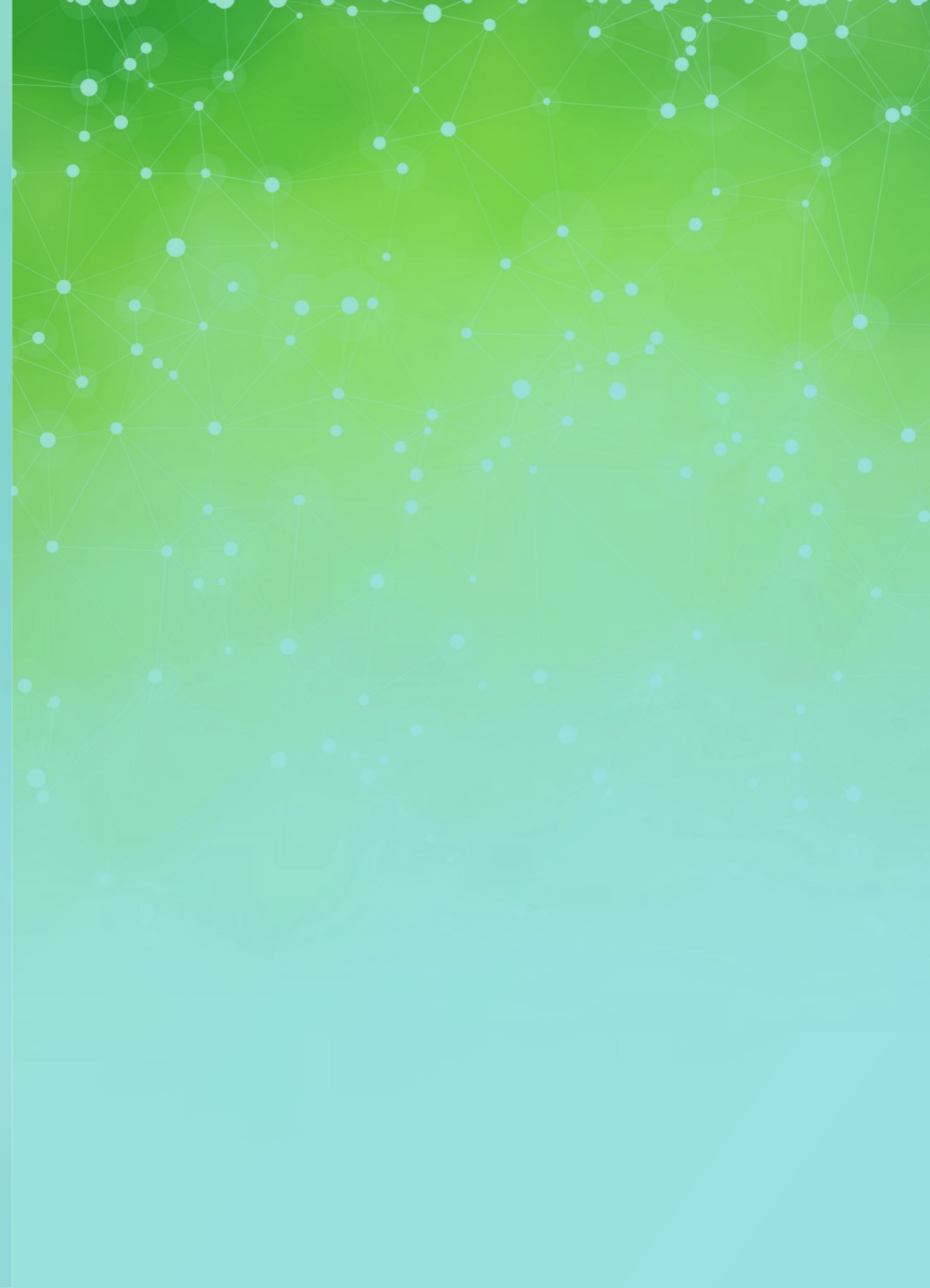
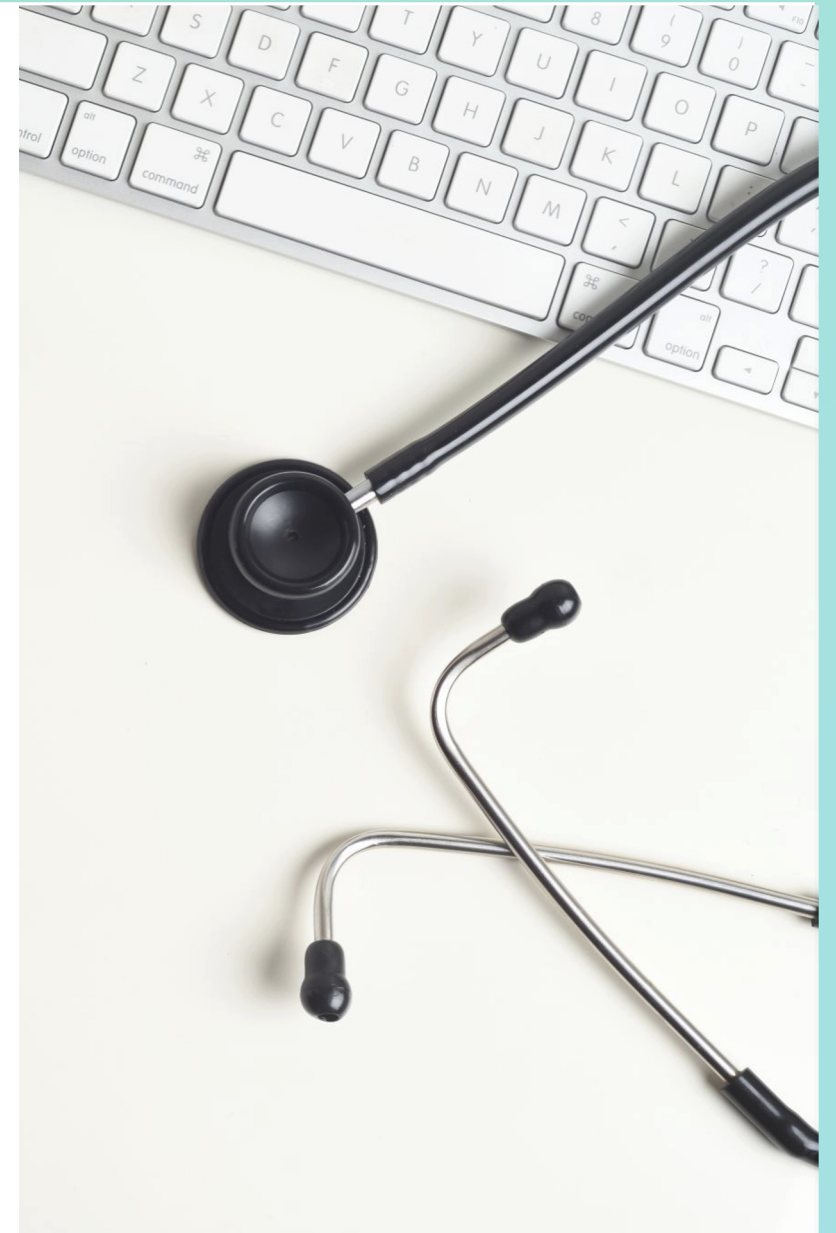


