Clinical question
Do patients with diabetes have the same risk of cardiovascular (CV) events as patients with existing coronary artery disease (CAD) do?

Bottom line
Although diabetes does confer an increased risk of CV events, it is not automatically equivalent to having experienced myocardial infarction (MI), and thus does not always warrant aggressive pharmacotherapy. Cardiovascular risk should be predicted and therapy guided by taking into account individual risk factors.

Evidence
- Meta-analysis\(^1\) of 13 observational studies (45108 patients).
  - Compared with patients with previous MI, patients with diabetes have half the risk of CAD (odds ratio 0.56; 95% CI 0.53 to 0.60).
- Danish cohort study\(^2\) not included in above meta-analysis.
  - An analysis adjusting for some CV risk factors, socioeconomic status, and CV drugs:
    - patients with diabetes had a lower risk of MI or CV death (hazard ratio 0.63 in men and 0.54 in women) than patients with previous MI;
    - no adjustment was made for most traditional risk factors (blood pressure, smoking status, etc), which would have likely attenuated the association in patients with diabetes.
- The observational study\(^3\) that originally generated the concept of diabetes-CAD equivalence had multiple limitations, including being very underpowered.
  - Diabetes approximately doubles the risk of CV events.\(^5\)
    - Associated risk is further increased by longer duration of diabetes,\(^6\) increasing hemoglobin A\(_1c\),\(^7\) and traditional CV risk factors.\(^8\)
  - Because most studies were conducted in white patients, the applicability of this evidence to high-risk ethnic populations is unclear.

Implementation
The potential benefit from interventions like acetylsalicylic acid and statins for the average patient with diabetes reflects the lower CV risk compared with patients with previous MI. Statin use reduces substantial CV events over 4.5 years with a number needed to treat (NNT) of 48 for patients with diabetes compared with an NNT of 22 for those with previous CV disease.\(^9\) Acetylsalicylic acid has not been shown to reduce CV events among patients with diabetes\(^10\) but it reduces events for those with previous CV disease (NNT=30 over 3 years).\(^11\) Risk calculators can be used to determine overall CV risk for patients with diabetes. The UKPDS risk engine is designed specifically for patients with diabetes (www.dtu.ox.ac.uk/riskengine) and the Best Science Medicine calculator estimates benefits with varying interventions (http://bestsciencemedicine.com/chd/calc2.html).

References