

Delivering Excellence Locally

Featuring initiatives led by PCRS members around the UK, supported by PCRS programmes and tools

Achieving national spirometry certification in primary and secondary care in wales: a systematic approach



Dr Simon Barry *Consultant Respiratory Physician University Hospital of Wales in Cardiff, and Lead, Respiratory Health Implementation Plan Wales*

Introduction

Respiratory disease is the cause of one in seven deaths and one in seven adults is being treated for a respiratory condition in Wales.¹ In 2014, the Minister for Health and Social Services, Professor Mark Drakeford AM, commissioned the Respiratory Health Delivery Plan with the key aims of:

- Preventing poor respiratory health
- Detecting respiratory disease early
- Delivering fast and effective care
- Improving information
- Promoting research

Each of the seven Health Boards in Wales put forward local plans addressing these themes, and representatives met to discuss the most important key issues. There was overwhelming agreement that improving the standards of spirometry was the most pressing need, with other priorities including smoking cessation, national prescribing guidelines for COPD and asthma and improving access to pulmonary rehabilitation. In 2016, in line with the other national delivery plans, £1 million was allocated annually by Welsh Government to help implement the Respiratory Delivery Plan.²

As a respiratory community we have come far over the past few years, particularly developing an infrastructure and culture based around good data extraction and tackling variation of respiratory services across Wales. This article describes one element of this – engaging spirometry practitioners across Wales with the Association for Respiratory Technology and Physiology (ARTP) spirometry certification process. It describes the key principles we applied when developing this programme and how these will drive further development of respiratory care and quality across Wales.

Background

In Wales there are around 84,000 patients on GP registers diagnosed with COPD. The Quality Outcomes Framework (QOF) data reported that more than 90% of patients had their diagnosis of COPD confirmed by post-bronchodilator spirometry, yet local audits performed in a series of practices in Cardiff and Vale suggested that this figure was incorrect. Wales was the first country to engage with the National COPD audit in primary care and, in 2014, 56% of practices across the country provided their data. The results confirmed our suspicions showing that only 14% of patients actually had spirometry results with a diagnostic code consistent with COPD. Even when the code was ignored, 32% had post-bronchodilator spirometry that was not compatible with COPD.³ A subsequent data upload (whilst using slightly different datasets from the first), in which 94% of all Welsh practices engaged with the audit, suggested little improvement.⁴ Therefore, up to 27,000 patients on COPD registers may not have that diagnosis and are on inappropriate treatment. However, this is not exclusively a problem in Wales, as practice level audits across the rest of the UK have shown similar results. It is also estimated that up to one third of asthmatics do not have the disease (approximately 73,000 out of 220,000 in Wales).⁵ Given that Wales spends over £85 million annually on inhaler therapy alone, that provides the clear evidence for focusing on improving diagnosis as a national strategy.

Spirometry training in Wales

In 2005, Bolton and colleagues determined by questionnaire the availability, staff training, use and the interpretation results of spirometry in 72% of general practices in Wales.⁶ Most practices had a spirometer (82.4%) and, of these, 85.6% used it. However,

confidence in the use of a spirometer and interpretation of the spirometry results varied widely. Only 58.1% were confident in its use and a third were confident in interpretation of the result. Despite incentives to perform spirometry, the lack of adequate and standardised training in performance and interpretation suggested that use in primary care is confounded and that the diagnosis of COPD is likely to be made on imprecise clinical grounds. A subsequent UK-wide survey found that only 20% of primary care nurses who always used spirometry to diagnose COPD had undertaken any form of formal accredited training.⁷

Therefore, the conclusion was that training in spirometry in Wales was poor, with no clear mechanism for improving it. Moreover, there was no standardisation of equipment, no protocols for spirometer calibration and quality assurance, and no means of validating the spirometry results. The Respiratory Health Implementation Group (RHIG) determined that addressing this issue involved the following key steps:

1. Standardisation of spirometry equipment and test result reports across Wales.
2. Validation of spirometry results by uploading them digitally to the national IT interface, the Welsh Clinical Portal (WCP).
3. Training of any practitioner performing or interpreting spirometry in Wales to the ARTP standard, with certification onto the National Register.

