Accelerating Digital Innovation:
A Checklist for Digital Therapeutic Developers

Over the past decade, the development of digital medicines has been steadily gaining momentum, with real-world data demonstrating that these approaches can help improve patient lives. The COVID-19 pandemic further propelled the digital medicines industry forward by shining a light on the need for innovative treatment options and accelerating the adoption of technologies that integrate healthcare into daily life.

Digital medicines have the potential to transform healthcare but remain an emerging field that is still being defined. For developers who are exploring this frontier, this checklist provides an overview of key considerations for bringing digital therapeutic innovations successfully to market.

1. Determine whether the product is a digital medicine or a digital therapeutic

The U.S. Food and Drug Administration (FDA) regulates digital medicine and digital therapeutic products as either Software as a Medical Device (SaMD) or, for devices that have embedded software, Software in a Medical Device (SiMD). Digital medicines are evidence-based software and/or hardware products that measure and/or intervene to improve health. Available only by prescription, digital therapeutics are a subset of digital medicines and comprise products that deliver evidence-based therapeutic interventions to prevent, manage, or treat a medical disorder. These products can be used independently or in combination with other medical devices or drugs and may also integrate with other digital technologies. A distinguishing characteristic of digital therapeutics is that these products focus on clinical impact and claim a specific therapeutic benefit.

2. Define the product development strategy

As with novel biopharmaceutical products or traditional medical devices, incorporating a well-developed target product profile (TPP) into the development decision-making process can decrease risk and help ensure product-market fit. Key questions to be addressed in a TPP include:

- What unmet need will the product address?
- Who will be the target customer(s)?
- What benefits will the product provide to these customers?
- How will these benefits differentiate the product from those of competitors?
- What claims must be made to motivate customers to purchase the product?
- What evidence must be generated to demonstrate the product's value – to patients, providers, and payers?
- How will customers access and purchase the product?
- How will the product be priced?
- Is there a clear path to achieving a return on investment from developing this product?

A thoughtful TPP provides a framework for prioritizing the desired features and attributes of the product, facilitating trade-off decision making, and ensuring the product has the value-added differentiation that will ultimately be necessary for commercial success. The TPP is intended to be iterative, evolving as new data and insights are generated during product development. Ideally, the final version of the TPP should coincide with the claims and labeling in the regulatory submission.

3. Understand the legal and regulatory landscape

The legal and regulatory landscape for digital medicines is complicated as these products represent a convergence of healthcare and technology.

Understanding the use and consent requirements associated with digital medicines is critical. Healthcare data is valuable and highly regulated, and the data owner – in this case, the end-user – must give permission for their data to be used for the desired purpose. In addition, if healthcare data is acquired from any third party, including hospitals, pharmaceutical companies, and other healthcare data aggregators, consent from that third party is also required for any downstream data use.[1] Given that digital medicines store and transmit healthcare data, privacy and security are paramount. Developers must address cybersecurity risk, and regulatory submissions typically require documentation on how the device design incorporates design controls to manage and mitigate this risk.

In recent years, the FDA has issued new guidance documents for developers of digital medicines. Still, the regulatory landscape continues to evolve, and it may be difficult for developers to gauge what evidence will be required for approval. Broadly, the regulatory requirements for digital therapeutics are based on the framework that governs medical devices. However, certain software may be subject to "enforcement discretion," whereby medical device regulations do not apply because the software is deemed to present minimal risk to patients.

For digital medicines considered medical devices, developers will need to determine the regulatory pathway for their products. If the product is substantially equivalent to a predicate device, it may qualify for the 510(k) approval pathway. When no predicate exists, the product will need to undergo premarket approval (PMA) or de novo classification.

Recognizing that the traditional regulatory paradigm was not designed for digital medicines, the FDA launched a Software Precertification (Pre-Cert) Program in 2017 to inform the development of a more efficient, risk-based regulatory framework for overseeing digital medicines developed by precertified manufacturers. To qualify for precertification, companies must meet criteria related to patient safety, product quality, clinical and cybersecurity responsibility, and proactive corporate culture. A key feature of this program is its emphasis on post-market collection of real-world data.

Engaging with the FDA early and often will provide valuable insight into the most appropriate regulatory pathway and the evidence required for approval.

4. Evaluate the potential for reimbursement

Some commercial insurers have implemented digital formularies that provide reimbursement for a selection of clinically validated digital medicines and digital therapeutics. More recently, the Center for Medicare & Medicaid Services (CMS) established a new Healthcare Common Procedure Coding System (HCPCS) Level II code for prescription digital behavioral therapy, which became effective on April 1, 2022.[2] This is expected to expand reimbursement for digital interventions as CMS tends to lead the market in terms of coverage and reimbursement.

Developers need to identify and prioritize who they expect will pay for the product. This can be challenging, especially since the claims that would be compelling to an end user might be different from those that would motivate a payor. Understanding how payors evaluate and calculate economic value is critical for determining what clinical data or real-world evidence will be required to support reimbursement. If reimbursement is unlikely, developers will need to determine how much end-users might be willing to pay out of pocket for the product.

5. Stay current on best practices

The Digital Therapeutics Alliance (DTA) recently published The DTx Value Assessment & Integration Guide, a best practice guide for digital therapeutics developers. The guide offers the DTA's latest thinking on how developers can clinically evaluate their products to ensure quality and security and achieve regulatory approval. The guide also addresses technical and patient-facing considerations, product usability, data privacy and security, and the economic assessments that will be needed to secure reimbursement.

Contact us for expert guidance on developing digital medicines, from product strategy to post-market requirements and reimbursement.

References

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