

---

### c) Study design leveraging Synthetic Arms

The use of “**Synthetic Arms**” is an emerging study design where one or multiple study arms are replaced by previously collected data from either clinical studies or Real-World Evidences (RWE). In this scenario, there is a need to generate derived data, sometimes referred as secondary data assets from existing data sources to avoid exposing patients unnecessarily to the study experiments. This design also helps in expediting and potentially saving costs of Clinical Development by reducing the sample size of patients to be physically enrolled. The derived arm is often used to replace the comparator arm.

The challenge of this design resides in generating data to be compared to the remaining/enrolled study arm. To do so, the “Synthetic arm” data need to have similar variables collected at similar timepoints with the quality required to meet regulatory scrutiny. This “Synthetic arm” data needs to be “clean” and complete enough to power statistical analysis. Some additional coding may be required when using RWE previously coded with SNOMED and ICD-10. As no new queries can be generated on previously collected data assets, the role of CDM would evolve from traditional “Data Cleaning” to “identifying, filtering and curating” existing data to make it fit for use.

For now, this study design is primarily used for reimbursement studies but could be later expanded to submission studies when this design has been further proven as well as access to reliable RWE has been made possible.