Evidence-Based Clinical Research

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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.

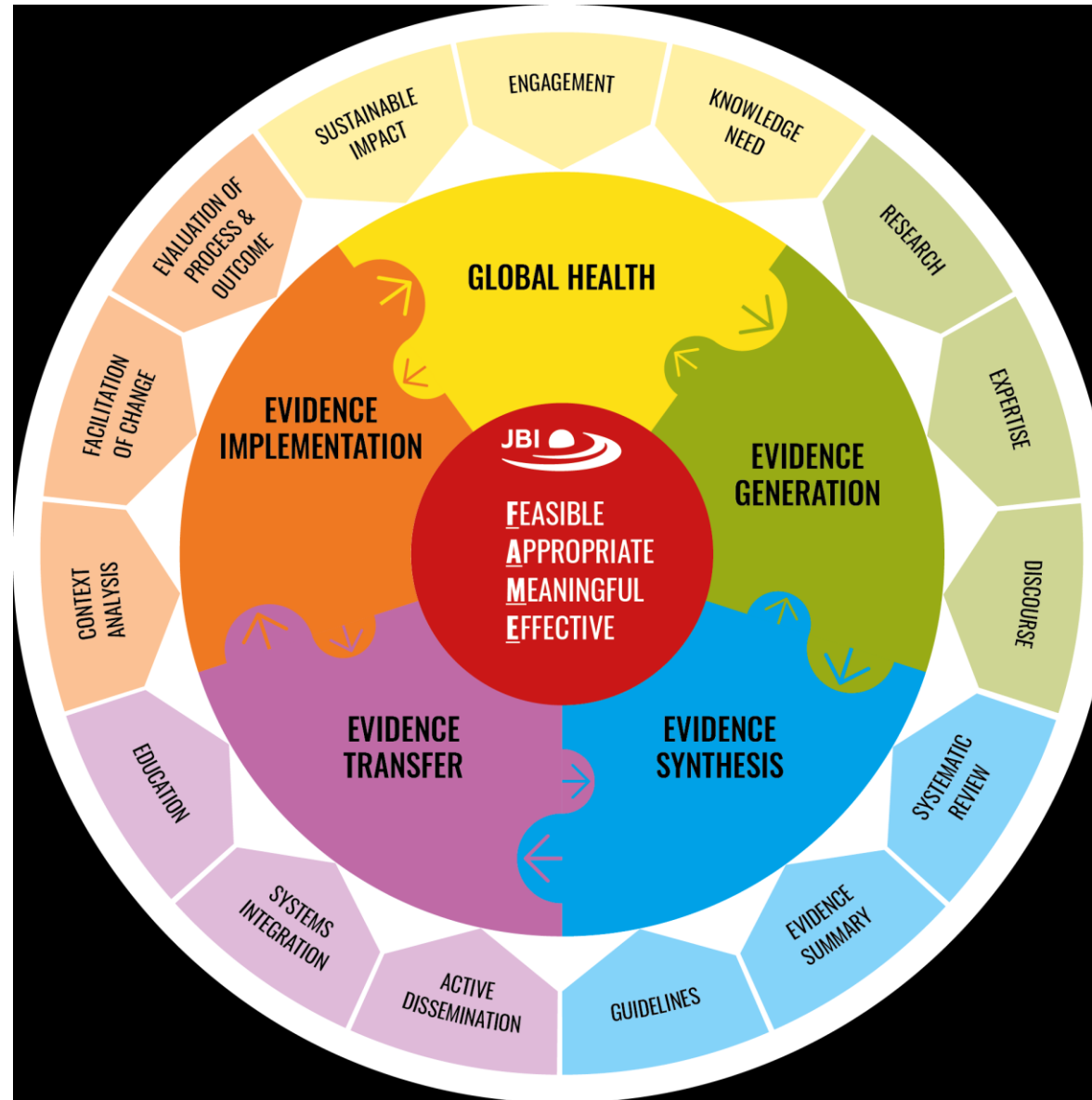**Better Outcomes.**

Brighter Future.

