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Lemmi, V. and Knapp, M. and Gore, N.J. and Cooper, V. and Jackson Brown, F. and Reid, C. and Saville, M. (2016) What is standard care for people with learning disabilities and behaviour that challenges and what does it cost? *British Journal of Learning Disabilities*, 44 (4). pp. 309-321. ISSN 1354-4187.

DOI

<https://doi.org/10.1111/bld.12168>

Link to record in KAR

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Document Version

Author's Accepted Manuscript

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Annex 1: Package costs for children with learning disabilities and behaviour that challenges

Table 1 summarises the weekly and annual costs of the eight scenarios for children. For each cost, the table reports the source, the country, the type of population and the costs included in the final figures. The last column specifies the assumptions that were made whenever additional calculations were needed to estimate the final figures. Some of the costs were taken from the literature, while others were estimated using the original analysis of the Beresford dataset, obtained courtesy of the authors (Beresford *et al.* 2012).

The Beresford dataset for intervention A reported the socio-demographic and clinical characteristics of participants, as well as information on service use at baseline. A sub-sample of the dataset was considered comparable with the population studied. The sub-sample consisted of six children (four boys and two girls) with Autism Spectrum Conditions, a learning disability, and behaviours that challenge or behavioural problems in mainstream (N=1) and special school (N=5). The mean ECBI (Eyberg Child Behaviour Index) intensity score was 149.8 (SD=31.07, range 111-194). The mean ECBI problem score was 19.5 (SD=4.18, range 15-26), and the mean CCBS (Challenging Child Behaviour Scale) score was 32.33 (SD=3.98, range 26-37).

Cost figures were inflated to the 2012/13 price level using the Hospital and Community Health Services Pay and Prices Index (Curtis 2013). Analyses were performed in SPSS 21 and MS Excel 2010.

References

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Table 1 Package costs for children with learning disabilities and behaviour that challenges

	Source	Country	Population	Weekly cost (£, 2012-13)	Annual cost (£, 2012-13)	Included costs	Assumptions
Secure unit	Curtis (2013)	UK	General	£9,373	£487,396	accommodation	
Psychiatric hospital	Curtis (2013)	UK	General	£4,529	£235,508	accommodation	
52-week residential school placement	Clifford & Thobald (2012)	UK	LD and BC	£3,292	£171,176	accommodation	
38-week residential school placement	Clifford & Thobald (2012); Beresford <i>et al.</i> (2012)*	UK	LD and BC	£2,117	£110,108	accommodation, health care (inpatient care, outpatient care, community-based services, mental health services), social care (including short breaks)	the use of services is equal to 38 weeks in residential school placement plus 14 weeks living at home with community-based social and health care (CAMHS/CLDT)
Living at home with community-based social care and mental health care and positive behaviour support	Iemmi <i>et al.</i> (2016a); Iemmi <i>et al.</i> (2016b)	UK	LD and BC	£1,642	£85,408	accommodation, health care (inpatient care, outpatient care, community-based services, residential respite care), social care	
Living at home with community-based social and mental health care (CAMHS/CLDT)	Beresford <i>et al.</i> (2012)*	UK	ASC, and LD and BC or behavioural problems	£151	£7,876	health care (inpatient care, outpatient care, community-based services, mental health services), social care (including short breaks)	(calculated from Beresford <i>et al.</i> 2012 - intervention A)

	Source	Country	Population	Weekly cost (£, 2012-13)	Annual cost (£, 2012-13)	Included costs	Assumptions
Living at home with community-based social care	Beresford <i>et al.</i> (2012)*	UK	ASC, and LD and BC or behavioural problems	£147	£7,652	health care (inpatient care, outpatient care, community-based services), social care (including short breaks)	the use of services is equal to the use of services of people living at home with community-based social and health care (CAMHS/CLDT) less mental health services (calculated from Beresford <i>et al.</i> 2012 - intervention A)
Living at home without any support	Beresford <i>et al.</i> (2012)*	UK	ASC, and LD and BC or behavioural problems	£85	£4,445	health care (inpatient care, outpatient care, community-based services)	the use of services is equal to the use of services of people living at home with community-based social and health care (CAMHS/CLDT) less mental health and social care services (calculated from Beresford <i>et al.</i> 2012 – intervention A)

Note: CAMHS = Child and Adolescent Mental Health Service. CLDT = Community Learning Disability Team.

