

Tecnologias Digitais

Conferência "Utilização de Dados em Saúde"



DUAS INTERVENÇÕES

| | | | | |
|---------------------------|------------------|---|------------------|--|
| Time-to-Market | Months | Short due to Agile methodologies and iterative development processes. | Decades | Typically longer due to extensive research, development, and regulatory approval processes. |
| R&D Costs | Low | Can vary widely but usually lower, especially for smaller applications and platforms. | Very high | Very high, incorporating costs for research, development, clinical trials, and regulatory approvals. |
| Distribution | Easier | Utilizing online platforms, app stores, and web solutions, allowing for global reach. | Complex | Involves manufacturing, distribution, and retail networks, along with international trade and laws. |
| Personalization | High | Customized to individual needs and preferences. Adapts to behavior/feedback. | Low | Drug personalization is emerging but, generally, drugs are developed for broad populations. |
| Scalability | High | Digital solutions can be scaled up easily to accommodate more users or new features. | Moderate | Scaling up production requires significant investment in manufacturing, and distribution. |
| Surveillance | Active | Allows for real-time monitoring through data collected. | Passive | Relies on external data from post-marketing surveillance to detect adverse events and ensure safety. |
| Accessibility | High | Can be accessed from anywhere with internet. | Varies | Dependent on healthcare infrastructure, availability in pharmacies, and healthcare providers. |
| Risk and Liability | Moderate | Mostly related to data security and privacy. Liability can be high if misuse leads to harm. | Very high | Due to potential side effects, misuse, and other health-related risks associated with drugs. |
| Market access | Varied | Usually less stringent compared to drugs. | Stringent | Requires approval from health regulatory bodies, involving multiple phases of clinical trials. |
| Interoperability | Essential | To integrate and operate seamlessly with various systems, devices, and platforms. | N/A | Not applicable as drugs do not interact with digital systems and platforms in the way software does. |

A tempestade perfeita...

Pessoas

- + Digitais
- + Conectadas
- + Necessidades

Digital Health

Tecnologia

- + Ágil e ubíqua
- + Capital
- + Dados

Sistemas de Saúde

- + Subdimensionado
- + Dispendiosos
- + Listas de espera

C R E S C I M E N T O

A saúde digital cresce com investimento na ordem dos 3 mil milhões de dólares a cada trimestre



State of Digital Health Q1'23
Source: CB Insights

CBINSIGHTS

As soluções de saúde digital segmentam-se em dois tipos, com inclusão frequente de Software-as-a-Medical-Device (SaaMD)

Healthcare SaaS

Software implementado em unidades de saúde



Tech-enabled Health Services

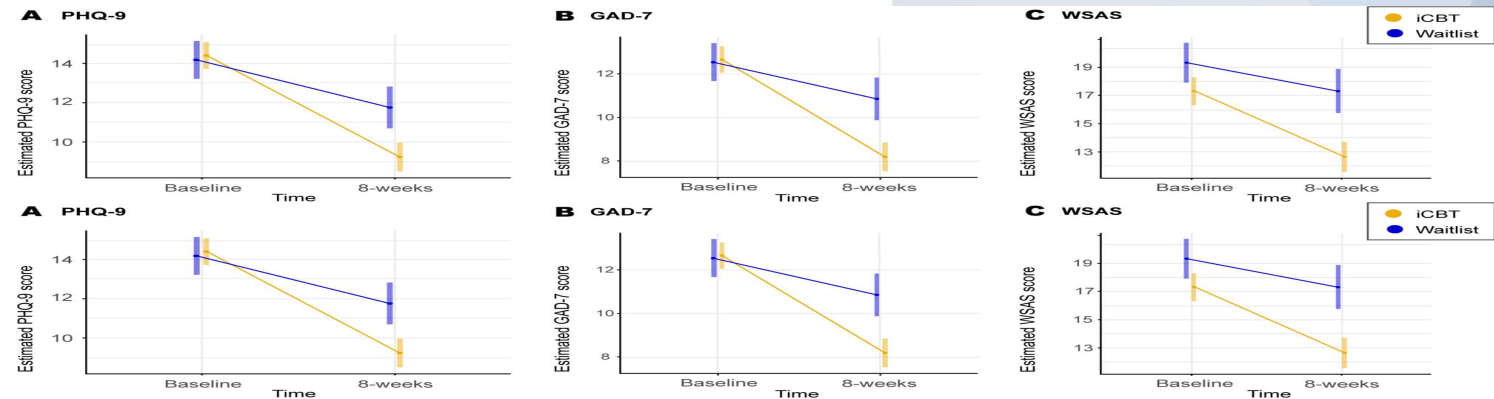
Software utilizado com uma componente de prestação assistencial



Vantagens e exemplos

1. Acesso

This large-scale RCT conducted showed that iCBT for depression and anxiety is effective as a standalone intervention when fully integrated and operated in non-specialised routine stepped-care settings.

