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Partnership-Driven Real-World Evidence: Insights From the FALCON-Lung Network on mNSCLC

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Abstract

Research Context: Metastatic non-small cell lung cancer is a major global challenge, with immune checkpoint inhibitors (ICIs) transforming treatment and improving outcomes for selected patients. However, understanding how these therapies are adopted in routine care requires high-quality real-world data and international comparison. Privacy concerns and variation in implementation remain barriers. This study was conducted within the Federated Alliance for Large-scale Cancer Observational Network (FALCON), a global partnership built on standardisation and open-science principles to accelerate oncology real-world evidence, and its lung cancer subnetwork, FALCON-Lung, which unites international data partners to study mNSCLC treatment patterns.

Engagement Process: Through the Observational Health Data Sciences and Informatics (OHDSI) network and a study-a-thon format, FALCON-Lung brought together 22 institutions from Europe, the UK, the USA, and Australia, with detailed longitudinal data on over 25,000 patients. Using a federated infrastructure based on the OMOP Common Data Model, harmonised analytic tools, and structured oncology resources, specifically HemOnc, the network conducted data readiness assessments, refined cohorts, and resolved harmonisation issues to ensure consistent execution. Australia contributed over 2,400

patients by harmonising oncology records from SWSLHD via the CaVa platform, enabling participation without sharing patient-level data.

Project Outcomes: The first FALCON-Lung study examined the adoption of ICIs across participating countries. Preliminary results revealed a clear shift from standalone chemotherapy to ICI-based regimens across participating countries. In Australia, chemo-immunotherapy accounted for about one-third of first-line treatments in 2023, while monotherapy remained largely limited to high PD-L1 patients. The study also revealed treatment pattern variations driven by differences in regulation, policy, and clinical practice, offering opportunities for further investigation. These findings demonstrate the potential of international collaboration to generate consistent, real-world insights into treatment patterns and access across health systems.

Reflection and Implications: FALCON-Lung demonstrates how a coordinated, multinational partnership can rapidly generate robust, comparable oncology evidence. By combining local expertise, standardised data models, and shared analytic resources, the network delivered insights within months, supporting equitable access and informed policy decisions. This collaboration continues to expand into other cancer types, reinforcing the value of global partnerships in accelerating translational goals and improving patient outcomes across diverse health systems.