

Increasing Conscious Sedation Use for Dental Treatments

A Cost and Consequence Analysis

EE585

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Background

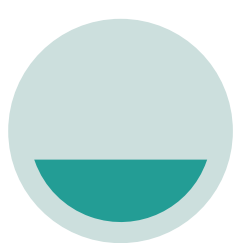
- Dental anxiety and phobia is widespread in the UK, affecting 48% of the population¹
- It is recognised as a significant barrier to seeking dental care, leading to dental avoidance
- Several strategies are recommended for anxiety control, including conscious sedation (CS) and general anaesthesia (GA)
- In Wales, overreliance of GA and inadequate CS access have been reported to impede patient access to dental care.

Objectives

- To evaluate costs and outcomes of increasing CS use for adults undergoing a dental procedure under a new hybrid model in Cardiff and Vale (C&V) University Health Board.

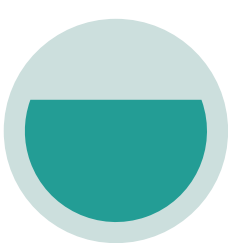
Methods

- A cost-consequence analysis comparing the new hybrid model and current practice was undertaken from the UK NHS perspective
- Currently, adult patients are referred from a primary dental care practice to University Dental Hospital (UDH). After an assessment by the Clinical Specialist, patients receive GA or CS in secondary care
- In the new hybrid approach, an increased CS use was modelled by switching suitable patients from GA to CS. Criteria used to determine suitability were the complexity of the dental procedure² and the index of sedation need³
- CS techniques included in the analysis: (i) inhaled sedation (IS), (ii) intravenous midazolam (IV), (iii) deep sedation with propofol (DP) and (iv) transmucosal sedation (IN)
- Model inputs and data sources used are listed as follows:



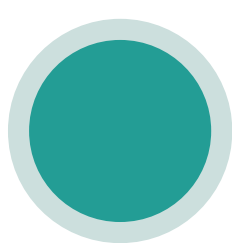
Costs

- Treatment room/bed
- Staff
- Drugs
- Repeated procedure under GA for unsuccessful CS cases



Outcomes

- Number of successful cases*
- Number of patients had adverse event (AE)
- Total procedure time
- Freed resources



