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Variations in Adult Hearing Aid Fitting Rates across NHS FAMOUS Trial Sites

The National Institute for Health and Care Research (NIHR), the research arm of the Department of Health and Social Care, has funded a national trial investigating the clinical and cost effectiveness of monitoring and follow up in new NHS adult hearing aid (HA) users. This was a research priority identified in the NICE National Guideline on assessment and management of adult hearing loss[1]. The ongoing FAMOUS Trial[2] was designed to address this gap-in-knowledge. It is a multi-centre, two-arm parallel-group cluster randomised controlled trial in which half of the participating sites provide structured care involving additional follow-up and monitoring (supplemental to usual care) to all adults fitted with a hearing aid during the study: the remaining sites provide usual care i.e. the same care they would normally provide, which (according to NICE guidelines, 2018) involves a follow-up offered 6-12 weeks after fitting. Thirty-six (36) NHS audiology sites are taking part in the FAMOUS trial, which will be completed during 2026.

The Structured Care pathway consists of:

- The use of the Client Orientated Scale of Improvement (COSI)[3] to identify specific situations in which the patient struggles to hear.
- Joint development of a tailored implementation intention or 'action plan' by patient and audiologist e.g. when I go into the kitchen to make my morning cup of tea, then I will put in my hearing aid(s).
- A follow-up telephone call one-week after fitting to find out how patients are managing with the hearing aids. If they report low hearing aid use (i.e. less than 1 hour each day) and/or experiencing significant problems that are preventing them from wearing their hearing aid(s) as planned (i.e. discomfort) they will be invited back to the clinic.
- An invitation to attend a follow-up appointment 6 weeks after their HA fitting.

In order to determine the sample size for the study, we estimated the conversation rate i.e., the percentage of adults referred for hearing aid assessment who receive a hearing aid, to be 80%. This estimate was based on a survey of NHS audiologists about their observed clinical experience regarding the proportion of people not requiring, or declining hearing aids.

Early analysis of recruitment data indicated a mean conversion rate lower than 80% with significant variation across sites. This article reports the hearing aid conversion rates across the FAMOUS sites and explores potential reasons for variation. Given the growing demand for audiology services and the clinical capacity challenges across the UK[4] any opportunity to better understand demand and/or develop more efficient pathways will support NHS audiology service leads to improve pathway efficiency.

Method

De-identified hearing assessment and hearing aid fitting data were provided to the research team as part of routine data captured for sites participating in FAMOUS. The assessment-to-hearing-aid-fitting conversion rates were calculated as part of routine data monitoring. All 36 adult NHS hearing sites that participated in FAMOUS were approached by email, and were provided with:

1. their site-specific conversion rate and the average conversion rate across all participating sites; and
2. a simple survey with questions regarding their conversion rate (e.g., whether the conversion rate for their site was as expected; if there were any explanations as to why their conversion rate differed (if applicable) from the average conversion rates, along with some suggested reasons as a guide).

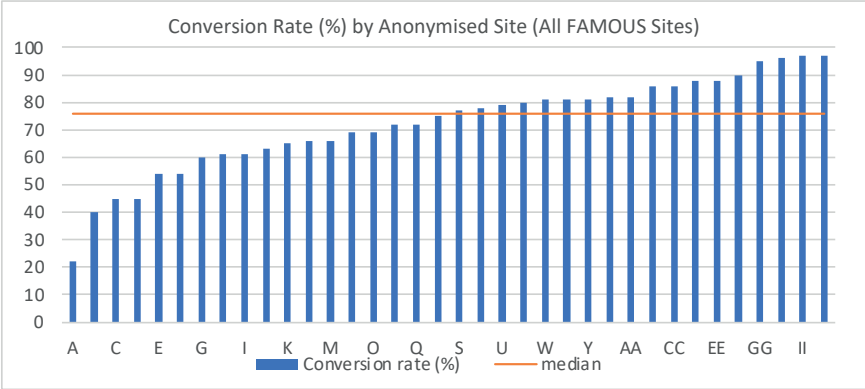
Results

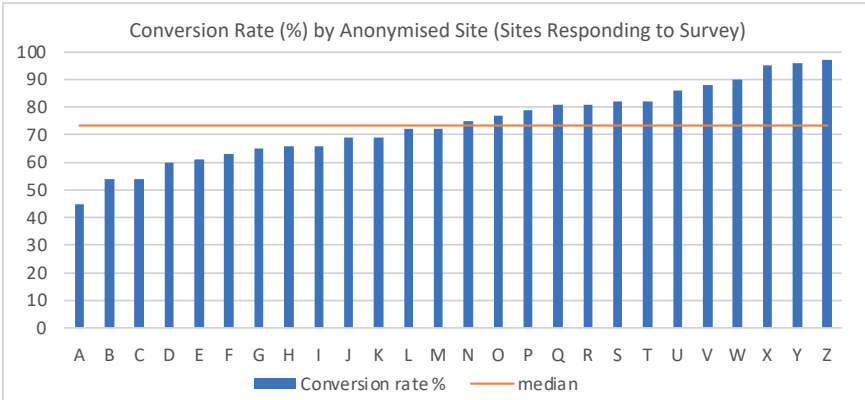
Assessment to Hearing Aid Fitting Conversion Rates

