15 years of hematological malignancies outcome reporting to NICE: data for core outcome sets

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HARMONY, the Healthcare Alliance for Resourceful Medicines Offensive against Neoplasms in hematologY, aims to develop a big data platform to facilitate research on blood cancers.

The project focuses on multiple myeloma (MM), acute myeloid leukaemia (AML), acute lymphoblastic leukaemia (ALL), chronic lymphocytic leukaemia (CLL), non-Hodgkin lymphomas (NHL), myelodysplastic syndromes (MDS), and pediatric haematological malignancies.

Funded through the Innovative Medicines Initiative (IMI), HARMONY is a public-private partnership of 53 Partners and 24 Associated Members, that brings together academic partners, clinical practice experts, product manufacturers, data providers, patient advocacy organisations, regulatory agencies, and HTA bodies – www.harmony-alliance.eu.

There are significant challenges to using big data in healthcare and the IMI Big Data for Better Outcomes (BD4BO) program is aimed at establishing key enablers to facilitate big data use. The variation in outcome data across different data sources is one key issue; this could be addressed through the development and use of core outcome sets. One of the deliverables within HARMONY is to develop a core outcome set applicable to hematological malignancies as a whole and for disease specific pillars that incorporate multiple stakeholder perspectives.

Objective – Ascertain the outcome preferences of NICE as detailed in scopes and provision of outcomes within submissions to NICE HTA over a 15 year period to inform core outcome set development for HARMONY.

Methods – Outcome data was extracted from all publicly available and completed technology appraisals (n=31) and scopes (n=50) published by NICE (2001 - 2017) for AML, ALL, CLL, NHL, MM, MDS. Outcomes were analysed by the following domains; time to event, tumour response, safety and patient reported outcomes with regard to frequency and year of reporting.

Results and Discussion – 40 completed technology appraisals met the inclusion criteria (8% of all published NICE technology appraisals) with 21 more in development, either still in scoping or pre-scoping (figure1).
Of the published appraisals, 31 had evidence submitted by the product sponsors and 29 (94%) received a positive recommendation.

On average 6 outcomes were requested within NICE technology appraisals scopes for all haematological malignancies classes. Outcomes specified within scopes pre-2017 and from 2017 onwards show a clear preference for 5 key outcomes - overall survival, progression free survival, response rates, adverse events and health related quality of life (figure 2). Time to next treatment as an individual outcome showed the greatest change in scope inclusion, increasing from 13% to 35% (pre to post 2017) within MM and NHL.

Analysis of outcomes provided when requested in scoping documents showed an overall high reporting frequency rate (87%) across all published technology appraisal /scope pairs (figure 3). For individual outcomes the 5 key scope outcomes all had high reporting frequency: Overall survival (93%), progression free survival (81%), response rates (86%), adverse events (96%) and health related quality of life (97%) indicating that outcomes requested by NICE are generally always provided. Tumor response rate outcomes reported, varied by class of haematological malignancy, with differences in reporting volume and outcome measures.
The majority of additional outcomes reported in published technology appraisals and not requested in scopes were within CLL, MM and NHL with time to next treatment the most prevalent additional individual outcome.

For patient reported outcomes, only health related quality of life data was reported. Many submissions (57%) contained more than one source of health related quality of life utilities, including those mapped to the EQ-5D. 68% of the economic models presented within this set of NICE technology appraisals used either EQ-5D measured (39%) or mapped utilities (29%) (figure 4). Mapped EQ-5D data was most likely to be sourced from the EORTC QLQ30. Other sources of data included elicitation studies, systematic reviews and synthesis of information, and a number of reports had only redacted or non-identifiable information within the publically available documentations.

Key to outcomes in figures: overall survival (OS), progression free survival (PFS), response rates (RR), adverse events (AE), health related quality of life (HQoL), time to next treatment (TNT), event free survival (EFS), TTP time to progression (TTP), duration of response (DoR), minimum residual disease negatively (MRD) , TI- transfusion independence , SCT- Rate of stem cell transplant , SpAE- specific adverse events (SpAE), Patient reported outcomes (PRO).

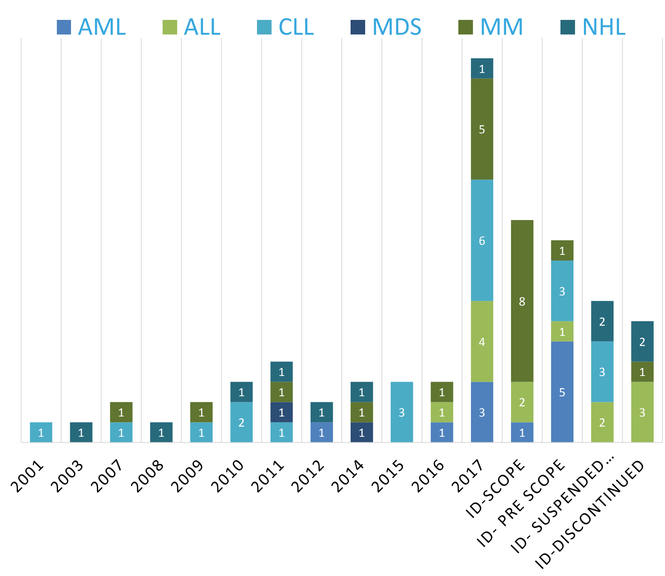

Figure 1. Completed and in development NICE HM technology appraisals by HM indication and year published. *2 TAs have more than one HM indication (2014)

