Does the NICE Diagnostics Assessment Programme Use an Empirical ICER Threshold?

PMD156

G. Chen, K.M. Koczula, V.J. Peirce, W. Marsh

Costello Medical, Cambridge, UK

Objectives

- To establish an empirical cost-effectiveness threshold for diagnostic technologies evaluated by the NICE diagnostics assessment programme, based on past recommendations.
- To identify factors other than cost effectiveness that contribute to decision-making.

Background

- The NICE diagnostics assessment programme (DAP) was established in 2009 to promote consistent adoption of innovative and cost-effective diagnostics in the NHS.[1]
- In addition to the £20,000–£30,000/QALY incremental cost-effectiveness ratio (ICER) threshold for evaluating diagnostic technologies, the NICE DAP manual also states that other factors influence the committee's decision, including the innovative nature of the technology and uncertainty around the ICER.[2]

Methods

- All 29 NICE diagnostic guidance (DG) documents published before September 2017 were reviewed.
- The type of technology, disease area, recommendation and justification for recommendation were extracted, along with the ICER provided in the base case by the External Assessment Group (EAG), and the ICER considered to be most plausible by the committee.
- The ICERs considered to be most plausible by the committee were analysed. When the committee did not explicitly state the most plausible ICER, the base case ICER from the EAG was assumed to represent the most plausible ICER.
- The "conventional ICER threshold" was assumed to be £20,000/QALY in all analyses.

Results

- Multiple technologies were often evaluated within the same DAP assessment, and separate recommendations were sometimes given for different technologies or indications.
- Overall, NICE made 18 positive and 9 negative recommendations, with an additional 13 recommendations that were inconclusive due to insufficient evidence being available **(Figure 1)**.

Figure 1 | Cost-effectiveness outcomes in diagnostic guidance recommendations

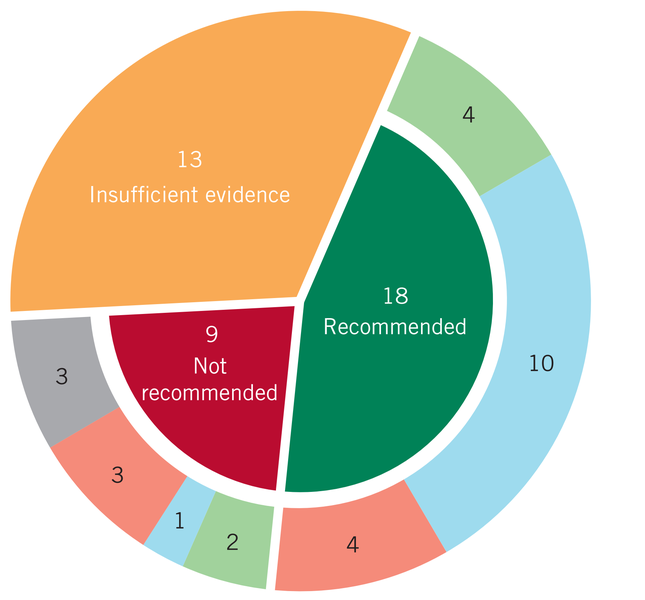
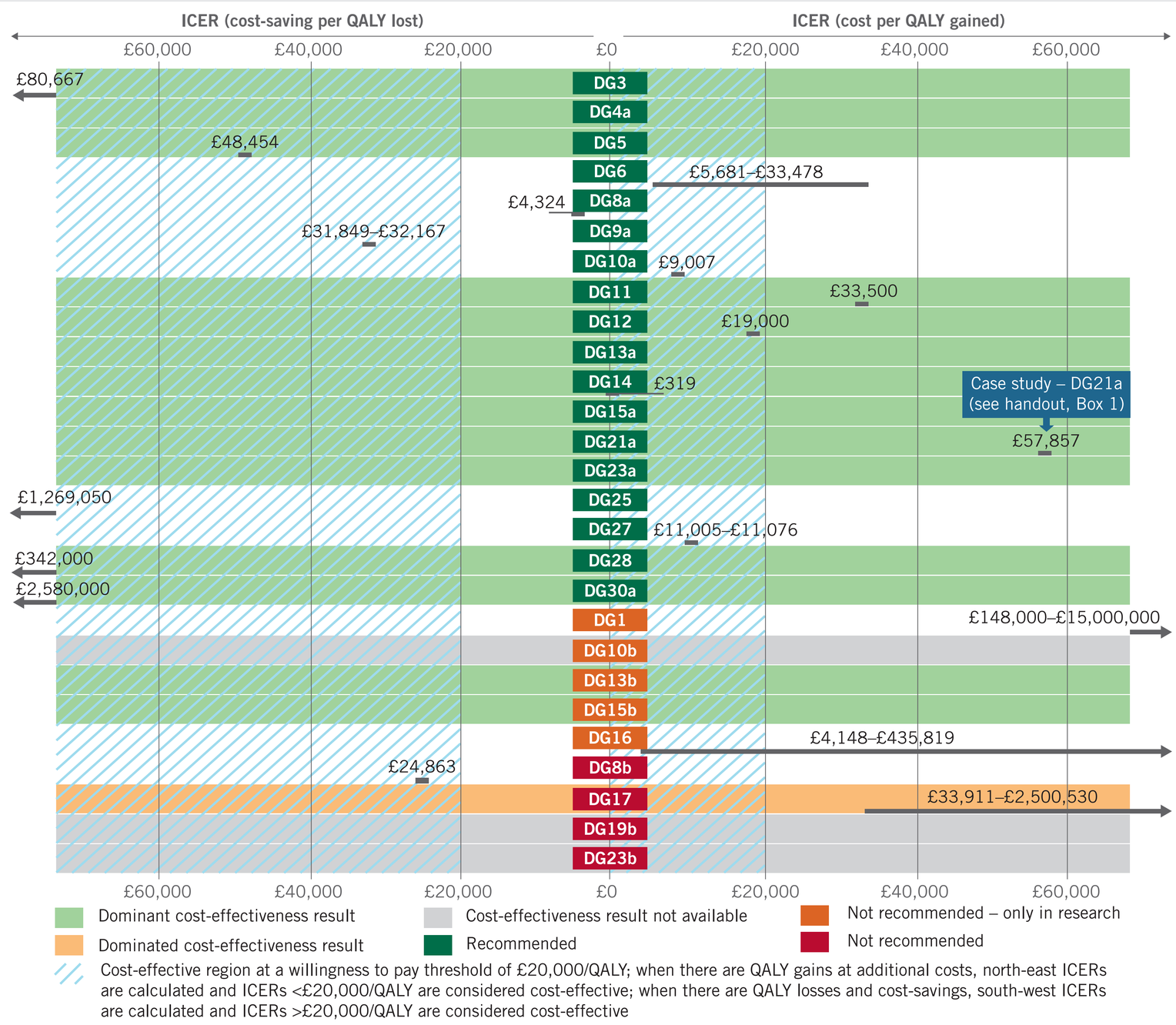


