

Investigation into financial conflicts of interest and screening for atrial fibrillation in the UK: a cross-sectional study

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Citation: McCartney M, McCutcheon C, Cooke M, et al Investigation into financial conflicts of interest and screening for atrial fibrillation in the UK: a cross-sectional study *BMJ Evidence-Based Medicine* 2023;28:15-20.

Abstract:

Objective: To understand the relationship between financial conflicts of interest and recommendations for atrial fibrillation (AF) screening in the UK, via examining (1) if the UK media recommend for or against screening for AF, and (2) the financial conflicts of interests of AF screening commentators. Design Cross-sectional study. Setting/participants References in UK mainstream media, Twitter, the UK’s National Health Service (NHS), patient information websites and major UK heart-related charities regarding screening for AF between 1 January 2018 and 31 July 2021.

Outcome measures: Proportion of references advocating for, against and presenting balanced/neutral views on screening. Proportion of references citing commentators with financial conflicts of interest.

Results: 217 media stories were identified, containing 284 comments about screening for AF. 185/217 (85.3%) of articles were in favour, 9 (4.1%) were against and 23 (10.6%) were balanced. Quotations within were located from 194 commentators; 44 were quoted more than once. 41/44 (93.2%) were in favour of screening. Of these 41, 37 (90.2%) had a direct or indirect financial conflict of interest, including that due to a work role. Two were balanced and one was negative. 2553 tweets using 3 hashtags promoting screening were analysed. 2119 (83%) of the most impactful tweets promoting AF screening were by industry or organisations with industry funding. Of 23 NHS organisations holding information about funding and promoting AF screening online, 22 (96%) had industry funding. 9 (90%) of the top 10 patient information websites promoting AF screening had industry funding. Four main UK patient charities in this sector promoting screening received industry funding.

Conclusions: The vast majority of UK media promotes screening for AF, in contrast to the position of the independent UK National Screening Committee, which recommends against screening. Most commentators, internal NHS organisations and UK charities promoting screening had a direct or indirect financial conflict of interest. Independent information was rare. The reasons for this are unknown. Readers should consider the potential for the impact of financial conflicts on recommendations to screen.

WHAT IS ALREADY KNOWN ON THIS TOPIC ⇒ Financial conflicts of interest may influence clinical policy, especially regarding overdiagnosis and overtreatment. Media reports of healthcare interventions are often overly optimistic.

WHAT THIS STUDY ADDS ⇒ Direct and indirect financial conflicts of interest are widespread among commentators promoting screening for atrial fibrillation in the UK media. These include commentators representing the UK National Health Service (NHS). The media's enthusiasm for screening runs against the recommendations of the independent UK National Screening committee. This committee recommends against screening for atrial fibrillation.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY ⇒ The UK media's promotion of screening for atrial fibrillation risks misinforming patients and clinicians. Reconsideration of whether NHS organisations should be allowed to accept industry funding, while promoting non-NHS recommended screening, should occur. Journalists and readers should seek comment from less financially conflicted individuals.

Background:

The UK National Screening Committee (UKNSC) recommends that population screening is not performed for atrial fibrillation (AF) (1). This committee makes its recommendations to ministers and the National Health Service (NHS) in four countries of the UK, who decide whether or not to implement it. The UK NHS is a publicly funded organisation. The UKNSC provides ministers and the NHS with independent recommendations on screening. These recommendations are kept under rolling review, based on updated evidence reviews and scrutiny by a multidisciplinary committee.

AF is usually detected via pulse check, electrocardiogram (ECG), or other electronic devices. It increases the risk of stroke. Treatments include rate-limiting and anticoagulant drugs, which aim to prevent stroke. AF may be asymptomatic. Screening, by definition done in asymptomatic people, has been proposed as a means to reduce stroke through earlier prescription of anticoagulant medication.

Recently, people attending mass COVID-19 vaccination centres in the UK have been exposed to screening for AF, supported by the Atrial Fibrillation Association (2). Calls for screening assume benefits will be the same for patients detected via symptomatic and asymptomatic routes. Proponents of screening (searching for AF in people without symptoms) argue that this will detect AF which is 'silent' and that early treatment with anticoagulants will reduce stroke. However, the benefits of screening are uncertain. Research has found benefit of treatment when it is detected in symptomatic patients, or during assessment for another relevant condition (3,4). The amount of AF in the wider asymptomatic population, and the risks of it, are not fully understood. The harms of treating AF detected by screening include side effects (including bleeding and death) from unnecessary anticoagulation, costs to the health service of screening, and patient burden through potentially unnecessary treatment. The SAFER study, a randomised controlled trial (RCT) of screening for AF began in the UK in 2021 and is designed to answer these uncertainties (5). Internationally, the US Preventive Service Taskforce has also recommended against screening (6). The European Society of Cardiology recommends screening but also accepts that 'RCT data to confirm the health benefits from screening for AF and inform the choice of optimal screening programmes and strategies for its implementation are scarce' (7).