Data sources

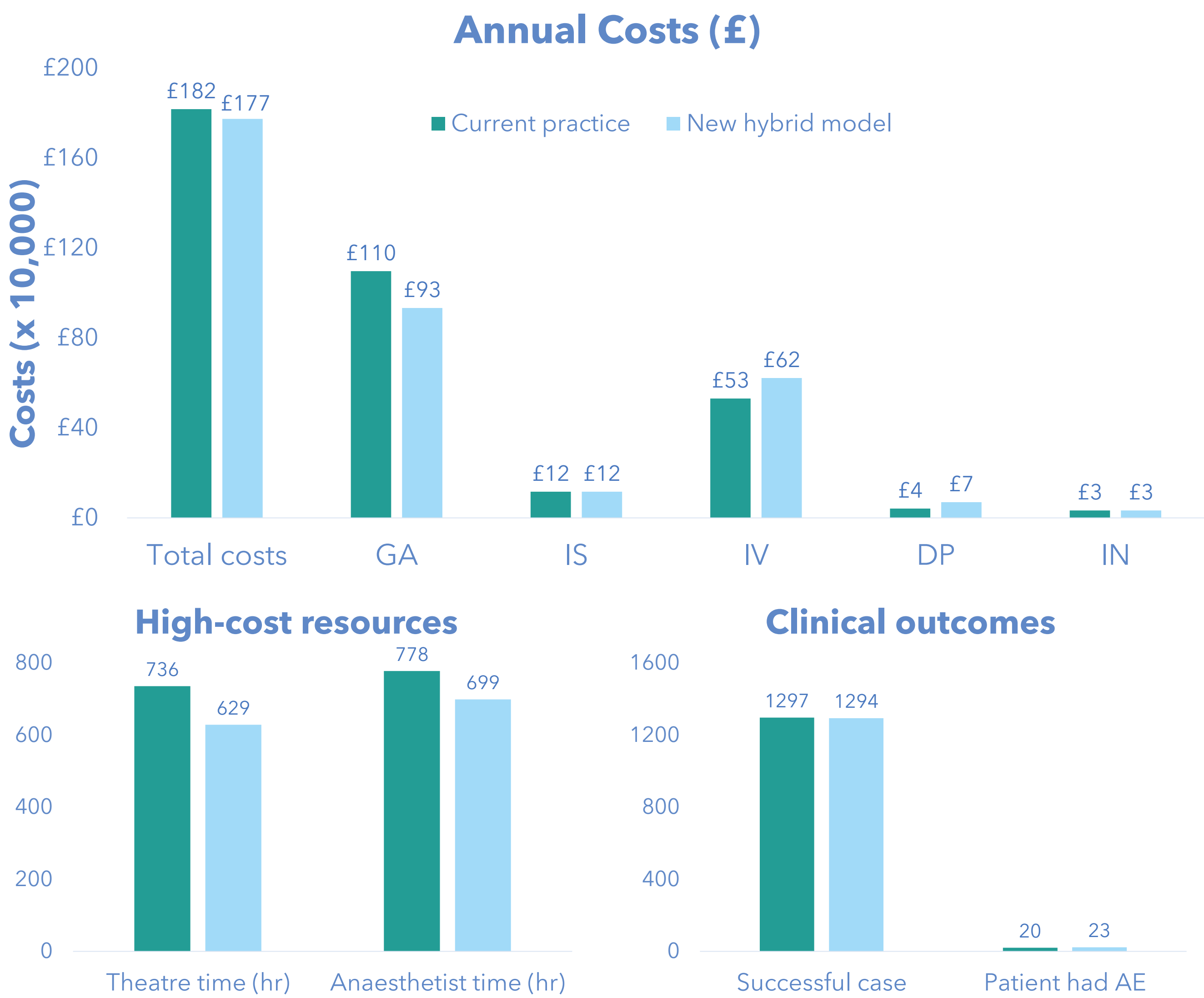
- UDH hospital theatre
- C&V finance department
- Published literature
- Expert opinion

Note:
* Treatment completion without requiring GA referral

- Deterministic sensitivity analysis was conducted to explore the impact of excluding staff costs, due to the possibility of double-counting.

Results

- Using UDH data from April 2022 to March 2023, 1,321 dental procedures were performed; 40% (n=529) were GA cases and 60% (n= 792) CS cases
- In the new hybrid approach, 130 GA cases would switch to CS: (i) 105 single tooth extraction and (ii) 25 GA procedures with complexity level 1 and 2 that would require CS instead
- Compared to current practice, the new hybrid model was estimated to yield:
 - a cost-saving of **£43,598**
 - freed high-cost resources: 107 hours of theatre time and 79 hours of Anaesthetist time
 - modest change in clinical outcomes
- Breakdown of costs and outcomes between current practice and new hybrid model are illustrated below:



- The cost saving findings were robust, as the sensitivity analysis of excluding staff costs yielded in a saving of only £4,175 less than the base case.

Conclusion

- The increased CS use in dental procedure potentially offers cost savings
- Future patient-level data collection and quality of life would improve the accuracy of the economic findings.

References
1. NHS England. Adult Dental Health Survey. 2009. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/adult-dental-health-survey/adult-dental-health-survey-2009-summary-report-and-thematic-series>
2. NHS England. Guide for Commissioning Oral Surgery and Oral Medicine. 2015. Available at: www.england.nhs.uk/commissioning/primary-care/dental/dental-specialities/
3. Coulthard P. (2013). The indicator of sedation need (IOSN). Dental update, 40(6), 466-471.

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