Our mothers have a few things in common. They are intelligent, self-aware, and careful. And both of them have daughters who are cardiologists. Unfortunately, they also share the dubious honor of having delayed calling for emergency care after developing cardiovascular symptoms. One mom, a healthy 80-year-old retired insurance agent, noticed some numbness in her face and tongue and weakness in her left hand; when these symptoms did not go away, she became concerned that she might be having a stroke and called the nurse help line provided by her health plan. Not surprisingly, the nurse instructed her to hang up and dial 911—but instead, she called a family member and asked for a ride to the hospital. Thankfully, her symptoms resolved, tests were negative, and she has felt well since then.

The other mom, a 74-year-old retired physical therapist, experienced severe indigestion after dinner one evening. She was able to fall asleep as it came and went, but was awakened in the middle of the night by discomfort radiating to her jaw and arms—so she woke her husband, and after some discussion, they drove to the local emergency room, where she was found to be having an inferior ST-segment–elevation myocardial infarction.

Though both were aware of the symptoms of stroke and heart attack, neither woman thought it would happen to her. Neither did the family members who transported them to the hospital. And, as both concerned daughters and data-driven clinicians and researchers, we got to thinking: how could we make this better?

There are many important steps in seeking care for symptoms that might be cardiovascular in nature. First, one needs to be aware of the signs and symptoms of cardiovascular disease. Second, one has to connect the symptoms one is experiencing to the possibility of a stroke or heart attack—the recognition that this could be one of those 2 serious conditions. And finally, one needs to rapidly seek care. What is the evidence, then, about these 3 decision points as they apply to women? Are women less knowledgeable about signs and symptoms of CVD? Less likely to recognize cardiovascular symptoms in themselves? Are they slower to seek care? And are these women’s problems or everyone’s problems?

Awareness and Recognition of Cardiac Symptoms
A 2012 survey of American women found that a surprisingly low 56% reported that they would associate having chest pain with a heart attack, and only 17% would associate chest tightness with a heart attack. Similarly, <18% of female respondents were aware of atypical symptoms of a heart attack, such as nausea or fatigue. Similar gaps have been demonstrated in a Canadian population. However, studies have demonstrated that this is an issue applicable to both sexes, with >75% of both men and women in one study failing to recognize atypical symptoms of ischemia as potentially cardiac in nature.

Knowledge of stroke warning symptoms seems to be similarly limited in both women and men, with 50% to 75% of individuals unaware of important warning symptoms for this condition.

Of course, women may also be somewhat more likely to experience atypical symptoms, such as nausea, shortness of breath, and back pain in the setting of ischemia, though data are mixed in terms of the degree to which this differs from men’s symptom experience and women with myocardial infarction (MI) are more likely than men to present without chest pain. This is particularly important because the absence of chest pain as a presenting symptom has been associated with increased mortality, especially among younger women with MI. Overall, though, the similarities far outweigh the differences, and although women may be slightly more likely to fit into this atypical category, both sexes need to know that atypical symptoms are common.

To the second point, there is evidence to suggest that women are less likely than men to see cardiovascular disease as a risk to their own health. However, significant strides have been made in the last 2 decades, with recent research suggesting that the rate of awareness of CVD as the leading cause of death nearly doubled among women from 1997 to 2012, from 30% to 56%. The improvement in awareness has been greater for white women compared with black and Hispanic women. Young women with MI, in particular, who are a relatively understudied group and who have poor outcomes compared with men of similar age, may be particularly likely to underestimate their cardiovascular risk and to receive counseling on risk reduction from their clinicians.

Web use statistics can provide interesting insights on both women’s knowledge of symptoms and their likelihood to apply that knowledge to themselves. For example, womenheart.org, which is the website for The National Coalition for Women with Heart Disease, offers some interesting
information. The quick link that gets the most hits on the organization’s website is: “Am I Having a Heart Attack?” For example, from December 10, 2015, to January 10, 2016, the page was viewed 14072, representing 33.1% of total website views and easily making it the most commonly viewed page on the site (personal communication, Mary McGowan, CEO WomenHeart, unpublished data, 2016). We can only hope that this use reflects women seeking information at times when they are not actually having symptoms, but suspect this is not always the case.

