

1 - Background

Conduct disorders (CD) are the most common childhood psychiatric disorders with a UK prevalence of 4.9% for children aged 5-10.

The costs to society are high:

- Childhood CD are linked to later delinquency and criminality and antisocial personality disorder in adulthood
- Costs associated with childhood CD are distributed across many agencies and may be 10 times higher than for children without CD by age 28<sup>a</sup>

Evidence suggests that parenting programmes may mediate environmental and other risk factors of CD by improving parenting styles and the parent-child relationship, in turn positively affecting child behaviour<sup>b,c</sup>. However, there is a lack of evidence that short-term changes are sustained in the long run<sup>d</sup>.

We identify the potential costs and longer-term benefits of parenting programmes in England and present the results of a decision-analytic model from a public sector and societal perspective.

2 - Methods

Study design

The model compares two scenarios over 25 years ("Markov periods") and costs are assigned based on the probability that the child's conduct disorder persists over time in each scenario.

- a 5-year old with CD receives an evidence based parenting programme
- a 5-year old with CD receives treatment as usual

Model parameters

Natural course of conduct disorder:

About 60% of those showing behavioural problems at age 3 still exhibit these problems at age 8 and approximately 50% will continue to show problematic behaviours in adulthood. This translates into a decrease of about 40% between age 5 and 16.

Table 1: Model parameters and sensitivity analysis

Parameter	Base case	Best case	Worst case
Drop-out	44%	6%	60%
Effectiveness	34%	68%	20%
Recidivism	50%	0%	50%

Cost estimates (2008/09 prices):

- Age 5-10: combined data from two studies
- Age 11-30: Costs of tier 2 health services and education support, supplemented by primary care and social care costs

Cost of crime: estimated using a variety of sources; include costs in anticipation of crime, as a consequence of crime and in response to crime)

- Intervention cost: from details of five evidence-based, commonly used programmes (NAPP Commissioning Toolkit); incl. staff time, overheads, materials, costs of training and supervision, additional items
  - Group provision: median £952 (range £282-£1,486) per participant
  - Individual provision: median £2,078 (range £769-£5,642) per participant
  - Weighted cost (80% group, 20% individual): £1,177 per participant

Parenting programmes for the prevention of persistent conduct disorder – long term economic implications