Despite this, many organisations within the NHS have had dedicated projects promoting screening for AF. 'Getting It Right First Time', a set of improvement programmes within NHS England, has stated 'Early detection of AF to allow initiation of protective anticoagulant therapy is vital' (8). Academic Health Service Networks (AHSNs), regional organisations which work across university and health and social care authorities, have produced 'heat maps' of AF diagnosis rates (9). They have promoted screening in the community, for example, using 'instant' technology detection when visiting a pharmacy, in clinic waiting areas, or via firefighters visiting vulnerable adults at home (10,11). These have worked within Clinical Commissioning Groups (CCGs) who make decisions about funding and activities within primary care. These improvement programmes were in operation during the study period.

Financial conflicts of interest are associated with favourable recommendations of drugs and devices in opinion pieces, narrative reviews, guidelines and committee reports (12). A systematic review examining industry sponsored and device studies has found bias towards favourable results and conclusions (13). Physician exposure to information provided by pharmaceutical companies finds association between higher costs and lower quality care (14). Potential for bias, including conflicts, should be considered when evaluating healthcare interventions. There is considerable scientific literature on media coverage of medicine, suggesting stories overplay benefits, downplay harms and fail to cover relevant conflicts of interest. Media reports on health are associated with changes in patient behaviours (15, 16). To date, there has been little examination of how the mainstream media covers screening for AF. This is of importance given the potential impact on public understanding, behaviour and attitudes.

Objective:

To examine (1) if the UK mass media recommend for or against screening for AF and (2) the financial conflicts of interests of AF screening commentators.

Methods:

Study design and setting A cross-sectional study of references to AF screening in the UK mainstream media, Twitter, NHS AF webpage, patient information websites, and charities between 1 January 2018 and to 31 July 2021. We chose these dates as it marks the time period when schemes promoting AF by NHS organisations, in contrast to UKNSC policy, were in place. Full details are enclosed in online supplemental appendix 1 and online supplemental box 1.

Search strategy and identification of media references: For UK mainstream media news stories, we used a set protocol using specific search terms (figure 1, online supplementary boxes 2 and 3) in the Nexis and Proquest databases. English language newspapers, magazines and journals, and web based publications that referred to screening for AF were located. We excluded news stories in relation to symptomatic testing, or cardiac screening more broadly (eg, cardiac screening of young athletes). Given that our focus was on mass media information aimed at the public, we excluded trade magazines/technical press aimed at healthcare professionals. We also searched Google News for news stories, and the 20 most widely viewed news sources in the UK, informed by Ofcom. Syndicated stories were included once only.

