

Accessing Multiple Patient Data Sources to Enhance Generation of Real-World Evidence, Outcomes Research and Non-Research Evaluations

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1. Introduction

The rapid development of technologies has provided solutions to traditional problems, and has also opened up new possibilities for research. As electronic data has improved in completeness and comprehensiveness, it has facilitated access to wider patient populations, as well as inter- and intra-connected information. Nowadays, decisions to treat, clinical pathways and treatment outcomes are evaluated without the need for the development of a traditional clinical study.

Real-World Evidence (RWE) research has been positively impacted by the diversity of possibilities and rapid technology advances. The goals are the achievement of better quality evaluations, representative data, and external validity, while balancing costs and resource utilization.

Clinerion's state-of-the-art technical platform connects major hospitals around the world, allowing access to the data of millions of patients in real-time. This powerful platform also queries data from a variety of external databases, allowing a focused search of patient characteristics or treatment patterns.

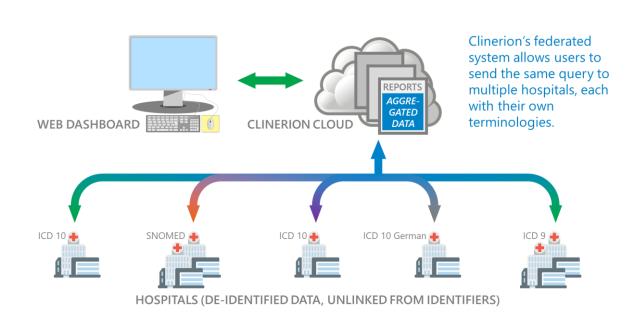


Figure 1: Clinerion's technology solution is a highly scalable hybrid cloud and federated server network.

2. Benefits of RWD

RWD has the exciting potential to add more benefits to the development process, healthcare systems and beyond.

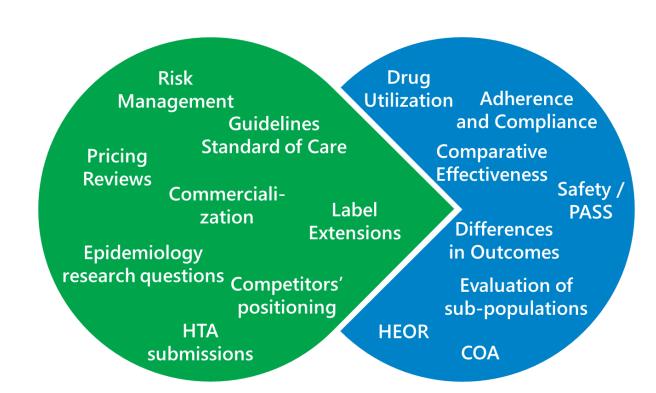


Figure 3: Payers, healthcare decision-makers and regulatory authorities are increasingly asking for post-launch evidence of therapies in a real-world setting.

RWD for patient support

Indirectly, patients will always benefit from advances in drug development, but a direct use of RWD may also positively impact a patient's life and well-being:

- Promoting the patient's self-management of the care and treatment process.
- Offering structures for sharing medical information, news on clinical research and interfacing with patient associations or groups of interest.
- Facilitating the use of digital innovations, wearables, health Apps, supporting treatments, prophylaxes and monitoring.
- Creating an alternative for interaction with physicians, telemedicine, emergency management.

