

# Exploring barriers to optimal anticoagulation for atrial fibrillation: interviews with clinicians

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**Background:** Warfarin, the most commonly used antithrombotic agent for stroke prophylaxis in atrial fibrillation (AF), requires regular monitoring, frequent dosage adjustments, and dietary restrictions. Clinicians' perceptions of barriers to optimal AF management are an important factor in treatment. Anticoagulation management for AF is overseen by both cardiology and internal medicine (IM) practices. Thus, gaining the perspective of specialists and generalists is essential in understanding barriers to treatment. We used qualitative research methods to define key issues in the prescription of warfarin therapy for AF by cardiology specialists and IM physicians.

**Methods and results:** Clinicians were interviewed to identify barriers to warfarin treatment in a large Midwestern city. Interviews were conducted until thematic saturation occurred. Content analysis yielded several themes. The most salient theme that emerged from clinician interviews was use of characteristics other than the patient's CHADS<sub>2</sub> score to enact a treatment plan, such as the patient's social situation and past medication-taking behavior. Other themes included patient knowledge, real-world problems, breakdown in communication, and clinician reluctance.

**Conclusion:** Warfarin treatment is associated with many challenges. The barriers identified by clinicians highlight the unmet need associated with stroke prophylaxis in AF and the opportunity to improve anticoagulation treatment in AF. Social and lifestyle factors were important considerations in determining treatment.

**Keywords:** anticoagulants, atrial fibrillation, risk factors

## Introduction

Warfarin is the most widely prescribed antithrombotic agent for stroke prophylaxis in AF, which is the most common cardiac arrhythmia.<sup>1-3</sup> Atrial fibrillation occurs in 1%–6% of the world's population,<sup>4</sup> with the prevalence increasing with age,<sup>5</sup> and accounts for 15%–20% of all strokes in the US.<sup>6,7</sup> Despite its prevalence and importance, large datasets reveal that only half of eligible patients with AF identified with a CHADS<sub>2</sub> score > 2 are treated with warfarin.<sup>1-3</sup> In fact, in a recently reported meta-analysis of quantitative studies, less than 70% of high-risk patients with AF received adequate oral anticoagulation therapy.<sup>8</sup> Potential barriers to appropriate treatment include the requirements for regular monitoring, frequent dosage adjustments, numerous dietary restrictions, and susceptibility to drug interactions. The majority of patients with AF are managed by internal medicine clinicians, but few studies have actually included internal medicine practices because most are drawn from specialty cardiology practices.<sup>9,10</sup>

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The clinician's perspective includes scientific guidelines that recommend antithrombotic (vitamin K antagonist or acetylsalicylic acid) treatment to reduce markedly the risk of stroke due to atrial fibrillation.<sup>11,12</sup> Despite these beneficial effects, studies with large databases have shown that clinicians underutilize and underprescribe antithrombotic medication for patients with AF.<sup>1-3</sup> Alonso-Coello et al reported that a physician's most frequent reason for not prescribing warfarin was a perception that patients were at high risk of bleeding; however, clinicians were no better at predicting bleeding risk than chance.<sup>13</sup> Therefore, bleeding risk perceptions may not be aligned with actual bleeding incidents and eligible patients may have failed to receive treatment because of faulty judgments or the inclusion of nonclinical characteristics not traditionally captured in large datasets. Additionally, very few studies include both specialists and generalists (eg, cardiology versus internal medicine) in describing approaches to the screening, treatment philosophy, and long-term management of patients with AF.<sup>10,14</sup>

Accordingly, to address the important challenges of anticoagulation treatment and adherence in AF, we assembled a multidisciplinary team (cardiology nurse, psychologist, anthropologist, internal medicine [IM] physician, and cardiologist) to conduct a qualitative study to identify barriers to anticoagulation treatment persistence. Large databases typically do not capture nonclinical characteristics and socially derived barriers to patient adherence with a treatment plan for AF. The use of qualitative research to elicit rich, narrative data through one-on-one interviews is a particularly effective technique for uncovering complex issues not easily captured in a quantitative database.<sup>15,16</sup> Because specialists and generalists provide care of patients with AF, we included both in our study to explore barriers to optimal therapy.

## Materials and methods

Through in-depth interviews, clinicians from two different practice groups (cardiology and internal medicine) in the Kansas City metropolitan area participated in this qualitative research study. Purposive sampling was used to include clinicians with experience of anticoagulation as treatment for AF. An adequate number of clinicians were interviewed until saturation was achieved, such that information across interviews became redundant and no new information was emerging.<sup>17</sup> Approval from the institutional review board was obtained prior to beginning the study.

