

# Additional cost per life-year saved with community thrombolysis, relative to hospital thrombolysis, was as low as £3890

Vale L, Silcock J, Rawles J. An economic evaluation of thrombolysis in a remote rural community. *BMJ*. 1997 Feb 22;314:570-2.

## Objective

To determine the cost-effectiveness of thrombolysis given in the community for acute myocardial infarction (MI) compared with thrombolysis given in the hospital.

## Design

Cost-effectiveness model using the results of the Grampian Region Early Anistreplase Trial (GREAT), a randomized controlled trial.

## Setting

29 rural general practices and 1 secondary care provider in Grampian, Scotland.

## Patients

311 patients (mean age 63 y, 70% men) with suspected acute MI who were seen at home by a general practitioner within 4 hours of symptom onset. Exclusion

criteria included thrombolysis or bleeding within the past 6 months; surgery or major trauma in the past 10 days; cerebrovascular accident or neurosurgery within 2 months; thrombocytopenia or hemorrhagic diathesis; pregnancy; diabetic proliferative retinopathy; blood pressure > 200/100 mm Hg; and recent resuscitation with chest compression.)\*

## Intervention

{163 patients received 30 units of anistreplase intravenously at home (median, 101 min from start of symptoms), followed by placebo in the hospital. 148 patients received placebo at home, followed by 30 units of anistreplase in the hospital (median, 240 min from start of symptoms).}\*

## Main cost and outcome measures

Cost of thrombolytic therapy and survival at 4 years. The cost-effectiveness of giving thrombolysis at home by general practitioners was calculated as extra cost per life saved compared with standard in-hospital treatment. The costs (in 1996 English pounds) consisted of drug (anistreplase vs streptokinase), labor, and equipment costs.

## Main results

At 4 years, community thrombolysis improved survival by 11% compared with hospital thrombolysis (95% CI 1% to 22%); the number needed to treat with community thrombolysis to save 1 additional life was 9 (CI 5 to 90). The additional cost of community thrombolysis was estimated between £425 and £880 per patient. This gives a marginal cost per life saved at 4 years by community thrombolysis between £3890 and £8000.

## Conclusion

The additional cost per life saved by community thrombolysis, relative to hospital thrombolysis, was as low as £3890.

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\*Rawles J. *BMJ*. 1996;312:212-6.

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## Commentary

The clinical adage "time equals myocardium" has been proven true in large randomized trials of thrombolytics for MI (1, 2). Time to delivery is an important predictor of benefit. In some settings, the delay in reaching a hospital may be dangerously long. The GREAT study shows that community delivery of thrombolytics in rural Scotland saved an average of 2 hours per patient. 1 life was saved for every 9 patients treated (3). However, this survival improvement came at a financial cost.

If community delivery saves lives but costs more, is it cost-effective? In this economic analysis, the incremental cost-effectiveness of field delivery of anistreplase over the hospital delivery of streptokinase was quite impressive. Using the highest estimated cost in this study (£88 100) and a life expectancy of only 10 years for each life saved,

the cost per life-year saved is approximately U.S. \$14 000—considerably less than the estimates for screening young men for hypertension (U.S. \$47 000) or the use of tissue-type plasminogen activator (t-PA) instead of streptokinase (U.S. \$32 000) (4, 5).

Can this economic analysis be translated into practice? The incremental benefit of field delivery of thrombolytics is likely to be greater in Scotland than in some other countries. For example, few American patients with suspected MI have a 2-hour delay during hospital transport. However, the incremental cost of field delivery may also be less in countries, such as the United States, where many patients already receive a more expensive thrombolytic, t-PA, in the hospital. In addition, emerging clinical practices, such as primary angioplasty, may dramatically affect the relevance of this

analysis. Given the known importance of early intervention, further studies exploring the benefits and costs of field delivery of thrombolytics in the United States and other countries are needed.

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