Why Predictive Analytics are Crucial for Effective EU-HTAR Implementation

The EU's Health Technology Assessment Regulation (EU-HTAR) aims to introduce more harmonised, efficient and evidence-based assessments of new health technologies. However, with companies needing to generate evidence that meets the requirements of both Joint Clinical Assessments (JCAs) and national Health Technology Assessment (HTA) bodies, agile predictive analytics are crucial for success, especially regarding indirect comparisons and PICO simulations.

In this article, we explore the impact of EU-HTAR so far, the challenges of implementation and how advanced analytics can help health technology developers (HTDs) demonstrate value. We also explore what is on the horizon ahead of the rollout of EU-HTAR to orphan medicines in 2028 – and how the industry can prepare.

What is EU-HTAR?

EU-HTAR came into effect in January 2025. The aim was to reduce the burden of multiple submissions, remove barriers to innovation and accelerate access to the market across EU member states (MS). It marked the first permanent partnership between the European Medicines Agency (EMA) and national HTA bodies for joint evaluation. At the heart of this potentially transformative shift was JCAs. JCAs are a single assessment of the clinical effectiveness and added value of new health technologies conducted at an EU level, replacing the need for separate HTAs in each MS.

Initially, JCAs applied to eligible medicinal products with new active substances indicated for cancer treatment or medicinal products which are regulated as advanced therapy medicinal products (ATMPs). On 17 October 2025 the EC established the rules for JCAs of medical devices and *in vitro* diagnostic medical devices. In January 2028 JCAs will start for eligible orphan medicinal products. In January 2030 JCAs will begin for all remaining categories of eligible medicinal products.

In its 2025 Annual Work Programme, the HTA Coordination Group (HTACG) estimated it would initiate 25 JCAs in 2025 – 17 for cancer treatments and eight for ATMPs.[1] In April 2025 the first JCAs for melanoma and paediatric low-grade glioma (LGG) treatments were announced. There are currently 13 ongoing JCAs. At the time of writing, no JCAs have been completed. One has been discontinued due to withdrawal of the marketing authorisation application by the developer.[2] This suggests the work programme was behind schedule in 2025.

Challenges in EU-HTAR Implementation for Developers

The hope is that JCAs will ultimately provide greater clarity, consistency and predictability concerning clinical evidence requirements for HTDs. Of course, this change comes with potential challenges which need to be addressed if the transformative potential of this regulation is to be unlocked.

The first is that EU-HTAR requires planning to start much earlier in the drug development cycle. Developers must also now build evidence packages that meet the needs of both JCAs and MS decision-making – often including the accommodation of language-specific requirements – in a compressed timeframe. Once a letter of intent is submitted at the point of EMA submission for regulatory approval a PICO scoping exercise by the EU consortium, which is likely to include contributions from each country, finalises the scope of the JCA. Developers then have just 100 days to complete dossier preparation and submission once the finalised scope is available. This creates new challenges for HTDs and Integrated Evidence Planning (IEP) for sponsors and requires proactive planning, clear documentation and the ability to quickly adapt to evolving requests.

Concerns have also been raised about the availability of Joint Scientific Consultations (JSCs). JSCs are designed to offer recommendations to HTDs on their development plans for a medicinal product or medical device, ensuring evidence and methodologies meet all requirements ahead of a JCA. However, there is a striking gap between the number of JSCs compared to JCAs and a misalignment between the number of JSCs and the realities of product development.[3] The HTACG estimates it will initiate around 50 JCAs in 2026 – 35 for cancer treatments and 15 for ATMPs.[4] Yet it is only planning to initiate 8 to 12 joint scientific consultations on medicinal products and 2 to 5 joint scientific consultations on medical devices in the same period. The early advice provided by JSCs is critical to ensure HTDs can adapt trial designs, resolve misunderstandings and compile quality dossiers. Without this, there is a higher risk of delays threatening the key aims of EU-HTAR – to reduce developer burden and speed up access.