Figure 1 shows conversation rates for all sites (n=36; top panel) and separately for sites that completed the survey (n=26, middle panel) and those that did not complete the survey (n=10, bottom panel). A total of 11,877 patient hearing assessments took place in the FAMOUS Trial. Of these, 8,458 (76% median) patients received a hearing aid. This is very close to our estimated conversion rate of 80% and shows that just under 8 out of 10 adult assessments for hearing aids resulted in a hearing aid fitting.

27 (75%) of the FAMOUS participating sites completed the survey; one response could not be attributed to a specific site and was excluded from the analysis. The median conversion rates across

the 26 sites that responded (7,774 assessments; 5,695 fittings) was 74%, slightly lower than but close to the all-site median at 76%. Across the 10 sites that did not reply the median conversion rate was 79% It is unclear why these sites had a higher conversion rate than those who completed the survey (Figure 1).





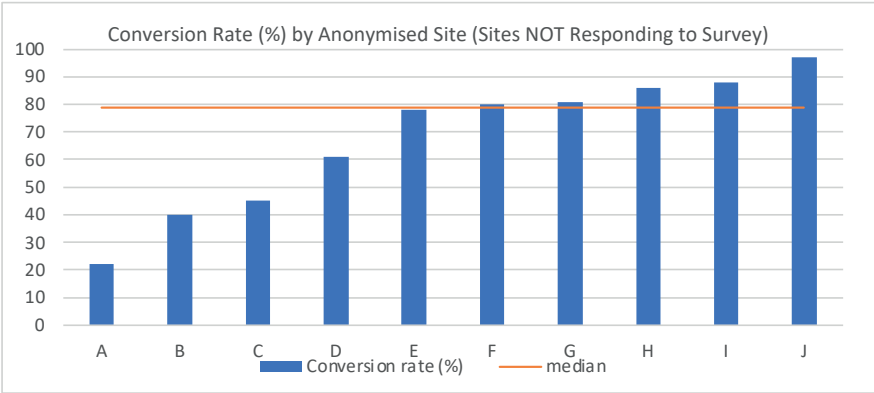


Figure 1: Conversion rate by all sites (top panel), by sites responding to survey (middle panel) and by sites not responding to survey (bottom panel). Sites ranked in ascending order with red line showing median value

Response to Survey
Is your conversion rate as you would have expected?

Figure 2 shows the proportion of sites for which the conversation rate was as expected. The majority (67%) of sites, said that the conversion rate reported to them was as they expected, with 18% reporting that it was different to what was expected.

Is the conversion rate calculated as part of the FAMOUS study for your sites at a level you would expect?

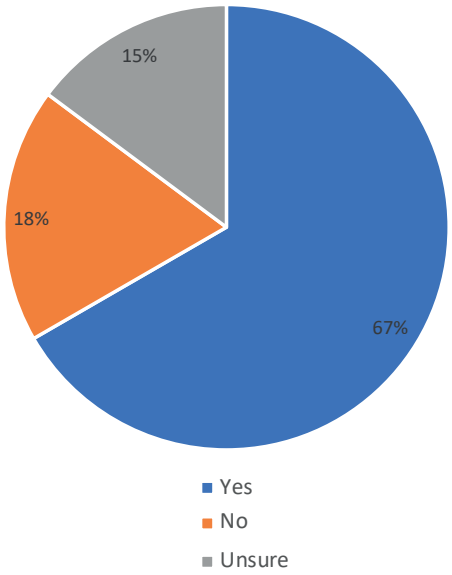


Figure 2: Was conversation rate as expected by the participating site?

We then looked at the expectations of sites with higher (n = 11) and lower (n = 9) than expected conversion rates (Figure 3).

For those that deviated, it was mostly those with lower conversion rates that were surprised. 44% of those with a lower conversion rate were surprised (right panel), compared to only 9% of those with a higher conversion rate (left panel).

