



**Title** Heart laser treatment (transmyocardial laser revascularization)

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## Aim

The Norwegian Centre for Health Technology Assessment (SMM) was asked by the Norwegian Health Ministry to perform a systematic review of the evidence concerning the effect of heart laser treatment (often referred to as transmyocardial laser revascularization).

## Conclusions and results

- A search revealed that 267 articles had been published on the subject. All articles except those in Chinese and Japanese and one review article were retrieved and read by the project group. The conclusions from this systematic review are based mainly on findings presented in 5 randomized controlled clinical trials (Schofield 1999, March 1999/Frazer 1999, Burkhoff 1999/Jones 1999, Allen 1999 and Aaberge 2000)
- Treatment with a heart laser does not save lives. On the contrary, mortality related directly to heart laser treatment is not insignificant (3% to 20%). Mortality appears to be particularly high among patients with unstable angina or cardiac failure.
- Treatment with a heart laser does not lead to an improvement in cardiac function.
- Treatment with a heart laser does result in pain reduction for many (~70%) of the patients treated.
- The report summarizes the findings from experimental studies and discusses possible mechanisms behind the pain reduction reported by patients. Clearly, a placebo effect is at work – but this may not be the entire explanation.

## Methods

Embase and MEDLINE were searched in the beginning of 2000. In addition, abstract collections from recent cardiological congresses and relevant journals from 1999 were hand searched. Unpublished material from Norwegian research groups was also available.

## Further research/reviews required

The expert group recommends further research to clarify the mechanics of heart laser treatment, the effects of heart laser treatment given by methods other than thoracotomy, and the long-term effects of such treatment. The expert group acknowledges the need for large, blind, randomized controlled trials in this field of medicine.