Real-World Evidence: Using Systematic Literature Reviews for Evidence Synthesis and Study Design Planning for Pharmaceuticals, Medical Devices, and Diagnostics

A guide for RWE researchers using systematic literature review

Real-world evidence (RWE) includes data from retrospective or prospective studies and provides insights beyond the context of randomized controlled trials (RCTs). RWE studies assess both treatment approaches and health outcomes of patients in typical clinical practice and are increasingly used to support regulatory interactions and product commercialization. RWE is essential for establishing a product's value proposition from the perspective of a payer or health technology assessment agency.

Growing demand leads to high RWE study volume throughout the drug, medical device, and diagnostic development timeline

The value and need for RWE is growing globally in biopharma, medical devices, and diagnostics and is estimated to reach $1.64 billion in 2024, based on an anticipated 15% compound annual growth rate.[1]

RWE has shown immense value for companies that have invested the resources to develop, measure, and apply it meaningfully. C-suite and bedside clinicians alike increasingly view RWE as strategically important in healthcare decision making. It is not unusual for an organization to implement multiple, if not dozens of RWE studies simultaneously at different stages. This high study volume means that evidence packages are constantly expanding, and it is important that organizations stay on top of their research findings as well as those of competitors.

Growth of RWE in Drug Development

94% of the companies surveyed in Deloitte's 2020 RWE Benchmarking Study[2] believe RWE in R&D will become important or very important to their organization by 2022.

Almost all of these companies expect to increase investments in technology, talent, and external partnerships to strengthen their RWE capabilities.

RWE is utilized at multiple stages throughout the drug, medical device, and diagnostic development process and post approval. Pivotal to the conduct of RWE studies is an understanding of the therapeutic landscape, competitive environment, and opportunities within it. Systematic literature reviews are thus essential for multiple stages through development and commercialization. Moreover, consolidated insights from published RWE increase the comprehensiveness and relevance of market access evidence packages for key stakeholders. The graphic below shows the growing importance of RWE from discovery to post approval.

