



RE17:

Harnessing Real-World Evidence and Data Visualisation to Improve Clinical Development and Accelerate Patient-Centric, Insight-Driven Decision-Making

HEALTHCARE ANALYTICS

RWE RESEARCH

Presenter: Prof. CS Mujeebuddin, Founder and CEO
ClinoSol Research Pvt. Ltd.

The Evolution of Healthcare Evidence



Traditional to Real-World

Moving beyond clinical trials to data-driven healthcare decisions



Personalized Medicine

RWE enables tailored treatment approaches for individual patients



Visual Insights

Converting complex data into actionable healthcare intelligence



Better Outcomes

Improving patient care and policy through evidence-based decisions

What is Real-World Evidence?

Clinical evidence from real-world data

RWE reflects how treatments perform in actual healthcare settings, complementing traditional randomized clinical trials



Real-Life Performance

Evidence derived from everyday clinical practice



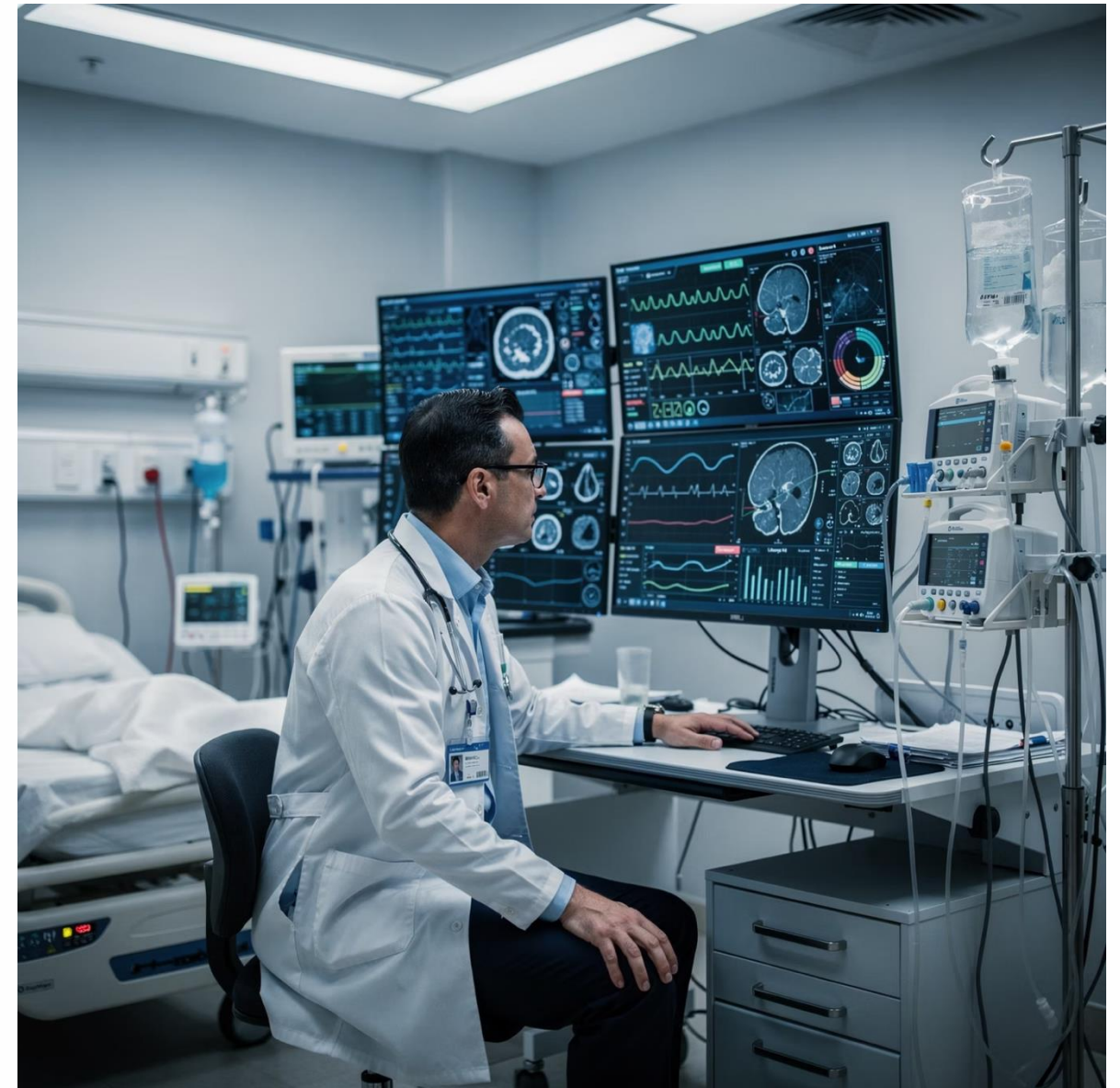
Regulatory Impact

Used for safety monitoring and effectiveness analysis



Practical Applications

Post-marketing studies, observational research, patient registries



Modern RWE Study Approaches

1

Observational Studies

Cohort and case-control
methodologies

2

Pragmatic Trials

Real-world clinical effectiveness

3

Hybrid Studies

RCT + RWE integration

4

