



# Evidence-Based Clinical Research

**Sakineh Hajebrahimi** , MD.

Director of Research Center for Evidence-Based Medicine,

**JBI** affiliated center of excellence

Tabriz University of Medical Sciences

International research organizations that develop and deliver unique evidence-based information, software, education, and training designed to improve healthcare practice and health outcomes.



**Better Evidence.  
Better Outcomes.  
Brighter Future.**



**Cochrane**

**Trusted evidence.  
Informed decisions.  
Better health**

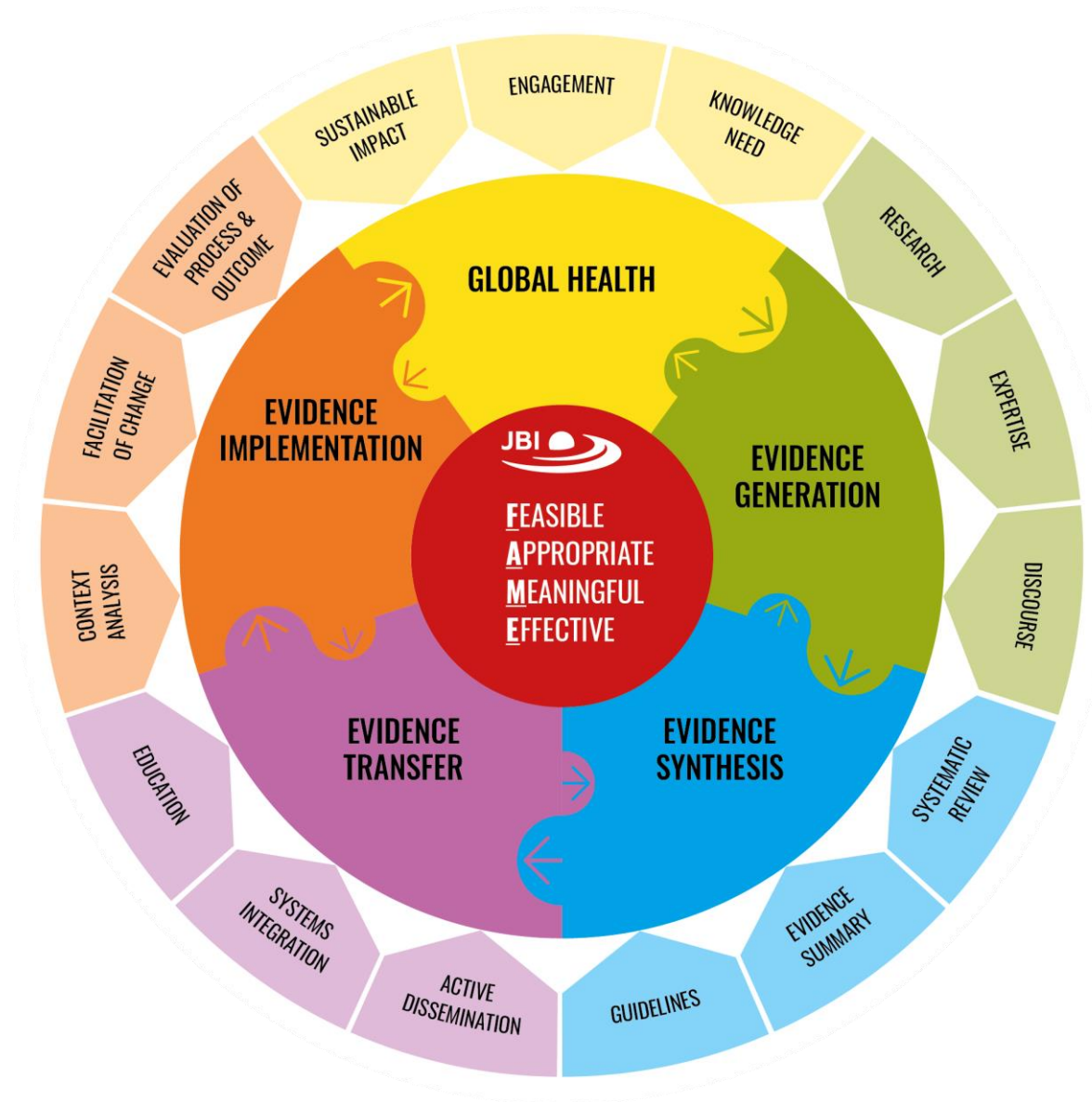
# JBI Collaboration



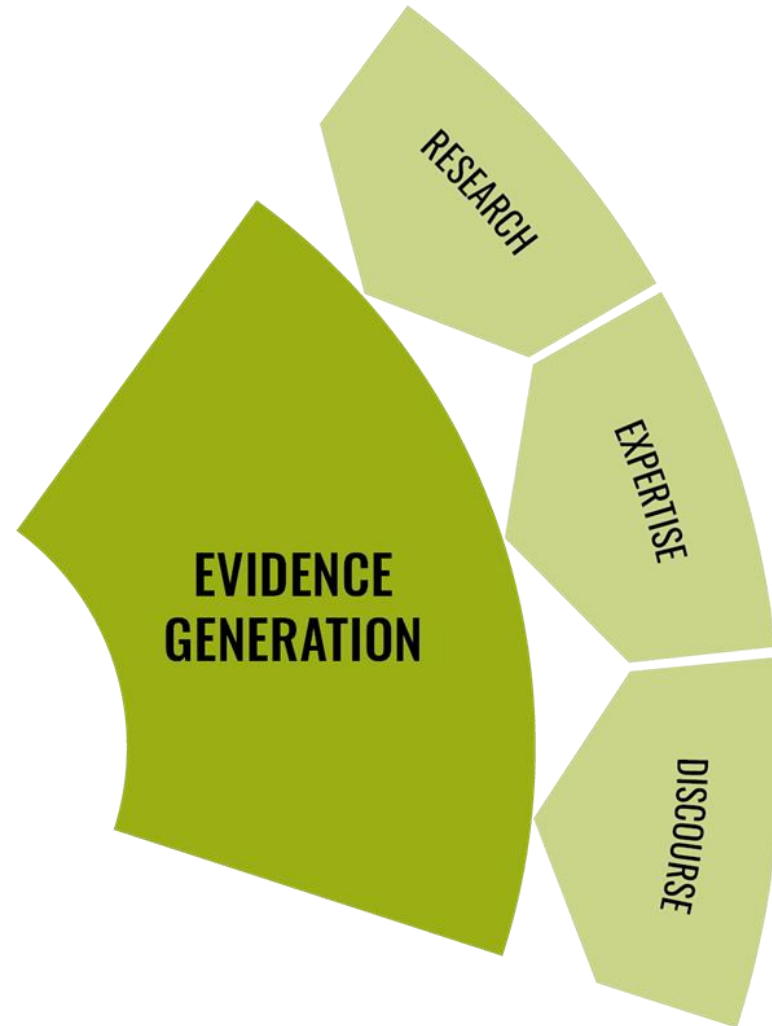
**85 +**  
Collaborating  
