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Citation for final published version:

Heald, Adrian, Stedman, Mike, Okosieme, Buchi, Premawardhana, Lakdasa, Taylor, Peter and Dayan, Colin 2023. Liothyronine prescribing in England: Costs versus need. *The Lancet* 402 (10417) , pp. 2074-2075. 10.1016/S0140-6736(23)01792-0

Publishers page: [http://dx.doi.org/10.1016/S0140-6736\(23\)01792-0](http://dx.doi.org/10.1016/S0140-6736(23)01792-0)

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23tl03737

Liothyronine

prescribing in England: costs versus need

Data for 1.7 million patients are reported in the 2022 primary care Quality and Outcomes Framework hypothyroidism register in England.¹ In most cases these patients are treated with levothyroxine. However, some patients report benefit from adjunctive liothyronine or natural desiccated thyroid (NDT).

In 2021, we reported how large price increases for liothyronine over 2012–20 had caused a reduction in the prescription of liothyronine and suggested that NDT could be a cost-effective alternative treatment.²

An investigation was opened by the UK Competition and Market Authority (CMA) in October, 2016, into prices for liothyronine tablets. The investigation showed that from January, 2009, to July, 2017, the price paid by the UK National Health Service rose from £15 to £258 per prescription, a rise of 1605%. The outcome of the CMA investigation was made public on Dec 15, 2020, and the suppliers were fined over £101 million.³ The British Thyroid Association (BTA) recognises that a proportion of individuals have substantial dissatisfaction with levothyroxine and have published guidance on use of liothyronine.⁴ The guidance suggests that liothyronine can be prescribed if symptoms persist on levothyroxine, at a daily dose of 5–10 µg split twice a day.

We examined monthly primary care prescribing data for levothyroxine, NDT, and liothyronine by dose from 2016 to 2022. The cost of levothyroxine fell from £2.74 per prescription in 2016 to £1.47 in 2022, a 48% reduction. Total annual prescriptions for levothyroxine increased by 9% from 30.8 million in

2016 to 33.4 million in 2022. The total primary care spending amount fell by 42% to £52 million per year from 2016 to 2022. The average cost of NDT in 2016 was £207 per prescription, and increased by 220% to £440 in 2022. Total annual prescriptions fell by 48% from 4257 in 2016 to 2384 in 2022, with total costs increasing to £1 million per year. Regarding liothyronine, in 2016, 94% of the total 74 500 prescriptions were the 20 µg dose. In 2020, the percentage of prescriptions written for 5 µg and 10 µg doses started to increase so that in 2022 each reached 27% of total liothyronine. The average cost of the 20 µg dose in 2016 was £404 per prescription and fell by 80% to £101 in 2022; the cost of the 10 µg dose was £348 per prescription in 2016 and fell by 35% to £255 in 2022. The 5 µg dose cost was £355 per prescription in 2016 and fell by 38% to £242 per prescription in 2022. 74 605 total prescriptions were issued for liothyronine in 2016—this figure fell 30% to 51 958 prescriptions in 2019, but has since risen 17% to 60 990 prescriptions in 2022. During this 7-year period, total costs have fallen by 70% to £9 million per year.

Liothyronine costs fell after the CMA ruling, but remain orders of magnitude higher than levothyroxine and the pre-increase levels of liothyronine. In 2022, liothyronine prescriptions made up only 0.2% of all hypothyroid medication prescriptions, but accounted for 14% of the total hypothyroid medication costs. Lower-dose liothyronine, as recommended by the BTA, is 240% higher than the cost of the 20 µg dose, so following the latest BTA guidance incurs substantial additional costs. High drug prices continue to affect clinical decision making for a considerable number of patients.

We declare no competing interests.

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- 2 Stedman M, Taylor P, Premawardhana L, Okosieme O, Dayan C, Heald AH. Trends in costs and prescribing for liothyronine and levothyroxine in England and Wales 2011–2020. *Clin Endocrinol (Oxf)* 2021; **94**: 980–89.
- 3 Competition and Markets Authority. Decision of the Competition and Markets Authority: excessive and unfair pricing with respect to the supply of liothyronine tablets in the UK. July 29, 2021. https://assets.publishing.service.gov.uk/media/61b8755de90e07043f2b98ff/Case_50395_-_Decision_final____.pdf (accessed July 7, 2023).
- 4 Ahluwalia R, Baldeweg SE, Boelaert K, et al. Use of liothyronine (T3) in hypothyroidism: joint British Thyroid Association/Society for Endocrinology consensus statement. *Clin Endocrinol (Oxf)* 2023; **99**: 206–16.