

Innovation in Medical Evidence Development and Surveillance (IMEDS) & the Evolution of Postmarket Safety Studies

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Subhead

The Innovation in Medical Evidence Development and Surveillance (IMEDS) Program, modeled after the Sentinel Initiative, is available to industry and other researchers as a platform that allows access to a curated big data resource. This data resource can be used to evaluate the benefit risk balance and risk management actions for drugs and biologics.

Some safety signals do not become apparent until a drug reaches the market. Clinical trials cannot detect every safety issue due to the limitations inherent in controlled studies with small numbers of patients, fewer co-morbidities, and the potential exclusion of key populations who will use the drug once it hits the market. The FDA's Adverse Event Reporting System (FAERS) is an important mechanism to capture data on adverse events and medication errors submitted by manufacturers, health care professionals, and consumers. Except in the case of manufacturers, reporting to FAERS is voluntary, so system limitations include under-reporting and uncertainty around the total number of patients exposed to specific products. To complement FAERS, epidemiologic studies performed by manufacturers and the FDA have provided population-based rates of adverse events. In 2007, Congress passed legislation directing the FDA to scale up its postmarket safety surveillance efforts by developing a postmarket risk identification and analysis system to include data from at least 100,000,000 patients by 2012. FDA's successful response to this mandate was the Sentinel System.

Congress created the Reagan-Udall Foundation for the FDA in 2007 to support and promote regulatory science and advance FDA's mission. Because of the Foundation's unique statutory relationship with the FDA, the Agency turned to the Foundation to help transform its Sentinel Initiative into a national resource for use by the broader regulatory community. This national resource, known as the Innovation in Medical Evidence Development and Surveillance (IMEDS) program, represents an advance in regulatory science that allows researchers to utilize the same methods and tools developed and trusted by FDA.

Unique Opportunities

While the FDA originally established Sentinel to monitor drug safety, there is opportunity to use this broad, distributed database to assess drug effectiveness. With electronic health claims

information that is continuously quality-checked by FDA on more than 168 million people, IMEDS is the largest single network of its kind next to Sentinel itself. The Sentinel Initiative is working to incorporate Centers for Medicare and Medicaid Services (CMS) data, which eventually will mean a significant increase in the volume of electronic health care information available for regulated industry through IMEDS. In many cases, due to its large population, IMEDS allows previously unanswerable drug safety or effectiveness questions to be evaluated.

In addition to the breadth of the data, the collaborative nature of the program is IMEDS' greatest strength. In its role as a neutral convening party to coordinate public-private partnerships, the Foundation reviews and facilitates studies and provides scientific and business management oversight. As the convening party, the Foundation ensures transparency of operations, methods, and publications resulting from IMEDS projects.

The Foundation partners with the Harvard Pilgrim Health Care Institute to develop specifications for approved projects and coordinate the programming, analytic activities, and customized assessments. In keeping with the distributed database model, the Harvard Pilgrim analytic center collaborates with the independent data partners (integrated delivery systems and/or insurers) to provide scientific input and run the queries behind their firewalls. Companies can leverage the scientific expertise of all IMEDS partners and actively engage as key scientific collaborators on their projects. Studies are not subcontracted out; rather, industry scientists are essential team members from protocol development through the various stages of implementation.

Beyond Postmarket Drug Safety

IMEDS has the potential to catalyze public health benefits by allowing regulated industry to characterize hard-to-reach populations (e.g., rare conditions, mother-child linkages), conduct proactive, population-based assessments of safety signals, and analyze the impact of risk management interventions. For example, comparing outcomes among distinct patient groups using different drugs can readily be accomplished.

Because IMEDS shares the same methods, infrastructure, and expertise as Sentinel, regulated industry can use IMEDS as an independent resource to fulfill regulatory obligations like required post-marketing studies and evaluations of Risk Evaluation and Mitigation Strategies. Queries investigated through IMEDS could reduce the time between a safety signal and full evaluation and can be the basis for customized epidemiological studies. IMEDS could also be useful in drug development because the query programs allow drug utilization studies to look at questions of appropriate use, including combination therapy and additional indications.

An advancement on the horizon is the potential to access health data entered by patients through an IMEDS mobile app. Patient-reported outcomes enhance traditional health care claims data by capturing other important information, including types and quantities of over-the-counter medication or health events that do not involve doctor visits. This tool could enable pragmatic trials or patient registries to be launched as early as 2018.

While IMEDS may not be suitable to answer every question, companies that want to be proactive in addressing safety issues are excited by the opportunities and benefits afforded by this broad database and scientific collaboration. We expect, as use of IMEDS grows, new tools and enhancements will be developed and available for FDA and others to use. This will contribute to collective knowledge—the more researchers use the system, the more robust and dynamic the infrastructure becomes. As a result, IMEDS users play an essential role in shaping the application of big data and real-world evidence generation.

Potential for Globalization

Although IMEDS is based on a US regulatory agency initiative and US-based data partners, multinational pharmaceutical companies could benefit from the size of the database. The variety of health plans represented by our data partners paints a broad, generalizable population for drugs being marketed to Americans and may be applicable to other patients around the world. The pharmaceutical industry is a global enterprise and real-world evidence generated by IMEDS is frequently applicable to other regions. Often when a company must respond to a regulatory question posed by the FDA, they also must answer to regulatory agencies elsewhere.

IMEDS is accessible to any company or investigator whose research question impacts the use of drugs and biologics for patient care, and when the database itself is suitable for the query. For example, the Foundation has had interest from industry responding to regulatory questions not just from the US but from Europe and elsewhere. If the data is a good fit and there is a public health benefit to exploring the question, IMEDS is available.

How to Join IMEDS

Pharmaceutical companies and others interested in learning more about IMEDS can contact the Foundation by emailing imed@reaganudall.org. The Foundation also presents at national conferences and scientific meetings and conducts webinars and workshops to educate companies on the use of IMEDS.