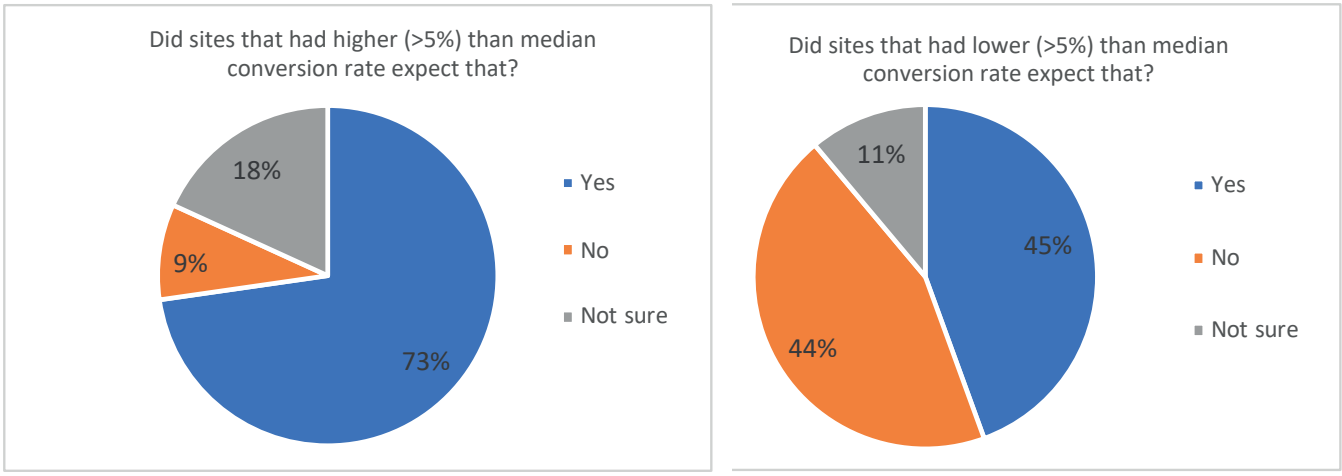


Figure 3. Sites with higher (left panel) and lower (right panel) conversation rate than expected by the participating site.

Just under half of the sites with a lower than median conversation rate were surprised by this finding

Suggested Reasons for Variation

The sites provided explanations as to why conversion rates deviated from the median and these fall into seven categories (see summary in Table 1). Some of these were similar for both low and high conversion sites e.g., referral criteria and patient choice.

Referral criteria

Referral criteria featured as a reason for deviation from the median across both groups. Sites generally reported that wider age ranges and more 'complex' patient groups accounted for a lower hearing aid conversion rate. Interestingly, one site attributed increased complex referrals as underlying a higher conversion rate.

A number of sites said they only accepted referrals for those in older age groups, where hearing loss and therefore hearing aid uptake may be more likely. Sites also reported that referral criteria meant that the case load was more 'routine' and that this resulted in increased hearing aid suitability and uptake.

A number of sites with higher conversion rates proposed that when referrals were requested by individuals (e.g. active help seeking as opposed to screening) conversion rates were higher because the individuals were more 'motivated' to try hearing aids.

Table 1. Summary of reasons provided by sites

Above median conversion (n= 11	Below median conversion (n=9)
Referral criteria (e.g. older adults, less 'complex', help seeking)	Referral criteria (e.g. all adults, more 'complex')
Pathway (e.g. same day fittings, enabled HA fit alongside onward referral)	Pathway (e.g. had wax and needed to be referred back, need to await ENT outcome, eligibility)
Clinician recommendation (e.g. accepted based on encouragement of 'trying' a hearing aid)	Clinician recommendation (e.g. encourage choice using decision aids)
Variations in standard use of patient management system	Variations in standard use of patient management system
Referrals triaged to ensure they were 'appropriate'	Patient choice (declined offer of HA, did not attend fitting appt) or Not eligible (e.g. normal hearing, required ENT or outside local site criteria for HA fitting)

Pathways

Local pathway variants were thought to influence conversion rates. For sites above the median, some mentioned that fitting hearing aids on the same day as assessments and being able to progress hearing aid fitting alongside onward referral to other services likely increased the rate. Conversely, the need to refer on to

other health care professionals or back to the GP, for wax removal for example, or investigation prior to decision, was suggested as a reason for lower HA fitting rates.

Clinician Recommendation

Some sites reported that active engagement or encouragement with decision making may have contributed to conversion rates. A number of sites with higher conversion rates said they routinely promoted 'trying out' a hearing aid to encourage hearing aid uptake, because the decision could easily be reversed. Conversely a site with a lower conversion rate said they actively encouraged patient choice and used tools to aid decision making to reduce low use of hearing aids or the number of hearing aids 'in drawers'.

Patient Choice

Sites reported patients declining the offer of HAs as they 'weren't ready', that some patients wanted an assessment but no intervention, while other patients wished to pursue private hearing aids. Some sites also mentioned patients sometimes failed to attend their fitting appointment.

