

# The Evolution and Environmental Benefits of the All Wales Stroke Meeting (AWSM), a Video Conference Multidisciplinary Meeting for Stroke Physicians

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## ABSTRACT

**Background:** The All Wales Stroke Meeting (AWSM) is a multidisciplinary stroke meeting. Stroke clinicians can present cases to review the neuroradiology and discuss the clinical story to further clinical care, seek consensus views on the management in specific rare or complex cases or provide an educational opportunity for the group centred around a rare case or specific feature of the case. **Methods:** The meeting was created to pool the knowledge of clinicians working across Wales to benefit patient care throughout the country. Here we describe the development, structure and personnel involved in the meeting. There is a focus on the technological requirements of the meeting and how utilising newly introduced IT solutions further improved the meeting's accessibility. **Results:** There is a positive economic and environmental impact of delivering multidisciplinary meetings through videoconference technology. The AWSM is estimated to annually save 97.16 days of clinician time and £13,087.18 in travel expenses. We estimate a reduction of carbon footprint of 15,792.38–19,722.44 kg CO<sub>2</sub>. **Conclusion:** The AWSM has been an invaluable component of stroke healthcare in Wales since 2009. We think this is an example of where collaborative working and innovative use of technologies can benefit clinicians, patients, NHS services and the environment.

**KEY WORDS:** Stroke, Stroke evaluation, Video conference, Neuroradiology, Continued professional development, Education, Multidisciplinary meeting.

## Introduction

Wales covers 8,022 square miles with a population of around three million. There are 12 hospitals providing hyperacute stroke care. Many areas in Wales are sparsely populated and hospitals in remote areas provide services for small catchment populations with few clinicians. Wales' geography provides a challenge for healthcare providers to ensure that there is as much equity as possible in healthcare provision for the population in very different regions.

Recognition of the importance of stroke-specific education versus the inherent geographical barriers and environmental implications of regular long-distance travel prompted the development of meetings mediated by teleconferencing. Since November 2009 there has been a regular weekly multidisciplinary neuroradiology videoconference meeting that has helped in numerous clinical cases to provide the optimal healthcare possible to the population of Wales.

## The All Wales Stroke Meeting (AWSM)

The purpose of this meeting is to allow stroke clinicians to present cases requiring further discussion with a group of colleagues consisting of consultants, trainee doctors, clinical nurse specialists, allied healthcare professionals and at least one neuroradiology consultant. The clinical component of the meeting lasts for one hour with most cases being highlighted to the meeting chair and neuroradiologist

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at least 24 hours prior to the meeting. Any other cases brought on the day of the meeting are also, then discussed if time allows.

The focus of discussion is usually from one of three broad groups. The first is to review the neuroradiology for the patient to allow the clinician to amalgamate the story, signs, imaging and non-radiological investigations to ascertain the correct diagnosis, guide further treatment and investigation as well as identifying the mechanism of stroke if not obvious beforehand. Some cases are discussed due to the patient presenting as a possible stroke, but then subsequent investigations reveal that it was in fact a stroke mimic.

The second group of case discussions seeks consensus from the attending clinicians as to what the majority management might be in specific rare or complex cases.

The third group are those where there is specific learning for the whole group around a rare case or feature of the case that the clinician hopes to share with colleagues to provide a Continued Professional Development (CPD) opportunity.

## History

The All Wales Stroke Meeting (AWSM) as it now exists started in 2009 when two clinicians working in two separate stroke units in Wales spoke about a clinical case. These stroke units were in Cardiff and Aberystwyth, 97 miles apart. Aberystwyth sits on the West coast of Wales and covers a rural population with a population density of 40.8 persons per square kilometre for the county.<sup>[1]</sup> Cardiff is the capital city of Wales within the United Kingdom and covers an urban, more densely populated region of 2,620.0 persons per square kilometre.<sup>[1]</sup>

These two clinicians found significant benefit in pooling their knowledge, so worked with other stroke clinicians in Wales to develop a weekly meeting where cases could be discussed in a multidisciplinary format. The meeting has eliminated travel time from base hospitals for consultant staff and ensured that single-handed stroke physicians can maintain their professional development in an area of constantly evolving clinical knowledge.