Entities



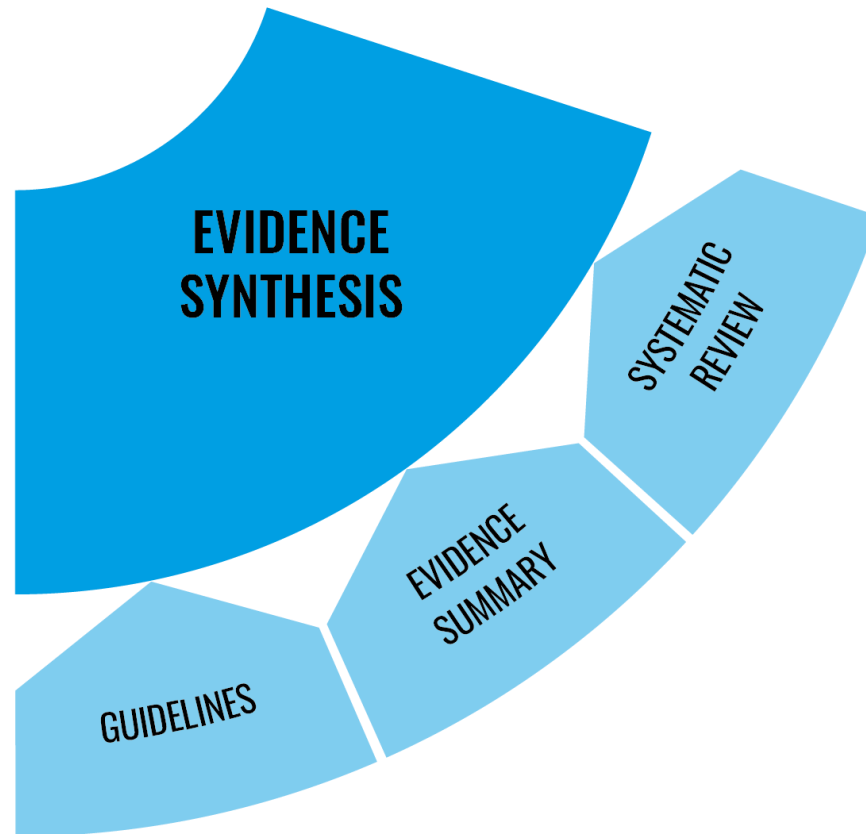
# The JBI Model of Evidence-based Healthcare



# Evidence Generation



# Evidence Synthesis



# Evidence-Based Clinical Research

**can be defined as:**

The use of prior research in a systematic and transparent way to inform a new study so that it is answering questions that matter in a valid ,efficient and accessible manner.

## “Why do scientists think that new research is better?”

- The underlying assumption must be that new studies will incorporate and improve upon lessons learned from earlier work.
- Novelty in and of itself is shallow without links to the past....For science to be cumulative, an intermediate step between past and future research is necessary: **SYNTHESIS OF EXISTING EVIDENCE**