ASC = Autism Spectrum Conditions. LD = Learning disability. BC = Behaviours that challenge.

*Supplementary analysis on the Beresford dataset.

Annex 2: Package costs for adults with learning disabilities and behaviour that challenges

Table 2 summarise the weekly and annual costs of the nine scenarios for adults. For each cost, the table reports the source, the country, the type of population and the costs included in the final figures. The last column specifies the assumptions that were made whenever additional calculations were needed to estimate the final figures. Only one cost estimate was found in the literature while the other were estimated through analysis of the original NACHBID (Neuroleptics in the treatment of aggressive challenging behaviour for people with intellectual disabilities) dataset obtained courtesy of the authors (Tyrer *et al.* 2009).

The NACHBID dataset reported the socio-demographic characteristics and information on service use at the baseline. The dataset was cleaned and missing data on service intensity and duration treated with mean imputation. The dataset was composed of 78 adults with intellectual disabilities and behaviour that challenges living in ordinary accommodation (N=29), in group homes (N=42), in residential care (N=4), and in inpatient care (N=3).

Unit costs were provided by the authors and inflated to the 2012/13 price level using the Hospital and Community Health Services Pay and Prices Index (Curtis 2013). Where not available, the unit cost was found in Curtis (2013). Adaptations and equipment were costed as if rented, to account for the durable nature of the items. Assuming the lifespan of the item to be 10 years and using the HM Treasury recommended 3.5% depreciation rate, the cost of hiring an item over one year was estimated at approximately 12% of the total cost. Analyses were performed in STATA 13 and MS Excel 2010.

References

Curtis L. (2013) Unit costs of health and social care 2013. Canterbury, UK, Personal Social Services Research Unit, University of Kent. Available at <http://www.pssru.ac.uk/project-pages/unit-costs/2013/>

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Tyrer P., Oliver-Africano P., Romeo R., Knapp M., Dickens S. *et al.* (2009) Neuroleptics in the treatment of aggressive challenging behaviour for people with intellectual disabilities: a randomised controlled trial (NACHBID). *Health Technol Asses*, **13**: iii-73.

Table 2 Package costs for adults with learning disabilities and behaviour that challenges

	Source	Country	Population	Weekly cost (£, 2012-13)	Annual cost (£, 2012-13)	Included costs	Assumptions
Secure unit	Curtis (2013)	UK	General	£3,696	£192,192	accommodation	
Psychiatric hospital	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£1,832	£95,263	accommodation, health and social care (inpatient care, outpatient care, day services, community-based services)	
52-week residential (school) placement	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£1,600	£83,212	accommodation, health and social care (inpatient care, outpatient care, day services, community-based services)	
38-week residential (school) placement	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£1,213	£63,101	accommodation, health and social care (inpatient care, outpatient care, day services, community-based services)	the use of services is equal to 38 weeks in residential care plus 14 weeks living at home with community-based social and health care (AMHS/CLDT)
Living in a supported accommodation	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£1,046	£54,398	accommodation, health and social care (inpatient care, outpatient care, day services, community-based services)	
Living at home with community-based social care and mental health care and positive behaviour support	Iemmi <i>et al.</i> (2015)	UK	LD and BC	£2,296	£119,408	health and social care (inpatient care, outpatient care, day services, community-based services)	

	Source	Country	Population	Weekly cost (£, 2012-13)	Annual cost (£, 2012-13)	Included costs	Assumptions
Living at home with community-based social and mental health care (AMHS/CLDT)	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£164	£8,514	health and social care (inpatient care, outpatient care, day services, community-based services)	
Living at home with community-based social care	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£151	£7,849	health and social care excluding mental health services (inpatient care, outpatient care, day services, community-based services)	the use of services is equal to the use of services of adults living at home with community-based social and health care (AMHS/CLDT) less mental health services (calculated from Tyrer <i>et al.</i> 2009*)
Living at home without any support	Tyrer <i>et al.</i> (2009)*	UK	LD and BC	£9	£451	health care excluding mental health services (inpatient care, outpatient care, day services, community-based services)	the use of services is equal to the use of services of adults living at home with community-based social and health care (AMHS/CLDT) less mental health and social care services (calculated from Tyrer <i>et al.</i> 2009*)

Note: AMHS = Adult Mental Health Service. CLDT = Community Learning Disability Team. LD = Learning disability. BC = Behaviours that challenge.

*Supplementary analysis on the NACHBID dataset.