SAMED Medical Device Registry Principles and Position Paper
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SAMED is committed to the principles of evidence-based medicine. Stakeholders, such as patients, their caregivers, providers, payers, regulators, and manufacturers share in the commitment to improve the quality and increase the efficiency of healthcare. As medical device manufacturers and suppliers, we recognize the need to ensure that there is adequate and accurate information to guide healthcare decision-making concerning the safety, effectiveness and value of medical interventions.

Registries are a mechanism to collect information related to patient populations being treated with similar conditions, the provider's quality and processes of care, device performance, and the clinical outcomes achieved. If designed and executed properly, a registry can provide useful information about the safety and effectiveness of medical interventions as well as the value of the outcome of interventions. The purpose of these principles is to provide guidance to SAMED member companies as they consider registry initiatives and to share industry's perspectives with potential registry initiators and other stakeholders in order to facilitate the process of registry formation.

A registry is defined as "an organized system that uses observational study methods to collect uniform data (clinical and other) to evaluate specified outcomes for a population defined by a particular disease, condition or exposure, and that serves one or more predetermined scientific, clinical, or policy purposes."[1] Registries are typically prospectively defined. A medical device registry may be sponsored by a manufacturer, professional society, patient advocacy group, government agency, provider group or a combination thereof. A registry can be localised or have a national footprint.

1. A medical device registry may be designed to achieve one or more of the following objectives:

1.1 Improve patient care and outcomes by understanding the effects of products, health care professionals, facilities, patient populations and pathways over the full care cycle.
1.2 Allow patient access to new therapies by efficiently collecting data to support regulatory applications for expanded use and indications.
1.3 Obtain data to support coverage, reimbursement, and value analysis.
1.4 Evaluate the "real-world" safety and/or effectiveness of products outside of randomized controlled clinical trials or other clinical study designs.
1.5 Meet regulatory requirements for post-market data collection.
1.6 Reduce pre-and post-market burdens for data collection by providing regulators with alternative methods to monitor the performance of technologies.
1.7 Aid in the assessment of effectiveness across multiple products or therapies.

[1] Gliklich RE, Dreyer NA, eds. Registries for Evaluating Patient Outcomes: A User's Guide. 2nd ed. (Prepared by Outcome DEcIDE Center [Outcome Sciences, Inc. d/b/a Outcome] under Contract No.HHSA29020050035I TO3.) AHRQ Publication No.10-EHC049. Rockville, MD: Agency for Healthcare Research and Quality. September 2010

1.8 Develop hypotheses for further evaluation in controlled clinical trials.
1.9 Aid in the development or assessment of care guidelines.

2. To assure that the creation of a new registry is the appropriate mechanism to meet the above objectives, several threshold questions need to be answered:

2.1 Is using a registry the least-burdensome means to collect the necessary data to achieve the scientific objectives?
2.2 If the objectives warrant the level of investment required to develop and maintain a registry?
2.3 Are there reliable data collection instruments available to collect the data needed to achieve the objectives?
2.4 Will the registry have a stable and diverse source of funding to promote long-term sustainability?

3. The following key principles should guide the development of any medical device registry:

3.1 All medical device registries must be in accordance with applicable laws. Examples include but are not limited to: Helsinki Declaration, PAIA, POPIA, Consumer Protection Act, National Health Act, Health Professions Act and related guidelines and ethical rules, Medical Device Regulations etc.
3.2 Formation of a data governance committee and written procedures for data ownership, data access, and data use must be established for each registry before initiation. All stakeholders should be represented on the committee.
3.2.1 Sufficient safeguards should be established to ensure that valid data are entered into the registry.
3.2.2 Data integrity and security must be maintained both during the active phase of the registry and after closure.
3.2.3 Data should be reviewed and analyzed in a systematic manner, as defined by the protocol and analytical plan. The protocol should define enrolment adequate to avoid population bias.
3.2.4 Strong consideration should be given to clearly defining end points.
3.2.5 There should be a process for adverse event adjudication.
3.2.6 Before the outset of the registry, rules governing review and access to the data should be established, be well-defined, and be designed to manage unanticipated future requests. Governing rules should consider, if applicable:
    3.2.6.1 Review and acceptance process for data requests and data analysis plans, taking into consideration informed consent restrictions, if any, and the objective of the initial registry.
    3.2.6.2 Controlled processes for data access and data release that take into account data privacy, maintaining data integrity and traceability as well as timing in relation to publication, market approvals and patent protection.
    3.2.6.3 Guidelines for data transparency.