The Reuse of Clinical and Real-World Data for Innovative Research



What is Clinical and Real-World Data?

- Several sources outside of traditional clinical trials
- Electronic health records
- Insurance claims
- Patient registries
- Wearable technology
- Social media
- Broader view of a patient's health status and lifestyle



Relevance and Importance



Immense potential for impact



Breakthroughs in understanding disease progression, treatment outcomes, population health, etc



More extensive insights

Content



The Promise of Clinical and Real-World Data



Current Successes and Innovations



Challenges and Risks



Strategies for Mitigation: Data Governance and Sharing Frameworks



Conclusion

Potential Benefits of Reusing Data



Informing Clinical Decision-Making



Facilitating Research and Innovation



Accelerating Drug Discovery and Development



Promoting Precision Medicine

Informing Clinical Decision- Making



Facilitating Research and Driving Innovation



Large Datasets and Statistical Power



Identifying Trends and Patterns



AI and Machine Learning in Healthcare



Predictive Models and Decision Support



Driving Innovation

Leveraging EHR for Disease Prediction

- Google's DeepMind
- AI system for early prediction of acute kidney injury
- U.S. Department of Veterans Affairs to analyze historical, de-identified health data
- Predict AKI up to 48 hours before it would typically be detected
- Correctly predicted 9 out of 10 patients whose condition deteriorated severely enough to require dialysis
- Early warning to prevent serious harm