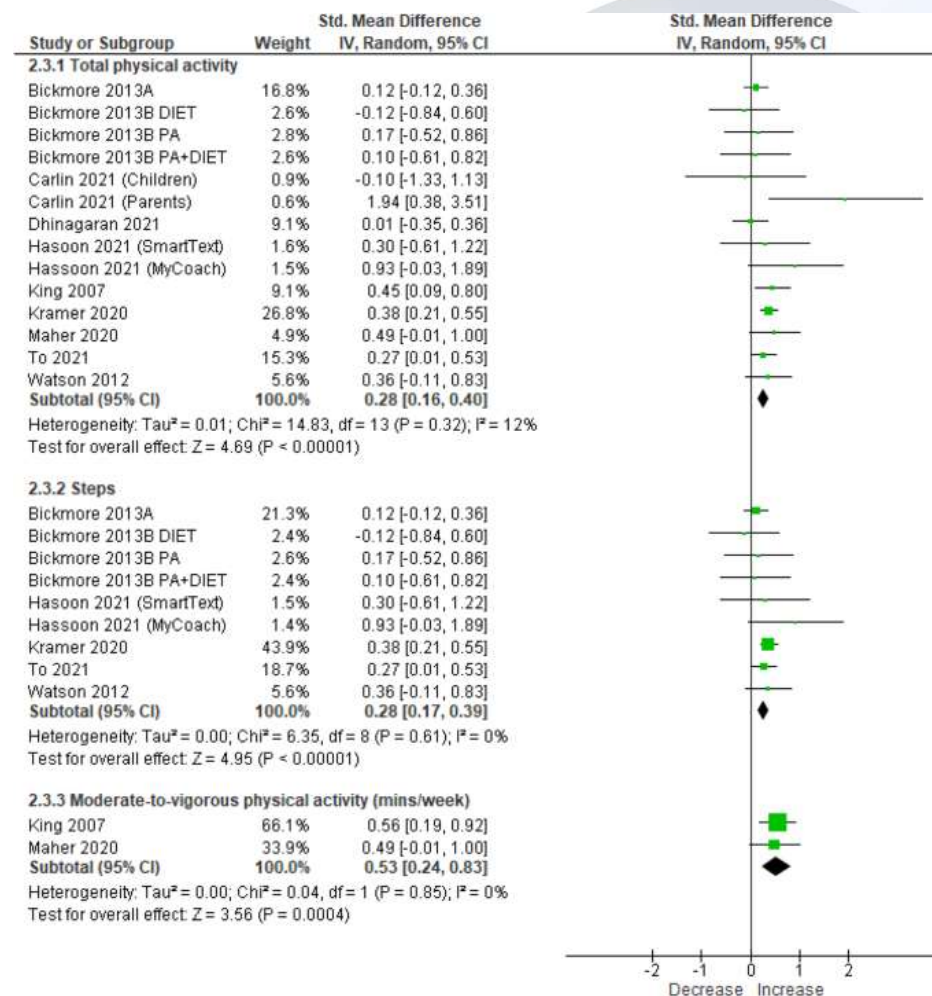


Vantagens e exemplos

1. Acesso

2. Resultados

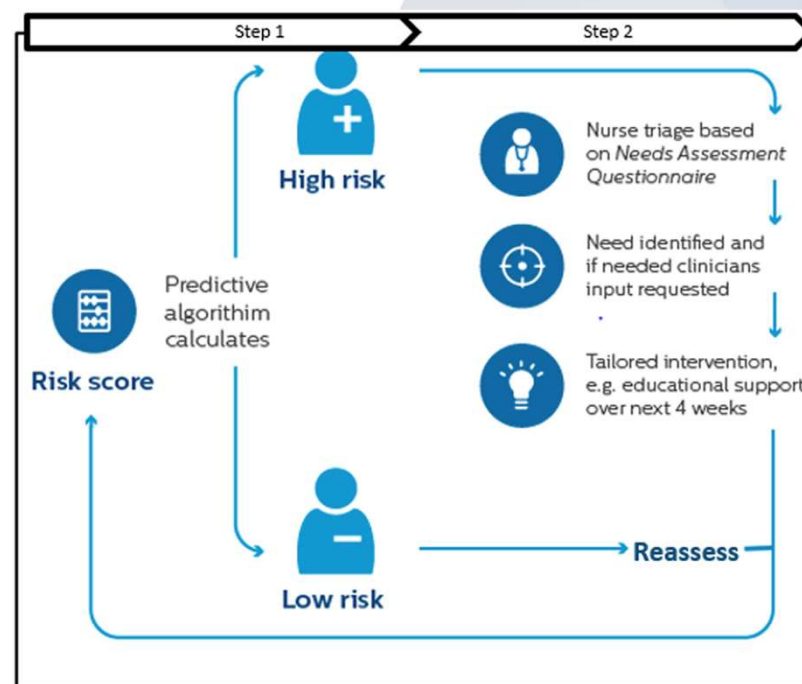
The effects equated to increases of +735 steps per day, +1 serving of fruit and vegetables per day, and +45 min of sleep per night.