A physician champion at each office assisted in identifying physicians and nurse practitioners experienced in the management of AF. Email invitations were sent to 36 clinicians,

nine of whom declined. The study coordinator interviewed the cardiology specialists (18 physicians and three nurse practitioners during 2010) followed by the internal medicine clinicians (five physicians and one nurse practitioner) during winter 2010 and early 2011. The interviews were conducted in person (62%, 13/21) or via telephone (38%, 8/21) and verbal consent was obtained for each interview prior to recording any responses.

## Interview guide development

A semistructured interview guide was developed to assure that salient topics were addressed across interviews.<sup>15</sup> We conducted an extensive review of the literature in the development of the interview guide. Initial articles were identified by experts (clinicians and researchers) in AF treatment and included articles on patient-reported outcomes, AF, anticoagulation, warfarin, medical decision-making, and physician practice philosophy. The interview guide underwent several drafts and was reviewed by all members of the research team on multiple occasions. Broad questions were asked of all interviewees with additional probes as needed. Clinicians were asked:

- When you make a diagnosis of atrial fibrillation for a patient, tell me about the overall factors you consider in creating their treatment plan?
- What are the issues that you feel are associated with daily use of warfarin?

## Data preparation and analysis

Phone interviews were recorded using a DLI personal call recorder that voice streams audio input from the phone line directly to a computer. The in-person interviews were also digitally recorded. Clinician interviews averaged 22 minutes, resulting in 350 pages of transcripts. The interviews were transcribed by a professional transcriptionist and compared again with the recording to ensure accuracy.

Following transcription, each interview was distributed to the researchers who independently coded the interviews in a round-robin fashion, varying the order of the coders for each interview. Transcribed documents were reviewed independently to develop a familiarity with the text and to search for patterns and themes that occurred frequently in a single interview or across interviews. The data were then manually coded by identifying passages that exemplified key concepts or ideas related to the major patterns and themes. This iterative two-phase process was used to capture the meaning behind the transcribed text from the interviews with an overall purpose of creating an increasingly sophisticated

and rich description of clinicians' perspectives regarding treatment decisions and barriers.<sup>18–20</sup>

Evaluation of the qualitative descriptive research project was performed to assure rigor and credibility.<sup>18–22</sup> Study soundness was established in several ways. First, any conclusions drawn from the qualitative data were reviewed in the context of the entire data set with the goal of finding discrepant information. Conclusions were modified if discrepancies were found. Second, the use of multiple coders from diverse disciplines (nursing, psychology, and anthropology) was important in establishing the construct validity of the coding scheme. After separately summarizing and interpreting the findings from clinicians, the researchers thoroughly discussed similarities and differences in individual and group perceptions to reach consensus.

## Results

This qualitative descriptive study sought to understand AF treatment and the barriers to initiating or remaining on long-term anticoagulation medicine from the clinicians' perspective. Two types of practice were included in the study, cardiology and internal medicine. All clinicians described problems with daily use of warfarin. Quotes are identified by specialty and participant identification number.

The cardiology specialists were 83% (15/18) male, 67% (12/18) white, while the IM physicians were 80% (4/5) male and 100% were white. The three cardiology nurse practitioners were all female, two were white, and the internal medicine nurse practitioner was also female and white. On average, the cardiology participants had 13 years of experience and the IM clinicians had 28 years of experience in treating patients. All had experience with AF patients who had excessive bleeds and/or strokes within the past 12 months.

While this study sought to identify barriers, the majority of clinicians indicated that patients had an overarching motivation to initiate and sustain treatment for their AF:

“Most patients will tell you that they would much rather die than have an incapacitating stroke. That's the thing patients fear the most. They would rather have a heart attack, they would rather have a broken hip, and they would rather have pretty much anything except an incapacitating stroke.” (Cardiologist, 21)

Clinicians consistently reported that achieving safe and effective anticoagulation treatment was a challenge. Five major themes (see Figure 1) emerged from the rich narrative text:

- Treatment decisions and nonclinical characteristics
- Patient knowledge



**Figure 1** Clinician challenges to optimizing anticoagulation treatment for atrial fibrillation.

**Abbreviation:** AF, atrial fibrillation.

- Real-world problems
- Breakdown in communication
- Clinician reluctance.

## Treatment decisions and nonclinical characteristics

The first theme reported by the majority of clinicians in both groups was that nonclinical characteristics other than the patient's CHADS<sub>2</sub> score weighed heavily in their decision to treat each individual patient with warfarin.

