been working in this area for 14 years with American colleagues (Profs. Kate Lapane and Vincent Mor), following on from a Harkness Fellowship in Healthcare Policy (1998-99) which was spent at the Center for Gerontology and Healthcare Research at Brown University. During her time at Brown, and on return to Queen's (1999), she continued to work on studies to understand other factors associated with prescribing in the nursing home setting such as staffing characteristics (the number of nurses present in a home), the ownership status of the home (for profit, not for profit) and whether the home was part of a chain.² However, there has also been interest in intervention approaches whereby healthcare professionals collaborate, with a view to improving prescribing in this population. Hughes and Lapane, together with the American Society of Consultant Pharmacists, developed an intervention model, known as the Fleetwood model which sought to reduce inappropriate prescribing in older people in nursing homes. Two trials were undertaken, one in Northern Ireland³ and one in North Carolina (USA).⁴ The Northern Ireland study (randomised controlled trial) was conducted in 2005/2006 in 22 nursing homes, led by Hughes, supported by a research fellow (Dr. Susan Patterson), an economist (Dr. Grainne Crealey) and medical statistician/lecturer (Dr. Chris Cardwell).⁴ The primary outcome in the study was a reduction in inappropriate psychoactive prescribing (anti-psychotics, hypnotics and anxiolytics) and a cost-effectiveness analysis was also undertaken. The intervention was delivered to 11 nursing homes by prescribing support pharmacists who worked in conjunction with nursing home staff and general practitioners. Usual care (no pharmacy intervention) continued in 11 control homes. At the start of the study, ~65% of residents in both intervention and control homes were receiving psychoactive medication, and in over 75% of these residents (in both intervention and control sites), these medications were considered inappropriate, based on the application of a structured approach to assess appropriateness. The study ran for one year, and at the end of 12 months, the proportion of residents taking inappropriate psychoactive medications at 12 months in the intervention homes (25/128, 19.5%) was much lower than in the control homes (62/124, 50.0%). There was with a 74% reduction in the likelihood of residents in the intervention homes receiving inappropriate medication compared to those residents in control homes.⁴ The intervention was also shown to be cost-effective.⁵</p>

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

Research papers pertaining to the programme of research on factors associated with prescribing in nursing homes.

1. HUGHES CM, LAPANE KL, MOR V, IKEGAMI N, JONSSON PV, LJUNGGREN G, SGADARI A. The impact of legislation on psychotropic drug use in nursing homes: a cross-national perspective. *Journal of the American Geriatrics Society* 2000; **48**: 931-937
2. HUGHES CM, LAPANE KL, MOR V. The influence of facility characteristics on anti-psychotic drug prescribing in nursing homes. *Medical Care* 2000; **38**: 1164-1174
3. PATTERSON SM, HUGHES CM, CREALEY G, CARDWELL C, LAPANE K. An evaluation of an adapted United States model of pharmaceutical care to improve psychoactive prescribing for nursing home residents in Northern Ireland (Fleetwood NI Study). *Journal of the American Geriatrics Society* 2010; **58**: 44-53
4. LAPANE KL, HUGHES CM, CHRISTIAN JB, DAIELLO LA, CAMERON KA, FEINBERG J. Evaluation of the Fleetwood model of long-term care pharmacy. *Journal of the American Medical Directors Association* 2011; **12**: 255-363
5. PATTERSON SM, HUGHES CM, CARDWELL C, LAPANE K, MURRAY AM, CREALEY GE. A cluster randomized controlled trial of an adapted United States model of pharmaceutical care for nursing home residents in Northern Ireland (Fleetwood NI Study): a cost-effectiveness analysis. *Journal of the American Geriatrics Society* 2011; **59**: 586–593

Grants pertaining to the programme of research on factors associated with prescribing in nursing homes.

HUGHES CM

Title of project: An evaluation of prescribing and related clinical outcomes in US nursing homes: the basis of a model of care in the United Kingdom

Funding body: Commonwealth Fund

Funding requested: \$75,000 (Harkness Fellowship)

Outcome: Funding granted \$75,000 September, 1998-1999

MOR V, HUGHES CM, FRIES BE.

