It can take decades for research innovations to be implemented in real-world, community practices. This research-to-practice “valley of death” is attributed to limited tools to ensure innovations are designed to be feasible for patients to use and existing providers to implement in routine care settings, especially with organizational constraints. This talk will focus on the role of implementation science as a key component of a Learning Health System in the more rapid deployment of scientifically-supported innovations and the continuous evaluation towards their sustainment. Specifically, we describe how to develop and test implementation strategies, which are highly-specified, theory-based methods that support provider uptake of effective innovations in routine practice to improve their uptake and patient outcomes. We also describe emerging study designs such as sequential multiple-assignment randomized trials (SMART) and adaptive designs that can be applied in testing different implementation strategies, to inform a more precision implementation approach to match implementation strategies to address specific organizational barriers and ultimately inform improved population health.