Vantagens e exemplos

1. Acesso
2. Resultados
3. Eficiência

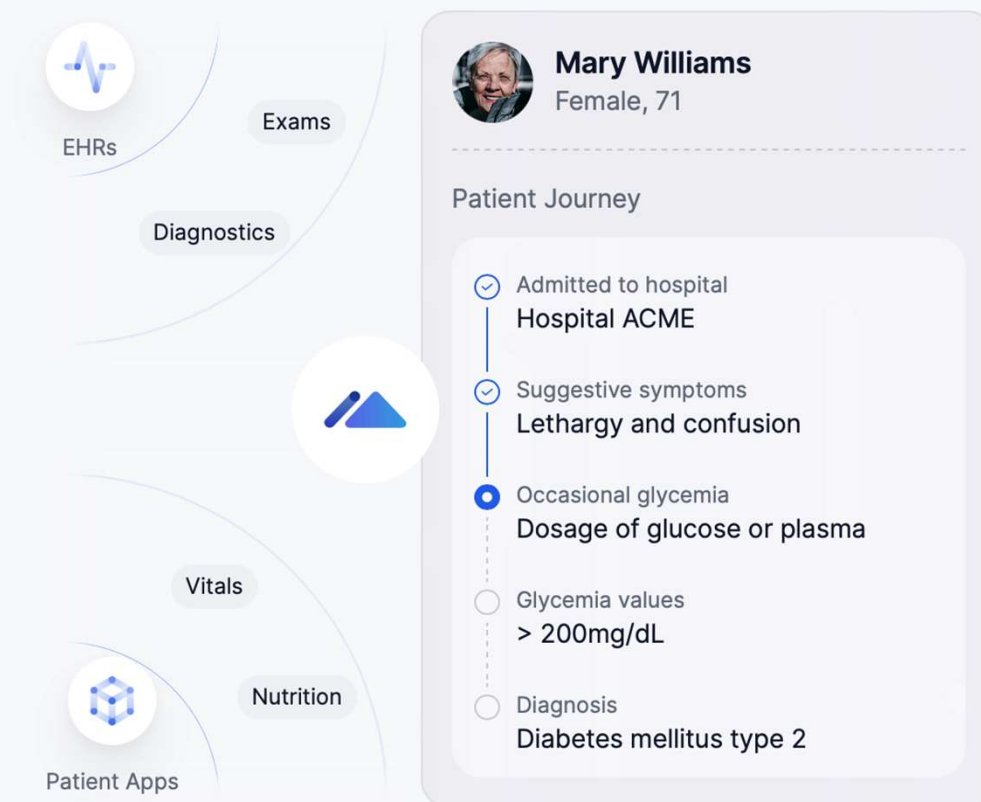
31% lower annualized inpatient cost per patient compared with the CG (3.7 K, \$8.1 K vs. \$11.8 K, $p = 0.02$)



Vantagens e exemplos

1. Acesso
2. Resultados
3. Eficiência
4. **Personalização**

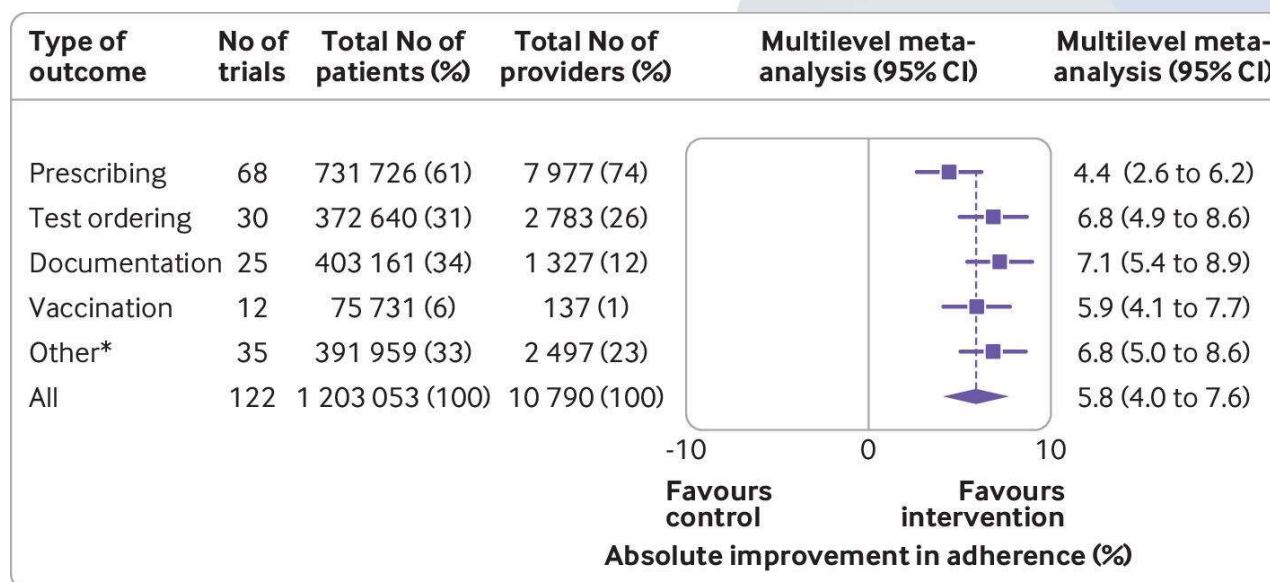
Overall, implementing care journey automation program targeting patients positively impacted patients, healthcare professionals and the institution.



