Costs and outcomes of an intervention programme for offenders with personality disorders

Barrett B, Byford S

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
The objective was to assess the cost-effectiveness of the dangerous and severe personality disorder (DSPD) programme, to identify and treat the most dangerous offenders. The authors concluded that the programme was probably not cost-effective, for offenders with personality disorders. There were a few limitations to the reporting, but the authors' conclusions seem to be appropriate.

Type of economic evaluation
Cost-effectiveness analysis, cost-benefit analysis

Study objective
The objective was to assess the cost-effectiveness of the dangerous and severe personality disorder (DSPD) programme to identify and treat the most dangerous offenders.

Interventions
The DSPD programme was set up in the UK in 1999. It consisted of a range of therapeutic approaches, including cognitive-behavioural therapy and dialectical behaviour therapy, for offenders with personality disorders, in high-security hospitals and prisons. The comparator was usual care, which included existing offending behaviour programmes, such as sex offender treatment and violent offender treatment.

Location/setting
UK/prison and hospital.

Methods
Analytical approach:
A Markov decision model was constructed to estimate the long-term costs and outcomes, for a cohort of offenders, after two years of treatment. The time horizon was 25 years and the cycle length was one year. The authors stated that a service perspective was taken.

Effectiveness data:
The outcome measure was serious reoffending among life-sentence prisoners. A systematic review was conducted to identify studies reporting the rate of reconviction for serious offences, after specialist and mainstream incarceration. The annual rates of reconviction were between 2 and 5%. For the intervention, the annual reconviction rate was assumed to be 3%, based on offenders only being released if they were considered to have a low probability of reoffending. For the comparator, the annual rate was assumed to be 5%. All outcomes beyond one year were discounted at an annual rate of 3.5%.

Monetary benefit and utility valuations:
Reconvictions for serious offences were valued using estimates developed by the UK Home office. These included anticipated crime (defence expenditure, such as burglar alarms), the consequences of crime (physical and emotional impact on victims, victim services, and property), and responding to crime (criminal justice system and other services, such as treatment for victims of violent attacks). In the main analysis, it was assumed that reconvictions were for a mixture of offences, including serious wounding and sexual offences, and at least half of offences were homicides.

Measure of benefit:
The measures of benefit were the number of serious offences avoided, and the monetary value of these offences.
Cost data:
The costs included those to the criminal justice system, and health and social services. The costs of one year of treatment were estimated, using the end-of-year financial statements from each DSPD programme site. Other costs were from various routine sources for unit cost data. All costs were reported in UK £, for the financial year 2005 to 2006. Costs beyond the first year were discounted at an annual rate of 3.5%.

Analysis of uncertainty:
Univariate sensitivity analyses were undertaken to assess the impact of plausible changes in key parameter values and the model structure on the results. The key parameters were the cost of the intervention, the duration of treatment, the probability of serious reoffending, and the discount rate. Probabilistic sensitivity analysis was conducted, using assigned distributions to assess the effect of combined parameter uncertainty on the results. For the net-benefit analysis, three scenario analyses were conducted, in which all reconvictions were serious wounding, all were serious sexual offences, or all were homicides. A cost-effectiveness acceptability curve was derived.

Results
The mean cost per offender was £927,088 for the DSPD programme and £485,208 for usual care. The mean number of serious offences per offender was 0.048 for the programme, and 0.246 for usual care. The incremental cost of DSPD per serious offence prevented was £2,240,000.

The monetary value of the incremental benefit per person for the programme was £149,244. With an incremental cost per person of £441,840, this resulted in a net monetary benefit of -£292,596.

The sensitivity analysis showed that the results were most sensitive to whether the intervention was used in a low- or high-cost institution, and the duration of treatment. The incremental cost-effectiveness ratio ranged from £750,121 (low-cost prison) to £3,540,377 (high-cost hospital) per offence avoided.

The only instance in which the net monetary benefit was positive was when treatment occurred in a low-cost prison, where the outcomes resulted in a monetary value of £711 more than costs. In the scenario analysis, the most favourable result occurred when all reoffending was assumed to be homicide; the incremental cost of the programme was £152,963 more than the benefits.

The cost-effectiveness acceptability curve showed that, up to a willingness-to-pay threshold of £5 million per serious offence prevented, the intervention was more cost-effective than the comparator in less than 40% of simulations.

Authors' conclusions
The authors concluded that the DSPD programme was probably not cost-effective, for offenders with personality disorders.

CRD commentary
Interventions:
The interventions were described and appropriately included the usual practice. No details on the specific institutes or offenders treated for either the intervention or comparator arm were reported. Only limited details of the types of treatments for the intervention and comparator were given.

Effectiveness/benefits:
The effectiveness estimates and monetary valuations were clearly reported. The authors considered a good variety of outcomes for offences avoided. Limited details were reported for the systematic review to identify the relevant sources for the effectiveness estimates; these were available on request. The assumption that the reconviction rate would be lower for the intervention was justified by the authors, as offenders would only be released following specialist treatment, if they were considered to have a low probability of reoffending. The authors did appropriate sensitivity analyses around the rate of reoffending.

Costs:
The costs were clearly reported and were relevant to the perspective adopted. The sources for the costs were clearly reported and they were appropriate for the study setting. The costing methods were adequately reported and were appropriate.

Analysis and results:
The Markov model was clearly described, with a diagram. The results were clearly reported, with appropriate diagrams. The authors stated that a limitation of their analysis was its reliance on assumptions for the model structure and input values. They justified this on the grounds of a lack of available data. The ranges for the sensitivity analysis seem to have been reasonable. The distributions for the probabilistic analysis were not reported. Since the validity of this type of analysis depends on the choice of distributions, it is not possible to assess whether this was conducted appropriately. The authors highlighted several limitations to their study. In particular, the lack of data creating significant uncertainty in the monetary estimates for the cost-benefit analysis, and the number and type of serious offences that would be committed. The authors stated that future research should develop more accurate valuations for serious offences, and generate better data on the length, location and intensity of treatments; the probability of serious reoffending; and the types of offences.

Concluding remarks:
There were a few limitations to the reporting, but the authors' conclusions seem to be appropriate.

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