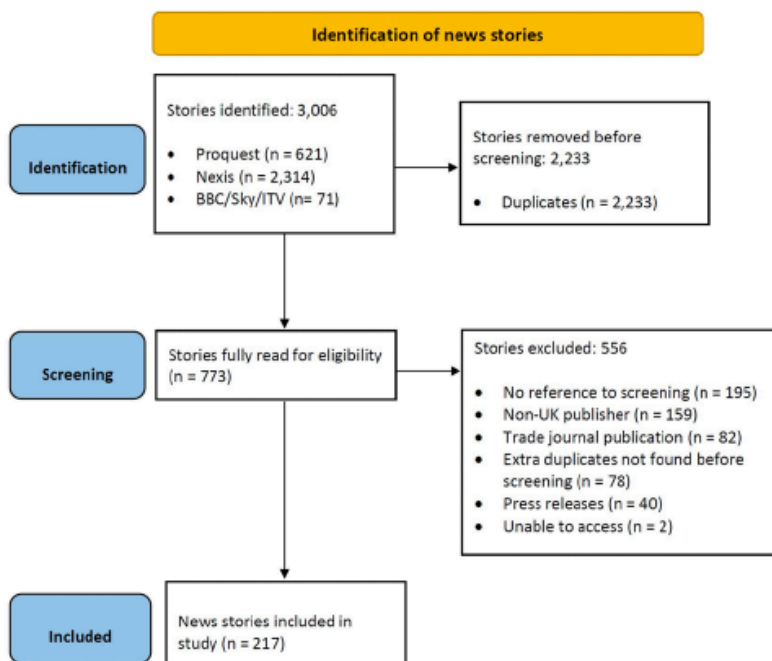


Figure 1 Flow diagram

For Twitter information, we searched the Twitter Application Programming Interface for academic use, adapting code samples for a 'full archive' search, using key preidentified hashtags. NHS bodies were searched online for information about AF screening and those making clinical decisions included (ie, excluding business strategy organisations) (online supplemental box 4). If AF screening was promoted, information was requested about financial conflicts under Freedom of Information legislation (online supplemental appendix 3). The top 10 patient information websites referencing AF screening on Google were identified (online supplemental box 5). Before starting the Google search, browsing

data was cleared and it was used in 'private' mode. Decisions on sample sizes were based on previous work (17, 18). We stored media images in a public depository, where screenshots of note are available (19).

Data extraction and coding of outcomes: Two researchers used a structured template in Microsoft Excel to independently assess statements for (positive), against (negative) or neutral/balanced positions on AF screening (online supplemental box 6). A standardised process to search for financial conflicts of interest of those whose views or recommendations were represented, was used, using criteria recognised by the International Committee of Medical Journal Editors (20) (online supplemental box 7). We included both direct and indirect conflicts, including conflicts introduced by work roles (eg, spokesperson for medical device company). A separate search was completed for conflicts of interest which were declared in the article, apart from job titles/roles. Disagreements were resolved with a third researcher. Searching was stopped after recording one conflict.

Data analysis: Descriptive statistics were used (counts and percentages) to evaluate the reporting on the AF screening, and financial conflicts of interest of commentators. All analyses were carried out in Microsoft Excel. Protocol deviations Searching 20 pages of Google News, and the top 10 most popular patient information websites on Google was prespecified. However, Google News provided mainly trade publications not aimed at the general public, and no new material. After discussion with medical librarians (University of St Andrews) we obtained a list of the 20 most widely viewed news sources in the UK from Ofcom: the BBC, ITV and Sky News were included but not contained in the Proquest and Nexis search. Each of their websites was searched using the same keywords within the specified dates (online supplemental box 3). The 30 most cited individuals/organisations were prespecified. However, by including a further 14, we were able to include all who had more than one quotation, thus negating the use of a random selection. One prespecified hashtag for searching on Twitter was found to be irrelevant with poor performance and was excluded. After observing frequent mentions of four major UK adult national heart charities by commentators and on Twitter, we formally investigated this via a search of conflicts of interest and industry funding via the search strategy already developed for NHS organisations and individuals. During peer review, it was suggested that searching for declared conflicts of interest in the media articles would be useful: our search strategy is outlined in the Methods section.

Results:

Mainstream media Our search produced 3006 results. Duplicates (n=2242) were removed, leaving 773 stories for full reading. Of these, 556 were excluded for the following reasons: stories not referring to screening for AF (n=195), press releases (n=40), non-UK stories (n=159), trade publications (n=82), duplicates (n=78) and unable to access (n=2). A total of 217 stories were included. There was disagreement about 13 stories between the two researchers which was resolved by a third researcher. Within these 217 stories, 284 comments about screening for AF were located from 194 individuals or spokespeople, attributed or not, for organisations (online supplemental appendix 4). The maximum was 11 with an average of 1.45. Of 217 articles, 185 (85.3%) were positive, 9 (4.1%) were negative on describing AF screening; and 23 (10.6%) were balanced.

Of the 194 commentators found, 44 were quoted more than once (online supplemental appendix 5). Of these 44, 41 were in favour of screening; two were quoted with neutral/balanced comments, and one was negative. Twenty five of the 41 (61%) recommending screening had a work role where a policy or product produced a potential for conflict, for example, employment with Apple, an AHSN, or charity spokesperson. Of those in favour of screening outside a work role, two declared no conflict of interest; one was an MP, and the others were resident in the USA.

The articles were searched for declared conflicts, apart from given job titles (appendix 4). Of the 217 articles included, we found no declared interests in 187 (85.7%) articles, full declarations in 16 (7.3%) and partial declarations in 15 (6.9%). Declared interests included: affiliate fees paid to newspapers if readers clicked a link to buy products, 4 commercial cosponsors of research or practice, 9 or private practice. 19 Partial declarations were recorded where some but not all information was available about all potential conflicts, for example, missing information about individuals, or naming partners but not their funders. One article noted

that a doctor had set up an AI company; no other personal relationship with pharmaceutical or technology companies outside a primary job role was reported.