Spirometers were procured through a competitive tender, resulting in significant cost savings. The integration between primary care spirometry results and WCP is expected in early 2019. Implementing training for ARTP nationally was by far the most difficult task. Since there was no clearly defined model for delivering spirometry training, we initially devolved this responsibility to individual Health Boards. Monies were allocated from the national fund to deliver this at no cost to the Health Boards. Despite this, it became apparent that the General Practitioners Committee (GPC) Wales, general practitioners and practice managers were unhappy about releasing their staff for two days to complete the required training and requested funds to backfill their absences.

This stimulated Rhys Jefferies, the National Programme Manager, to work with ARTP to refine and simplify the certification process, reducing the attended teaching time from two days to an optional half-day workshop and simplifying the certification process without impacting on standards or the learning experience. The focus was on meeting learning outcomes through formative assessment using an engaging interface. What was being assessed was critiqued; especially why certain elements were being assessed and the mechanisms for how it was being assessed. This led to a reduction of around 50% in the work candidates needed to do, gaining the endorsement of GPC Wales who became supportive in rolling out the programme to primary care.

Developing an integrated spirometry education programme

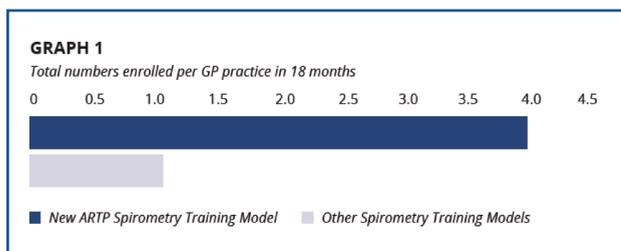
The solutions for delivering spirometry training varied between different Health Boards, with some Health Boards electing to employ extra staff in secondary care physiology departments to deliver the training and others deferring this to local universities. Powys – the largest but also most sparsely populated – has no general hospital or any university within its boundary, meaning that a different model was required for training. Working with the Institute of Clinical Science & Technology (ICST), we developed a system-wide approach to up-skill candidates no matter where they may be in Wales – and offered an infrastructure to stimulate continuous learning and engagement.

The key features for the success of this alternative model, which could be rolled out nationally and serve both primary and secondary care irrespective of the demographics and local structures, involved addressing the following:

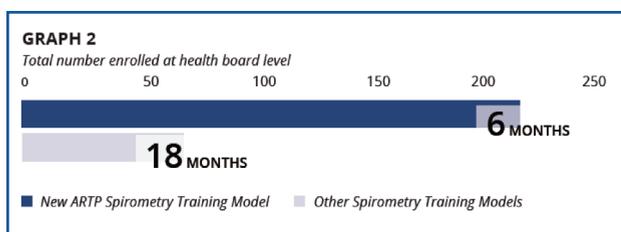
- Is it simple?
- Is it supported?
- Is it scalable?
- Is it practical?
- Is it demand orientated?
- Is it being implemented from within?
- Does it serve those implementing it?
- Does it add value?

From the pilot we established a delivery model that achieved each of these key principles. We eliminated the dependence on travel time and minimised absence from clinical duties. The flexible nature of the programme meant that it was not limited by the number of individuals enrolling, nor by the numbers already enrolled or by the availability of staff to deliver it. The academic element of training was delivered completely online and any face-to-face training was reserved for practical skills alone. Candidates now have an option to choose training that suits them, their commitments, expectations and learning requirements.

Powys was selected as the initial site for implementation and GP practices were contacted and staff enrolled onto the programme. Candidates underwent an integral on-boarding process, supported by the local manager, where teams were informed of the rationale and scope of the programme and helped to determine why the certification process was important to them, their service and their patients. Every practice in the region engaged with the programme and the numbers of practitioners that enrolled surpassed any other Health Board (graph 1). Feedback from those on the programme was excellent.



Following the success of the ICST delivery model in Powys, we implemented it in other Health Boards that had generally been unsuccessful in delivering spirometry using their in-house model. One Health Board that had failed to get 20 individuals through the programme was encouraged to adopt the ICST delivery model (Graph 2) at a third of the cost. Furthermore, the results showed over 10 times the number of candidates enrolled onto the programme, clearly achieving its demand-orientated objective. Furthermore, this was achieved in a third of the time taken for the traditional secondary care approach.



Delivering education at scale

Our approach in Wales is to deliver programmes at a national level – a focus on developing specific national training and education competencies, implementing national disease databases and ultimately delivering better value healthcare. We have several advantages in achieving this goal:

1. Wales is a small country with a population of 3.1 million
2. The seven Health Boards fund and support cooperative care between primary and secondary care
3. There is a single national IT interface which facilitates the implementation of databases and other IT solutions
4. The Respiratory Health Implementation Group is supported and funded by Welsh Government to improve respiratory care nationally.