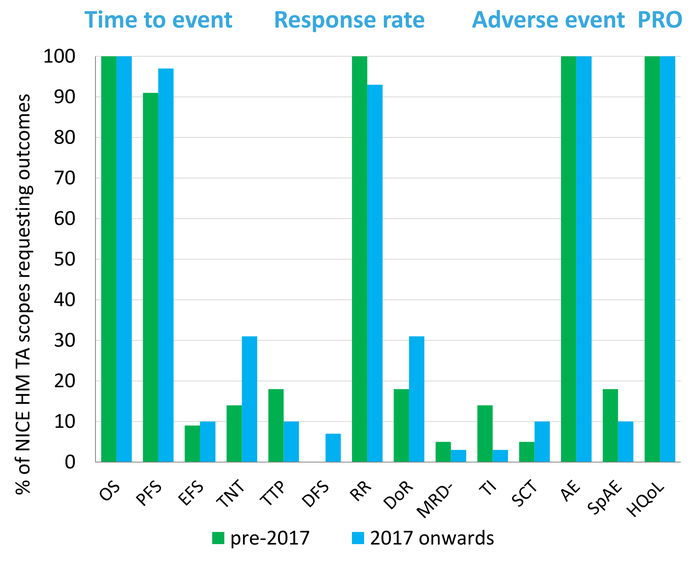

Figure 2. Overall outcome requests in scopes by domain older versus new appraisals.

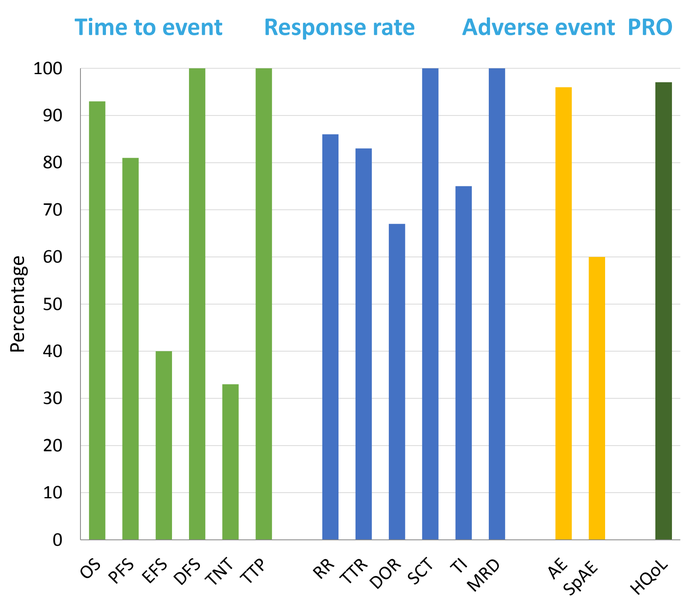

Figure 3. Total percentage outcome provision of outcomes when requested in corresponding scope across outcome domains

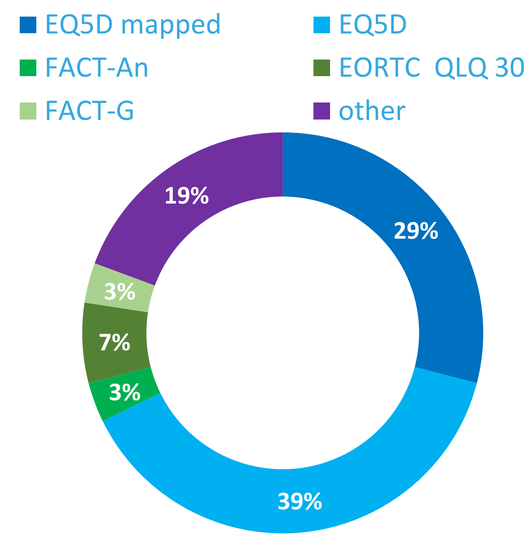

Figure 4. HQoL utilities by outcome measurement instrument used in health economic models within NICE technology appraisals.

Implications for guideline developers/users – The analysis and consideration of previous outcomes requested by a HTA within scopes and provided within appraisal submission documents by product sponsors within a disease area can provide a timely and resource light mechanism for HTA input into core outcome set development.

Conclusion – The use of previous completed reports can provide a valuable indication of outcome preference by a HTA for use in core outcome sets.

The HARMONY Alliance is funded through the Innovative Medicines Initiative (IMI), Europe's largest public-private initiative aiming to speed up the development of better and safer medicines for patients. HARMONY has received funding from IMI 2 Joint Undertaking and is listed under grant agreement No. 116026. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation Programme and the European Federation of Pharmaceutical Industries and Associations (EFPIA). **www.harmony-alliance.eu** | HARMONY ©July 2018