Vantagens e exemplos

1. Acesso
2. Resultados
3. Eficiência
4. Personalização
5. Qualidade

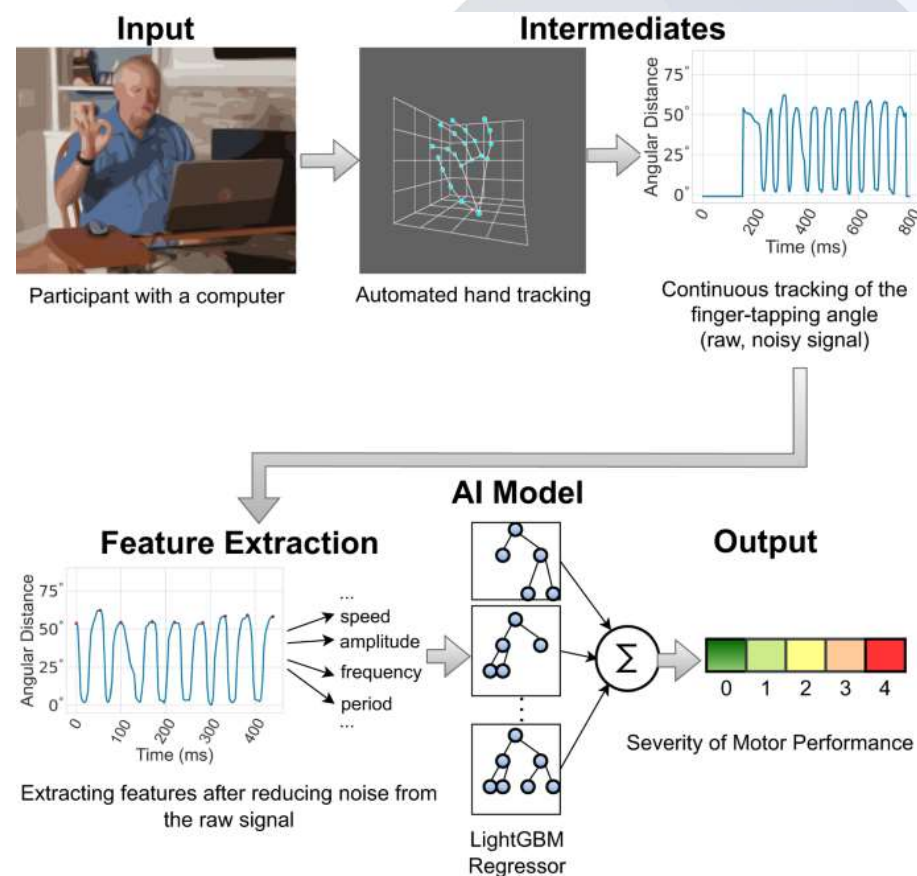
Clinical decision support systems improved the average percentage of patients receiving the desired element of care by 5.8% across 122 controlled, mostly randomised, trials involving 1 203 053 patients and 10 790 providers.



Vantagens e exemplos

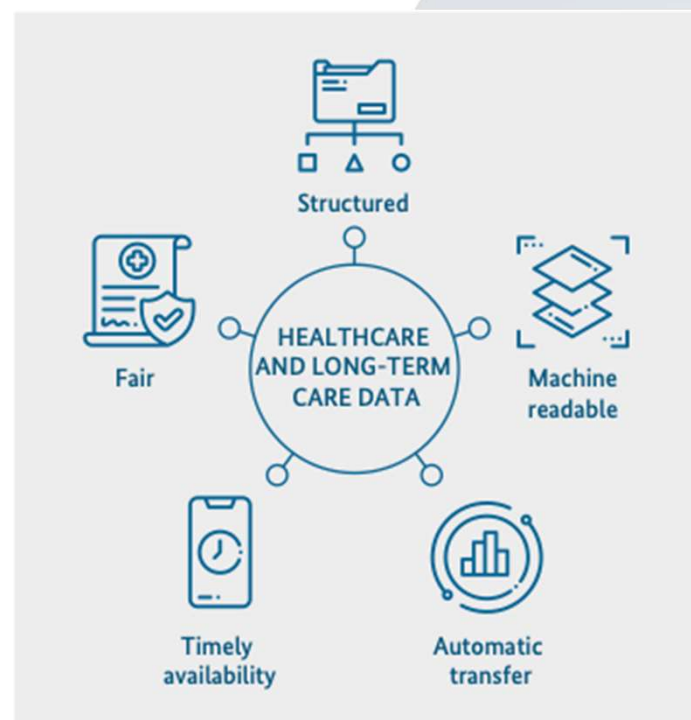
1. Acesso
2. Resultados
3. Eficiência
4. Personalização
5. Qualidade
6. **Conveniência**

First, we demonstrate that the finger-tapping task can be reliably assessed by neurologists from remotely recorded videos. Second, this study suggests that AI-driven models can perform close to clinicians and possibly better than non-specialists in assessing the finger-tapping task.