3.2.6.4 A process for device specific safety data reporting, including how information is shared with the manufacturer / supplier.

3.3 A well-balanced registry design requires a clear purpose, objectives, analysis plan, and term before data collection begins.

3.3.1 The purpose of the registry will determine the design, cost, and term of the registry.

3.3.2 Where needed to meet a research purpose, hypothesis-based designs and powered sample size determinations may be appropriate. Consideration must be given to the difficulty of longitudinal follow up of registry participants.

3.3.3 For registries that collect information and do not involve a research purpose, definitions of success (data collection, data quality, poolability, quantity, funding) and failure should be prospectively defined in the protocol. Failure to meet criteria should result in registry termination as defined in the governance documents.

3.3.4 Key stakeholders must define a prospective process for considering changes in the registry after initiation including items such as data collection, protocol revisions or funding.

3.3.5 An appropriate quality plan needs to be established including monitoring, auditing, and validation of participating sites for complete, accurate and timely data collection.

3.3.6 Registries must collect sufficient data to identify, consider and allow risk adjustment for modifiable risk factors such as social, demographic and disease-related factors.

3.3.7 Data on patient characteristics, patient medical conditions and comorbidities, facility characteristics, physician experience, interventional technique and associated parameters, and device characteristics (including unique device identifiers) should be collected to identify potential factors which affect patient outcomes.

3.3.8 The registry purpose and design should also recognize the unique characteristics of the device innovation life cycle.

3.3.9 Device innovation is an iterative process and a device life-cycle may conclude prior to a desired registry endpoint being achieved.

3.3.10 The design of a long-term registry must recognize and manage the potential for next generation devices entering the market during the data collection period.

3.4 Careful review will need to be conducted to mitigate against bias in patient registries[2]

3.4.1 Since patient registries collect substantial amounts of information on patients, they have become an increasingly common source of data for outcomes researchers. The data is often used to assess quality of care, identify patterns of care, facilitate real-world research, and improve performance.

3.4.2 Not all registries are run by experienced or independent data collection agencies and may lack robust oversight to ensure the statistical quality and accuracy. Consequently, concerns about data quality have come to the fore and some registries have implemented robust

[2] https://www.ahajournals.org/doi/full/10.1161/circoutcomes.109.916601

quality assurance activities. These activities, however, have focused predominately on data accuracy and reliability.

3.4.3 While data accuracy and reliability are important to the registry, proper patient selection is just as important. Review of the eligible patient selection processes have revealed that in some a substantial proportion of eligible patients were not enrolled and that those patients had a markedly different profile, biasing the cohort toward a healthier group that received higher quality care.

3.4.4 Patient registries should enrol typical patients and include a diversity of age, sex, race, and comorbidity characteristics to avoid generalizability of clinical trial populations. Registries have the advantage of including individuals who were not screened out because of trial-specific inclusion or exclusion criteria and therefore mirror the experience of a typical patient.

3.4.5 The consequences of selection bias on the results of such registry-based research are profound, including risk prediction scores that misrepresent risk in patients who are excluded, or selection of risk factors that do not apply to the population broadly. Virtually any research question might be affected in ways that are hard to predict.

3.4.6 The findings also have important implications for quality assessment. The disparity in quality of care between those selected and not selected indicates the potential for misrepresentation.

3.5 A robust evidence assessment should be performed prior to determining whether the additional data that may be collected by a registry are needed.

3.5.1 The evidence assessment should evaluate current literature and previous studies, as well as identify existing data collection efforts and ongoing studies and/or registries. These data sources should be evaluated and considered for their purpose, depth, rigor, and timing of results compared to the proposed registry.

3.5.2 Duplication of purpose, data to be collected, or analysis methods may indicate that the proposed registry is redundant.

