KRAS mutation testing of tumours in adults with metastatic colorectal cancer: a systematic review and cost-effectiveness analysis

Marie Westwood,[1]* Thea van Asselt,[2] Bram Ramaekers,[2] Penny Whiting,[1] Manuela Joore,[2] Nigel Armstrong,[1] Caro Noake,[1] Janine Ross,[1] Johan Severens[3] and Jos Kleijnen[4]

[1]Kleijnen Systematic Reviews Ltd, York, UK
[2]Department of Clinical Epidemiology and Medical Technology Assessment, Maastricht University Medical Centre, Maastricht, the Netherlands
[3]Institute of Health Policy and Management, Erasmus University, Rotterdam, the Netherlands
[4]School for Public Health and Primary Care (CAPHRI), Maastricht University, Maastricht, the Netherlands

*Corresponding author

Declared competing interests of authors: none

Published October 2014
DOI: 10.3310/hta18620

Plain English summary

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Health Technology Assessment 2014; Vol. 18: No. 62
DOI: 10.3310/hta18620

NIHR Journals Library www.journalslibrary.nihr.ac.uk

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Bowel cancer is the third most common cancer in the UK, accounting for 13% of new cancer cases and around 10% of all cancer deaths. Around three-quarters of bowel cancers are initially treated with surgery, but around one in six will go on to spread to the liver. When this happens the cancer in the liver can sometimes be treated by further surgery, or, when surgery is not initially possible, chemotherapy may be used with the aim of shrinking the tumour to make surgery possible.

Tumours with mutations in a growth factor [Kirsten rat sarcoma viral oncogene (*KRAS*)] are less responsive to treatment with biological therapies, such as cetuximab. Before deciding on treatment options, patients are tested to see if their tumour has a mutation in the *KRAS* gene. There are a variety of tests available and different tests vary in the specific mutations that they attempt to detect, the amount of mutation they are able to detect, the amount of tumour cells needed for the test to work, the time that it takes to give a result, the error rate of the test and the cost of the test.

This project aimed to evaluate *KRAS* mutation tests to determine which should be recommended for use in the NHS in England and Wales. A survey of UK laboratories undertaking *KRAS* mutation testing, a systematic review of the literature and economic modelling found that there was no strong evidence that any one *KRAS* mutation test had greater accuracy, or was more cost-effective, than any other test.

Health Technology Assessment

NICE TAR and DAR

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 5.116

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the ISI Science Citation Index and is assessed for inclusion in the Database of Abstracts of Reviews of Effects.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: nihredit@southampton.ac.uk

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This report

The research reported in this issue of the journal was commissioned and funded by the HTA programme on behalf of NICE as project number 12/75/01. The protocol was agreed in January 2013. The assessment report began editorial review in July 2013 and was accepted for publication in November 2013. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

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