Benefits of RWD in research

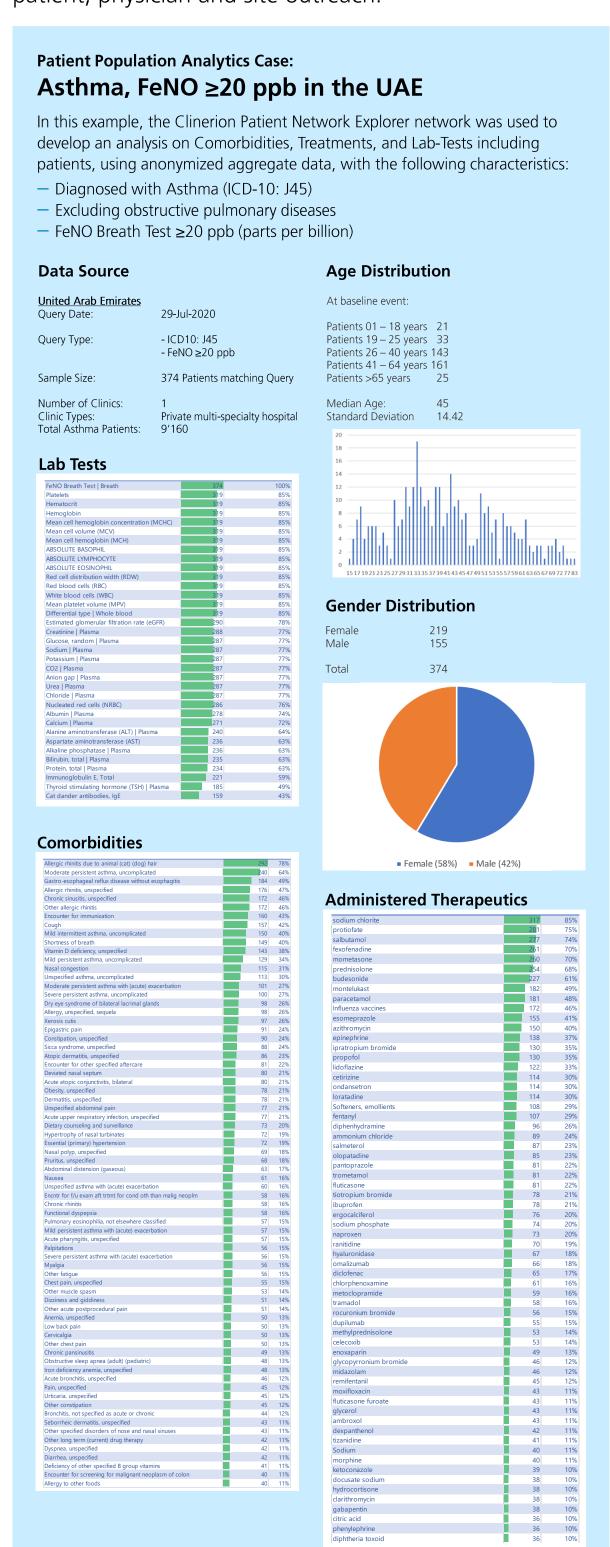
The use of RWD in research is widely accepted by scientists and regulators. Although the scope is huge, four areas can be highlighted here to show its advantages:

