Internal

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From Data to Patient Access: Enabling Synthetic Control Arms Using Real World and Synthetic Data for Trials and HTA decision-making.

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OBJECTIVE

- Building trust among regulators, HTA bodies, clinicians, and patients is a prerequisite for moving synthetic control arms from experimental applications to recognized additional methodological approaches.
- To support this transition, the working group was established to explore how these methodologies can be effectively transitioned from experimental tools to recognized methodological approaches while ensuring scientific rigor and alignment among stakeholders.

CONCLUSIONS

Artificial intelligence is revolutionizing clinical research and health data management, particularly through synthetic control arms and hybrid designs, which address challenges in some situations as underrepresented populations or slow-progressing diseases, as well as providing additional information.

When properly validated and integrated with conventional methodologies, these tools accelerate clinical development and deliver innovations to patients faster without lowering evidentiary standards. They also allow for better granularity of the information, which is useful to move toward personalized medicine and patient centricity (vs population).

BACKGROUND

- Patient recruitment difficulties and high development costs, for example in underrepresented populations (like rare diseases) or slow-progressing diseases.
- Through the creation of virtual or augmented cohorts, artificial intelligence (IA) opens new perspectives to improve the efficiency, inclusivity, and predictive power of clinical research.
- Synthetic control arms, are the most operational entry point for integrating AI into clinical research.

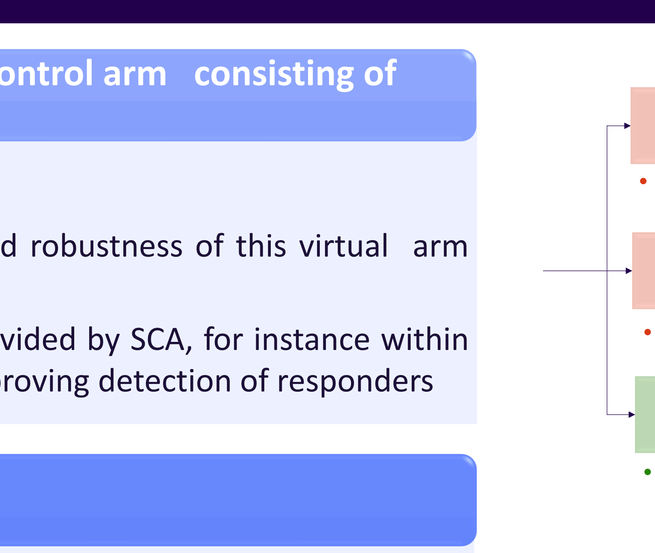
Challenges

- Perceived opacity of methods
- Absence of shared framework
- Heterogeneous practices

Key levers

- Development of concrete use case
- Structured dialogue with authorities
- Acceptability and awareness-building

METHODS



A collaborative workshop to explore the **integration of external control arms into routine clinical practice.**

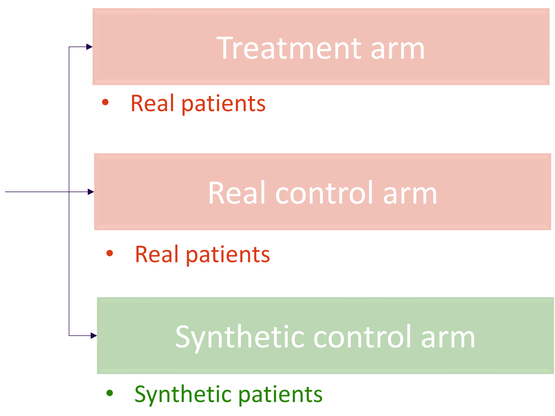
Outcomes

Structured recommendations to facilitate the adoption of external control arms by Health Authorities

RESULTS

1 Design 3-arms clinical trials with an additional control arm consisting of synthetic patients

- To reconcile the positions of regulators and industry
- Synthetic control arm designed to validate the reliability and robustness of this virtual arm without jeopardizing trial integrity.
- This will also allow exploration of additional information provided by SCA, for instance within patient comparison when digital twin technology is used, improving detection of responders



2 Create a multi-stakeholder discussion platform

- Create a multi-stakeholder discussion platform involving academics, industry representatives and institutional stakeholders to develop and propose a methodological framework with the objective to encourage regulatory authorities to accept and integrate virtual control arms into clinical and HTA evaluations.
- Stimulate industrial investment in these methods, and to integrate more SCA into their clinical development plan?

3 Establish an independent academic trust third party

- To support health authorities and HTA bodies in strengthening their expertise, sharing early advices on study-design and provide assessment as new methodologies are deployed. This accredited academic community would be capable of providing scientific guidance, methodological standards, and independent validation.
- It focuses only on the validation of the method used, not on the use of the result of the method in the process of assessment

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