Triage of referrals

Triage of referrals was suggested as a reason for higher rates of conversion. Sites gave examples of triaging those patients less likely to require hearing aids into other services/audiology pathways, resulting in a higher conversion rate for those who were not triaged.

Eligibility

Not being eligible for hearing aids was suggested as a reason for lower conversion rates. Ineligible patients included patients with 'normal' hearing thresholds, having a condition that required medical input prior to hearing aid decision, and patients being outside of the service's eligibility criteria for hearing aid offer or fitting.

Variations in standard use of patient management system

Two sites suggested that the way the audiology patient management system (PMS) is set up and used locally could have contributed to variations in reported conversion rates. For example, one site reported that the same clinical codes are used for a range of different appointment types (e.g., new referrals and reassessment of existing hearing aid users) and so conversion rates may have been over or underestimated. In other words 2 (7.5%) of site(s) who completed the survey questioned whether the conversion rate they received from FAMOUS accurately reflected clinical reality due to these coding issues.

Discussion

Data from the FAMOUS study revealed that assessment-to-fitting conversion rates vary across the UK. Some sites were surprised by their conversion rates relative to those of other sites. This was most frequently unexpected when conversion rates were lower than the median of other participating sites. Sites offered a variety of potential explanations for these variations, including referral criteria, pathways and clinician recommendations.

It is important to note that there is no 'correct' assessment-to-fitting conversion rate and that a conversion rate is not an indicator of quality of care per se. For example, where services or pathways are set up specifically to include complex cases or when the clinic has a focus on 'hearing' rather than 'hearing aid' pathways, lower conversion rates might be expected relative to pathways that focus on less complex cases or hearing aid provision. Furthermore, a significant proportion of referrals to audiology require intervention and management other than hearing aids (e.g., assistive listening devices, aural rehabilitation). Service commissioners and those leading services should bear this in mind when evaluating and funding services

Some sites reported their local pathways likely impacted conversion rates through efficiencies in time and staffing. For example, pathways that provided an opportunity to proceed with HA fitting whilst simultaneously exploring other clinical needs (e.g., referral for further investigation), were considered efficient for both patients and service, while having to temporarily exit audiology pathways to address additional needs, only to return later, resulted in disjointed and delayed care. Studies have reported that fragmented care leads to poorer outcomes, missed opportunities and delayed care[5]. Where pathways are set up to focus on those that are more likely to require hearing aids, there may be benefits related to efficient deployment of staff.

Patient choice and clinician recommendation were identified as impacting conversion rates and should perhaps be considered together. A person-centred approach, that combines opportunities for the patient to weigh-up available options and support from a clinician towards making an informed choice, is recommended in recent British Society of Audiology (BSA) practice guidance[6] and for health care more generally[7]. This may result in more patients choosing not to try a hearing aid and thus decreasing conversion rates. Service models that 'encourage' hearing aid uptake, only for them to be under used should not be interpreted as providing person centred care. It could be argued that a service model with a robust system for follow up would effectively provide a trial period for those more reluctant, with the option for the devices to be returned if not deemed beneficial. This reaffirms

the need to ensure we don't treat hearing aid provision as the 'gold standard' for hearing health care and that we ensure our focus remains on person-centred, needs-based care that considers and provides a range of instrumental and non-instrumental interventions.

Not being 'eligible' for hearing aids based on hearing thresholds or local criteria was given as a reason for lower conversion rates. There may be opportunities to use remote pre-assessment screening tools or first point of contact primary care audiology services to reduce the incidence of 'inappropriate' referrals. Local approaches to provision of hearing aids for, e.g. minimal hearing loss, will result in variations in care. Focussing on a needs-based model, regardless of severity of hearing loss is likely to lead to better overall outcomes.

The explanations provided above provide insight into opportunities for improved efficiency, better use of resources, and improved patient experience.

Take Home Messages

1. Hearing care is more than hearing aids

- We should not treat hearing aid provision as the 'gold standard' for hearing health care and should ensure a focus remains on person-centred, needs-based care that considers and provides a range of technical and non-technical interventions. Those commissioning and leading audiology services need to consider the broader needs of people with hearing and communication needs, including provision of non-technical intervention and support.
- Developing local pathways that enable integrated care and provision of hearing aids alongside onward referral will positively impact patient experience and prevent delays in care or people being lost within the system.

2. There are opportunities to improve efficiencies

- Triaging referrals to ensure patients see the right person first time will improve efficiency, quality of care and patient experience.
- The use of pre-assessment tools, remote care or first point of contact audiology services may reduce the number of 'inappropriate' referrals and improve patient experience.

- Hearing care is more than hearing aids
- There are opportunities to improve efficiencies

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