Synthetic Controls

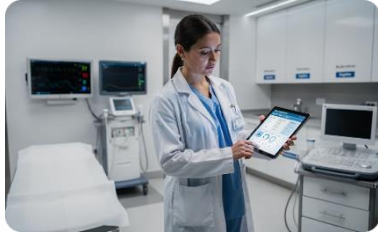
AI-powered comparison arms

5

Adaptive Designs

Machine learning analytics

Data Sources Powering RWE



Electronic Health Records

Comprehensive patient histories and clinical notes



Insurance Claims

Treatment patterns and healthcare utilization



Patient Registries

Disease-specific longitudinal data



Wearable Devices

Continuous health monitoring data



Pharmacy Data

Prescription patterns and adherence



Genomic Data

Biomarkers and genetic information

Impact on Patients

Enhanced Safety

Continuous treatment monitoring

Faster adverse reaction identification

Personalized Care

Tailored treatment approaches

Patient-centered decisions

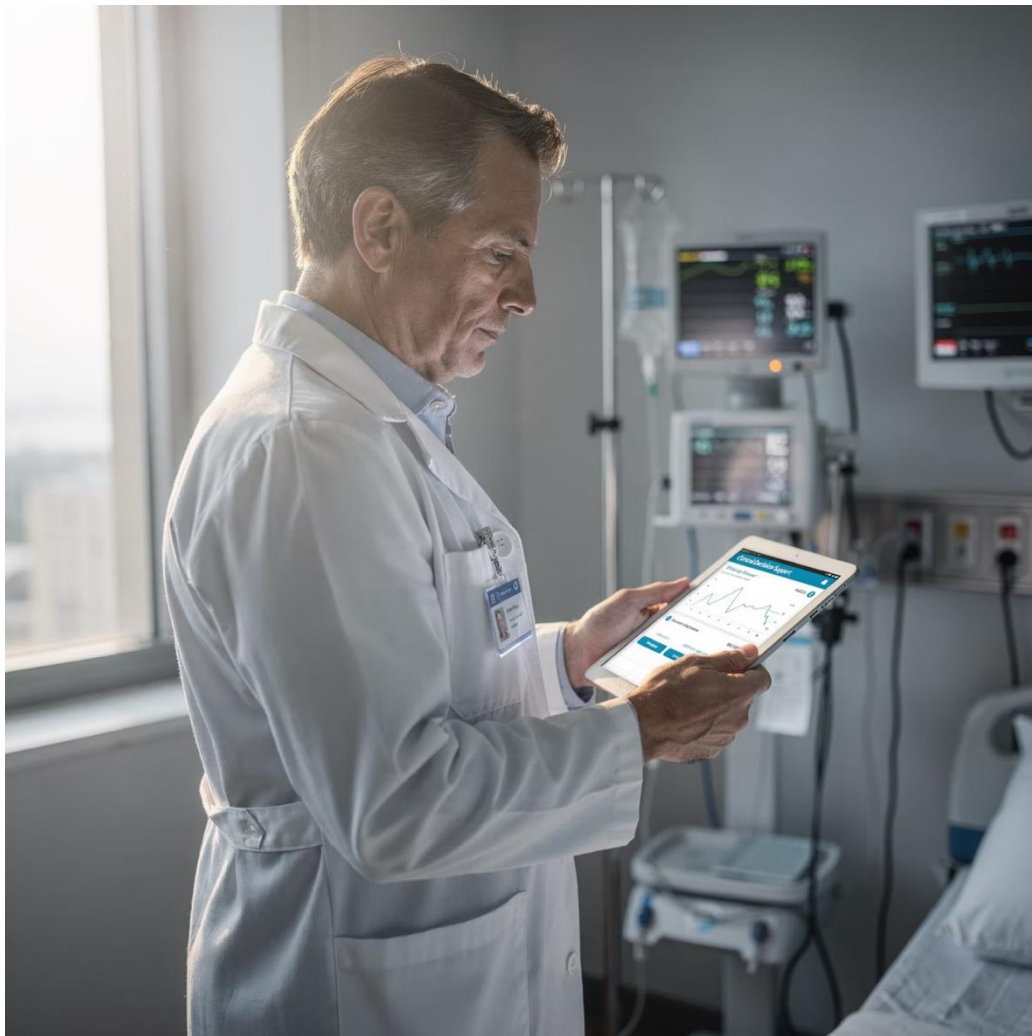
Better Access

Innovative therapy availability

Improved quality of care



Empowering Clinical Decisions



Evidence-Based Practice

Treatment decisions grounded in real-world effectiveness data

Clinical Guidelines

Updated protocols based on actual patient outcomes

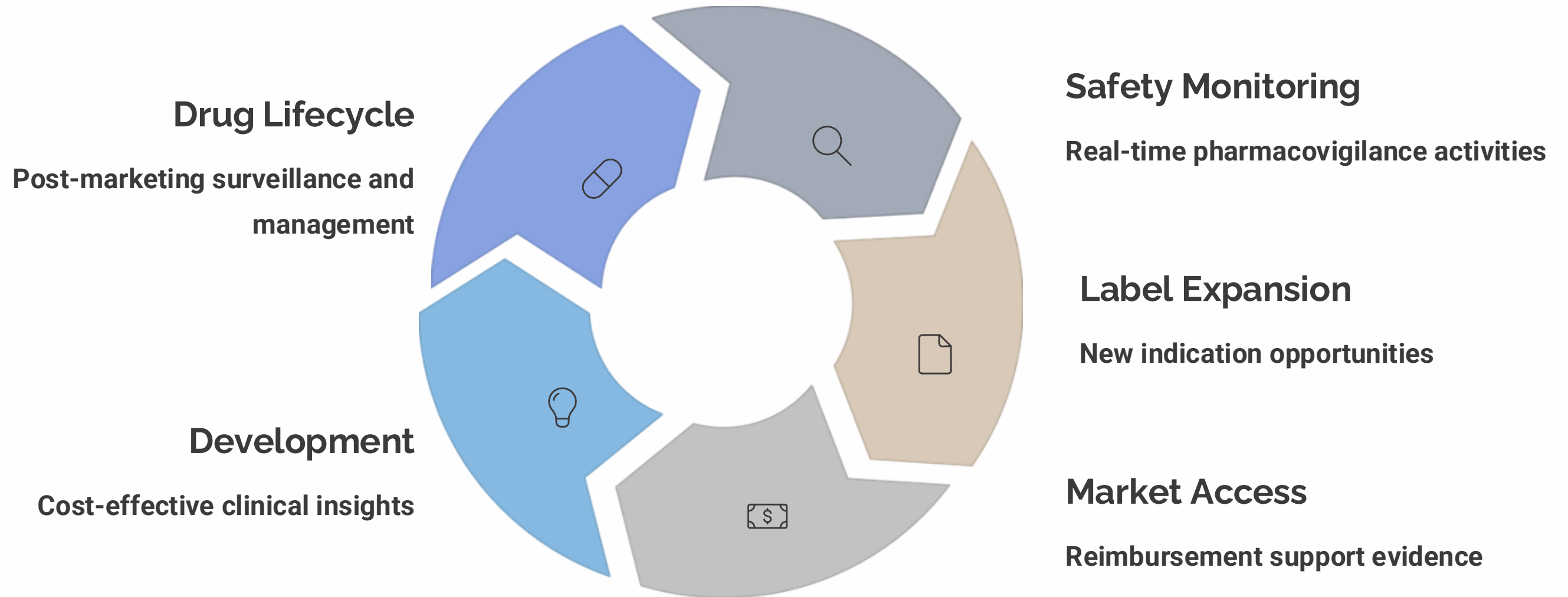
Disease Management

Improved strategies for complex conditions

Decision Support

AI-enhanced clinical guidance systems

Pharmaceutical Industry Benefits



Regulatory Authority Applications



Drug Approvals

Supporting regulatory submission decisions

Pharmacovigilance

Enhanced safety surveillance systems