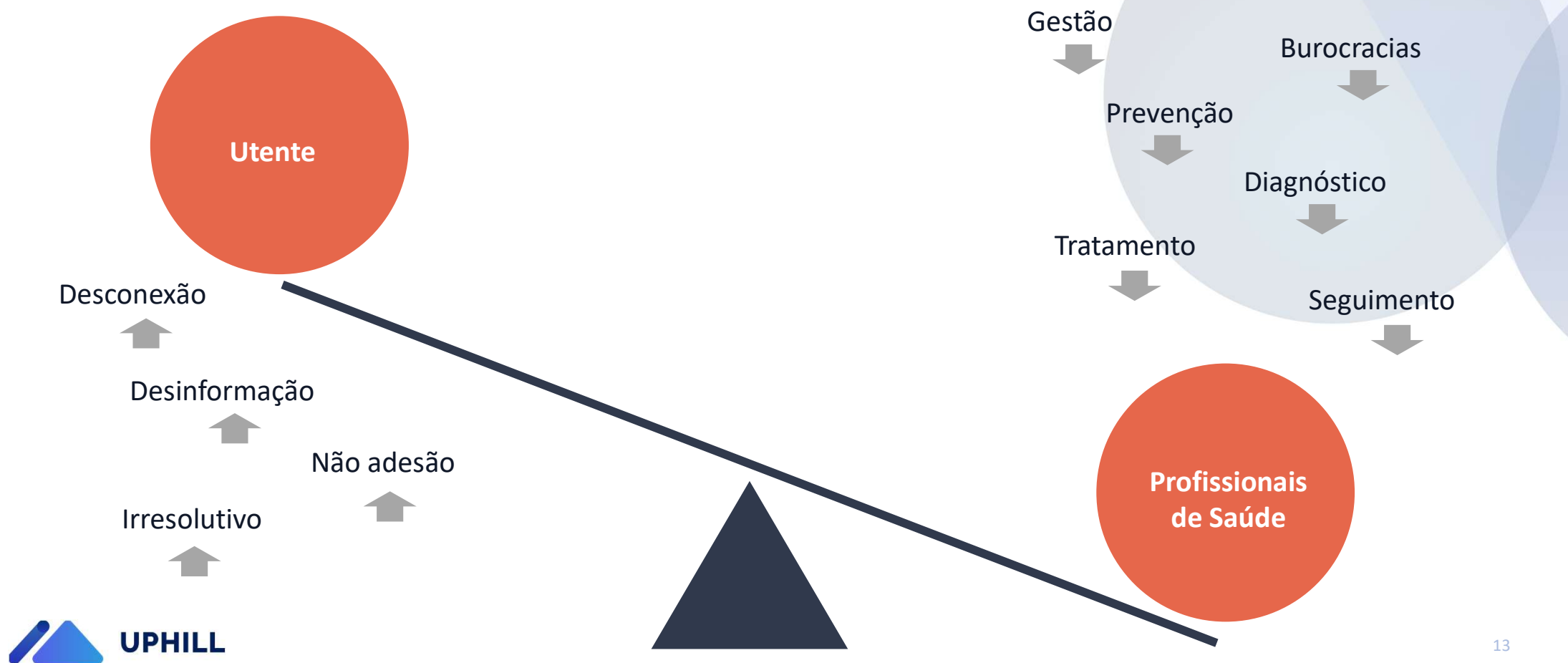
Vantagens e exemplos

1. Acesso
2. Resultados
3. Eficiência
4. Personalização
5. Qualidade
6. Conveniência
- 7. Dados**



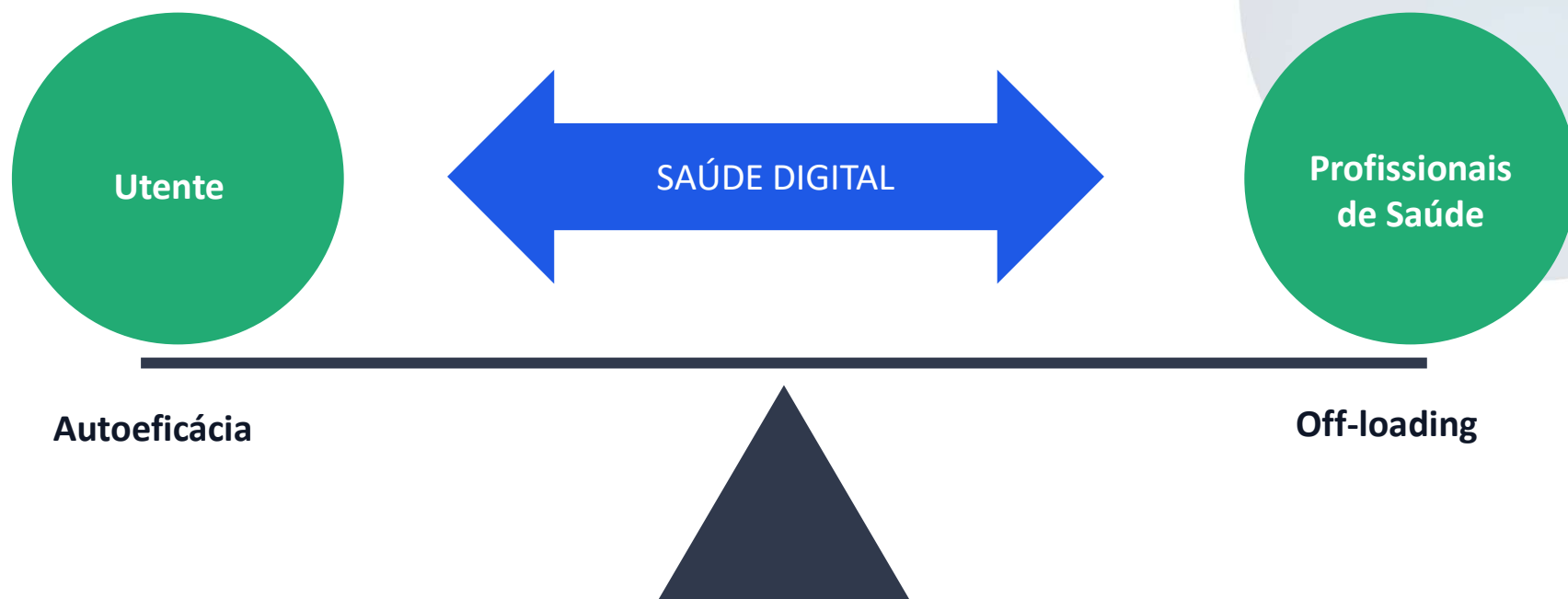
PROBLEMA

Os sistemas com participações desiguais geram pressão nos recursos, sem necessariamente servir os utilizadores.



END - GAME

A saúde digital equilibra os sistemas de saúde, dando mais resolutividade ao utente, com redução de utilização de recursos.



END - GAME

As soluções de saúde digital alicerçam-se em 3 componentes.

