

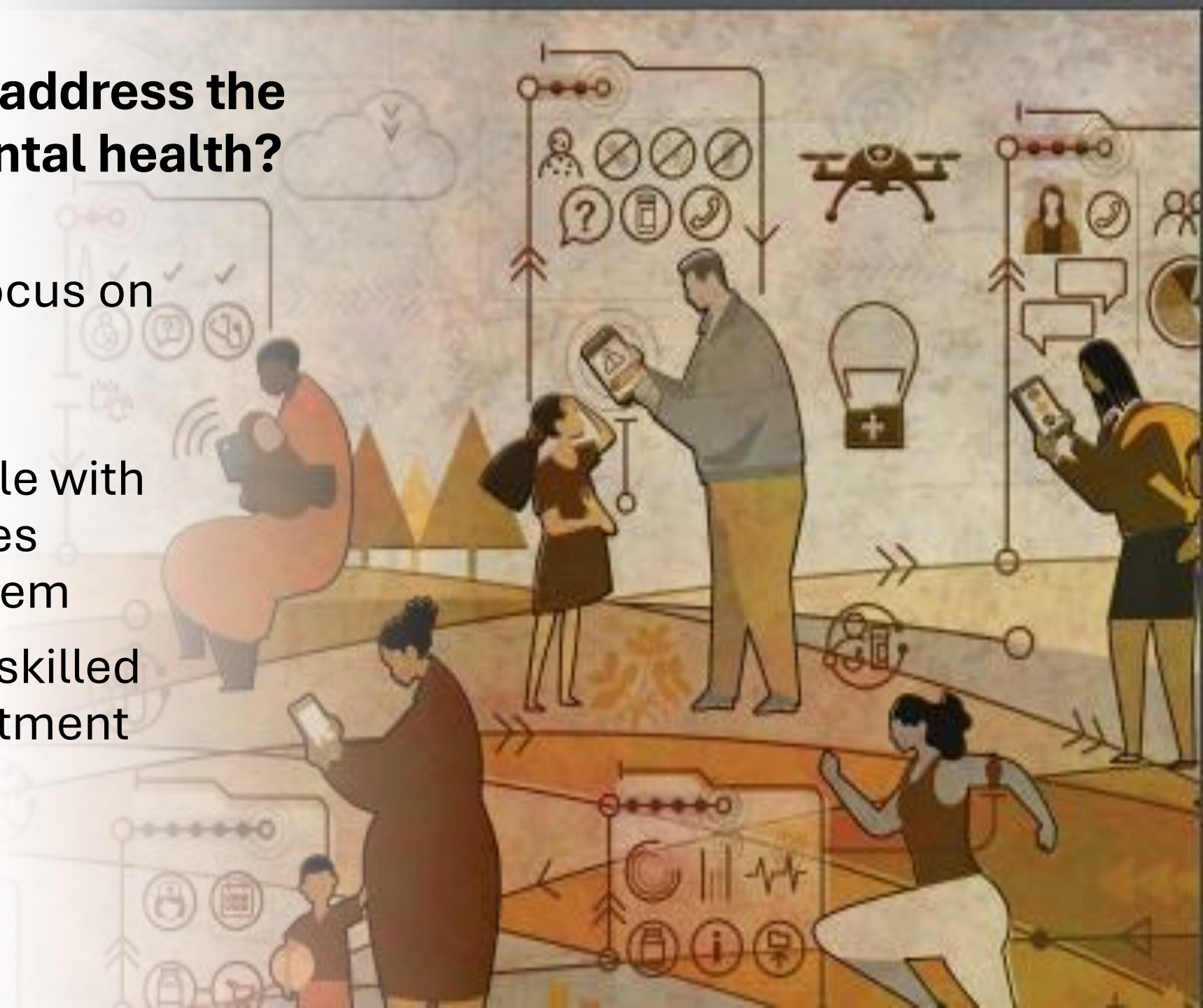
A colorful illustration depicting various aspects of digital health and mental health. It features a network of lines and nodes connecting different elements. On the left, a person in a white lab coat and red scarf interacts with a digital interface. In the center, a person in a wheelchair is being assisted by another person. On the right, an elderly woman is using a tablet. The background includes icons for a smartphone, a pill, a person, a bar chart, and a person running. The overall theme is the integration of technology and human care in healthcare.

