

Institution: Bangor University, 10007857		
Unit of Assessment: UoA 3 - Allied Health Professions, Dentistry, Nursing and Pharmacy		
Title of case study: Influencing the design of NHS dentistry provision in Northern Ireland and Wales		
Period when the underpinning research was undertaken: 2015 - 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Professor Paul Brocklehurst Dr Lynne Williams Dr Zoe Hoare	Role(s) (e.g. job title): Professor in Health Services Research Reader in Healthcare Sciences Senior Lecturer	Period(s) employed by submitting HEI: May 2015 - present January 2005 - present October 2008 - present
Period when the claimed impact occurred: 2018 - 31 December 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>Dental payment mechanisms and role-substitution in NHS dentistry were examined in Bangor-led research by Professor Paul Brocklehurst and revealed that paying NHS dentists using capitation produced significant and rapid reductions in treatment activity. This work also demonstrated non-inferiority for Dental Therapists when managing low-risk NHS patients and determined the conditions that were necessary to promote role-substitution and 'skill-mix' in NHS dentistry. Bangor research influenced decisions on national NHS contract reform in Northern Ireland (NI) and Wales and underpinned the response to COVID in the former. The research has resulted in policy changes and strategic investment in Wales to support role-substitution and 'skill-mix' in NHS dentistry and an All-Wales Faculty for Dental Care Professionals, which was officially launched in January 2020.</p>		
2. Underpinning research		
<p>NHS dental services are used by 50.2% of the adult population in Northern Ireland (NI) and 54.8% in Wales. This equates to a spend of GBP130,000,000 and GBP190,000,000 to support approximately 370 and 445 NHS practices, respectively. Two independent but interlinked Bangor-led projects, in collaboration with Salford Royal NHS Foundation Trust, University of Newcastle, University of Manchester, University of Sheffield, Department of Health and Social Care Board in Northern Ireland and the Dental Branch in Welsh Government, shaped dental contract reform policy in Northern Ireland (NI) and Wales.</p>		
Assessing the influence of financial incentives on the provision of NHS dentistry		
<p>The Department of Health in NI tested a new way of paying a sample of NHS dentists between August 2015 and July 2016 [3.a, 3.1]. Professor Paul Brocklehurst led a three-year study to determine whether this change (fee-for-service to capitation), affected how NHS dental care was provided (from July 2015 to December 2017). Fee-for-service payments are based on the number of treatments undertaken (e.g. payment for individual fillings and extractions), whilst capitation pays the dentist based on the number of registered patients (i.e. a block payment regardless of the treatments provided).</p>		

Over the three years, 30,000 NHS patients and 34 NHS dentists were followed. Using national datasets, we empirically measured changes in clinical activity levels in the participating NHS practices and compared this with matched controls across three time points: 1) the year before capitation was introduced; 2) the year of capitation payments; and 3) on their return to fee-for-service payments [3.2]. A parallel qualitative study provided contextual detail [3.3].

Clinical activity levels dropped in participating NHS practices (e.g. number of fillings and extractions), as they moved from fee-for-service to capitation (compared to controls) [3.1, 3.2]. At the end of the capitation period, there was a rapid return to baseline activity levels [3.1, 3.2]. Due to the co-payment structure in NHS provision, this reduction in activity would have led to a shortfall of GBP11,000,000 per annum in NI [3.1], given the drop in Patient Charge Revenue (linked to the fall in activity).

Dental-Therapists providing low-risk dental ‘check-ups’

The NHS regulations only allow dentists to act as the ‘front-line’ clinician for ‘check-ups’ across the United Kingdom, despite changes made by the dental regulator (General Dental Council) in May 2015. In 2018 and 2019, 58.7% of the 39,700,000 courses of treatment completed across England and Wales were for NHS ‘check-ups’, with no further treatment. The use of Dental Therapists (DTs) offers policy-makers a possible alternative to using dentists to undertake ‘check-ups’, which may be more cost-effective and increase the level of prevention offered NHS patients, given the focus of their role.

Brocklehurst led a detailed qualitative process evaluation (with research expertise provided by Dr Lynne Williams and Dr Zoe Hoare) [3.4], alongside an individually randomised pilot trial between March 2018 and November 2019 [3.b]. Extensive interviews (n=28) were conducted with the Chief Dental Officer for Wales, dental commissioners in England and Wales, dentists, DTs and patients, using a realist framework from October 2017 [3.4]. The process evaluation highlighted the limitations of the current NHS contract, which disincentivised the use of DTs and ‘skill-mix’. It also highlighted the importance of educational provision to develop and support skill-mix. Both findings were evident early in the study and formed the basis for expanding skill-mix in Wales, which was reinforced by the findings in the empirical study. No clinical differences were found between the two arms (care by DT *versus* care by dentist) for periodontal health, levels of plaque, tooth decay, quality of life and patient anxiety (n=217).