SAÚDE DIGITAL

Redesenho
do processo

Modelos tecnológicos
fundacionais

Plataformas
generalizadas

OS PRÓXIMOS PASSOS

De *"patient-centered"* para *"patient-led"*



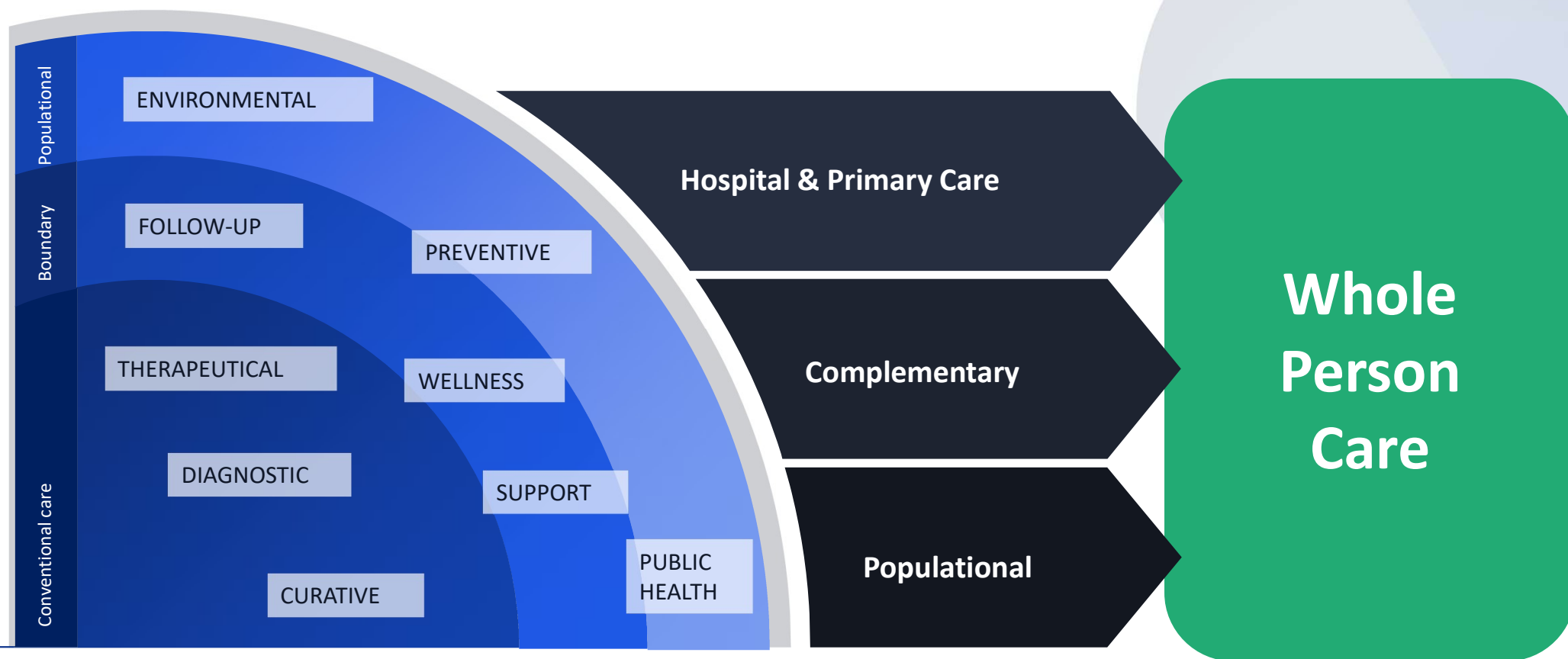
SAÚDE DIGITAL



UTENTE

OS PRÓXIMOS PASSOS

A saúde digital permite aumentar o perímetro até às necessidades dos utentes, para lá do que é servido pelos sistemas de saúde.



RECORDAR!

A tempestade perfeita...

