

Inappropriate care in medicine

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Non-clinicians have based their claims of inappropriate care in hyperbaric medicine on flawed methods

In a recent article in the *MJA*, Duckett and colleagues presented “a model to measure potentially inappropriate care in Australian hospitals”.¹ The article was a summary of their report for the Grattan Institute.^{2,3} However, with regard to hyperbaric oxygen treatment (HBOT), the summary concealed fundamental flaws in their source data collection and their methods that have resulted in misleading conclusions. Neither Duckett and colleagues nor the accompanying editorial⁴ cited the two source documents on which the articles were based.^{2,3} A critical reading of the source documents, cross-referenced with the relevant Medical Services Advisory Committee (MSAC) reports, has identified errors in method and interpretation that invalidate the findings of Duckett et al.²⁻⁷

The use of HBOT has been subject to three MSAC reviews since 1998.⁵⁻⁷ As a result of these evidence-based reviews, eight conditions have been accepted for funding by Medicare, including non-neurological soft tissue radiation injury. By exclusion, no other conditions are funded by Medicare. This does not mean there is no supporting evidence for other conditions, as many have not been formally reviewed by MSAC, an important distinction when defining do-not-do treatments.

MSAC reports 1054 and 1054.1 specifically dealt with HBOT for non-diabetic problem wounds and soft tissue radiation injury. MSAC report 1054.1 was inaccurately referenced by Duckett et al, who omitted soft tissue radiation injuries from the title of the report. This omission meant that they included soft tissue radionecrosis in their list of conditions that are inappropriate for HBOT (set out in Box 2 of their article) without alerting the reader to the contradiction.¹ The inclusion of soft tissue radiation injury as a do-not-treat condition led to an overestimation in their calculations (soft tissue radiation injury represents 60% of the case load at our hospital), resulting in HBOT accounting for 79% of their total of inappropriate care tally.

By not accurately interpreting their references, Duckett et al allowed errors in data collection to compound into major flaws in their method and conclusions. In the financial year of analysis, 2010–11, there were 15 579 HBOT procedures (Australia-wide) under the relevant Medicare item numbers.⁸ Of these, 8910 were under item 13015, which represents the combined total for soft tissue radiation injury and non-diabetic problem wounds. Medicare data confirm that both soft tissue radiation injury and non-diabetic problem wounds were funded and appropriate when Duckett’s group collected data and inaccurately defined them as do-not-do treatments. Both the Medicare data and the source data used by Duckett et al recorded the total number of procedures, not the number of patients treated. As each patient received 17.2

HBOTs on average,⁶ the total number of patients receiving HBOT in Australia in 2010–11 was fewer than 1000 — far less than the number alleged to have received inappropriate treatment.^{1,2,6} The original Grattan Institute report asserted that “more than 4500 people a year get hyperbaric oxygen therapy when they do not need it”, and “one in four hyperbaric oxygen treatments should not happen”. Both statements are unfounded and incorrect.²

To identify procedures, Duckett et al used the Australian Classification of Health Interventions (ACHI) codes (which have limited clinical relevance and refer only to time for funding purposes), then cross-referenced them against ICD-10 (International Statistical Classification of Diseases and Related Health Problems, 10th Revision) codes, rather than using Medicare Benefits Schedule (MBS) codes, which are linked to conditions.³ ACHI code 9619100 is not on the MBS; it describes HBOT ≤ 90 minutes, which is not used in Australia by any Medicare-funded facility. Any 9619100 descriptors detected by the study would have demonstrated coding errors. The magnitude of that error cannot be measured owing to lack of detail.

A further source of error was the linking of ACHI codes to ICD-10 codes for comorbidities to discover the clinical condition being treated. HBOT is often implemented as part of multidisciplinary treatment processes in tertiary hospitals. Many patients who receive HBOT have multiple comorbidities. Duckett and colleagues admitted that a limitation of their study was the justified coding errors produced from “a rare combination of patient characteristics”. This comment reflects lack of clinical knowledge — these characteristics are far more common than the authors acknowledge — which has led to underestimation of the magnitude of coding errors.

As an illustration, a retrospective review of all patients receiving HBOT at Royal Brisbane and Women’s Hospital during the relevant study period shows that 25% of the coding was incorrect. One patient was recorded as receiving HBOT for ≤ 90 minutes for their primary diagnosis of “waiting for residential care” when the treatment was actually for a diabetic ulcer.

The conclusions drawn by Duckett et al are at best misleading.¹ It is of great concern that non-clinicians are proposing this analysis to inform health policy and are recommending actions based on flawed methods and misuse of data.

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