EVIDENCE FOR DIGITAL APPROACHES TO MENTAL HEALTH

Marelize Gorgens and David Wilson
World Bank

Can digital approaches address the major challenges in mental health?

- **Prevention** - minimal focus on prevention and lifestyle interventions
- **Screening** - many people with mental health challenges don't know they have them
- **Provision** - not enough skilled diagnosticians and treatment providers
- **Follow up and ongoing assessment** - to track treatment progress





Digital platforms for mental health

Can be delivered by web-based programs, mobile apps, connected devices, wearables, virtual reality headsets

Digital health approaches and tension points

Approaches by human support level

- Fully automated (self-guided apps, chatbots)
- Partially supported (guided self-help, blended care, including digital therapeutics for mental health support)
- Human-led digital delivery (teletherapy)

Tension points

- Regulatory requirements
- Scalability vs effectiveness
- Standardization vs personalization
- Access vs digital literacy
- Value, cost-effectiveness and time horizon
- Compared to other digital domains (such as radiology, mental health in infancy)



Screening

- Self-reported scales – limited validity and tend to overstate mental illness
- Voice biomarkers – promising
 - Pitch frequency, intensity, speech duration, speed, pauses, coughs can convey important information
 - Voice biomarkers have been shown to predict PTSD, depression, suicide intent
 - May be important screening tool
 - Significant regulatory issues for voice biomarkers (and generative AI)