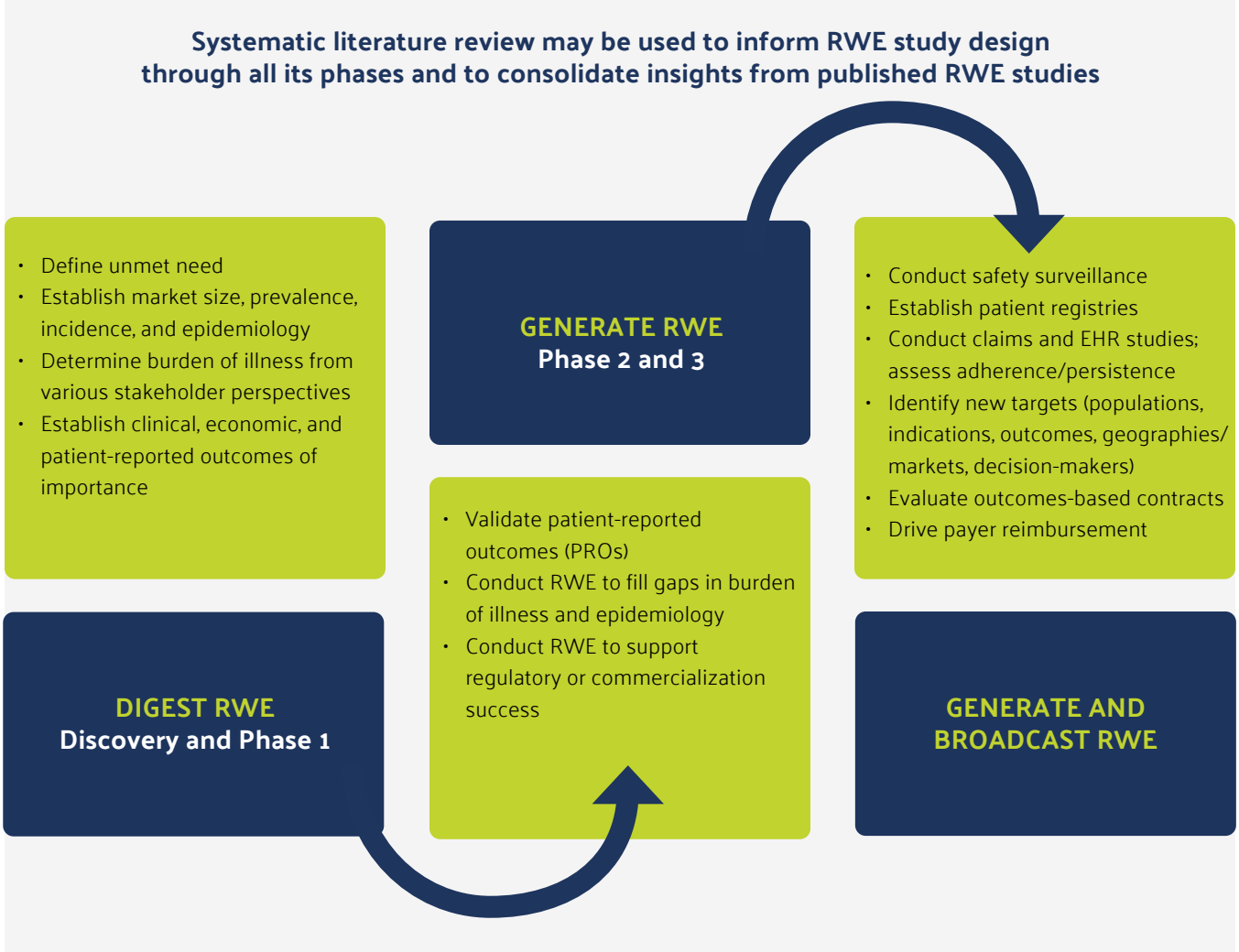

Figure 1: Real-World Evidence Is Important at Every Phase of Drug, Medical Device, and Diagnostic Development

Evidence Synthesis Based on Systematic Literature Review

How can evidence-based researchers ensure their organizations are optimally prepared to manage the increased demand for RWE studies, regardless of development phase?

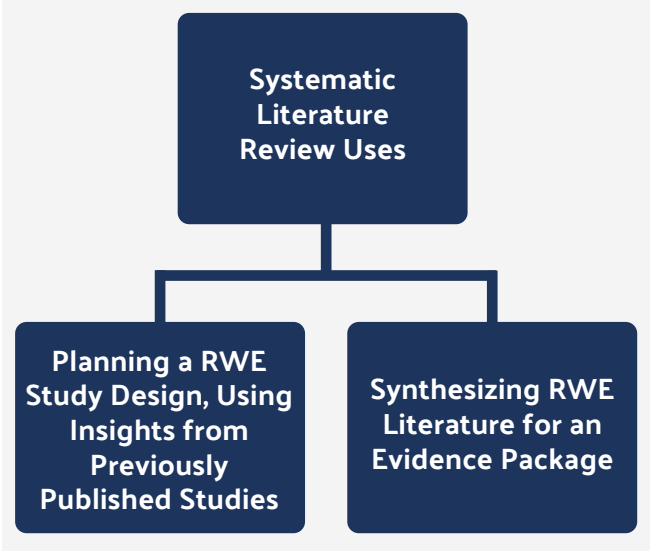

Figure 2: Systematic literature reviews are often used in two ways for RWE.

When planning a research study, many investigators start with assessing what is known and unknown based on published research. As such, the first step in RWE study design typically begins with evidence synthesis, often executed using a targeted or systematic literature review (SLR). Landscape reviews, health technology assessment (HTA) reviews, scoping reviews or gap analyses may also be used, depending upon the evidence needed.

It is also common to present a consolidated evidence package of research, both for clinical trials and RWE studies, when seeking to attain market access with a payer or a health technology assessment agency. Again, systematic literature reviews may be used.

Evidence synthesis is the process of retrieving, evaluating, combining, and summarizing the findings of all relevant insights on a certain subject area. The purpose is to identify the drivers of effectiveness and safety (epidemiologic, clinical, economic, and/or patient-reported) based on the population or healthcare system characteristics that may interact with the therapeutic entity under study.

A high-quality systematic literature review is designed in response to a clearly articulated question. It uses explicit, systematic, and reproducible methods to identify, select, critically appraise, qualitatively analyze, and interpret all relevant evidence. SLRs often require periodic updates to include new evidence, methods, or analyses, or they may be "living" systematic reviews, which are continually updated.

Types of Evidence-based Literature Reviews Used for Gathering Intelligence

Scoping Review	Gap Analysis
Landscape Review	Targeted Literature Review
Rapid Literature Review	Systematic Literature Review
Systematic Literature Review Update	Living Systematic Literature Review

> A systematic literature review is the most comprehensive and formalized type of review for summarizing clinical trial based efficacy and real world-derived effectiveness.

High RWE Study Volume Demands Efficient SLR Approaches

Because of the growing volume of RWE studies that involve a comprehensive literature review, most organizations prefer an enterprise-level SLR solution that improves productivity and accuracy. There is a demand for literature review platforms that can interface with multiple pre-existing data sources and enable work to be efficiently allocated across global teams. Moreover, it is essential that the SLR processes are transparent, auditable, and reproducible, particularly in light of their importance in the payer, regulatory, and market access review process.