Pessoas

- + Digitais
- + Conectadas
- + Necessidades

Digital Health

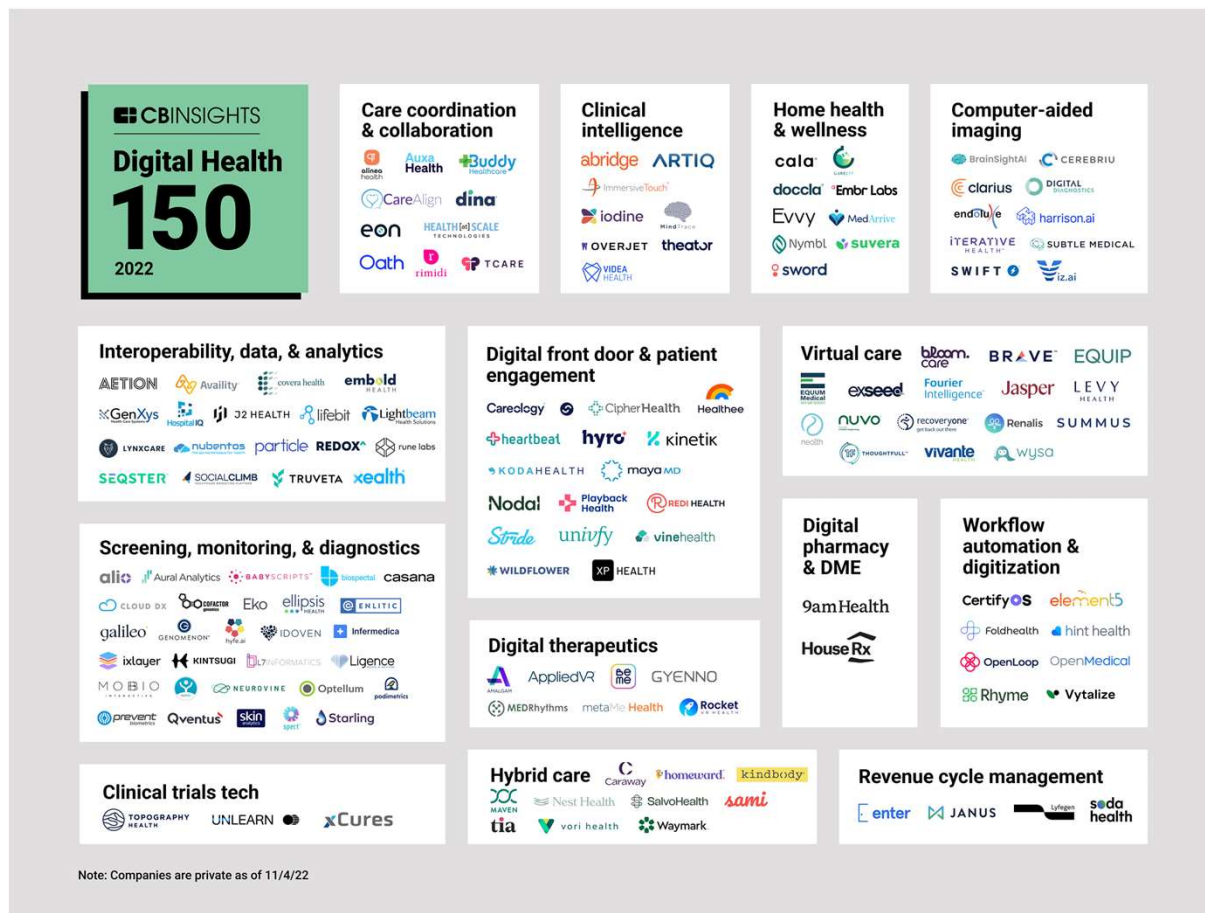
Tecnologia

- + Ágil e ubíqua
- + Capital
- + Dados

Sistemas de Saúde

- + Subdimensionado
- + Dispendiosos
- + Listas de espera

As soluções de saúde digital estão a proliferar, “*patient-led*”...



- Velocidade
- Volume
- Variedade

DESAFIOS

As soluções de saúde digital abrem oportunidades e desafios à construção de novos sistemas de saúde integrados digitalmente.

PRINCÍPIO

Integração no contínuo de cuidados

DESAFIO

Com volume e variedade de soluções, a surgirem a alta velocidade...
Como integrar os cuidados para o utente?

SOLUÇÕES

Interoperabilidade técnica e semântica

Sistemas centrais, *as a platform*

Processos assistências de cuidados

Equidade

Para pessoas de diferentes contextos, literacia e poder de compra...
Como promover equidade no acesso?

Investimento em literacia em saúde

Compartilhação

Evidência

Sem bloquear/atrasar o ritmo da inovação...
Como garantir que as soluções no mercado são efectivas e seguras?

Plataforma RWE, EHDS

Assessment frameworks (DEFINED)

***Fast-track* em regime temporário**

Qualidade e segurança de dados

Num cenário de expansão de soluções digitais e de dados em saúde...
Como assegurar que se desenvolve sob dados de qualidade e em segurança?