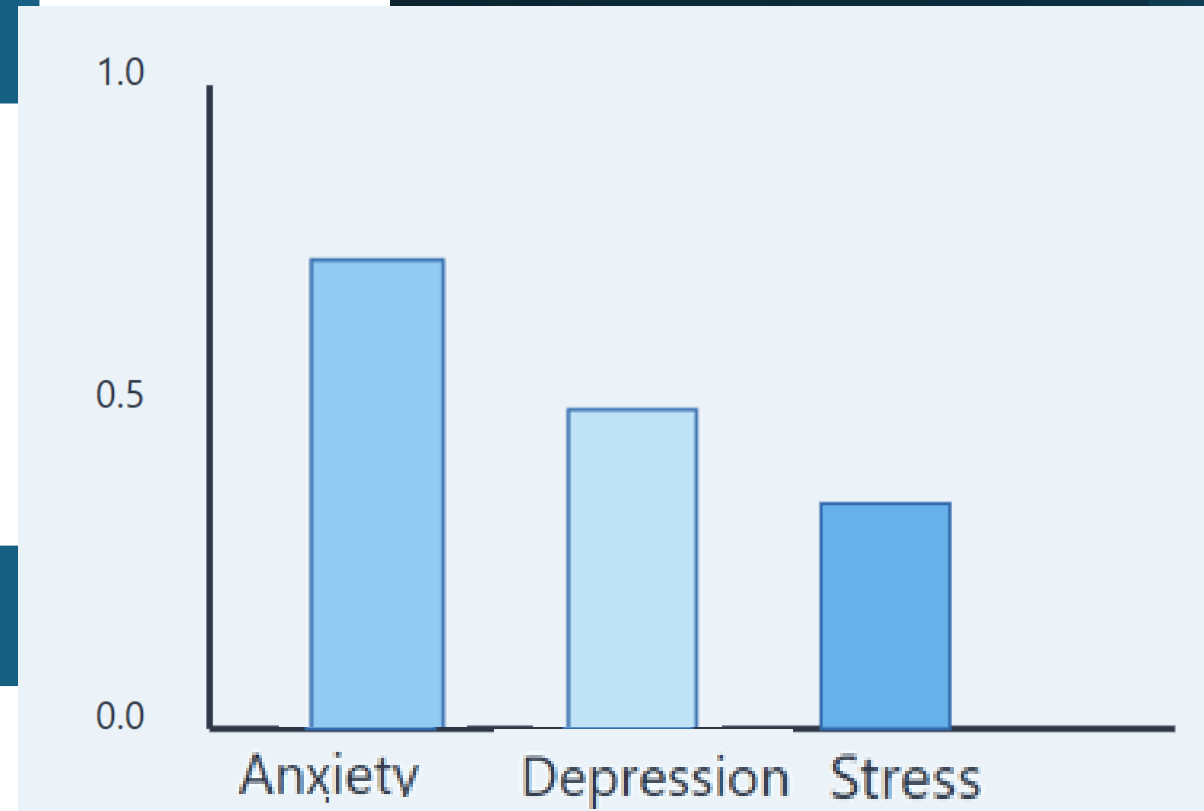
Clinical effectiveness

Strongest evidence

- **Anxiety:** Self-guided interventions demonstrating promising efficacy
- **Depression:** Guided digital CBT showing moderate effect sizes
- **Stress:** Mindfulness apps with modest outcomes

Key lessons

- Adherence rates higher with human support
- Effect sizes comparable to face-to-face for mild-moderate conditions
- Dose-response relationship emerging in engagement data
- Less evidence/effect for severe conditions



Success case and lessons

Australia's MindSpot

- National digital mental health service
 - Integrated referral pathways
 - Stepped care model
 - Clear governance structure

Common success elements

- Strong public-private partnerships
- Sustainable funding mechanisms
- Clear clinical governance frameworks
- Robust evaluation systems

Lessons

- Start small, scale gradually
- Prioritize user-centered design
- Build local capacity early
- Plan for sustainability

The Big 5

THINGS YOU CAN DO FOR
BETTER MENTAL HEALTH

Research has shown there are five types of actions that are strongly linked to good mental health. We call these 'The Big 5' and we know that doing them regularly can help us thrive and bounce back from challenges.






Key Points:

- Doing The Big 5 provides a foundation for good mental health.
- Most people are already doing The Big 5, but may not be doing them enough.
- Most of us stop doing The Big 5 when we are unwell, stressed, or experience a change in our lives.
- If after two weeks you aren't improving, please visit your GP or MindSpot for professional support.

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The Big 5 are things we can all do. They are the building blocks for good mental health and include:

- 1 Meaningful Activities**  These give us a sense of accomplishment, satisfaction or joy. They can be as simple as listening to a favourite song or watching a good show, and they are often fun and engaging.
- 2 Healthy Thinking**  This means having realistic thoughts about ourselves, the world, and the future. This also means keeping perspective and treating ourselves with respect, particularly when things are difficult.
- 3 Goals and Plans**  Having a goal or a plan helps us stay motivated and energised. Goals give us something to look forward to and stop us dwelling on past problems.
- 4 Healthy Routines**  Routines we do automatically like our sleep routine, eating well or being active, are critical for good mental health. These actions set us up for the day.
- 5 Social Connections**  Regular contact with people we love and respect, which may include our family, friends or tribe, help us to feel validated and give us a sense of belonging.