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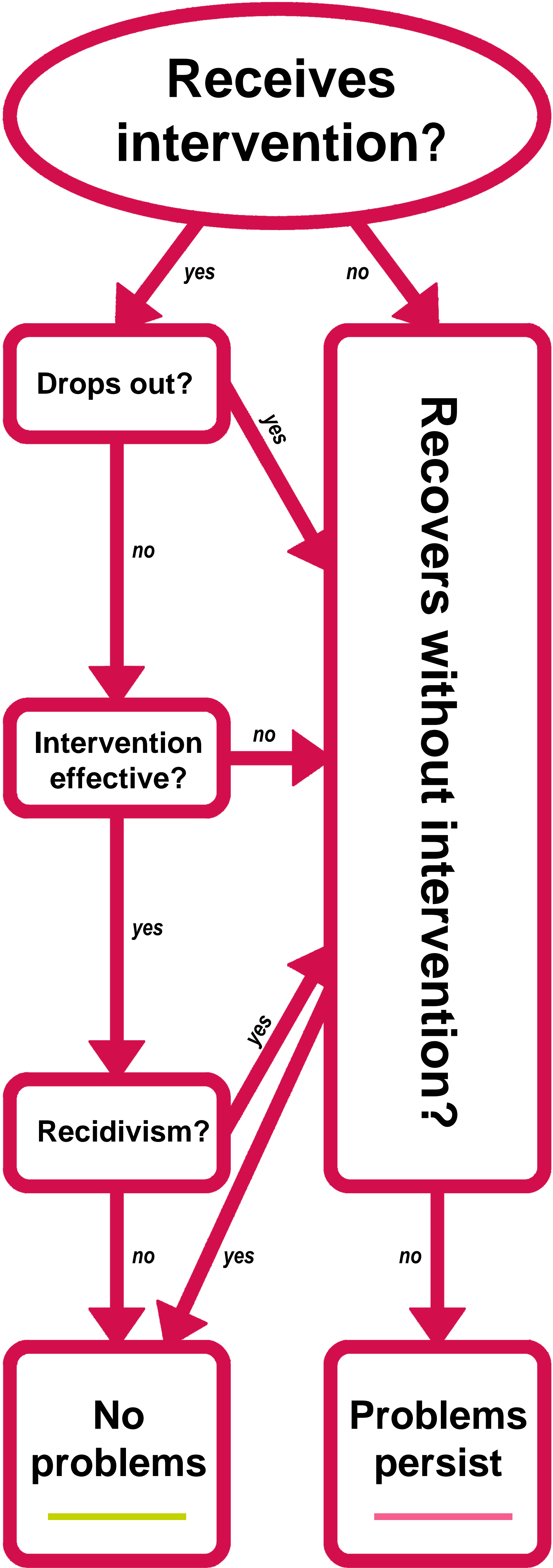
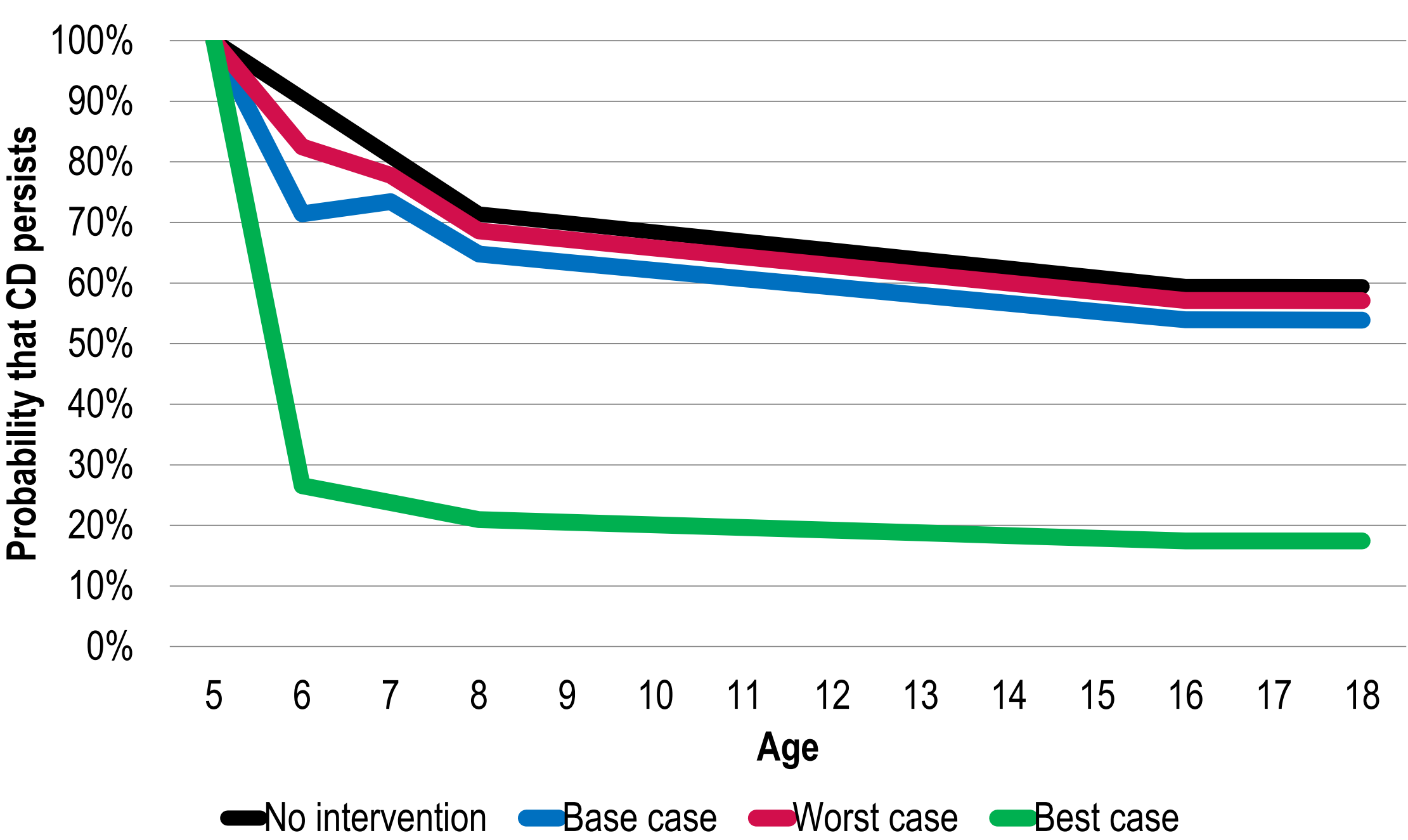


Figure 1: State transition diagram – prevention of persistent CD

3 - Results

Figure 2: Probability of persistent CD (4 scenarios)

