Can a Computer Manage Patients with Stable Prostate Cancer in the Community?

Introduction and Objective: Our recent clinical evaluation of the Clinical Decision Support Software (CDSS) suggested its ability to generate accurate management plans for patients with stable prostate cancer (SPC). Objectives: To test the CDSS ability to follow our updated clinical guidelines and to produce clinically accurate recommendations for managing SPC in the community.
Materials and Methods: The clinical investigators initially designed the summated guidelines and patient pathway. This was then translated into a computer algorithm. The study then measured the 3 human investigators and the CDSS ability to follow the agreed algorithm using an anonymised retrospective clinical data of 100 patients. The advised management plans were in the form of codes. All these codes including the ones generated from the CDSS were then compared and all the discrepancies were reviewed by the clinical expert panel.
Results: The CDSS generated 236 management codes for 100 patients. There was a mutual 100% agreement on the codes for only 46 patients. The clinical investigators individually reviewed their own codes' discrepancy with the software and there was a further agreement on 44 patients. This left the panel with 10 patients to discuss where one or more of the clinicians disagreed with codes. Four of these 10 discrepancies were found to be admin error in the data supplied to the investigators and there were no further concerns after revealing the correct data. The remaining 6 cases were discussed and the panel agreed that the CDSS was still following the clinical guidelines. However, the examiners then decided to amend one rule in the clinical pathway to enhance the management of this group of patients in the community. This update triggered a further re-test by running these 100 patients data through the software and comparing the outcome to the management plans suggested by the panel. Again the CDSS was able to adhere to the updated guidance without deviation.
Conclusions: CDSS can efficiently follow the defined algorithm and generate clinically accurate plans for managing SPC. The pathway and algorithm can both be upgraded and the CDSS adapt these changes without encountering any error.