

Why are women less likely to be prescribed statins than men?

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Statins are equally effective at decreasing risk of coronary events in men and women, and yet women are less likely to be prescribed these cholesterol-lowering drugs than men. A study by investigators at Brigham and Women's Hospital (BWH) published this week in *PLOS ONE* identifies four factors that may account for sex differences in statin therapy among patients with coronary artery disease (CAD), pointing to interventions and additional research that will be needed to help overcome this sex disparity and reduce cardiovascular risk for women.

"This is the first study to identify factors that explain almost all of the sex disparities in [statin therapy](#)," said corresponding author Alexander Turchin, MD, MS, a physician and researcher in the Division of Endocrinology at BWH. "These results point the way to interventions that could decrease or eliminate sex disparities in statin therapy and have significant public health implications."

Statins have proven highly effective at decreasing the risk of a second coronary event and current guidelines recommend statin therapy for all adult patients with [coronary artery disease](#). Deaths from coronary artery disease have dramatically fallen for both men and women over the last 30 years as statins have gained in popularity, but that reduction has been much greater for men than for women. Previous studies have indicated that women were less likely to be prescribed statins, but the reasons for this disparity were unclear.

To address this, BWH investigators used state of the art natural language

processing tools to review the course of more than 24,000 patients with coronary artery disease treated at either BWH or Massachusetts General Hospital between 2000 and 2011. The investigators found that women were less likely to have started taking statin therapy (81.9 percent of women vs. 87.7 percent of men) or to have continued statin therapy (67.0 percent of women versus 71.4 percent of men). The team then evaluated contributions to these disparities, finding four key factors that appear to influence likelihood of treatment with statins:

- Evaluation by a cardiologist
- History of reported adverse reaction to statins
- Age
- Smoking history

They found that women were less likely than men to have been evaluated by a cardiologist, one factor that may contribute to lower rates of statin use. They also found that women were more likely than men to report adverse reactions to statins, a finding that has been reported by others although not well understood.

In addition, younger patients and those with a history of smoking were more likely to have continued taking statins through the period of the study. Women, on average, experience [coronary artery](#) disease 10 years later than men and have lower smoking rates than men, both of which may partially contribute to the sex disparity in statin therapy.

Overall, these four factors accounted for 90 percent of the differences seen between women and men in statin use, and point to possible interventions to help overcome this disparity. For instance, clinicians may consider restarting a patient on a statin regimen after a prior adverse statin reaction has been reported, thus re-evaluating a patient's tolerance. Prior work by Turchin and his colleagues have provided important evidence that many so-called statin intolerant patients can take a statin

without issues, if rechallenged. Undertaking this process in women may help overcome disparities in potentially lifesaving treatments. The authors note that there may also be a role for referrals to cardiologists to help narrow the gap although it is also possible that internists and primary care providers can also follow the lead of cardiologists in adopting more aggressive approaches to lowering cholesterol and risk factor modification.

"Our data reveal significant issues as well as opportunities for improving cardiovascular outcomes in women - an important objective given the under-treatment and incidence of cardiovascular disease in women," said co-author Jorge Plutzky, MD, director of BWH Preventive Cardiology and director of the BWH Linda Joy Pollin Women's Heart Center.

"Identifying the factors underlying decreased use of statins in women who should be treated is a first step toward overcoming these barriers and improving cardiovascular outcomes for women."

More information: Huabing Zhang et al, Drivers of the Sex Disparity in Statin Therapy in Patients with Coronary Artery Disease: A Cohort Study, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0155228](https://doi.org/10.1371/journal.pone.0155228)

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