“I think there's objective and subjective criteria, determinants that go into it (AF treatment plan).” (IM physician, 26)

“Of course there are clinical criteria, so based on their CHADS<sub>2</sub> score whether or not they need to be on coumadin or not. Their social situation always plays a factor: affordability of medication, are they going to be compliant, do they have a social structure, risk of falling. Because it's kind of a complicated medicine, they have to be sure they want to do it.” (Cardiologist, 09)

“I add up their CHADS<sub>2</sub> score and think about what category they fall into. I also am concerned with the social milieu of the patient – do they have the will, the intelligence, how far are they from medical care. Those things factor very strongly into my decisions and I don't think they did as much when I was first in practice.” (IM physician, 25)

“I don't like to give coumadin to somebody I don't trust is going to monitor it, follow-up properly.” (Cardiologist, 17)

## Patient knowledge

The clinicians in our study strongly believed that the key to ensuring successful anticoagulation for AF was getting the patient to understand the importance of the medication at the very beginning. Once the patient has actually started taking the medication, they felt the patient rarely stopped and noncompliance more typically involved patients that may never really began taking the medication. Clinicians in our study identified a variety of factors that may indicate a decision to stop treatment, including:

- patient beliefs or concerns such as the medication is difficult to manage
- they don't like the lab test
- travel time is a hassle
- patients are already taking too many medications to add another one
- every patient knows someone who has experienced warfarin bruising and bleeding
- patients gather misinformation about the medication, and
- warfarin is "rat poison" with a negative connotation.

Clinicians described patient education as an important factor in medication continuance.

"If they [patients] have been educated about it at all, they usually understand their risk." (Cardiologist, 01)

"I think education would be more helpful from a standpoint of just teaching people about the physiology behind it ... why we're doing what we're doing and why they need to be anticoagulated with the warfarin. I think that people should just get better education." (Cardiologist, 05)

"Patients who are well-educated can actually do home monitoring of their warfarin and actually probably do better than what a lot of offices can do." (IM physician, 25)

With regard to discontinuance, both groups of clinicians believed that patient-initiated discontinuance of warfarin was infrequent; that patients who stopped were those who did so in consultation with clinicians.

"I don't see a whole lot of discontinuation by choice. I see a lot of refusal at onset. So, you recommend initiating coumadin and they just say no. So you've got those groups of patients. It's rare that once a patient has started coumadin or warfarin that they will come and say I want to be off of it." (Cardiologist, 11)

"I think some [patients] may come in and still be taking it and tell you I just don't want to do this anymore and kind of give you a heads up. But I can't say that I've actually seen somebody intentionally stop." (IM physician, 23)

## Real-world problems

Each clinician identified real-world problems related to daily warfarin treatment for stroke prophylaxis in AF. These concerns are either anticipated or encountered and require the clinician to address them proactively with AF patients receiving warfarin.

"The biggest real-world problem that I really run into is the monitoring. In my experience, the majority of patients are able to make the other lifestyle changes given a little bit of time to adjust, but monitoring is certainly cumbersome and really a huge interruption to their lifestyle." (Cardiologist, 14)

"They don't like coming to the clinic, they don't like getting their finger stuck, they don't like taking the pill every day, a lot of them forget. It alters their lifestyle." (Cardiologist, 05)

"There are probably three (real world problems). The first obviously is just the risk of bleeding. The second is the ability to get frequent monitoring to be sure you're within guidelines for treatment. And the third then is probably the compliance and willingness regarding diet and other things." (IM physician, 26)

"Most of the time afib is asymptomatic ... For most people, that's the crux of the compliance issue. They're not symptomatic." (IM physician, 24)

## Breakdown in communication

The fourth theme described by clinicians, especially the cardiologists, was the breakdown in communication between clinicians and health care settings.

"Lots of people have tons of specialists and when they go to the specialist you kind of get in your zone; tunnel vision and I worry about all the drug-drug interactions. Although we dictate all of that, it only goes to one person typically because you don't know all those other doctors that they're going to. I see patients every single day, they come with a list but the list is old and I'm constantly having to give them a new list because lots of times it's not right." (Cardiology nurse practitioner, 16)

"The real world problem is that health care is somehow fractured. The patients see the primary doctors, they come to us [cardiology], they have all the specialists and they tend to go to the ER quite a bit. And then somebody is going to give them something which is going to interact with the coumadin and the next day the INR is going to be 7 and they're going to be bleeding." (Cardiologist, 10)



## Clinician reluctance

The fifth thematic category identified was clinician reluctance, summarizing the concerns that the individual clinician had about prescribing warfarin for patients with AF. Both groups voiced occasional hesitancy in anticoagulating patients for AF, though cardiologists felt they were more aggressive with using warfarin.

