



<b>Title</b>	<b>Coronary Artery Stents: A Rapid Systematic Review and Economic Evaluation</b>
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<b>Reference</b>	Health Technol Assess 2004;8(35). September 2004. <a href="http://www.hta.ac.uk/execsumm/summ835.htm">www.hta.ac.uk/execsumm/summ835.htm</a>

## Aim

To assess the effectiveness and cost effectiveness of using coronary artery stents in patients with coronary artery disease (CAD).

## Conclusions and results

The inclusion criteria were met by 50 randomized controlled trials comparing the use of stents with percutaneous transluminal coronary angioplasty (PTCA), 6 comparing stents with coronary artery bypass grafting (CABG), and 12 comparing drug eluting stents (DES) with non-DES. No studies were included that compared DES with PTCA or DES with CABG. Stents were found to be more effective than PTCA in preventing major adverse cardiac events and revascularizations. In multiple-vessel disease there was no evidence of a difference in mortality (at 1 year) between patients treated surgically and those receiving a stent. Patients treated surgically required fewer revascularizations. There is no evidence of a difference in mortality between patients receiving DES and those treated with bare metal stents (BMS) at 1 year. A reduction in event rate at 9 and 12 months was found in patients treated with DES. This event rate is primarily made up of increased revascularization rates in patients treated with BMS. Two-year outcome data from one study indicated that this benefit of DES continues over the longer term. Quality of life data suggest that revascularization procedures reduce the patient's quality of life for a short period only. The economic model indicated long-term trends in cost effectiveness. CABG was found initially to be more expensive than BMS in multivessel disease and may have higher immediate risks, but over time the cost differential is reduced and long-term outcomes favor CABG over stenting. A similar situation was found for DES versus CABG in multiple-vessel disease. DES might not be considered a cost-effective alternative to BMS in single-vessel disease by policy makers due to substantially higher costs and a small outcome benefit.

## Recommendations

DES might be considered cost effective if the additional costs (compared with BMS) were substantially reduced, the outcome benefits with DES were much improved, and/or its use targeted subgroups of patients at greatest risk for reintervention. Long-term clinical studies are needed that focus on outcomes, eg, mortality.

## Methods

The review followed accepted guidelines for systematic reviews. Randomized controlled trials were included that compared PTCA versus PTCA with stent, stent versus CABG, and DES versus non-DES in patients with CAD in native or graft vessels and those with stable angina or acute coronary syndrome and unstable angina. The review included data on the following outcome measures: combined event rate or event-free survival, death, acute myocardial infarction, target vessel revascularization, repeat treatment (by PTCA alone; PTCA and stenting or CABG), and binary restenosis. An economic model was based on extrapolation of trends in mortality and revascularization from clinical trials data to a 5-year time horizon.

## Further research/reviews required

Further research should consider: differences among stents; head-to-head comparisons within DES, CABG compared with DES; and evaluation of newer non-DES against DES. Evaluation of the effects of revascularization procedures, especially repeat revascularization procedures, on quality of life would be useful, as would development and testing of risk assessment tools to identify patients likely to need further revascularizations.