NHS information: We found 155 webpages within NHS domains. After removing duplicates, financial or business reports, 94 webpages were included for analysis. All 94 supported AF screening (online supplemental appendix 6). FOI requests regarding funding were made to the 40 originating organisations. Nine did not reply, and eight informed us they did not hold this information. Of the remaining 23 (56%), all but one had sponsorship from pharma in relation to AF; two were indirect (eg, work with AHSNs (online supplemental appendix 7)). (One CCG denied funding, but this was refuted by their declaration registers). The single NHS organisation to promote AF screening without industry funding concerned a press release promoting Heart Rhythm Awareness Week. This was organised by the Atrial Fibrillation Association. Funding from pharma included: grants for staffing project managers, sessional pharmacists, nurse consultants, purchase or gift of devices to detect AF, educational workshops, courses and conference sponsorship.

Twitter: The top 10 most impactful origins of tweets (making the most appearances on digital devices) for each hashtag (A) 'Knowyourpulse'; (B) 'GlobalAFAwareness' and (C) 'AFawareness' were located. For 'Knowyourpulse', 9/10 were directly linked to charities with industry funding or were from industry. One patient was raising money for an industry funded organisation. For GlobalAFAwareness, all received funding from industry, or were part of industry, and for 'AFawareness', one entry was irrelevant (unrelated to AF) but of the remainder, five of nine had industry conflicts (online supplemental appendix 8).

Patient information websites: All 10 websites recommended screening (online supplemental appendix 9). All but one had a financial conflict of interest, in the form of either industry sponsorship, advertisement, direct funding from industry or a company website. The one website without a direct conflict, NHS.UK, linked to the Arrhythmia Alliance for advice about pulse self-screening—an organisation which receives industry funding.

Further analysis: charities: The UK has four major national charitable organisations (British Heart Foundation (BHF), AF Association, Arrhythmia Alliance and Chest Heart and Stroke) which were highly visible either as spokespeople or statements, all recommending in favour of screening for AF. A detailed search for financial conflicts of interest was performed and all were found in receipt of industry funding. Where organisations had a list of spokespeople, medical advisors or Trustees on their website, we searched for a disclosure of industry funding for each individual, using Disclosure UK and disclosures in academic publications and on employer websites (online supplemental appendix 10). We found no direct declaration of potential conflict of interest for spokespeople from the BHF, but 12/14 individuals (85.7%) from the AF Association had made disclosures of interest from industry and 11/20 (55%) from the Arrhythmia Alliance. Declarations were made for consultancy, 'personal fees', institutional grants, 'funding' and speaker fees.

Discussion

Our analysis of media stories referring to screening for AF found overwhelming support for screening, with widespread financial conflicts of interest among commentators. This included funding for staff members, devices, education and programmes of activity via the NHS, as well as personal relationships between individuals. During the period of analysis, both the UKNSC and the US Preventive Services Taskforce (USPST) recommended against population screening for AF (1, 6). Most of the articles analysed (85.7%) did not report conflicts of interest beyond a job role, and only one reported a commentator's personal commercial conflict of interest (company owner).

Few other studies have examined the media presentation of screening and relationship to financial conflicts of interest. However, a cross-sectional study of global media coverage (including author MoK) of early diagnosis tests (including the Apple watch, which can detect AF) found reportage of benefits far more than harms (97% vs 37%). More than half of commentators had financial conflicts of interest (21). Commentators on news stories in high impact medical journals have been found to have conflicts of interest about one-third of the time without necessarily being judged to have relevant expertise (22). Commentators on new drugs in

the US media have been found to have ties to industry about half the time, with an underreporting of harms (23). Our results are in keeping with these findings, however, is restricted to examining publicly aimed media reporting on a single issue. This allows for detailed examination but not generalisation to other types of screening or early diagnosis activity. The studied time frame (3 years) was in keeping with these (3/4 years).

Study strengths include use of pairs of independent reviewers to extract and code stories, the breadth of examination of influences, and the searches for individual financial conflicts of interest. However, our study also has limitations. Despite our search strategy covering two large media databases, Twitter, and major television channels, we may have missed other impactful media outlets. We did not assess the uptake of stories (eg, number of reads and shares on social media, or reader understanding/ intent to screen). Sample sizes of webpages were pragmatic. We coded stories and quotes as positive, negative or balanced/neutral by hand, and despite high levels of independent agreement, this could still have been biased. The UK only was examined, and regarding a single screening activity. We stopped searching once we had found one financial conflict of interest of commentators/ organisations. This means the full extent of conflicts cannot be described; nor can conclusions be drawn regarding causation. Restricting to UK public-facing media will have decreased the number of stories available for analysis.