Figure 2 | Incremental cost-effectiveness ratios as accepted by the committee



a, b: When a diagnostic guidance provided more than one recommendation for different technologies or different patient populations, the ICERs associated with each the relevant technology/patient population are reported separately, e.g. DG15a and DG15b.

Each decision by the committee could be associated with more than one cost-effectiveness outcome, e.g. the technology in DG5 was either dominant or cost-effective depending on the population considered.

- Recommended technologies were dominant, associated with QALY gains at additional cost (median ICER: £17,350/QALY; range: £319–£57,857/QALY), or QALY losses with cost savings (median south-west ICER: £80,667/QALY; range: £4,324–£2,580,000/QALY) **(Figure 2)**. Of the recommended technologies, 14 (78%) were within the conventional ICER threshold, whereas 4 (22%) had ICERs that would not be considered cost-effective at an ICER threshold of £20,000/QALY[a] (see handout, **Box 1** for case study DG21a).
- Technologies that were not recommended were dominant, dominated, associated with QALY gains at additional costs (median ICER: £2,500,530/QALY; range: £4,148–£15,000,000/QALY), or QALY losses with cost savings (south-west ICER: £24,863/QALY) **(Figure 2)**. High levels of uncertainty in the cost-effectiveness outcome was the reason in all three cases of non-recommendation despite ICERs within the conventional ICER threshold.
- As expected, cost effectiveness was the most commonly considered factor by the committee, sometimes resulting in a restricted recommendation in a specific patient subgroup for which the technology was cost-effective (see handout, **Box 1** for case study DG21a). Other commonly considered factors included: patient preferences, implication for resourcing or service provision elsewhere in the NHS, caregiver burden, and level of expertise required for using the diagnostic technology (see handout, **Figure 3**).

[a]The ICER of DG6 was £5,681–£33,478/QALY, and categorised based on the least cost-effective extreme of the range as "not cost-effective" at an ICER threshold of 20,000/QALY.

Conclusions

- An ICER threshold of £20,000–£30,000/QALY seemed to be mostly adhered to by NICE when recommending diagnostic technologies. However, the diagnostic guidance reviewed was often limited by insufficient evidence and high levels of decision uncertainty, which were important factors contributing to committee decisions.
- In some cases, the ICER was not the only determining factor. The committee also considered non-health related factors, including patient preferences, implications for resourcing or service provision elsewhere in the NHS, and caregiver burden when approving technologies, despite ICERs exceeding NICE's conventional threshold.

References

1. Newland A. Ann R Coll Surg Engl 2011;93(5):412–3; **2.** National Institute of Health and Care Excellence (2011). Diagnostics Assessment Programme manual. Available at: https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/NICE-diagnostics-guidance/Diagnostics-assessment-programme-manual.pdf [Last accessed 14.09.17].

Acknowledgements

The authors thank Marta Labuda, Costello Medical, for graphic design assistance.

Presented at the ISPOR 20th Annual European Congress | Glasgow, UK | 4–8 November 2017