Shoulder acute pain in primary health care: is retraining GPs effective? The SAPPHIRE randomized trial: a cost-effectiveness analysis


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
Two cost-effectiveness analyses were conducted to compare training versus no training for general practitioners (GPs) and to compare lignocaine versus cortisone injections, in the management of shoulder pain. The authors concluded that training GPs for the management of shoulder pain was cost-effective, but the cost-effectiveness of lignocaine compared with cortisone was highly uncertain and further research was needed. Despite some limitations in the available evidence, the authors’ conclusions appear to be appropriate.

Type of economic evaluation
Cost-utility analysis

Study objective
This study compared the cost-effectiveness of two aspects of care in the management of shoulder disorders. The first aspect was the provision of practical training to general practitioners (GPs). The second aspect was a comparison of two medical treatments.

Interventions
The GPs were trained in administering injections for shoulder pain and this was compared with no training. The injections (medical treatments) were a local anaesthetic, namely lignocaine, compared with a steroid, namely cortisone.

Location/setting
UK/primary care.

Methods
Analytical approach:
The analysis was based on a single study with a one-year horizon. The authors reported that both a health system and a societal perspective were adopted.

Effectiveness data:
The clinical data were mainly from the Shoulder Acute Pain in Primary Health Care: Is Retraining GPs Effective? (SAPPHIRE) multi-centre randomised controlled trial (RCT). Patients recruited to this trial were blind to the injection received. A sample of 200 patients and 155 GPs was used, with 101 patients randomised to lignocaine and 99 to cortisone, while 106 GPs were randomised to training and 49 were untrained. Appropriate statistical analysis demonstrated that patient groups and GP clusters were comparable at baseline in their demographic and employment characteristics, such as practice list size and area. Patients were followed-up at baseline, one month, three months, and one year. Further details were reported in another paper (Watson, et al. 2008, see ‘Other Publications of Related Interest’ below for bibliographic details).

Monetary benefit and utility valuations:
The utilities were from the SAPPHIRE trial, where patients’ values were assessed using the European Quality of life (EQ-5D) questionnaire. Appropriate adjustments for differences in EQ-5D scores, at baseline, were performed.

Measure of benefit:
Quality-adjusted life-years were the summary measure of benefit.
Cost data:
The economic analysis included the costs of the GP, nurse, physiotherapist, and other health care professional visits; GP training; treatments; in-patient stays and out-patient hospital services; private health care consultations and equipment; pain killers; and health aids for the relief of shoulder pain. Productivity losses (absence from work due to shoulder pain) were also included. Resource use was recorded during the SAPPHIRE trial, using patient questionnaires. Average national unit costs and the mean gross daily wage in the UK were used. All costs were reported in UK pounds sterling (£) for the price year 2005 to 2006.

Analysis of uncertainty:
The issue of uncertainty was addressed, using a Bayesian approach to calculate credibility intervals around the cost-utility ratio. Cost-effectiveness acceptability curves were generated.

Results
From the National Health Service (NHS) perspective, the total costs were £531 for trained GPs and £320 for untrained GPs (difference £211, 95% CrI -237 to 661). The total costs were £466 for lignocaine and £344 for cortisone yielding a cost-difference of £122 (95% CrI -232 to 476).

From a societal perspective, the cost difference between trained and untrained GPs was £148 (95% CrI -505 to 804) and lignocaine resulted in cost savings of £15 (95% CrI -585 to 558), compared with cortisone.

The mean total QALYs over one year were 0.642 for trained GPs, 0.567 for untrained GPs, 0.627 with lignocaine, and 0.626 with cortisone. The difference in QALYs was 0.075 (95% CrI -0.004 to 0.154) between the trained and untrained GPs and 0.001 (95% CrI -0.068 to 0.070) between lignocaine and cortisone.

From the NHS perspective, trained GPs had an incremental cost-effectiveness ratio (ICER) of £2,813 per QALY gained over untrained GPs. For incremental cost-effectiveness thresholds over £20,000 per QALY, training GPs had a 0.95 probability of being cost-effective. Lignocaine, compared with cortisone, had an ICER of £122,000 per QALY gained.

From a societal perspective, the ICER for trained, compared with untrained GPs, was £1,927, while at any cost-effectiveness threshold it was equally cost-effective to inject either lignocaine or cortisone.

Authors' conclusions
The authors concluded that training GPs for the management of shoulder pain was cost-effective, with little uncertainty, but the cost-effectiveness of lignocaine, compared with cortisone, was highly uncertain and further research was needed.

CRD commentary
Interventions:
The rationale for the choice of interventions was reported and referred to a clinical trial. The training intervention was not fully described and alternative treatments were not included. If there were other treatments, which is likely, this was a partial analysis.

Effectiveness/benefits:
The use of clinical data from a RCT was appropriate given the strengths of its design. Few details of the trial were reported, as they were published in another paper. A complete-case analysis was conducted to deal with missing data. The authors noted that their sample was not large enough, and some comparisons might have been underpowered. The derivation of the benefit measure was reported and was based on a validated instrument. QALYs were an appropriate measure, as they synthesise into a single index the dimensions of quality and quantity of life and they allow cross-disease comparisons.

Costs:
The costs reflected the perspective stated. They were presented as micro-costs, with details of the cost items and the resource use, which will facilitate the replication of the results in other settings. Details of the price year and data
sources were provided. Overall, the economic analysis was transparent and well reported.

**Analysis and results:**
The synthesis of costs and benefits was appropriately performed. The issue of uncertainty was satisfactorily addressed, using a Bayesian approach. The findings were reported in detail. Selection bias was acknowledged by the authors as a possible limitation of their study, but appropriate statistical analysis was undertaken to minimise this. The small sample size and the limited time horizon were also acknowledged by the authors as possible limitations of their study.

**Concluding remarks:**
Despite the limitations in the available evidence, the authors’ conclusions appear to be appropriate.

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