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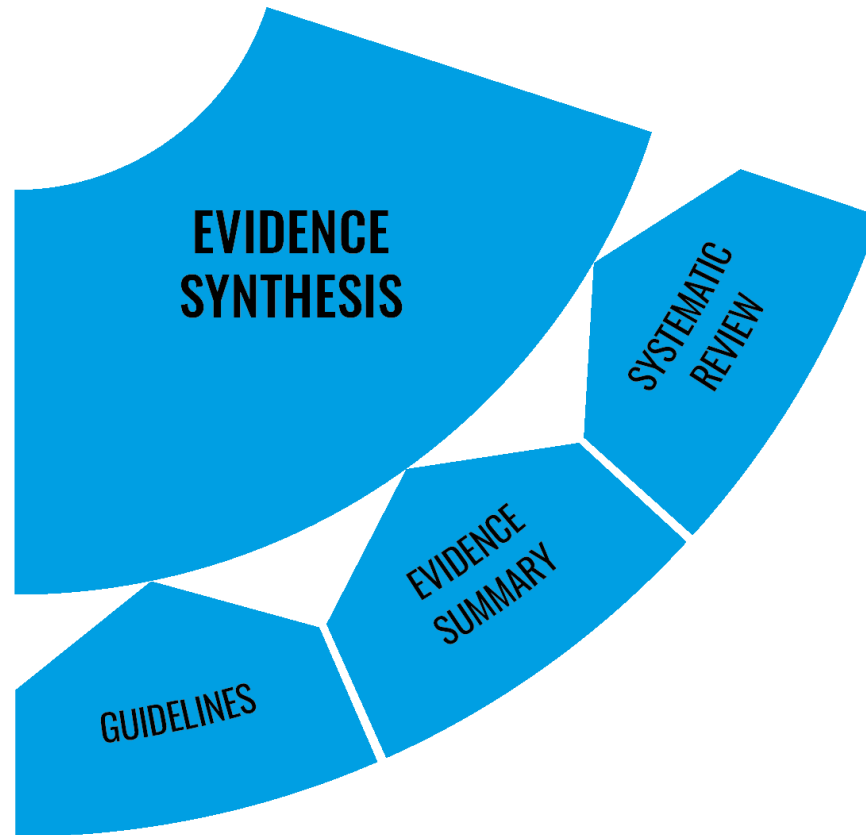**Better health**

85 +

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"

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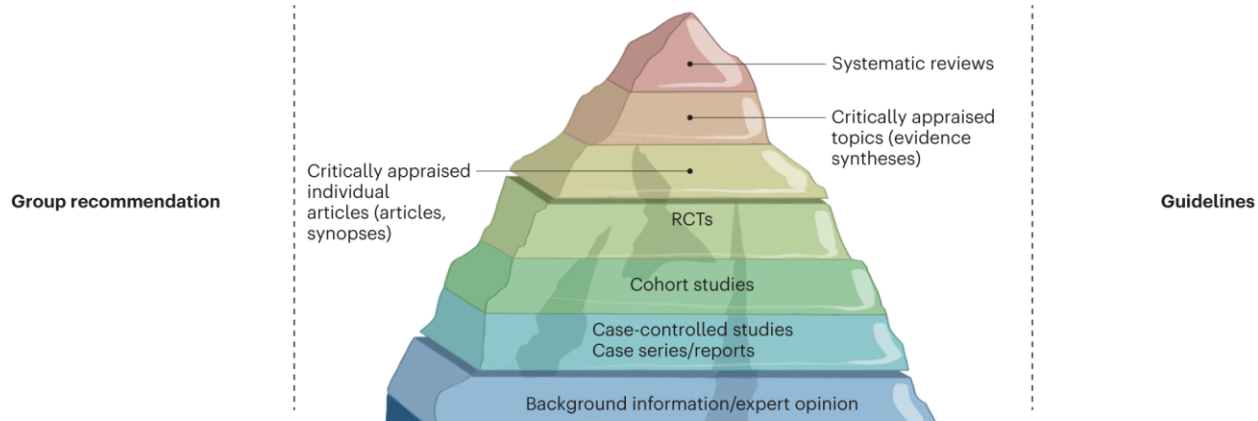
- **Master Protocols**
  - Use a single infrastructure trial design and protocol to simultaneously evaluate multiple drugs or diseases