- **The ideal:** all new studies are based on a systematic review of earlier similar studies

# Thoughts

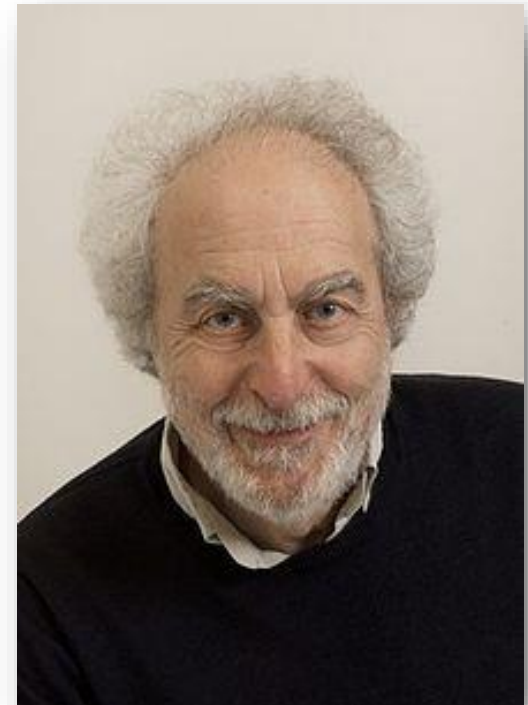
- To embark on research without systematically reviewing the evidence of what is already known, particularly when the research involves people or animals, is unethical, unscientific, and wasteful.
- However the evidence shows that researchers, research funders, regulators, sponsors and publishers of research fail to use earlier research when preparing to start, fund, regulate, sponsor or publish the results of new studies.