Challenges in EU-HTAR Implementation for Member States

The Draghi report highlighted the importance of collaboration and coordination if the EU is to remain competitive when it comes to medicines innovation.[5] EU-HTAR offers the opportunity to improve coordination, however, MS HTAs are struggling with the increased workload which has accompanied implementation.[6] This has been compounded by the lack of experts available to conduct JCAs, particularly given the diverse assessment frameworks used by HTAs, and a need for investment to increase capacities.[7]

Unlocking the long-term gains of EU-HTAR, particularly for smaller, less well-resourced countries, requires funding for new assessor training, the early and meaningful involvement of experts, greater financial and political support and clear guidance. In an evolving landscape, the EU HTA should act as a regulatory HTA interface, with position papers on evidence requirements providing much-needed clarity. There is also a need to work collaboratively to capture stakeholder feedback and rapidly address potential bottlenecks if the full potential of this regulation is to be unlocked and the EU is to remain competitive on the global stage.

Unlocking the Power of Predictive Analytics and AI

To maintain momentum and progress clinical development timelines, HTDs need to understand where synergies apply across JCAs and HTA requirements. Predictive analytics, which leverage modelling and simulation approaches, can enable HTDs to do this more effectively. By enhancing how evidence is analysed and interpreted, and by enabling simulation or robust extrapolation of relative

efficacy across treatments and population beyond what trials can demonstrate, they support efficiencies throughout the clinical trial lifecycle.

For example, while Network Meta-Analysis (NMA) integrates both direct and indirect evidence to compare multiple treatments simultaneously and provides a broader analysis of treatment efficacy, they can be limited in practice by trial data constraints including selected populations, limited number of comparators, and short-term endpoints. Predictive modelling leverages from external data, including real-world data (RWD), enables PICOs simulations to help HTDs and regulators make data-driven decisions. Bayesian statistics, which use observed events as a way of updating prior beliefs, have also shown to be a powerful and simulation-friendly inferential framework to integrate multiple and heterogeneous data sources.[8] Benefits of Bayesian approaches identified by the EMA include combining knowledge from previous data with newly generated study data in small populations, interim analyses, adaptations, pooling and the ability to incorporate external controls data, and extrapolation from adults to paediatric populations.[9]

Generative AI (GAI) and large language models (LLMs) could also reduce the burden of HTAs by automating aspects of evidence synthesis, facilitating the processing and analysis of RWD and streamlining health economic modelling. However, the use of such AI-enabled evidence synthesis needs to comply with current national HTA regulations, which are also fast evolving.

Preparing for What Comes Next

It is never too early for HTDs to start preparing for the expansion of EU-HTAR. While 2028 may seem like a long way away, the introduction of JCA and JSC procedures takes cross-functional collaboration and planning. HTDs should be taking active steps now to implement effective change management, ensure evidence can meet multiple requirements and harness advanced analytics and AI to demonstrate value. For MS, a coordinated program of training and investment will be needed to unlock anticipated benefits around future simplification and economies of scale. It is also important to understand the wider environment, including the potential adoption of JCAs and collaborative approaches by non-EU countries. There is significant interest in JCAs both regionally, from the National Institute for Health and Care Excellence (NICE) and internationally by companies developing their own HTA frameworks.[6] Non-EU countries

have cited reliability and scientific rigour as the most important reasons why they may use EU HTA reports in their local processes.10 Joint HTA collaboration frameworks are also seen as feasible outside of the EU despite challenges such as differing healthcare systems, inadequate resources and political resistance.

Conclusion

EU-HTAR offers the potential to overcome many of the challenges of a fragmented, nation-by-nation approach to HTAs. The rest of the world is watching to see whether an approach is effective and can offer methodological rigour. However, to be successful, it needs to work for both HTDs and HTAs. With the scope of EU-HTAR expanding, HTDs must ensure they have robust systems in place which allow them to demonstrate value and adapt to evolving requests. Effective planning, generation of high-quality evidence and the ability to maintain data integrity and quality will be crucial. For HTAs, collaboration is vital to avoid duplication and unlock promised efficiencies.

If implemented with proper analytical toolboxes and external data, EU-HTAR could set a new standard for efficient and harmonised assessments of new health technologies. As HTDs wait for greater predictability on clinical evidence requirements, advanced analytics are a vital way to demonstrate value and navigate this new and evolving landscape.

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