**Delays in Seeking Care**

To the third factor in appropriate response to cardiovascular symptoms, seeking care quickly and in an appropriate location, evidence suggests that women are more likely to delay seeking treatment than men, although the reasons are multifactorial and the differences are relatively small. For example, in one study, women were 3% more likely (10% versus 7%) to delay >12 hours in seeking care after the onset of symptoms.15 Further, although older age, female sex, low education level, low socioeconomic status, black race, and diabetes mellitus have all been associated with longer delays in seeking treatment for acute coronary syndrome, combinations of these risk factors (ie, older black women with diabetes mellitus) are particularly powerful for predicting delays.15,16 On the contrary, in the setting of stroke, women were actually less likely to delay >6 hours before seeking care (odds ratio for delay of 0.66; \( P=0.04 \)).17

Why do these delays occur? One reason for treatment delay is that often patients are worried about a false alarm or about bothering people; it can be embarrassing and intimidating to ask for urgent medical attention. Although both of our mothers admitted to having such fear of embarrassment, the evidence suggests that such fear is not exclusive to women. In one study of 796 patients at risk for acute coronary syndrome, participants were asked to respond to the statement, “If I thought I was having a heart attack, I would wait until I was very sure before going to the hospital.” Sex was not associated with a greater likelihood of waiting, but those who had lower trust in others, had experienced a previous revascularization, or were more functionally limited by angina were more likely to wait to seek care.18 Another study did demonstrate a difference between sexes with regard to cardiac symptoms, as more women would wait for a more severe confirmatory event to occur before they would qualify their symptoms as possibly cardiac.19

Delay to action is not limited to the experience of cardiac symptoms. In a population-based survey assessing knowledge of stroke symptoms and an individual’s plan to act, only 18% of respondents would call 911 for all 3 of the scenarios describing stroke symptoms. Importantly, increased knowledge of stroke symptoms was not associated with the intent to call 911 for stroke.1

Finally, patients may not be the only ones delaying care for women compared with men: one recent study showed that among young patients with MI, women were significantly more likely to experience a delay to reperfusion,20 and other studies have found similar evidence of associations between sex and reperfusion delay as well.21,22 Additionally, longer symptom-to-presentation time is independently associated with longer presentation-to-reperfusion time, suggesting that delays may beget delays in treatment for MI.23

**Possible Solutions**

Two things are apparent: women are not alone in being slow to react to serious symptoms, and knowledge of symptoms has not always resulted in getting people who have symptoms to take action. One obvious solution to these problems is public awareness campaigns. Such programs as the American Heart Association’s Go Red for Women, the National Heart, Lung and Blood Institute’s The Heart Truth, and The Women’s Heart Alliance’s Fight the Ladykiller focus attention on women’s risk of heart disease, symptom awareness, and action plans for a woman when she experiences symptoms—and evidence suggests that knowledge of heart disease in women has increased over the past decade.1 There are similar awareness campaigns fostering knowledge of stroke symptoms and the importance of seeking emergency care. However, the efficacy of these programs in reducing delays in seeking care has not been rigorously evaluated, and at least one prior intervention to reduce delays in care was unsuccessful in doing so.24

How else might we encourage both women and men to seek care quickly when symptoms strike? One possibility is that our messaging needs to focus not only on knowledge but also on support, letting patients know that false alarms are OK and we are not going to laugh if they come to the ER worried about a heart attack or stroke. Continuing to normalize that heart disease may also be important: culture and identity play a role in our perceptions of disease risk as does familiarity with the disease in others. Socioeconomic gaps in knowledge and delay are also significant,1,5,26 and campaigns focused on underserved populations might have particular promise in improving outcomes.

Finally, it is clear from the literature that delays in seeking care are not just a women’s problem, and nor is the experience of atypical and confusing symptoms in the setting of a cardiovascular event. We need to enlist men to help women, women to help men, caregivers to help care recipients, and most salient to us, children to help parents, to both recognize and act on potentially life-threatening symptoms when they occur.

**Disclosures**

None.

**References**


**Key Words:** access to care • acute coronary syndrome • acute therapy • stroke • women
Delays in Seeking Care: A Women's Problem?
Mary Norine Walsh and Karen E. Joynt

doi: 10.1161/CIRCOUTCOMES.116.002668
Circulation: Cardiovascular Quality and Outcomes is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2016 American Heart Association, Inc. All rights reserved.
Print ISSN: 1941-7705. Online ISSN: 1941-7713

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circoutcomes.ahajournals.org/content/9/2_suppl_1/S97

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation: Cardiovascular Quality and Outcomes can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation: Cardiovascular Quality and Outcomes is online at:
http://circoutcomes.ahajournals.org//subscriptions/