# Suggestions

- To implement «systematicity» and «transparency» in all phases of research.
- To make sure that research is valuable, i.e. “relevant” and “necessary”
- By building on the existing body of evidence and presenting results in context an Evidenced-Based Research approach will: help to prevent research waste by making research more relevant, more ethical and more worthwhile
- Focus money spent on research improving resource allocation.
- Make better evidence available for informed choices.

# Professor Doug Altman, 1994

“We need less research, better research, and research done for the right reasons”.



# The next generation of evidence-based medicine

- Besides the evidence based research principles, exponential gains in genomics, immunology, proteomics, metabolomics, gut microbiomes, epigenetics and virology in parallel with big data science, computational biology and artificial intelligence (AI) have pushed in scientific research advancements.
- Despite these advances, their rapid translation from bench to bedside is lagging in most areas of medicine and clinical research remains outpaced

- Innovative strategies are needed to engage patients and generate the necessary evidence to propel new advances into the clinic, so that they may improve public health.
- Design and implement next-generation ‘patient-centric’ clinical trials.
- Cross-disciplinary collaboration will make the system more efficient to generate the best evidence

- Recently , the application of machine learning, deep neural networks and multimodal biomedical AI is poised to strengthen clinical research from all angles, including drug discovery, image interpretation..
- Digital , AI
- Thus, traditional trial design paradigms must adapt to contemporary rapid advances in genomics, immunology and precision medicine.