It has become apparent through the natural experiment of implementing spirometry nationally that there is a huge variation in the cost and effectiveness of different solutions. This digital solution has proved to be superior because it addresses the key principles outlined above and it is measurable. Published data support such technologies as the preferred means for education in primary

care. A recent study examining the utilisation of internet resources in 383 GPs in Scotland found that 80.4% used e-learning for self-directed educational CPD.⁸ Furthermore, a study exploring teaching and learning for GPs found that the principal barriers to further study were work commitments, cost, family commitments and distance from course location. The study found that the preferred methods of learning were POD casts, DVD, webinar, apps, facilitated chat rooms and video conferencing, and this is a recurring theme following extensive interviews with practitioners across Wales.

We are now replicating this digitalisation process across a series of other national respiratory competencies including capillary blood gas testing, pleural procedures and asthma and COPD management. All national educational programmes, guidelines and registers are held within the same site. This has a dedicated internet TV channel, a clinical pathways app and a Quality Improvement platform. Data informs education, which subsequently changes practice through well-defined and specific quality improvement activity. These are available at no cost to healthcare workers in Wales and, since the development of this system, there has been a significant increase in engagement, standardisation and simplification of respiratory care.

Summary

Accurate spirometry is the foundation for the diagnosis of COPD, and it is clear from the National COPD Audit in Wales that up to a third of patients on COPD registers do not have post-bronchodilator obstructive spirometry. This indicates an incorrect diagnosis and wastage of significant sums of money on inappropriate inhaler therapy.

We describe a new model to deliver spirometry training at scale that is innovative, ongoing and measurable. It minimises time taken away from direct clinical duties, is cost effective and is of proven success when compared with other delivery models. It was developed in Wales through ICST in Cardiff and has now been adopted by NHS England as the primary mechanism for achieving ARTP spirometry certification at scale and is endorsed by the Primary Care Respiratory Society. This model of education, certification and registration is transferrable across a range of other competencies and will be used to up-skill the whole workforce in Wales to deliver value-based healthcare.

References

1. Welsh Government National Survey for Wales (2016). Available at: <https://gov.wales/statistics-and-research/national-survey/?tab=current&lang=en>
2. Welsh Government Respiratory Delivery Plan 2018- 2020 (2018): A 3-year plan for respiratory health services. Available at: <https://gov.wales/docs/dhss/publications/180119respiratory-plan.en.pdf>
3. Baxter N, Holzhauser-Barrie J, McMillan V, Saleem Khan M, Skipper E, Roberts CM. Time to take a breath. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Clinical audit of COPD in primary care in Wales 2014–15. National clinical audit report. London: RCP. Available at: <https://www.rcplondon.ac.uk/projects/outputs/primary-care-time-take-breath>

4. Baxter N, McMillan V, Holzhauer-Barrie J, Robinson S, Stone P, Quint J, Roberts CM. Planning for every breath. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Primary care audit (Wales) 2015–17. National report. London: RCP. Available at: <https://www.rcplondon.ac.uk/projects/outputs/primary-care-audit-wales-2015-17-planning-every-breath>
 5. Aaron SD., Vandemheen KL., Boulet LP., McIvor RA., Fitzgerald JM., Hernandez P., Lemiere C., Sharma S., Field SK., Alvarez GG., Dales RE., Doucette S., Fergusson D. (2008) Over-diagnosis of asthma in obese and non-obese adults. Canadian Respiratory Clinical Research Consortium 18;179(11)
 6. Bolton CE., Ionescu AA., Edwards PH., Faulkner TA., Edwards SM., Shale DJ. (2005) Attaining a correct diagnosis of COPD in general practice. *Respir Med* 99(4): 493-500
 7. Upton J, Maddoc-Sutton H, Sheikh A, Frank TL, Walker S, Fletcher M. National Survey on the roles of training of primary care respiratory nurses in the UK in 2006: are we making progress? *Primary Care Respiratory Journal* 2007; 16(5): 284-90
 8. MacWalter G, McKay J, Bowie P. (2016) Utilisation of Internet resources for continuing professional development: a cross-sectional survey of general practitioners in Scotland. *BMC Medical Education*
-