PART II

Digital Home Diagnostics for Specific Conditions

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INTRODUCTION

Part I of this volume explored the novel concerns about privacy and data raised by home-based digital diagnostics. These arguments surrounding data access, rights, and regulation were framed primarily in abstract terms applicable to the very broad category of digital diagnostics. Part II carries these themes forward into three specific disease areas of profound public health, policy, and bioethical importance. The rise of new technology and telemedicine-based diagnostic pathways for these conditions – cardiovascular disease, reproductive health, and neurodegenerative disease – builds on accelerating advances in sensors, data transmission, artificial intelligence (AI), and data science. The COVID-19 pandemic amplified the opportunity and imperative to provide diagnostic and potentially therapeutic services outside of traditional clinical settings. New devices and systems may not only replace traditional care, but also expand the reach of critical screening and diagnosis to patients otherwise unable to access or navigate health systems. The three chapters in this part thus present real-world case studies of the hopes and hazards of applying digital diagnostics with a disease-specific focus at population-wide scale.

Patrik Bächtiger and colleagues introduce this part with their chapter, "Patient Self-Administered Screening for Cardiovascular Disease Using Artificial Intelligence in the Home." The authors outline a novel attempt in the United Kingdom to address late or missed diagnoses of congestive heart failure, valvular heart disease, and atrial fibrillation – all conditions with high morbidity and mortality that can be substantially mitigated with early treatment. Using electronic health records from