

eTARGET: a digital science solution to integrate clinical and genomic data for the Manchester Molecular Tumour Board (MTB)

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Introduction

Manchester Cancer Research Centre (MCRC) has established an MTB to facilitate precision medicine decision-making within the TARGET trial (Tumour chAracterisation to Guide Experimental Targeted Therapy). The MTB meets monthly to review clinical data and next generation sequencing (NGS) results from tumour tissue and circulating DNA (ctDNA) for patients being considered for early phase clinical trials. Initially the MTB relied on multiple paper reports. Here we present eTARGET, a digital solution developed by the digital Experimental Cancer Medicine Team (digitalECMT), which integrates clinical and genomic NGS data to facilitate decision-making for matching patients with clinical trials.

Material and method

The digitalECMT explored data sources and existing reports to define end-user and data requirements. Following a successful prototype, a beta version was developed. Created in Microsoft Azure, a secure cloud computing platform, components included a storage account for data upload from three different sources, and a database for storing and integrating the data. The solution enabled automated extraction of individual pseudonymised clinical and genomic data. In addition, a web-application to view the data was developed with clinical input.

Results and discussion

The beta version of eTARGET went online in October 2017 and has been utilised at 5 MTB meetings for 55 patient cases. This portal interface presents patient characteristics, treatment history and genomic data. The portal can be viewed remotely, across multiple locations, where all attendees see

the same view. eTARGET has enabled the MTB to review individual patient data in a single portal, capture meeting outcomes in real-time and upload to the electronic patient record. Decisions regarding significant variants, trial matching or requirements for further analytical or translational analyses are captured.

Conclusion

eTARGET has shown that a digital solution can be implemented to overcome the challenge of integrating data from disparate sources in different organisations to create a single view of patient clinical and genomic data. We have shown the utility of eTARGET in a hospital setting to support decision-making for an MTB. The eTARGET project opens the possibility of wider MTB participation including cross centre collaboration. Next steps are to enhance the software to visualise the global molecular dataset and serial changes in NGS profiles on treatment.