

THE MONITOR INTERVENE PREDICT (MIP) VALUE FRAMEWORK

A structured approach to demonstrating how digital health can improve health outcomes and reduce burden of illness

OBJECTIVE:

To identify the elements of a conceptual framework for measuring the contribution of digital health to overall disease management outcomes from multiple stakeholder perspectives.

METHODS:

A targeted literature review (TLR) explored the emergence of key trends in digital health and disease management. Selection criteria: digital, connected, wearable(s), monitoring, intervention, prediction/predictive, analytics, outcomes, HRQOL, value frameworks. The TLR was limited to a healthcare context.

A survey of payers (EU5. N=5 per market), informed by the TLR, was undertaken to externally validate hypotheses relating to the barriers and facilitators to digital health improving health outcomes and reducing burden of illness; and to identify the elements that need to be considered when developing a framework for value measurement and value attribution.

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RESULTS

The TLR indicated:

- Healthcare is becoming more “connected” with multiple components - digital patient-level, real-world/real-time monitoring; software, algorithms, and apps informing interventions, analytics predicting outcomes, and genomics / biomarkers informing therapy choice
- Technology is evolving faster than the regulatory, behavioural, healthcare funding, and health technology assessment (HTA) systems that are required for successful implementation
- Value Frameworks are becoming increasingly useful and important for

- structuring the value of holistic disease management
- For digital health to deliver on the promise, changes (Figures 1 & 2) will be required in
 - Regulatory and HTA assessment systems
 - The roles of the physician and data in disease management
 - Payment systems and the pricing of healthcare
 - Payer and Patient willingness to pay

Fig 1

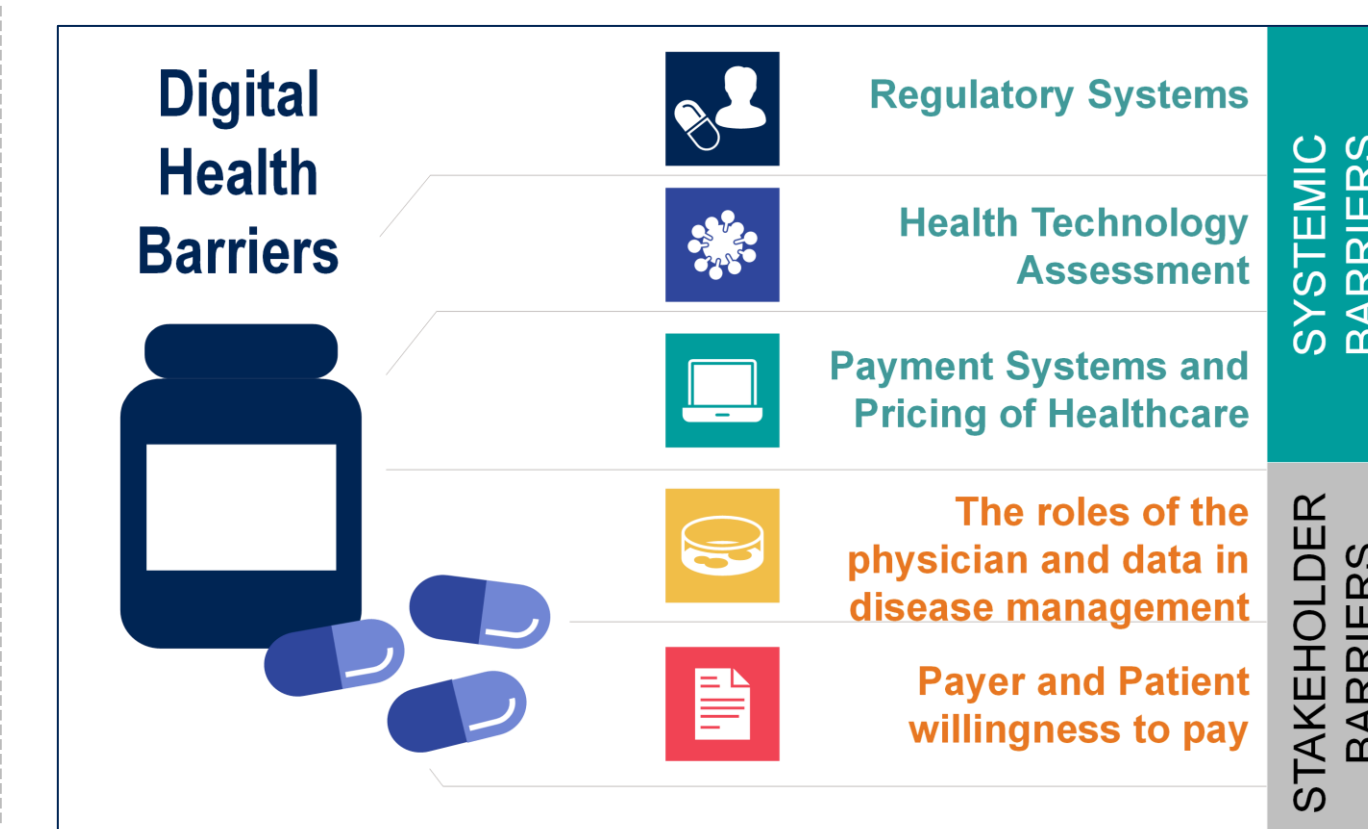
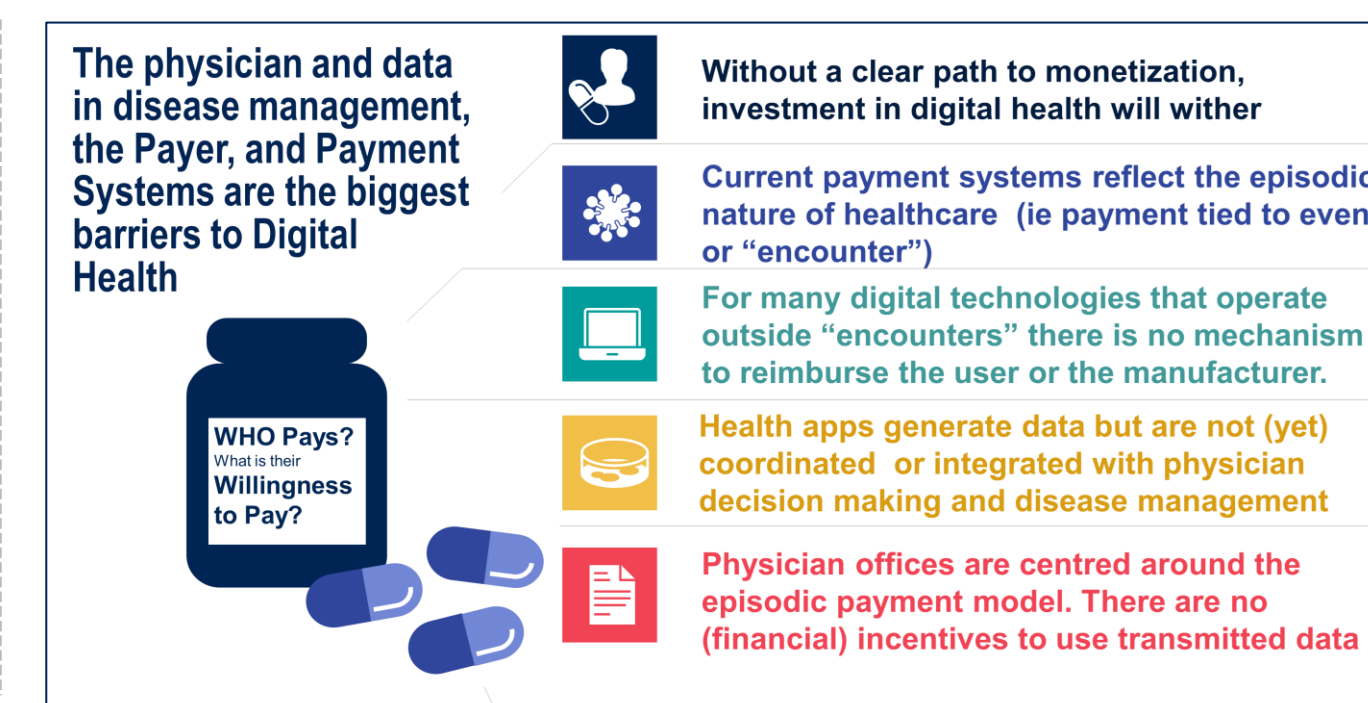