- **Master Protocols**

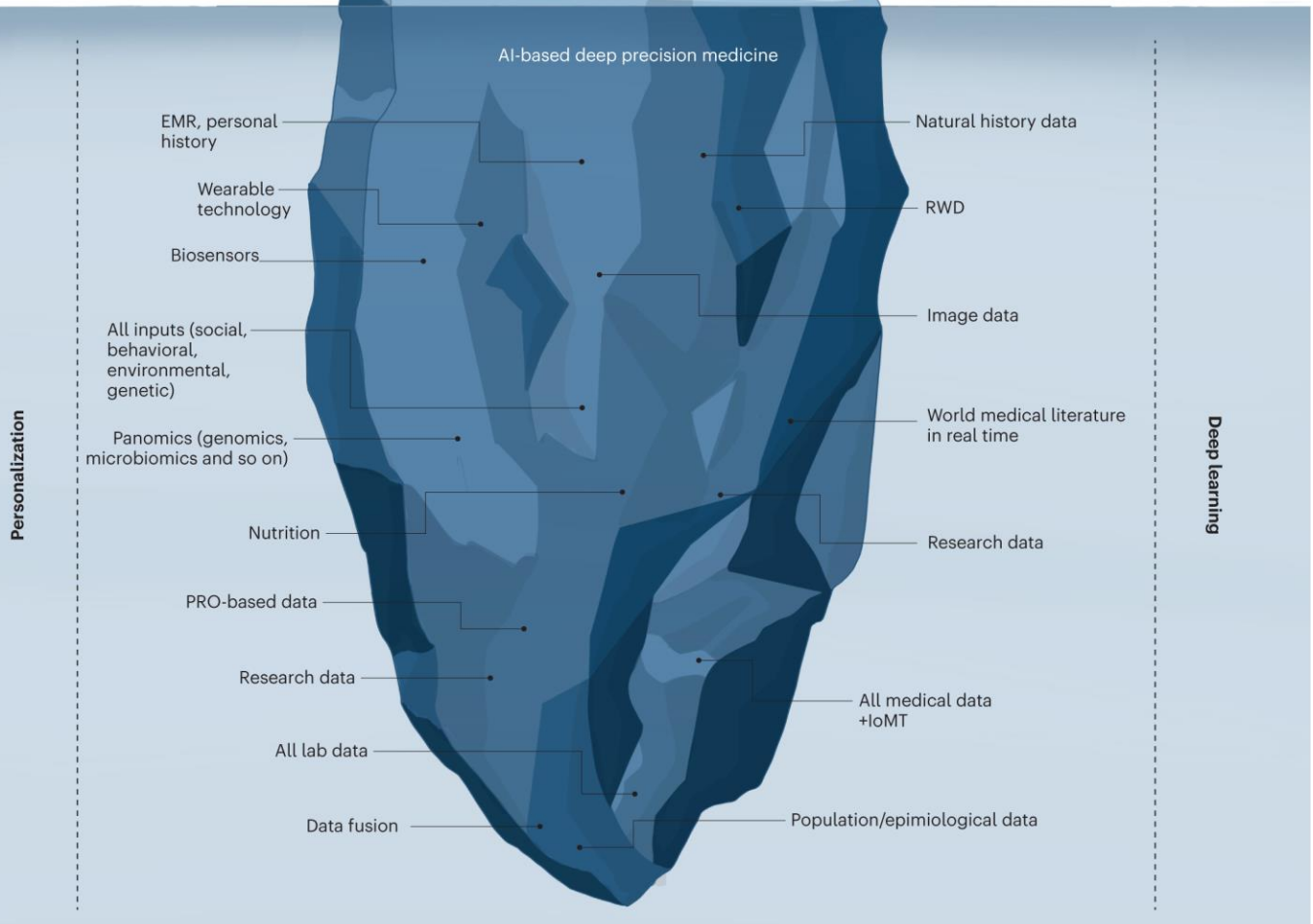
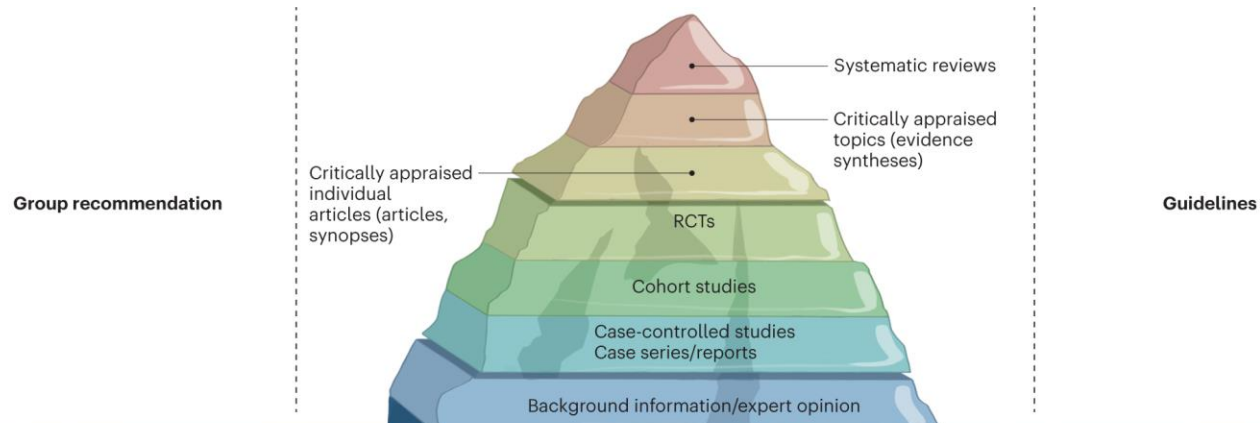
- Use a single infrastructure trial design and protocol to simultaneously evaluate multiple drugs or diseases

- Basket
- Umbrella
- Platform

- **Benefits**

- Time saving
- Cost saving
- Patient benefits
- Accelerate translation to novel treatment

- One of the positive sides of the pandemic is that it forced the system to redirect clinical trials to be more patient-centric than before.
- This has led to decentralized trials and digital, remote and ‘virtual’ trials (which allow patients access to trials regardless of their geographic location), as well as ‘hospital-at-home’ and home-based monitoring concepts.
- Adopting an AI-based approach to enhance the patient experience can further improve high-fidelity assessments and ensure compliance with protocols.
- Although digitalization, virtualization and decentralization are not cures for clinical research crises, they can create efficiencies that may have a sizeable and long-term downstream impact.



**Evidence-Based Medicine Iceberg**

**Thank you**