The UKNSC was set up in 1996 to reduce ad hoc, non-evidence based and unnecessary screening in the NHS (24). The USPST and the UKNSC have strong policies on conflicts of interest. Guidance for the USPST states that members 'must have no substantial conflicts of interest, whether financial, professional or intellectual, that would impair the scientific integrity'(25). Members make declarations for the previous 36 months including non-financial interests, stocks and shares, employment, grant, speaking fees, honoraria, expert witness or any role receiving payment 'with respect to transactions involving parties with a financial interest in the outcome of a USPSTF decision'. The UK NSC policy requires public disclosure of interests, with the chair required to have no potential conflicts (26). These independent organisations make evidence-based judgments about the potential harms, benefits and costs. Financial conflicts of interest are strongly associated with more favourable conclusions but poorer quality healthcare (12). Patients and clinicians tend to underestimate the harm and overestimate the benefit of screening tests (27,28). It is therefore of concern that very few of the UK's independent NSC's recommendations against screening for AF were found in the UK lay media.

Media reporting on health naturally focus on new or novel information, which is considered newsworthy. This creates a natural bias in coverage towards the latest in interventions or treatments. The media can have a profound impact on public health, for example, the MMR scare' (relating to Measles, Mumps and Rubella vaccination)' was associated with a reduction in measles vaccinations and subsequent deaths following a blizzard of media misinformation; changes in health seeking behaviours have been associated with media coverage of a celebrity illness (29, 30). Mass media campaigns have also been used to achieve some public health goals such as decreasing smoking (31). Industry has also used the media to significantly frame public health debates to its' advantage. For example, the food industry has posited personal responsibility as more important than regulatory interventions (32).

The reasons why most of the comments, and commentators were in favour of screening are not known. Journalists may return to the same individuals for comment, regardless of their conflicts, if they are highly available and/or helpful. Individuals asked to comment may fear appearing out of step with senior figures in their field if they present a different point of view. Journalists may not know about the UKNSC and their recommendations, may not consider asking about financial conflicts of interest, feel this is important or judge that this impacts on advice. Further consideration of these questions is merited.

Conclusion:

A total of 217 publicly aimed news stories were identified about AF screening, containing 284 comments. The vast majority (185 (85.3%)) of articles were in favour, 9 (4.1%) were against and 23 (10.6%) were balanced. Quotations within were located from 194 commentators; 44 were quoted more than once. Of 44,

41 (93.2%) were in favour of screening. Of these, 37 (90.2%) had a direct or indirect financial conflict of interest, including those produced by job roles. The vast majority of opinion on screening for AF in the UK lay media is in conflict with the opinion of the UKNSC and the USPST, who recommend that screening should not be done. AHSNs, while working inside the NHS, along with NHS staff, and with NHS data, have acted contrary to UK NSC guidance, while being heavily conflicted in industry funding. While the impact of conflicts cannot be proven in this study, system changes to limit the influence of the pharmaceutical and device industry in screening for AF should be considered. Individuals or organisations quoted in the lay media without a direct or indirect conflict of interest were sparse. It is not known whether this is because experts in this area without conflicts are rare, or because it is harder to obtain and/or quote their views in stories. Journalists and readers should consider whether information about screening for AF in the lay media could be biased.

Acknowledgements: NHS Fife librarian service, Patient panel: Lynne Craven, Brian Finney, Fiona Rajee, Kath Sansom.

Contributors: The idea was conceived by MM, and agreed and discussed with MM and MO'K. CM and MC did most data searching, capture and analysis, with LM and UHN doing limited amounts of data searching, capture and analysis. MM and MO'K did data analysis, and drafted and edited the paper. MM is the guarantor.

Funding: A grant from Healthwatch (now called Healthsense), a charity interested in evidence-based medicine paid a studentship fee to CM and MC. RM had a student summer grant from the University of St Andrews. MM has a Chief Scientist Office (Scotland) fellowship.

Competing interests: MM has written and campaigned around issues related to conflicts of interest. She has been paid (written and broadcast journalism/books) for some of this.

Patient and public involvement: Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication: Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed. Data availability statement Data are available in a public, open access repository. McCartney, Margaret (2022): Atrial Fibrillation screening study - BMJ EBM. figshare. Collection. https://figshare.com/collections/Atrial_Fibrillation_screening_study_-_BMJ_EBM/6226917/1

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