Fig 2



The payer survey indicated:

- There is a perception of an increasing disconnect between the health outcomes reported in randomized clinical trials and the real-world outcomes seen in a “digital health” environment that embraces real-time monitoring, data informed intervention, and outcomes prediction
- Although traditional payers still focus on economic, clinical, and humanistic outcomes they anticipate that, driven by advances in digital health and a shift in costs and healthcare responsibility onto patients themselves, this will need to evolve with value being analysed in different ways:

- Value contribution of 3 different elements: MONITORING, INTERVENTION, and PREDICTION. **The MIP paradigm.**

- Value segmentation based on 3 outcome types: ECONOMIC, CLINICAL, and HUMANISTIC
- Value perception based on 3 stakeholder groups: PATIENT, PAYER, and PHYSICIAN
- Value attribution, informing value-based reimbursement allocation, will become increasingly important as multiple stakeholders (drug, diagnostic, and device manufacturers, software and app developers) become involved in more holistic disease management

This will be needed to inform who pays / is paid (reimbursed), how much, for what, and when. (Figure 3)

Payers see value in all elements of the MIP paradigm but see potential ethical, legal, and regulatory challenges emerging from an intervention element that is driven by automated analytic algorithms / machine learning / artificial intelligence, rather than “traditional” HCP driven decision-making

Fig 3



Manufacturer 5 Software, Algorithms, Predictive Analytics

CONCLUSIONS:

- Major hurdles will need to be overcome in order for digital health to deliver value for all stakeholders (patients, payers, physicians, pharmaceutical companies, and diagnostic/digital device/software developers)
- Value attribution will become increasingly important for informing who should pay or be paid (reimbursed), how much, for what, and when
- These issues need to be addressed in order for multi-element “personalized” approaches, involving both digital and genomic technologies, to enhance the efficiency of healthcare delivery and make disease management more effective
- Digital health, by linking patient-level real-world / real-time data, sourced through digital monitoring, interventional disease management, and predictive analytics, together with precision medicine / biomarker informed treatment, may improve economic, clinical and humanistic outcomes (ECHO)