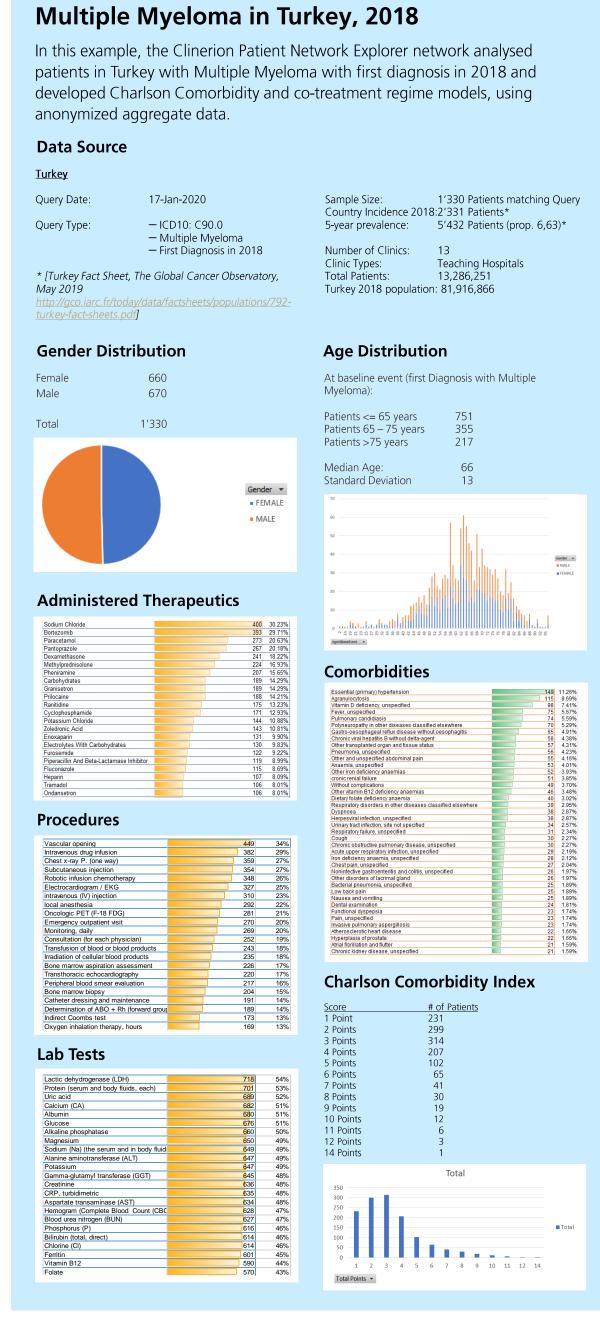
- Scientific: external validity, high representativeness, primary meaningful outcome, raw data can be used directly, simply and not restricted by guidelines, all influences and treatments are represented.
- Expanding access to patient cohorts: larger sample size, sub-populations evaluated, preliminary information of patient cohorts, eased patient identification.
- Data accessibility: coded/modeled data, unstructured data (text), inter- and intra-linked data.
- Enhancing operational performance in research: faster, more cost-effective, more flexible, real-time updates.

3. Enabling Patient Data Analytics

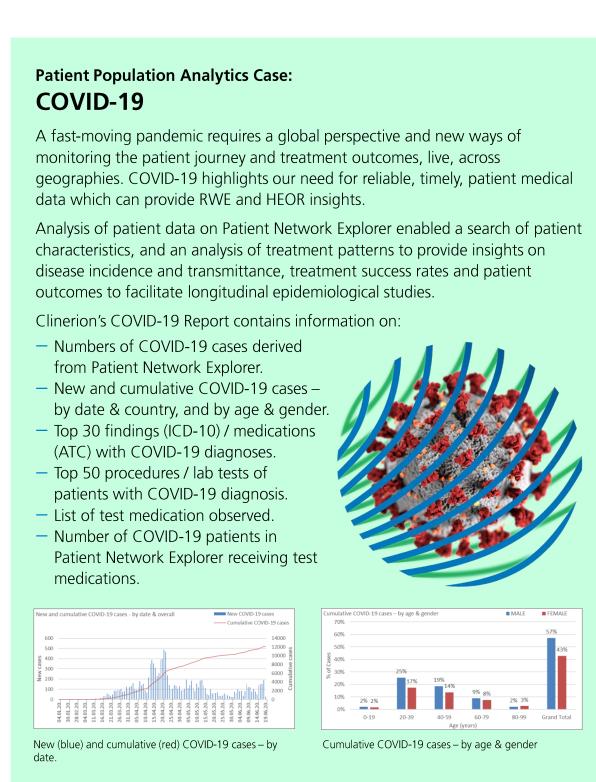
Patient Network Explorer presents real-time statistics derived from the deidentified electronic health records (EHRs) of the millions of patients in Clinerion's global network of partner hospitals.

Users generate insights on the patient journey, treatments and outcomes by applying informatics methodologies to extract and interpret information from large amounts of electronic health records. This allows a focused search of patient characteristics or treatment patterns, and enables patient, physician and site outreach.





Patient Population Analytics Case:



4. Conclusion

Clinerion's ecosystem allows the interrogation of retrospective data, as well as the generation of new prospective data for RWE studies, surveillance, sentinel and cross-sectional studies, feasibility studies, screening for risk management or health-care system evaluation, among other traditional or innovative study designs.