Title of project: Long-term care quality monitoring procedures: A cross-national comparison

Funding body: Commonwealth Fund

Funding requested: \$20,000

Outcome: Funding granted \$20,000 May 1999-2000

HUGHES CM

Title of project: The prescribing interface in primary care: a portfolio of research exploring the relationship between community pharmacy and general practice

Funding body: NHS Executive and NI Research and Development Office

Funding requested: £322,245 **Outcome:** Funding granted £322,245, through the National Primary Care Career Scientist Award Scheme, 2001-2005

HUGHES CM, LAPANE KL.

Title of project: The Prospective Payment System: Its impact on the management of depression on older nursing home residents.

Funding body: The Commonwealth Fund

Funding requested: \$30,000

Outcome: Funding \$30,000 granted, 2001-2002

HUGHES CM, PATTERSON SM, CREALEY GE.

Title of project: An evaluation of a US model of pharmaceutical care for nursing home residents

Funding body: Research and Development Office, Northern Ireland

Funding requested: Research and Development Office, Northern Ireland

Outcome: Funding granted £168,834, January 2004-2007

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

Impact on practice

During 2011-12, a pilot of this service was undertaken in the South Eastern Local Commissioning Group (LCG; a health administrative area somewhat similar to a Primary Care Trust in England) and proved successful. Seven pharmacists with appropriate training, based on the Fleetwood model, worked with nursing homes and general practitioners (GPs). The pharmacists identified residents registered with the GPs, and reviewed their medication. This involved using paper-based and computerised records to assess prescribing, and then a subsequent visit to the nursing home to clarify any issues with the lead nurse. The pharmacist then liaised with the prescribing GP, and made recommendations which included stopping and starting medications, dose changes, formulation changes (e.g. a liquid product being recommended rather than a tablet) and therapeutic switches (one medicine being substituted for another). A common intervention was stopping or reducing the dose of psychoactive medicines (antipsychotics, hypnotics and anxiolytics). Other interventions included requesting blood tests to be undertaken, correcting discrepancies in medication records, updating resident allergy status on GP records and referring residents to other services. The pilot resulted in £42,896 annual savings in 317 residents.¹ Building on the pilot activity and on evidence gained in the research, a service has now been commissioned across Northern Ireland, which engages specially trained pharmacists to undertake medication review of patients resident within nursing homes and optimise use of their medicines.¹ In 2012/13 financial year, 31 pharmacists worked with 31 general practices across all of N. Ireland. Information collated by the Health and Social Board to date indicated that the medication regimens of 1052 nursing home residents were reviewed by these pharmacists, and 2200 interventions were made. Just under 350 medicines were started, 1170 were stopped, 485 dose adjustments were made, along with 206 formulations changes. This has resulted in £190,000 annual savings for this financial year.

Impact on policy

The Fleetwood service has been externally reviewed by the NHS Centres for Review and Dissemination. The Centre was established in 1994 to provide the NHS with information on the effectiveness and cost-effectiveness of treatments and the delivery and organisation of health care. It also offers an independent view on the reliability of conclusions proposed by studies. The Centre confirmed that the Fleetwood model was a robust and cost-effective intervention. The review stated that *"The economic evaluation was carried out alongside a pragmatic randomised controlled trial (RCT) and its clear and robust methods should have ensured the validity of the authors' conclusions"*.²

The Northern Ireland Dementia Strategy, published in November 2011, cited the findings from the Fleetwood model research.³ The findings were also highlighted in a recent policy document from the Royal Pharmaceutical Society (Scotland), entitled *"Improving pharmaceutical care in care homes"*. This document highlighted the Fleetwood model as one which represented strong evidence for future service development.⁴

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

1. Head of Pharmacy and Medicines Management, Health and Social Care Board, Northern Ireland) may be contacted to verify impact on practice.

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2. NHS Centres for Review and Dissemination.

<http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=22011000851>

3. The work has been cited in the Dementia Strategy for Northern Ireland published on November 7th 2011 (page 76). PDF document available on request.

4. Royal Pharmaceutical Society Scotland. Improving pharmaceutical care in care homes. Edinburgh: RPS, 2012.

<http://www.rpharms.com/promoting-pharmacy-pdfs/rpscarehomereportfinalmarch2012.pdf>