Risk Assessment

Benefit-risk evaluation frameworks

Public Health

Population-level health monitoring

Key Agencies: FDA, EMA, CDSCO

The Power of Data Visualization

Why visualization matters in RWE



Simplify Complexity

Transform massive datasets into clear insights



Pattern Recognition

Identify trends quickly and accurately



Faster Decisions

Accelerate clinical and regulatory choices



Stakeholder Communication

Bridge technical and non-technical audiences



Modern Visualization Models



Interactive Dashboards

Real-time analytics platforms with drill-down capabilities



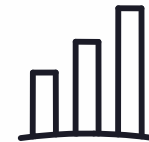
Heat Maps

Geographic disease distribution and hotspot identification



Survival Curves

Kaplan-Meier plots for outcome analysis



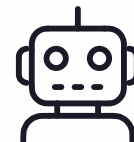
Statistical Charts

Bar graphs, line charts, and trend analysis



Geographic Mapping

Spatial analysis of healthcare patterns



AI-Powered Tools

Machine learning-enhanced visualizations

Key Advantages

Real-Life Representation

Diverse patient populations and actual clinical conditions

Cost Efficiency

More economical than traditional clinical trials

Speed

Faster evidence generation and regulatory decisions

Transparency

Enhanced visibility across healthcare ecosystem

Value-Based Care

Supports outcome-focused healthcare delivery

