Clinical Decision Support Tool for Cancer (CDS) Project

Evaluation Report to the Department of Health

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July 2014

Executive summary

Macmillan Cancer Support, part-funded by the Department of Health, worked in collaboration under the auspices of the National Awareness and Early Diagnosis Initiative (NAEDI) on a project to further explore the use of cancer decision support tools for use in general practice so as to inform next steps in this area. Cancer Research UK has led the independent evaluation of this project.

The cancer risk algorithms developed by Professor Willie Hamilton (RAT) and Professor Julia Hippisley-Cox (QCancer) were developed in electronic format on the BMJ Informatica platform for colorectal, lung, oesophago-gastric (OG), pancreatic and ovarian cancers. Three distinct functions within the tool (a prompt, a symptom checker and a risk stratification list) presented the GP with a risk score for a patient based on historic or inputted symptom and other data. GPs from 439 participating practices from across England had access to, and were encouraged to use, the tool between March and November 2013.

Evaluation of the project has focused on use of the tools in practice, impact on practice and the management of patients, and considerations and implications for further work in this area. It has not been possible through this evaluation to investigate impact on clinical outcomes, such as the number of cancers diagnosed or the stage of disease at diagnosis. On the basis of this project, or its evaluation, it is therefore not possible to conclude that access to, or use of, the CDS tools leads to increased or 'improved' cancer diagnosis or to finding cancers at an earlier stage. The tools can, however, raise GPs' awareness of cancer symptoms and both alert and remind users to potential risk, as well as influence the management of some patients, particularly with respect to prompting investigations.

In considering the evaluation and findings it is important to bear in mind a number of limitations and caveats, which includes the voluntary nature of participation in the project and contribution to the evaluation (specifically GPs completion of 'Experience tab' data and participation in interviews). Practices and GPs opting to participate and contribute may reflect those most engaged in cancer and interested in efforts to improve practice. Findings cannot therefore

necessarily be generalised to the wider GP community. Furthermore, it has not been possible to collect comprehensive usage data for any of the functions within the tool or for use of the tool overall.

The qualitative and quantitative evaluation data, do however, yield some interesting findings:

- Data from the interviews with GPs highlight the varying impact of the tools on practice, ranging from no impact at all, to increasing knowledge, to influencing the management, including referral or investigation, of patients.

- GPs were concerned about the level at which the prompt was set (i.e. at what level of risk a prompt appeared on their screen) and the potential for 'prompt fatigue'

- GPs were concerned about the reliance of functions within the tool on Read-coded data and variation in Read-coding practices amongst GPs

- Some GPs expressed concerns that a 10-minute consultation was a barrier to use of the symptom checker function within the tool

- From a patient perspective, participants were concerned about the impact of electronic CDS tools on the quality of the GP/patient interaction

- Based on non-mandatory completion of the 'Experience tab' associated with use of the symptom checker:

  o Of all patients on whom a checker was used and evaluation data completed, a fifth (20%) were referred, 23% required investigation, and no action was taken for 47%

  o In 54% of cases the cancer risk perceived by the GP was the same as that presented to the GP by the tool, while in 31% of cases the calculated risk was higher than the GP had perceived and in 15% it was lower

- o Use of the tool did not influence the decision to investigate or refer in the majority of cases (81%), but in 19% GPs indicated that they would not have referred/investigated the patient had they not used the tool

- o Influence on decision making varied by cancer type and was highest for lung (33%) and lowest for OG/pancreatic (9%)

- o Analysis suggests that use of the symptom checker was more likely to influence decisions to investigate than to refer

- Based on the available data, across all scores the correlation coefficient was 0.25 indicating there is a positive association between the scores calculated by the different algorithms but it is not strong. There was, however, some variation in the alignment of RAT and QCancer scores by the different cancer types. The scores were least comparable for colorectal, lung and pancreatic, and most closely associated for OG and ovarian

- There is no strong evidence that access to the tool increased urgent referrals for suspected cancer for the relevant routes

The findings generated through this evaluation are distilled in a number of recommendations in the following areas:

- Quality assurance and ensuring that the scores presented by the tool accurately reflects those generated by the algorithms

- Ease of installation, use and ongoing technical and other support

- Comprehensive and sustained training to ensure that GPs understand the scores they are presented with and how they are calculated, including inclusions and omissions in the symptoms/features they consider

- Training and support on inclusive practice and ensuring that use of the tools does not jeopardise the quality of the GP/patient interaction

- Limiting potential for exacerbating inequalities

- Acknowledging that CDS tools are not for everyone and do not negate the need for other approaches to educate, inform and support GPs in diagnosing cancer earlier. Indeed, one of the key contributions of the tool would appear to be its educational value in increasing awareness of cancer-related symptoms, symptom combinations and cancer risk factors amongst GPs. Such shifts in knowledge could be achieved through other means, channels and opportunities including, but not limited to, CDS.

In conclusion, the clinical decision support tools for cancer developed and piloted through the course of this project have the potential to be a useful addition to the resources available to GPs. However, there are a number of areas that need further consideration and action in order to maximise the usability and acceptability of the tools and ensure that they support the earlier diagnosis of cancer agenda.