Transparency and Compliance in Systematic Literature Review

Transparency is of paramount importance when synthesizing evidence. According to the Joint ISPOR-ISPE Special Task Force on Real-World Evidence in Health Care Decision Making, RWE study planning, design, and execution must be transparent in order to facilitate study reproducibility.[3] Transparency begins with a systematic literature review.

RWE: Regulatory and Market Access Significance

One of the drivers of the increased utility of RWE is its acceptance by regulatory authorities to inform approval and clinical decision-making. In fact, RWE and real-world data (RWD) have been labeled as a Food and Drug Administration (FDA) top strategic priority.[4] Moreover, payers desire RWE of product effectiveness and this is increasingly important in attaining market access for approved drugs, devices, and diagnostics. Organizations are seeking tools that facilitate the evidence synthesis process used to inform study design, including real-world study planning. At the same time, these tools ensure the rigor and transparency of key tactics like systematic literature reviews so that evidence packages stand up to payer scrutiny for market access.

Organizational Response to RWE Growth

With the evolution of RWE as a core institutional objective and the need to establish an organizational focus, many Health Economics Outcomes Research (HEOR) groups are developing RWE Centers of Excellence (COE). RWE COEs are focused on developing ecosystems of evidence generation, data collection and quality standards, strategic and methodologic study execution, and enterprise platforms for data management.

According to Deloitte's 2020 RWE Benchmarking Study, one of the primary organizational goals of the surveyed companies is to use more robust centralized cloud-based platforms with comprehensive capabilities, including knowledge management and self-service analytics applications. This is not limited to primary data. A robust systematic literature review platform for literature management is an essential part of a high-quality evidence ecosystem.

Examples of Systematic Literature Reviews of Real World Evidence, using DistillerSR

- CDK4/6 inhibitors in HR+/HER2- advanced/ metastatic breast cancer: a systematic literature review of real-world evidence studies[5]
- Systematic literature review of the epidemiology and clinical burden of chronic rhinosinusitis with nasal polyposis[6]
- Cost analyses of prosthetic devices: a systematic review[7]

Automating Literature Reviews with DistillerSR

In line with the demand for automated evidence ecosystems, DistillerSR is a cloud-based systematic literature review platform that speeds up the identification, triage, and assessment of information using artificial intelligence and automated workflows. DistillerSR makes any project, large or small, simpler to manage and configure so that an individual or organization can produce transparent, audit-ready, and compliant literature reviews.

"Previous methods were cumbersome and time-consuming. DistillerSR made us more confident in our accuracy, and it made our quality control simpler."

- Kimberly Ruiz, Associate Director, Xcenda

DistillerSR's Trusted Literature Review Process Powers an Essential Part of the Evidence Ecosystem for RWE:

1. Automates literature review at every stage

- ✓ Enables easy and efficient management of even broad and complex literature-retrieval, faster
- ✓ Reduces screening time
- ✓ Minimizes redundant data through fast, reliable deduplication
- ✓ Eliminates need for end-of-review search update
- ✓ Lowers costs and time to identify relevant evidence
- ✓ Monitors, manages and tracks all references, meta-data, and full text procurement

2. Provides greater transparency and compliance compared to traditional SLR approaches

- ✓ Tracks every reference, every change, and every cell of data to ensure your review is audit-ready
- ✓ Meets highest standards for reproducibility
- ✓ Improves visibility into reviewer decisions
- ✓ Reduces and identifies errors
- ✓ Improves regulatory viability of evidence synthesis

3. Improves organizational management

- ✓ Works the way you prefer with 100% configurable workflows
- ✓ Provides standard, repeatable processes for your entire organization
- ✓ Optimizes team collaboration by using cloud-based standardized processes regardless of location
- ✓ Tracks review and team progress in real time
- ✓ Enhances staff and workflow efficiencies

RWE Studies and DistillerSR

Organizations should use DistillerSR to plan RWE studies or to consolidate published RWE into evidence packages. In either case, researchers can leverage DistillerSR to automate, manage, and perform literature reviews of RWE that are transparent, compliant, and reproducible, driving efficiencies throughout an organization's entire research process. ⌘

"At one point (in the adoption journey), we just had to ask - how did we ever live without DistillerSR?"

- Michael Broder, Founder & CEO, PHAR LLC

DistillerSR by the Numbers

Cut down review time between **35%** and **50%.** Find **95%** of relevant records **60%** sooner.

Leverage DistillerSR to automate, manage and perform literature reviews for RWE studies. Learn more here.

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