mindspot.org.au



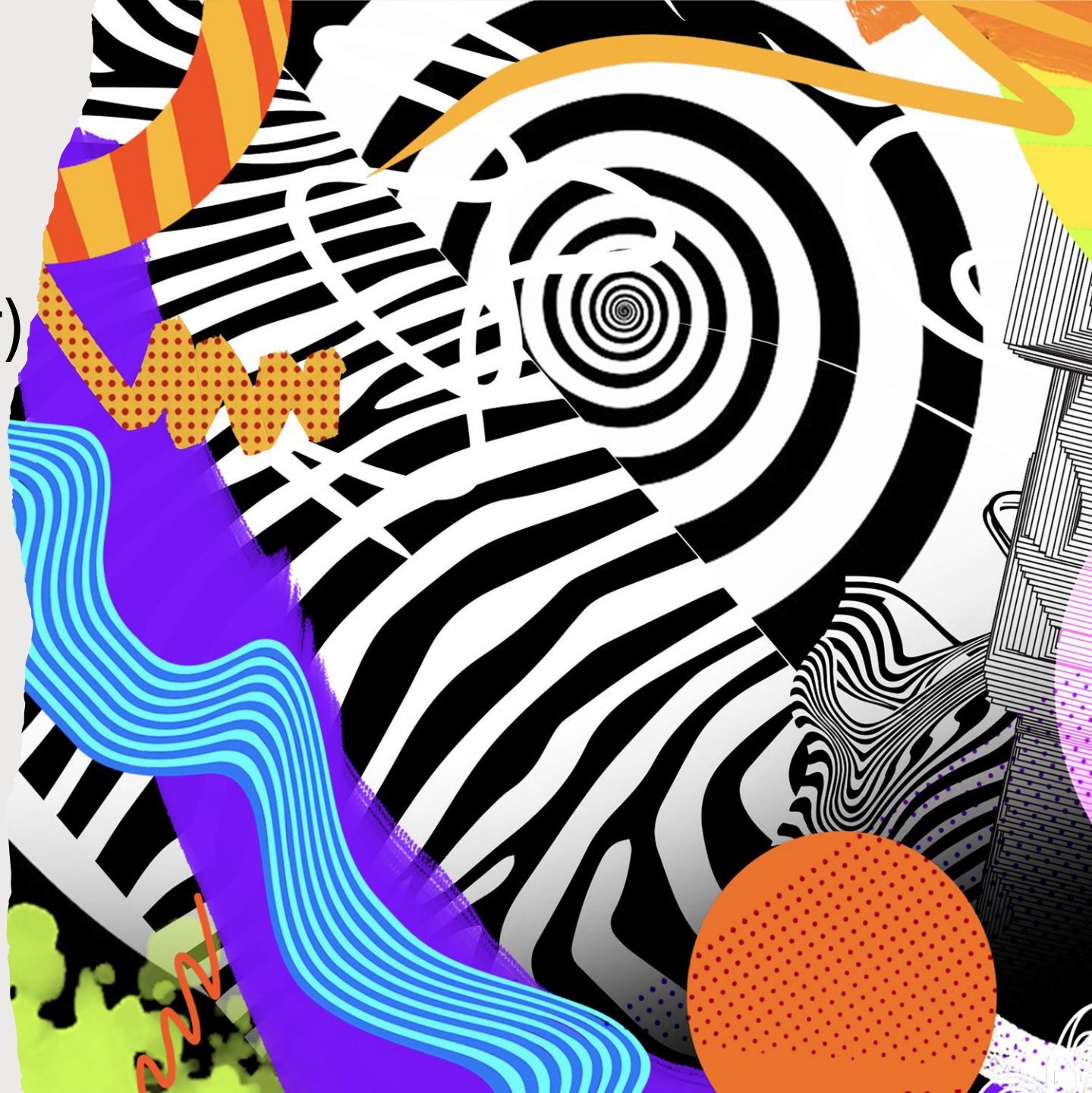



CHALLENGES FOR DIGITAL APPROACHES TO MENTAL HEALTH

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“It’s hard to make predictions, especially about the future” (Mark Twain, Nils Bohr, Yogi Bear)

“When the first smartphone came out, nobody...said “it’s curtains for the taxi industry” (Agarwal, 2022)





“If you’re a radiologist, you are like Wile E. Coyote. You are already over..the cliff but you haven’t yet looked down... People should stop training radiologists now.” (Hinton, Nobel Prize winner, 2016)