    - Basket
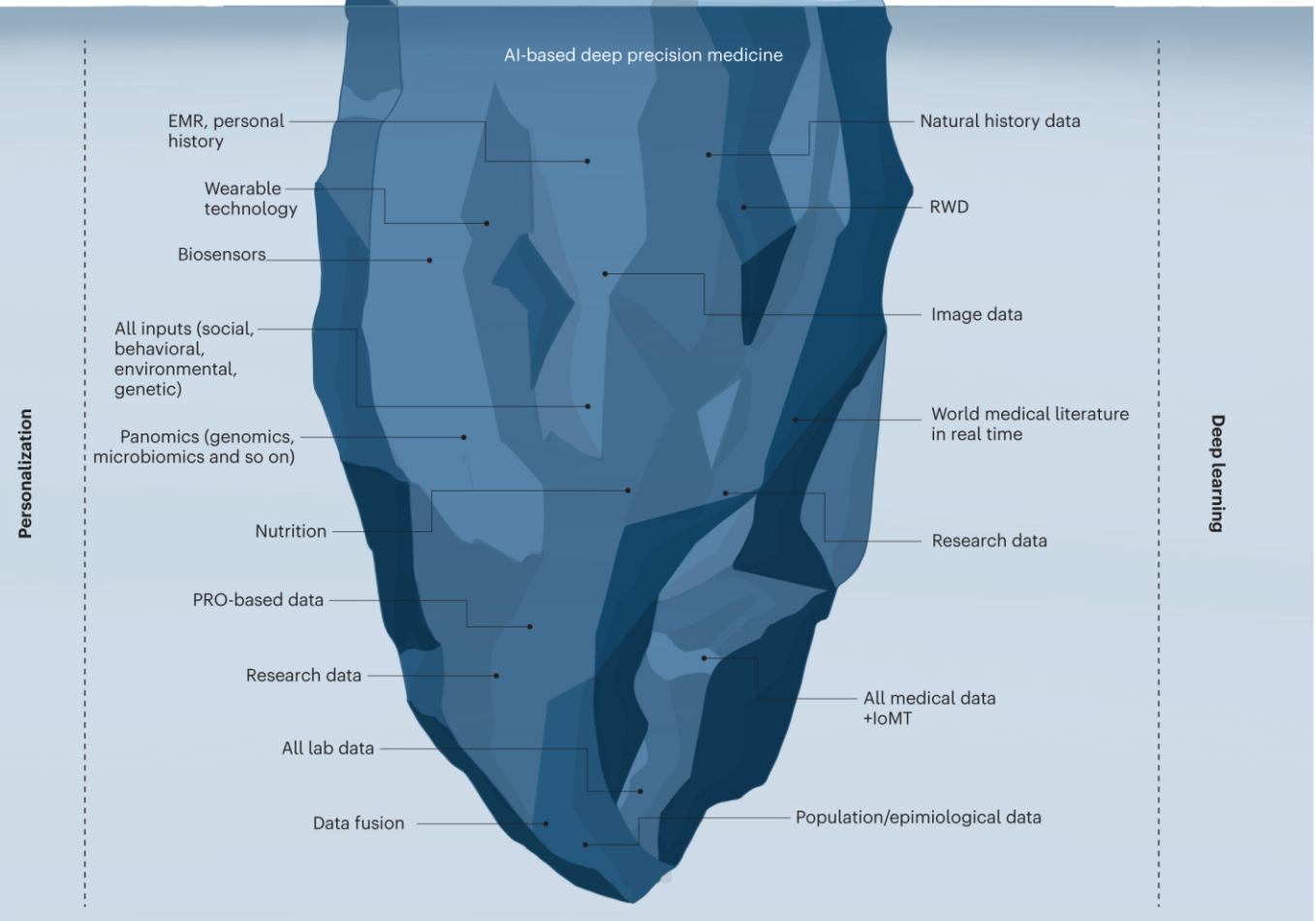   - Umberella
    - Platform

  - 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, as well as 'hospital-at-home' and home-based monitoring concepts.

- 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

Group recommendation

Systematic reviews

Critically appraised topics (evidence syntheses)

Critically appraised individual articles (articles, synopses)

RCTs

Cohort studies

Case-controlled studies
Case series/reports

Background information/expert opinion

Guidelines

AI-based deep precision medicine

EMR, personal history

Wearable technology

Biosensors

All inputs (social, behavioral, environmental, genetic)

Panomics (genomics, microbiomics and so on)

Nutrition

PRO-based data

Research data

All lab data

Data fusion

Natural history data

RWD

Image data

World medical literature in real time

Research data

All medical data +IoMT

Population/epimiological data

Personalization

Deep learning

Thank you