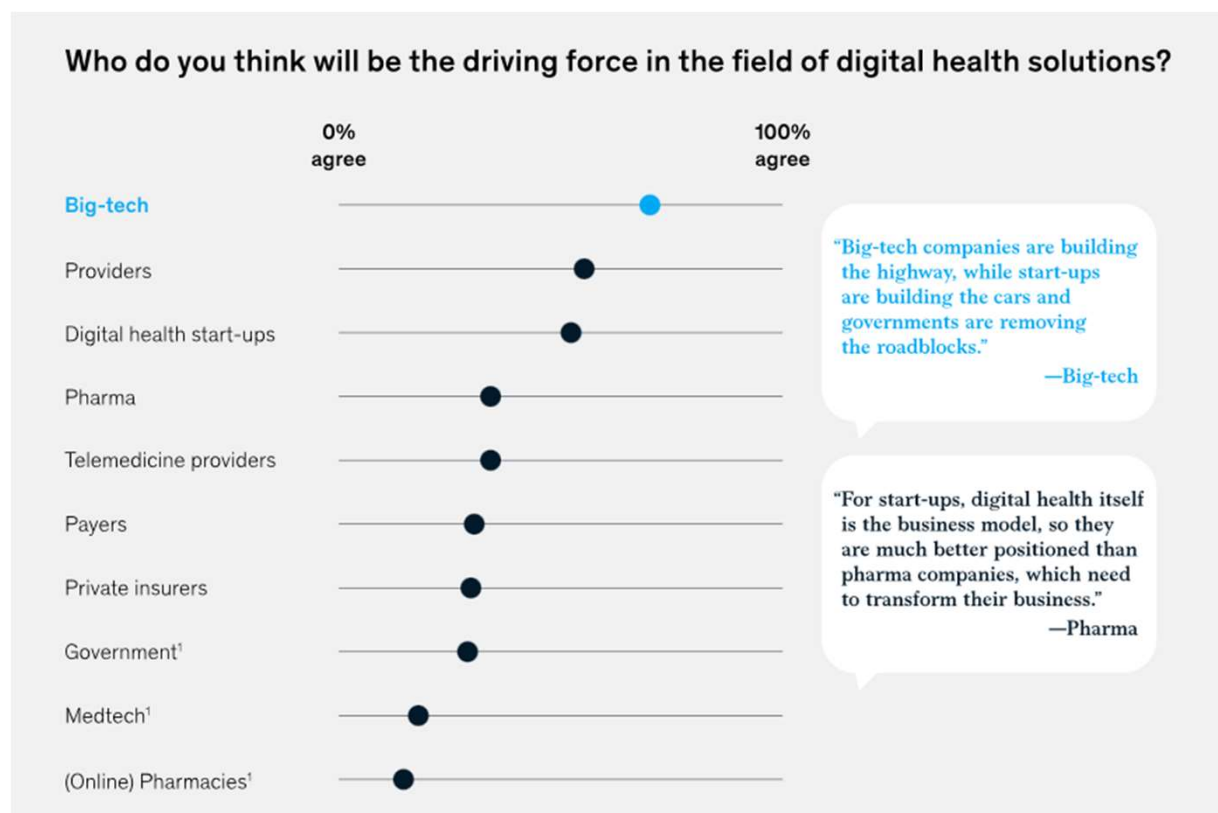
Data auditing* e *data governance

Adoção clara de health data standards

Requisitos mínimos para fornecedores

E AGORA?

A mudança — progressiva ou disruptiva — surgirá da indústria, dos prestadores ou de novos *players*?



Obrigado

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EQUIDADE











| | | Levels of Influence* | | | |
|---|----------------------------|---|---|---|---|
| | | Individual | Interpersonal | Community | Societal |
| Domains of Influence (Over the Lifecourse) | Biological | Biological Vulnerability and Mechanisms | Caregiver-Child Interaction Family Microbiome | Community Illness Exposure Herd Immunity | Sanitation Immunization Pathogen Exposure |
| | Behavioral | Health Behaviors Coping Strategies | Family Functioning School/Work Functioning | Community Functioning | Policies and Laws |
| | Physical/Built Environment | Personal Environment | Household Environment School/Work Environment | Community Environment Community Resources | Societal Structure |
| | Digital Environment | Digital Literacy, Digital Self-Efficacy, Technology Access, Attitudes Towards Use | Implicit Tech Bias, Interdependence (e.g. shared devices), Patient-Tech-Clinician Relationship | Community Infrastructure, Healthcare Infrastructure, Community Tech Norms, Community Partners | Tech Policy, Data Standards, Design Standards, Social Norms & Ideologies, Algorithmic Bias |
| | Sociocultural Environment | Sociodemographics Limited English Cultural Identity Response to Discrimination | Social Networks Family/Peer Norms Interpersonal Discrimination | Community Norms Local Structural Discrimination | Social Norms Societal Structural Discrimination |
| | Health Care System | Insurance Coverage Health Literacy Treatment Preferences | Patient-Clinician Relationship Medical Decision-Making | Availability of Services Safety Net Services | Quality of Care Health Care Policies |
| Health Outcomes | |  Individual Health |  Family/ Organizational Health |  Community Health |  Population Health |

Fig. 1 Framework for digital health equity. National Institute on Minority Health and Health Disparities Research Framework Expanded for Digital Health Equity.

DESAFIOS

EVIDÊNCIA

| The Evidence DEFINED Framework | | | | | |
|--|--|---|---|--|---|
| A Rigorous, Rapid Approach to Assess Clinical Value for Digital Health Interventions (DHIs) | | | | | |
| Evidence DEFINED | | | Goals | | |
| Evidence in Digital health for Effectiveness of Interventions with Evaluative Depth | | | 1. Facilitate rapid & rigorous DHI evidence assessment in organizations. 2. Guide DH solutions providers who wish to drive product adoption. | | |
| Target Audience | | | | | |
| Designed to support digital health evidence assessment within stakeholder organizations including: | | | | | |
|  Payers |  Pharmacy Benefit Managers |  Health Systems |  Pharmaceutical Companies |  Trade Organizations |  Professional Medical Societies |
| The Evidence DEFINED Framework is comprised of the following steps: | | | | | |
| Step 1 | Screening | Each organization defines and screens for absolute requirements (e.g., compliance with data privacy standards, appropriate reading levels, absence of clinical red flags, etc.). This avoids investing effort in DHIs that are not candidates for adoption. | | | |
| Step 2 | Apply an established method designed for non-digital products | Apply an established evidence assessment framework that was developed for non-digital interventions (e.g., GRADE). Many stakeholder organizations already use such frameworks routinely for evidence assessment in non-digital domains. | | | |
| Step 3 | Apply the Evidence DEFINED supplemental checklist | Apply the Evidence DEFINED supplemental checklist (Supplementary Table 2) to address considerations unique to DHIs or requiring greater vigilance in digital health. | | | |
| Step 4 | Make actionable recommendations | Apply evidence-to-recommendation guidelines (Table 2) to generate a defensible recommendation regarding levels of adoption that may be appropriate for the relevant DHI. | | | |
| In Scope | | | Out of Scope | | |
| <ul style="list-style-type: none">Generating defensible recommendations regarding adoption levels that may be appropriate for a digital health interventionAssessing clinical evidence for digital health interventions through a rapid, rigorous, consistent process | | | <ul style="list-style-type: none">Decisions for individual patients, caregivers, or cliniciansProducts that serve diagnostic functions exclusivelyEvaluation in critical domains other than clinical evidence (e.g., patient experience, product design, data security, etc.) | | |