

The Drug Treatment Outcomes Research study (DTORS): Cost-effectiveness analysis

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The Drug Treatment Outcomes Research Study (DTORS) assessed the outcomes, costs and benefits of drug treatment in England.

Results obtained in the study were variable and affected by a very small number of outliers. However, they provided evidence that treatment was effective in improving health status and in reducing the costs of other health and social care services. Overall, the net benefits of structured drug treatment were estimated to be positive, both overall and at the individual level in around 80 per cent of cases, with a benefit-cost ratio of approximately 2.5:1. Small sample size prevented the estimation of robust net benefits for sample subgroups. However, the results are broadly generalisable to the population of people seeking structured drug treatment in England and Wales.

There were limitations to the analysis, due to missing observations and follow-up data, and the use of self-report data to estimate service use, offending and health status. The absence of a control group not receiving treatment also means that it is not possible to ascribe with a high degree of confidence any observed changes in outcomes to structured drug treatment specifically.

DTORS participants were individuals who had received triage and a care plan for drug treatment, and not all of these would have taken up or completed their courses of treatment. The reported results reflect the average over all individuals. Further, the analysis does not include the costs of ancillary services which might have been received prior to accessing treatment, for instance the costs of triage and care plans. More significantly, the costs of referral through schemes such as the Drug Interventions Programme are also excluded

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Context

The National Treatment Outcomes Research Study (NTORS) concluded that drug treatment could be effective and cost-beneficial for drug users in England. Since the time of NTORS in the 1990s, there have been significant changes in the context of drug use and treatment in England. For example, the use of crack or cocaine has risen significantly. Concurrently, increasing use of referral into treatment via the criminal justice system (CJS) has increased the proportion of individuals seeking treatment who are drug-misusing offenders, who tend to have more serious drug problems, which are potentially less responsive to treatment. New evidence is therefore needed about whether services are effective and an efficient use of resources. The aim of this study was to assess, as part of the Drug Treatment Outcomes Research Study (DTORS), the cost-effectiveness of services for people requiring structured (Tier 3 and 4) drug treatment, which comprises inpatient drug treatment, specialist and GP prescribing, counselling, structured day programmes, residential rehabilitation, structured alcohol interventions and other structured interventions.

Approach

The participants in this economic analysis were the adult treatment seekers who participated in baseline interviews for the DTORS and had an assessment for structured drug treatment. The costs of structured drug treatment services were collected from the National Drug Treatment Monitoring System (NDTMS). All other costs and outcomes were estimated from data collected in the DTORS interviews. The baseline interviews for DTORS took place after initial assessment for treatment. Follow-up interviews were conducted at between three to five months after the baseline interview and then again between 11 to 13 months after the initial interview. The data were weighted to be representative of adult treatment seekers in England

and to account for non-response bias in follow-up data. The analysis estimated the costs and benefits of structured drug treatment from baseline to the end of scheduled follow-up (one year), for all participants, including those who did not complete treatment. A comparison set of costs and quality-adjusted life years (QALYs) of no drug treatment was estimated to represent what the costs and QALYs of DTORS participants might be if they did not start drug treatment. This was based on an extrapolation of the baseline results covering the four weeks prior to the first interview. The costs and QALYs of structured drug treatment from baseline to end of follow-up were then compared to the expected costs and QALYs of no drug treatment. Using simulation techniques, the analysis estimated the likelihood that the net benefits gained by individuals following structured drug treatment were positive. Missing data were imputed using the technique of multiple imputation. Baseline covariates were included in the analyses to control for the effect of differences in the characteristics of the participants and the drug treatment services. The analysis used a generalised linear regression model to analyse the imputed cost and QALY data, using the baseline survey weights.

Results

The average cost of drug treatment over the whole DTORS sample was estimated to be £6,064 (standard error (se) £398; sample size n=1,545) from baseline to the end of scheduled follow-up, with higher average costs after the first follow-up than before. The use of health and social care services, accommodation and the number of participants who had children in care was relatively low. The number of participants who reported committing offences decreased between baseline and follow-up. However, the estimated mean costs of offences were very variable and all had very high standard deviations. The estimated total costs of service use and offending were £26,988 (se £10,452; n=459) per person between baseline and second follow-up.

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The costs of structured drug treatment were compared with a constructed counterfactual group representing what might have happened in the absence of structured drug treatment. After controlling for baseline covariates and imputing missing data, the net cost of structured drug treatment was £4,531 (se £351). This was offset by savings in other health and social care service use and reported offences to give an overall net saving of £6,450 (se £6,779). Structured drug treatment was associated with higher QALYs. Valuing this gain at £30,000 per QALY, there is a total net benefit associated with structured drug treatment of £6,527 (se £67). This implies a benefit-cost ratio of approximately 2.5:1. Bootstrap techniques were used to estimate the probability that structured drug treatment is cost-beneficial overall. This result suggests that, across the relevant range of possible values for gaining one QALY in people who seek and use structured drug treatment, structured drug treatment has around an 80 per cent chance of being cost-beneficial at the individual level.

Conclusions and implications

Combining the costs and outcomes, the analysis suggests a positive mean net benefit from structured treatment. The probability that structured drug treatment is cost-effective is around 80 per cent (based on the relevant range of possible values of a QALY). This suggests that gains from treatment of the majority of individuals are not outweighed by losses incurred by treatment of the remainder.

DTORS participants were individuals who had received triage and a care plan for drug treatment. Not all of these individuals actually took up or completed the treatment offered to them. One might, therefore, expect both benefits and costs to be higher for those who actually do receive treatment compared with those who do not, although this is not guaranteed. The final sample size of DTORS participants was not sufficiently large to estimate net benefits only for those who did consume treatment services.

Further, the analysis does not include the costs of ancillary services which might have been received prior to accessing treatment. For instance, the costs of referral through schemes such as the Drug Interventions Programme are excluded. This means that the estimated net benefits of treatment are not necessarily indicative of the overall net benefits of drug treatment *referral*.

Key strengths of the analysis are, first, that the economic data were collected as part of the DTORS so the results of the economic analysis are broadly generalisable to the population of people seeking structured drug treatment in England. Second, detailed Tier 3 and 4 drug treatment data were collected for 86 per cent of the DTORS participants from the NDTMS, for the 12 months of scheduled follow-up. Third, the analysis used a broadly societal perspective which means that the net savings found in this study are broadly representative of the benefits to society. Fourth, the economic analysis uses QALYs to measure the value of any improvements in health to drug users and directly incorporates the benefits of structured drug treatment to drug users.

However, there are significant qualifications to the study results which need to be borne in mind. First, the study and results are dependent on the validity of self-reported levels of offending and use of social services. Second, there was a high rate of missing follow-up and observations in the DTORS. Only 326 or 18 per cent of DTORS participants had complete records of service use and offences. Sample survey weights and multiple imputation were used to control for the impact of missing follow-up and missing data. Third, although the study included some costs which were not considered in the earlier NTORS study, some costs were excluded. Fourth, the unit cost data used to estimate costs of treatment, health and social care and offences may be subject to variation and uncertainty. Fifth, and most importantly, it was not feasible to include a control or comparator group that did not receive structured drug treatment in the design of the DTORS. To assess the cost-effectiveness of structured drug treatment, a comparison group was constructed that represented what might happen in the absence of structured drug treatment. This assumes that the costs and effects observed at the baseline interview would have remained constant over the follow-up period. The absence of a control group means that it is not possible to ascribe any observed changes in outcomes to drug treatment specifically with high confidence. As such, the results are best seen as suggestive of possible benefits of treatment rather than indicative of causation.