3.5.3 The evidence assessment should be relied upon in developing the plan for the proposed registry. The plan must identify the evidence gap to be addressed by the registry and ensure that the data and analysis provide a true public health benefit and justify the additional costs associated with the registry.

3.5.4 The assessment should be shared with potential stakeholders, participants, and funders before registry design is developed, and before data collection is initiated. The societal cost of the registry must be justified by the knowledge to be gained from the defined analysis plan.

3.6 Registry data may be shared upon request from qualified scientific and medical researchers for purposes benefiting public health or patient care. A system should be implemented to receive and review data requests prior to approving the release of any data.

3.6.1 The data governance committee will establish criteria for the review of requests and sharing of data. All requests for access to data will be reviewed according to these criteria. Recommended criteria include the validity of the hypothesis, whether the data requested and analysis plan will address the hypothesis and the qualifications of the requestor.

3.6.2 The data governance committee will establish a process for submission of requests for sharing of data, including the information to be included in the request. Recommended information includes the hypothesis to be tested, a description of the data being requested, the benefit of the proposed work, the analysis plan, a publication and posting plan, qualifications and experience of the research team and any potential conflicts of interest, including how the data will be used and the source of any funding.

3.6.3 The data governance committee will establish a process for protection of the shared data to ensure that researchers who are provided access to registry data agree not to transfer the shared data or information to parties not identified in the research proposal.

3.6.4 Data requesters may be charged reasonable costs associated with data sharing.

3.6.5 When there is a public health benefit to merging and analyzing data from multiple independent registries, the data governance committee(s) from each affected registry will establish criteria for review and oversight of such projects. When extracting and analyzing data from multiple registries, the data governance committee(s) will ensure that:

3.6.5.1 The original registry purpose and objectives are considered to ensure the integrity and validity of any analyses or reports that are performed and to prevent inaccurate conclusions.

3.6.5.2 The plan for extraction, aggregation, and analysis of the data is valid.

3.6.5.3 The plan includes the sharing of the analyses or reports with involved stakeholders.

3.7 Only the minimum data necessary for meeting the stated objectives of the registry should be collected in order to reduce additional costs for the healthcare system, and to maximize the likelihood of success.

3.7.1 The data to be collected for the registry should be well-defined and relevant to the registry objectives.

3.7.2 Consideration should be made for aligning data collection to be consistent with standard methodologies, where possible, to reduce the overall burden.

3.8 A registry must comply with all applicable laws and regulatory requirements.

3.8.1 Patient privacy should be protected.

3.8.2 All confidential manufacturer / supplier, physician, and hospital data must be identified as confidential and protected from release.

3.8.3 Data provided to a registry does not negate facility, physician or manufacturer obligations to make reports required under applicable laws or regulations.

3.8.4 Unpublished registry data should be non-discoverable and should not otherwise be used in legal proceedings.

3.8.5 In choosing the best care for their patients, health care professionals exercise their medical judgment and may use legally marketed products for off-label uses. The collection in a registry of off-label use data may not represent either off-label promotion, or approval by,

or even prior knowledge of the intended off-label usage, by the product's manufacturer. A registry may not be complete without inclusion of "real world" information, which may include off-label use.

3.9 Policies should be established for the use and publication of registry data by stakeholders and outside registry data users. These policies should protect against unauthorized use of data and ensure appropriate transparency.

3.9.1 Registries, which are in part financially supported by industry, shall provide industry partners access to their complete data. Each participating industry partner shall have access to its own data as well as aggregated data (not including patient identifiers) from the entire registry.

3.9.2 Registries may help identify important safety signals. When such signals are device specific, the signals should be reported to the manufacturer's complaint department prior to public disclosure. The company, with input from the registry, should conduct a further investigation and take action as appropriate.

3.9.3 Regulatory bodies should seek input from and share relevant information with manufacturers prior to taking any regulatory action based upon registry data including data aggregated from multiple registries.

3.10 There should be a plan for the sustainable funding of the registry which includes all stakeholders as appropriate.

Guidelines on funding, including potential payment to parties involved in registries should be developed to mitigate against corruption and ensure reasonable costs and fees that are of fair market value.

Parties who purchase registry products (custom reports) may be charged a reasonable fee.

References:

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