3. References to the research

Research Outputs

3.1. **Brocklehurst, P.**, Tickle, M., Birch, S., McDonald, R., Walsh, T., Lloyd Goodwin, T., Hill, H., Howarth, E., Donaldson, M., O’Carolan, D., Fitzpatrick, S., McCrory, G. and Slee, C. (2020) Impact of changing provider remuneration on NHS general dental practitioner services in Northern Ireland: a mixed-methods study. *Health Services and Delivery Research*, **8**(6). [DOI](#) [Submitted to REF2021](#) (REF identifier UoA3_54)

3.2. Hill, H., Howarth, E., Walsh, T., Tickle, M., Birch, S. and **Brocklehurst, P.** (2020) The impact of changing provider remuneration on clinical activity and quality of care: evaluation of a pilot NHS contract in Northern Ireland. *Community Dentistry and Oral Epidemiology*, **48**(5), 395-401. [DOI](#) (Peer-reviewed journal article)

3.3. Lloyd- Godwin, T., **Brocklehurst, P.**, **Williams, L.** and Hall, H. (2018) How and why does capitation affect General Dental Practitioner behaviour? A Rapid Realist Review. *British Journal of Health Care Management*, **24**(10), 505-513. [DOI](#) (Peer-reviewed journal article)

3.4. **Brocklehurst, P.**, **Hoare, Z.**, Woods, C., **Williams, L.**, Brand, A., Shen, J., Breckons, M., Ashley, J., Jenkins, A., Gough, L., Preshaw, P., Burton, C., Shepherd, K. and Bhattarai, N. (In Press) Can dental therapists maintain the oral health of routine low risk dental recall patients in high-street dental practices? A pilot study. *Health Services and Delivery Research* (Peer-reviewed journal article) (publication pending) **[delayed output]**

Grants

3.a **Brocklehurst, P. R.** (2015 - 2018) *Impact of a change to remuneration on the technical efficiency of dental practices: evaluation of the pilots of a new NHS Dental Contract in Northern Ireland*. NIHR: HS&DR 14/19/12, GBP478,918 (Bangor University: R26G49).

3.b **Brocklehurst, P. R.** (2017 - 2019) *Can Hygiene-Therapists maintain the oral health of routine low-risk dental recall patients in "high-street" dental practices: a pilot study*. NIHR: HS&DR 16/01/79, GBP402,378 (Bangor University: R45G56).

4. Details of the impact

Research lead by Bangor University provided evidence to inform the design of NHS dentistry provision in Northern Ireland (NI) and Wales, including national contract reform programmes and the use of infrastructure funding to promote 'skill-mix' in the latter. Policy objectives in both nations are to increase access to services, prevention focused dentistry and the quality of care provided. The use and role of incentives within the contractual payment mechanisms to achieve these aims have been articulated in 3 strategic policy documents in NI and Wales ('Primary Dental Care Strategy'; 'Prudent Healthcare'; and 'The Oral Health and Dental Services Response to a Healthier Wales'). Skill-mix is also a key policy area in Wales.

The results from the 2 Bangor-led studies shaped the implementation of these policies in NI and Wales and informed NI's dentistry response to the COVID-19 pandemic. They provided empirical evidence on the influence of payments systems in NHS dentistry and the conditions necessary to support skill-mix in Wales. The impact of changing provider remuneration on NHS general dental practitioner services in NI [3.a] was completed in December 2017. The research that showed Dental Therapists (DTs) were comparable with general dental practitioners for undertaking check-ups in low-risk patients [3.b] was completed in December 2019; the emergent results of the process evaluation being fed-back early to the Welsh Government (from 2018).

1) Informing NHS contract reform and the response to the COVID-19 crisis in NI

The Chief Dental Officer for NI reported that "*the policy intent in Northern Ireland [had] for some time been to move to a capitation-based remuneration model*" as part of NHS contract reform, which had been accelerated by the COVID-19 pandemic. The results of the Bangor research [3.a] "*directly informed our current policy*" on NHS contract reform, not to pursue a simple capitation model. Based on the modelling, this would have equated to a pre-COVID shortfall of GBP11,000,000 in NI (total NHS dental budgets of GBP130,000,000).

It also provided detailed information for NI to manage COVID-19, which had caused a dramatic reduction in clinical activity. As dental teams could no longer be paid using fee-for-service, a block payment alternative had to be found (similar to capitation). NI used the models from the research [3.a] in "*setting realistic activity targets for practitioners*" [5.1]. This involved changing the value of the NHS dental contracts for all the NHS dentists operating across the Province "*1150 independent contractor dentists in Northern Ireland working in 370 practices*" [5.1].