HOPE

Cost effectiveness: economic evidence

Economic data

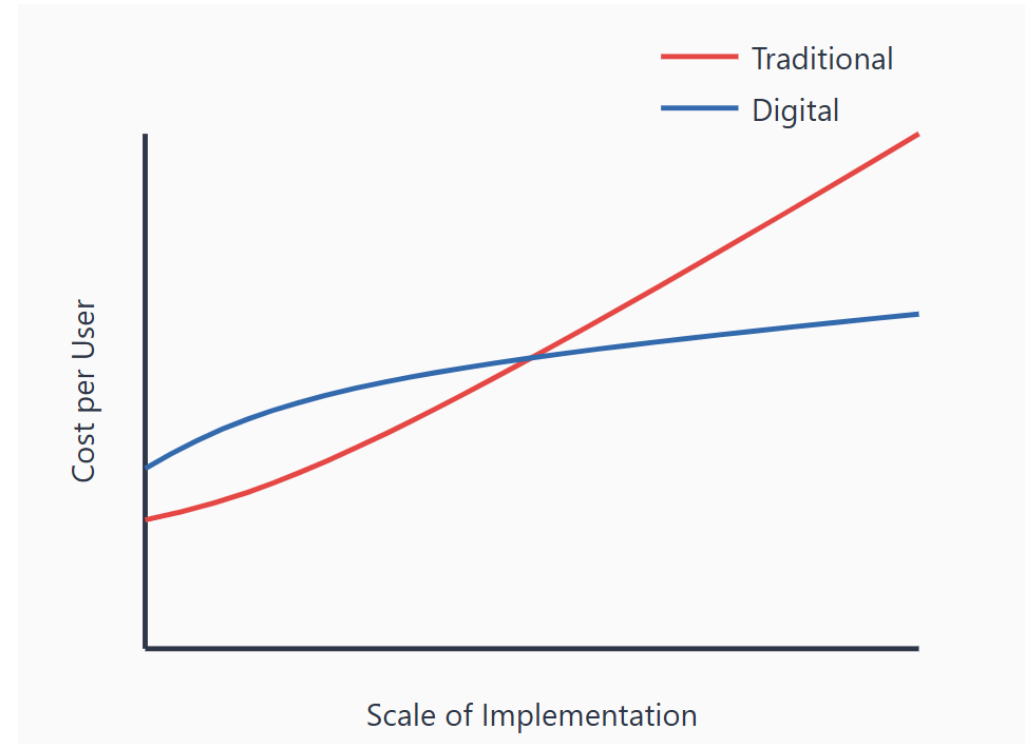
- Initial development costs - high fixed costs
- Delivery costs - generally lower than traditional care
- Training and maintenance - often underestimated
- Staff time for monitoring/support - variable by model

Economic uncertainties

- True cost of sustained engagement
- Hidden costs of digital infrastructure
- Cost-shifting to end users (devices, data)
- Integration costs with existing systems

Return on investment

- Limited data beyond 6-12 months
- Unclear cost recovery timelines
- Variation by scale of implementation
- Impact of continuous updates/maintenance,



Implementation challenges

Scale vs effectiveness

- Larger scale → lower engagement
- Automated support → reduced cost and efficacy
- One-size-fits-all → limited personalization

Digital divide

- Infrastructure requirements
- Digital literacy barriers
- Language and cultural adaptation costs

System integration

- EMR/Healthcare system compatibility
- Data security and privacy
- Staff resistance and training needs



Priorities for action

Key research gaps

- Long-term effectiveness studies (>1-2 years)
- Economic analyses in diverse settings
- Implementation research in LMICs
- AI/ML impact on outcomes
- Equity and access studies

Policy imperatives

- Regulatory frameworks
- Payer mechanisms (who pays and how)
- Standards for:
 - Interoperability
 - Privacy protection
 - Clinical safety
 - Outcome measurement

Investment priorities

- Health worker training and trust building
- Digital infrastructure and data access
- Human design