“I almost feel like it’s the reverse, where the more I know, the more fear I have of using it. The sense of first do no harm.” (IM physician, 25)

“Coumadin is a terrible drug to take, but it’s the least of two evils. So we have to do it.” (Cardiologist, 10)

A comment made by an IM physician distinguished this group from the cardiology group. This physician is working to transfer some AF patients to the newer generation of anticoagulation medicines but occasionally meets with resistance.

“We’re trying to get more patients to switch over to the [new drug name] because at least the initial data suggests it’s safer. But, I’ve had difficulty getting some people to move over because they’re used to taking coumadin. There is this question in some patient’s minds, ‘my gosh we don’t do any testing now, so how do we know it’s working and what’s going on here?’ So once you get people into the routine of protimes every 4 weeks or so, it’s hard to get them out of it. It’s habit.” (IM physician, 24)

## Conclusion

General underutilization or underprescription of warfarin has been identified as a clinical problem.<sup>1-3</sup> Ingelgard et al<sup>1</sup> studied the physicians’ perspective of anticoagulation treatment discontinuance and identified the following four potential barriers:

- patient medical characteristics
- patient capabilities
- patient preference
- health care system barriers

Similar to barriers 1 and 2, the clinicians we interviewed described patient characteristics other than typical clinical factors, including lifestyle and psychosocial characteristics, as important considerations in developing an optimal treatment plan. Ineffective communication between medical specialties and care settings was consistent with health care system barriers.

In our study, the clinicians’ decision-making process in determining anticoagulation treatment of AF was very similar for specialists and generalists; treatment decisions

incorporated more than just clinical elements. Clinicians consider a range of factors beyond the clinical risks when prescribing warfarin, including more subjective lifestyle and cultural issues, which is not widely reported in the literature. These other factors, such as the burden of treatment and required lifestyle changes, can be difficult to measure and are not captured by an administrative dataset. For these reasons, anticoagulation may not be the appropriate treatment, regardless of actual clinical risk.

Our findings were consistent with those of Rose<sup>23</sup> who noted that “perhaps more than any other therapy [anticoagulation], the provider and the patient simply must work together as a team to achieve good results.” Given that clinicians may not always thoroughly assess the patient’s interest and abilities in pursuing anticoagulation, more formal, patient-centered assessments of willingness to participate in treatment could address this potential barrier.

The results of the present study demonstrate that clinicians emphasize the role of patient knowledge in successful anticoagulation treatment. Eliciting patient knowledge, including inaccuracies and misconceptions, is necessary to address potential patient-level barriers. Clinicians who provide patient education and counseling have a unique opportunity to shape patient expectations and attitudes toward anticoagulation treatment for AF. Developing patient resources that are easy to access and use could be beneficial. For example, clinicians could encourage group clinics that afford an opportunity for patients to share information with each other. Such strategies have been successfully tested in heart failure populations. This type of patient knowledge exchange may make adjustment to the diagnosis easier and improve adherence to the treatment plan.

Lastly, the detection of clinician reluctance to prescribe anticoagulation treatment underscores the difficulty in choosing between stroke and bleeding risk when determining an optimal treatment plan for patients with AF. Many factors contribute to treatment decisions; anticoagulation therapy is not prescribed lightly. Clinicians reported adhering to the clinical guidelines. However, as frequently as clinicians described patient reluctance to begin anticoagulation, they expressed their own hesitancy to prescribe warfarin.

## Limitations

Qualitative research by nature is exploratory and not intended for generalization. Therefore, a limitation of the present study may be lack of representativeness in the sample (single site) and generalizability to a broader population. In addition, clinicians in the present study were drawn from two single

practices, ie, a cardiology specialist practice and an IM practice in the Kansas City area. Other clinicians who work with AF patients may report different strategies for determining optimal treatment and may report different experiences with AF patients.

## Future implications

Although clinical factors were a primary concern, social and lifestyle factors were cited as important considerations when prescribing warfarin. Therefore, underprescription is difficult to measure when other factors, such as the burden of treatment and lifestyle factors, make anticoagulation less appropriate and are entered into the equation.

Many aspects of medical care have come under the scrutiny of performance measures. One cardiologist stated:

“I would think that the day comes when we have quality public reporting who has a CHAD score of 2 and how many of those CHAD scores of 2 patients are not on warfarin or a darn good indication not for warfarin, those numbers will get better, hey, you have a good reason not to be on it.” (Cardiologist, 04)

The creation of such a measure should include the collection of additional nonclinical and nonadministrative data elements to be able to incorporate the psychosocial aspects that contribute to the clinician’s determination that warfarin or anticoagulation is not in the patient’s best interest. Perhaps, an important implication for practice is the need to create a brief AF clinical tool to screen for clinical as well as psychosocial factors to ensure successful initiation and adherence to anticoagulation therapy.

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