Challenges and Limitations

Obstacles to overcome

Data Quality

Inconsistency and accuracy issues

Missing Information

Incomplete or fragmented datasets

Observational Bias

Selection and confounding factors

Privacy Concerns

Data security and patient confidentiality

Standardization

Lack of uniform data formats

Integration Complexity

Combining disparate data sources



The Future of RWE



AI Integration

Artificial intelligence revolutionizing evidence generation



Predictive Analytics

Forecasting patient outcomes and healthcare trends



Personalized Models

Individualized treatment optimization



Smart Hospitals

Digital health platforms and IoT integration



Global Ecosystems

Worldwide healthcare data networks

RWE Impact Across Healthcare



4X

Faster Evidence

Compared to
traditional trials

70%

Cost Reduction

In clinical development

85%

Regulatory Use

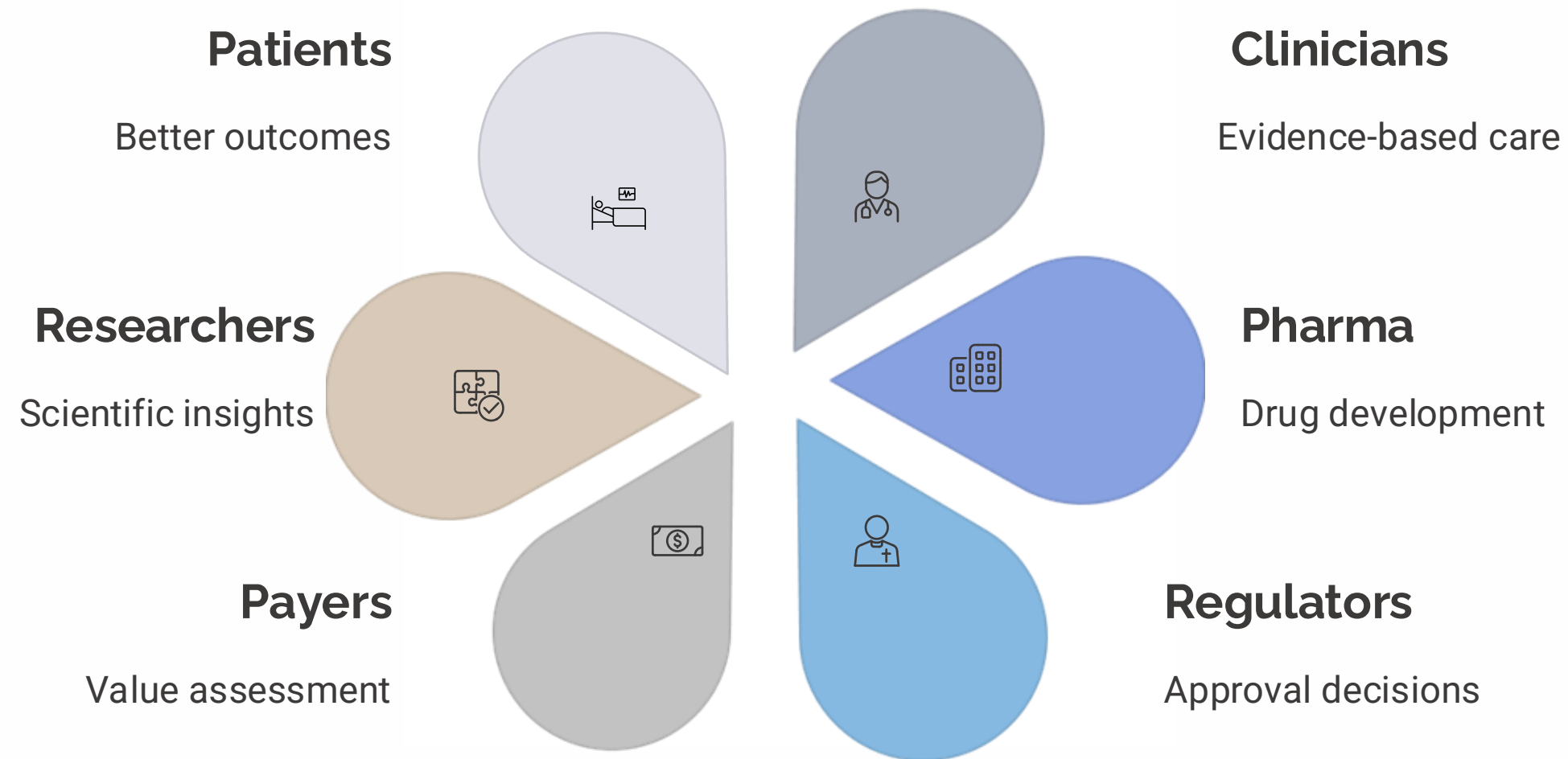
FDA approvals citing
RWE

2M+

Patient Records

In major RWE
databases

Stakeholder Ecosystem



RWE creates value for all healthcare stakeholders through shared, actionable intelligence

Implementing RWE Successfully

01

Define Clear Objectives

Establish research questions and outcomes

02

Ensure Data Quality

Validate and clean datasets rigorously

03

Select Appropriate Methods

Choose study designs that fit research goals

04

Leverage Technology

Use AI and advanced analytics tools

05

Collaborate Across Teams

Engage clinical, data, and regulatory experts

06

Communicate Effectively

Visualize insights for diverse audiences



Case Study

"RWE reduced our drug development timeline by 18 months and provided critical safety insights that traditional trials couldn't capture."

— Major Pharmaceutical Company

1

Q1: Data Collection

EHR integration across 50 sites

2

Q2: Analysis

AI-powered pattern recognition

3

Q3: Validation

Clinical outcome verification

4

Q4: Submission

Regulatory approval granted





Key Takeaways

RWE transforms healthcare decision-making

Moving from controlled trials to real-world insights that reflect actual patient experiences and treatment outcomes

Visualization unlocks data value

Converting complex datasets into clear, actionable intelligence for all stakeholders

Multi-stakeholder benefits

Improving patient care, accelerating drug development, and enhancing regulatory efficiency simultaneously

Future is data-intelligent

AI, machine learning, and global data ecosystems will drive the next generation of healthcare innovation

Thank You

Questions & Discussion

Prof. Mujeeb | Mujeeb@clinosol.com

Let's explore how RWE and data visualization can advance your research and clinical practice