2) Informing NHS contract reform in Wales

The findings of the Bangor-led NIHR study [3.a] also informed the Chief Dental Officer for Wales in "*the decision not to pursue a simple capitation-based payment mechanism for General Dental Services*" as part of their NHS contract reform programme. This involved approximately half of all NHS practices (n=430) prior to COVID [5.2]. Based on the modelling from Bangor's research [3.a], this would have equated to a pre-COVID shortfall of GBP14,000,000 (total NHS dental budgets of GBP190,000,000 in Wales).

3) Expansion of skill-mix and establishing the All-Wales Faculty for Dental Care

The Chief Dental Officer for Wales reported that "*the process evaluation alongside your pilot trial also helped to inform our thinking about the expansion of skill-mix in the on-going Contract Reform programme in Wales*" [3.b, 5.2].

The Chief Dental Officer for Wales also reported that “*as a result of your work, we commissioned you to write a report for the Welsh Government*”.

Subsequently, this led to the “*commission of the All-Wales Faculty for Dental Care Professionals at Bangor University in 2018, in order to improve the quality of training for Dental Care Professionals across the nation*” [5.3]. This strategy was outlined in the policy document ‘The Oral Health and Dental Services’ Response to A Healthier Wales’ [5.4]. As stated in the document, “*we will: establish a university-led Faculty of Dental Care Professionals to work with further education colleges and training providers to set clear educational frameworks and monitor the quality of training*” [5.4].

Bangor University was commissioned by the Welsh Government to establish the All-Wales Faculty for Dental Care Professionals (AWFDCP) (approximately GBP500,000), which commenced its educational development activities from June 2019. Informed by the process evaluation in Bangor’s research [3.b], it is developing qualifications for DTs, Dental Hygienists and Dental Nurses and links to the on-going NHS Contract Reform process across Wales [5.3]. The AWFDCP was officially launched by the Minister for Health in January 2020 and now has 2 qualifications validated by the General Dental Council and by Skills Higher Education and Lifelong Learning in the Welsh Government.

4) The North Wales Dental Academy

As the Bangor-led research [3.b] found non-inferiority for DTs in conducting low-risk dental ‘check-ups’, Professor Paul Brocklehurst consequently oversaw the development of the North Wales Dental Academy (approximately GBP2,000,000) on behalf of the Welsh Government. This post-graduate NHS facility was initiated in January 2020 to promote a “*step-up prevention and utilise the preventative-skills of the whole dental team to meet patients’ needs*” across Wales [5.4]. As a flag-ship programme, NHS service provision to 15,000 NHS patients per year is delivered using skill-mix, with training links to the AWFDCP.

5) In-Practice Prevention Programme in Yorkshire

As the result of the research and the findings of the process-evaluation [3.b], Brocklehurst was asked to help design and evaluate an In-Practice Prevention programme in England (Yorkshire & The Humber). This has shaped a novel programme to promote role-substitution and deliver a preventive programme, involving 20 NHS practices across the region from 2018 to 2020 [5.5].

5. Sources to corroborate the impact

5.1 **Testimonial letter from the Acting Chief Dental Officer for Northern Ireland** (reporter of the process of impact) corroborating that the decision not to adopt a simple capitation system for NHS dental contract reform in NI **was made based on the evidence** and **that the evidence was used to plan their response** to the management of COVID (payment of dentists in NI).

5.2 **Testimonial letter from Chief Dental Officer for Wales** (reporter of the process of impact) corroborating that the decision not to adopt a capitation-based payment mechanism for NHS dental contract reform in Wales **was made based on the evidence**; the **evidence directly influenced** the expansion of role-substitution and ‘skill-mix’ within Contract Reform in Wales; **this led to the** commissioning of the report ‘Training An Oral Health Needs-Based Workforce For All (Using All The Talents)’; the commissioning of the All-Wales Faculty for Dental Care Professionals (AWFDCP) at Bangor University and the commissioning of the North Wales Dental Academy in North Wales.

5.3 **All-Wales Faculty for Dental Care Professionals (AWFDCP) website** evidences the existence of the Faculty and the scope of the programme to support skill-mix with Bangor’s involvement clearly shown. <https://awfdcp.ac.uk/>

5.4 **The Oral Health and Dental Services Response to a Healthier Wales report (2019)** corroborates the formation of the AWFDCP, with policy stated to establish the [Bangor] University-led Faculty on p17.

<https://gov.wales/sites/default/files/publications/2019-03/the-oral-health-and-dental-services-response.pdf>

5.5 Testimonial letter from the Chair of the Yorkshire and The Humber Local Dental Network (reporter of the process of impact) corroborating changes made to the provision of incentives in the NHS contract to encourage role-substitution, 'skill-mix' and prevention in the region **based on the evidence**; the use of role-substitution and 'skill-mix' in NHS dentistry in Yorkshire and The Humber was promoted as part of the In-Practice Prevention programme.