It was decided that the inclusion of a neuroradiologist would be of significant benefit to aid discussion and learning. However, this also brought with it

the challenge of viewing images across multiple sites. In 2009 video conference technology was not as commonplace as it is now with protracted processes and bulky equipment initially required within each hospital. However, each clinician gained agreement to use networked devices and a system was developed to ensure patient data was contained confidentially within the NHS Wales IT infrastructure. The image transfer system within NHS Wales allows a neuroradiologist in Cardiff to review images transferred securely from other sites. These images are then transmitted during the meeting for all receiving sites to view through the videoconferencing technology. Availability of the images to review at the time of discussion has helped train stroke clinicians in Wales in the basics of CT, CT perfusion, CT angiography and MRI Head interpretation. This was invaluable when out of hours stroke thrombolysis services were developed. Particularly because the clinicians involved in AWSM, who were participating, were expected to make decisions on stroke thrombolysis before a CT Head report issued by a radiologist was available. The AWSM and other training courses were utilised to train clinicians around the use of scoring tools such as ASPECTS to aid in this decision-making.<sup>[2]</sup>

## Enhancing Educational Content

The group involved in delivering the AWSM have always been motivated to ensure it evolved to meet the needs of the stroke clinicians in Wales. In 2017 funding was received from the Welsh Government funded Stroke Implementation Group to create a new post responsible for coordinating educational events for stroke clinicians in Wales. This individual was also tasked to establish and manage a new educational session to be held after the clinical discussion where clinicians would deliver a 30-minute educational session on a topic of their choosing on a rota basis to further develop the CPD benefits of the session.

This system worked effectively in helping non-radiologists to become more familiar with imaging and more confident in decision-making for clinical cases up to early 2020 when the lockdown related to the COVID-19 pandemic started. During this difficult time the AWSM was stepped down temporarily until May 2020. At this point the lead author worked with the Cardiff and Vale University Health Board IT department to develop and utilise the recently introduced Microsoft Teams to deliver the AWSM.<sup>[3]</sup>

This allowed clinicians to dial in from any location where they could access a device with Microsoft Teams linked to their NHS Wales account that met the data protection requirements of the organisation. During the COVID-19 restrictions this has been invaluable to maintain social distancing without the need to purchase any additional equipment. It has resulted in an easier ability for clinicians to access the meeting without the need to be in one specific location in their hospital. Consequently, the number of clinicians attending has increased, allowing even greater sharing of knowledge and experience. The most important element is the ability for all participants to maintain data protection for their patients using technology supported in NHS Wales.

### The Growth of the Meeting

Since those early discussions between two consultants the meeting has grown to now include many more participants each week. Over a ten-week period from 2nd March 2022 and 4th May 2022, we were able to collect data on attendances at the meeting. On average there are now 7 acute hospital sites represented each week (range 4-9) with 12 attendees (range 6-18) in total across all sites. Of these attendees at each meeting, between 3 and 15 were those in consultant or associate specialist roles, there were also between 1 and 6 attendees at the meeting who were other medical staff, nurses or AHPs. During the meetings an average of 6 cases were discussed (range 4-8).

### Environmental and Financial Impact

There are added environmental, financial and efficiency benefits in delivering a multidisciplinary meeting through videoconferencing technology. Using data collected over the ten-week period starting from 2nd March 2022 we were able to extrapolate impact over a twelve-month period. If an equivalent weekly meeting were held in University Hospital of Wales, Cardiff and the same number of attendees were to travel to the site for the meeting while car-sharing, 295 cars would need to travel to Cardiff from centres across mid and South Wales over that twelve-month period. This would equate to 728.73 hours of travel time which is the equivalent of 97.16 working days based on 7.5 hours working day.

This therefore allows these clinicians to reinvest this time to the delivery of stroke services in their centres, which often have limited stroke clinicians on-site. This released travel time will bring with it a financial saving by not having to provide additional clinical sessions during this time to cover. Beyond this though, there are associated savings from not having to pay extra duty travel costs to those attendees which over twelve months would total £13,087.18 at 56p/mile.

The other pressing concern for healthcare providers, as well as many industries worldwide, is the environmental impact of healthcare delivery. We were able to calculate that over 12 months there would be a reduction of carbon footprint of between 15,792.38kg CO<sub>2</sub> (small vehicle) and 19,722.44kg CO<sub>2</sub> (large vehicle). The equivalent number of trees that would need to be planted to offset this amount of CO<sub>2</sub> would be between 95 and 118 based on the generally accepted idea that a tree can store about 167 kg of CO<sub>2</sub> per year.<sup>[4]</sup>

### Discussion

The AWSM has been an invaluable part of stroke healthcare in Wales since its inception. We hope this article has helped the reader to see the benefits of collaborative working of this nature and how through innovative use of technologies already available there can be a great benefit for clinicians, patients, NHS services and the environment.

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