Accelerating Drug Discovery and Development



Thalidomide

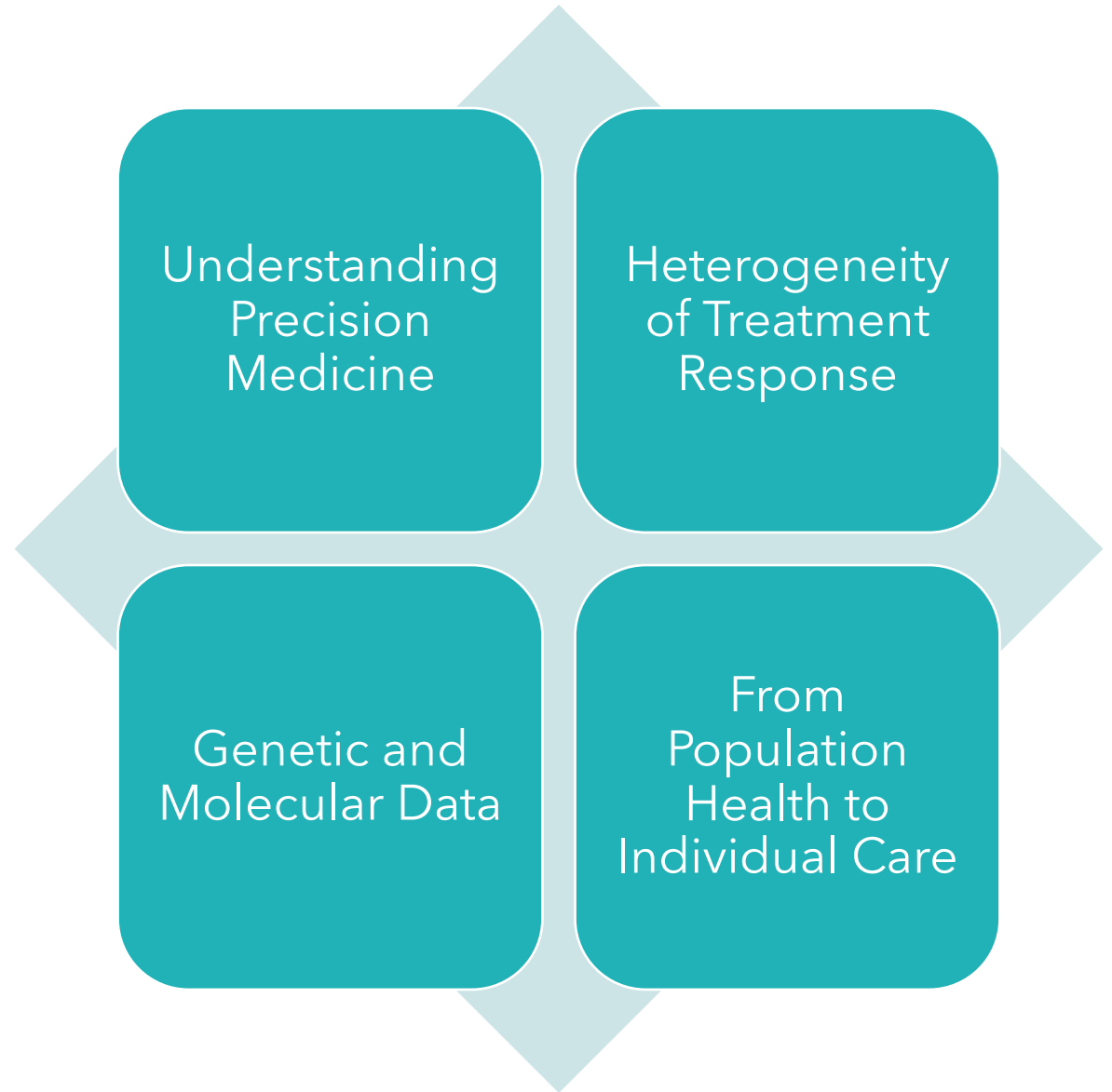
Advances in drug development

Drug repurposing

Leprosy Symptoms

Treatment of multiple myeloma

Promoting Precision Medicine



NIH's All- of-Us Research Program



Diverse health and lifestyle data



Research various diseases



Inform the development of new treatments



Adoption of precision medicine



COVID-19

Challenges and Risks



Data Privacy Concerns



Data Quality Issues



Regulatory Compliance

Strategies for Mitigation



Data Governance



Data sharing Frameworks

Data Governance



Protecting patient privacy



Consent Management



Standardization



Data Cleaning/Assessment

Data Sharing Frameworks

Secure Multi-Party
Computation

Federated Learning

Data Trusts

The Way Forward



Robust data governance



Effective data sharing frameworks



Ensuring security, privacy, and ethical use, and more effective and responsible reuse of clinical and real-world data



Final Thoughts