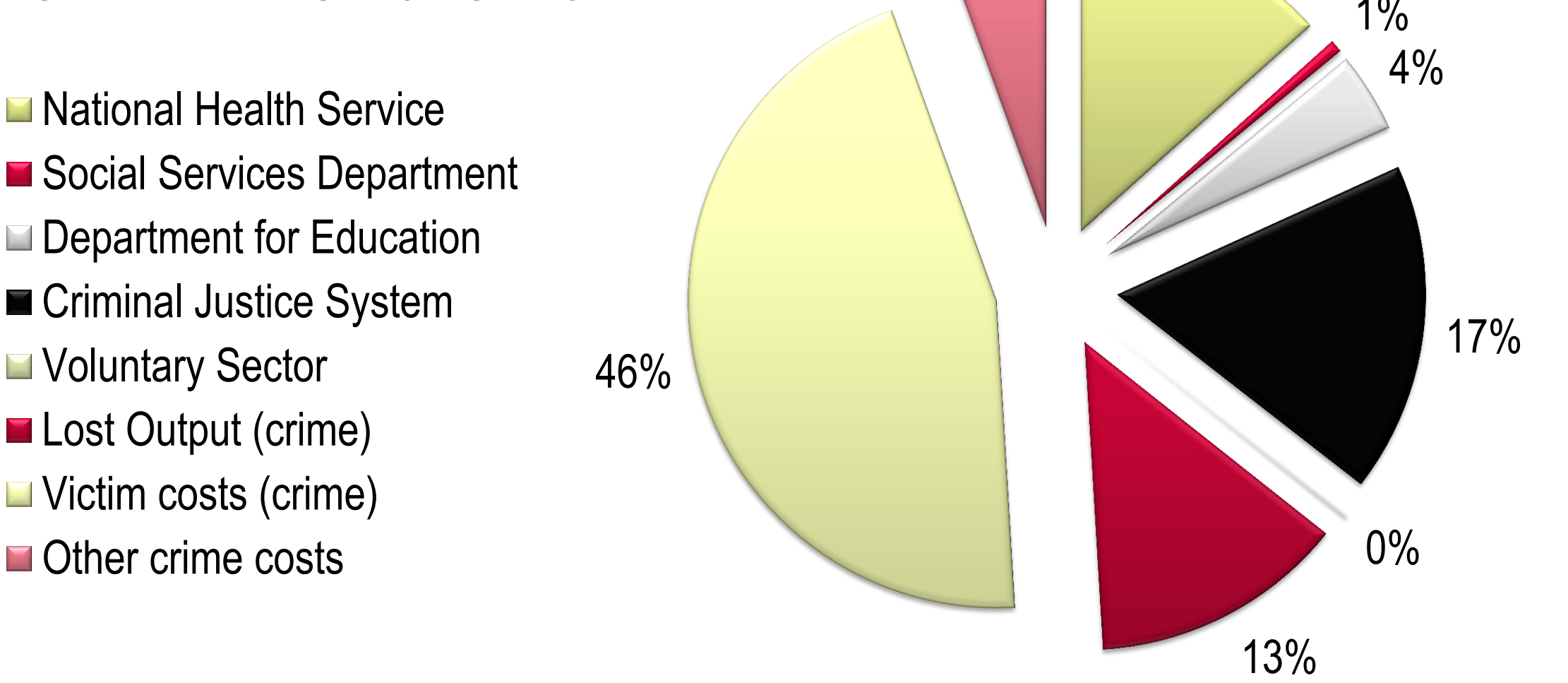


In the base case, total savings over 25 years from a societal perspective are over £16,000 per family. Compared to the base case, in the best case scenario savings are 3.4 times as high in the first year, and 7.3 times as high thereafter; in the worst case scenario, where the probability of persistent CD remains highest, potential total savings are 42% lower.

Probability of persistent CD:

- No intervention: 59%
- Base case: 54%
- Best case: 17%
- Worst case: 57%

Figure 3: Savings by agency



Parenting programmes generate a positive return to the public sector after 6 years under base case conditions. In the best case scenario, parenting programmes are cost-saving in the first year post-intervention, and after 9 years in the worst case scenario.

Total public sector savings:

- Base case: £4,660
- Best case: £41,611
- Worst case: £1,271

4 - Discussion

While the cost analysis aims to be comprehensive, the model is limited to public expenditure and benefits from the prevention of crime. A number of potential savings are not included due to lack of data or lack of evidence, such as the impact on employment chances, benefits, the impact on the child's social network (parental mental health, benefits to siblings and peers, intergenerational effects) and a reduced risk of unintentional injury and suicide.

Implications for clinicians and policy makers

- Investment in high quality, evidence based parenting programmes is likely to yield substantial cost savings for public services and benefits to society.
- Most savings do not impact budgets immediately. A long-term view is needed to ensure that these savings can be achieved.
- Funding decisions need to take into account impact on all government budgets, and consider which agency is best placed to provide these programmes.
- Further savings can be made by reducing drop-out and preventing recidivism. Additional resources may be needed to improve engagement and implement follow-up support.

Unanswered questions and future research

- Can positive effects shown in trials be sustained in the longer term?
- What is the impact, quality and capacity of parenting programmes currently provided?
- How can questions of equity and targeting of interventions to those at greatest risk be addressed?
- What are the implications for cost-effectiveness, especially in the longer term?

Selected references

<sup>a</sup>Scott S, Knapp M, Henderson J, Maughan B. Financial cost of social exclusion: follow up study of antisocial children into adulthood. *BMJ* 2001;323(191). <sup>b</sup>Dretzke J, Davenport C, Frew E et al. The clinical effectiveness of different parenting programmes for children with conduct problems: a systematic review of randomised controlled trials. *CAMH* 2009;3(7). <sup>c</sup>NICE, SCIE. Parent-training / education programmes in the management of children with conduct disorders. *NICE Technology Appraisal / Guidance* 102. [www.nice.org.uk/TA102](http://www.nice.org.uk/TA102) 2006. <sup>d</sup>Lundahl B, Risser HJ, Lovejoy MC. A meta-analysis of parent training: moderators and follow-up effects. *Clin Psychol Rev* 2006; 26(1):86-104.

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