

Health Matters Bulletin

BY REBOOT HEALTH CONSULTANCY & ADVISORY SERVICES INC.

ISSUE 2

Personalized Medicine: Are We Delivering Real Clinical Value?

Part-1: Overcoming Barriers to Implementation

The New Science of Aging Puts Healthspan at the Forefront

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Foreword Issue 2

Welcome to the Health Matters Bulletin, a regular quarterly publication provided by the Reboot Health Consultancy & Advisory Services Group and our Founding Partners. The Group's Objective is bringing together policy, industry and health leaders to discuss poignant topics in healthcare by creating opportunities and organizing formal, ongoing dialogue, and focused communications on health innovation topics with specialized Health Matter's subject experts. We invite you to review articles which provoke thought leadership and foster collaboration, catalyze healthcare innovation to optimize the use and deployment of increasingly scarce resources in this country. We bring knowledge, views and perspectives which focus on these key strategic pillars advancing healthcare:

- Health Data Privacy, Policy and Security
- Personalized Medicine & Genomics
- Artificial Intelligence in Healthcare
- Value Based Healthcare, Operational Efficiency and Health Policy
- Health Innovation Development

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Part-1: Overcoming Barriers to Implementation.

By: Jim Slater, MBA, BSc, ART
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The New Science of Aging Puts Healthspan at the Forefront

By: Rob Fraser, PhD.
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PERSONALIZED MEDICINE: ARE WE DELIVERING REAL CLINICAL VALUE?

PART-1: OVERCOMING BARRIERS TO IMPLEMENTATION

REGARDLESS OF HOW you define personalized (or precision) medicine (PM), there is little debate that it is significantly impacting our expectations and delivery of healthcare; and has entered daily conversations amongst providers, patients, families, and funders.

Our public health system is overwhelmed dealing with COVID-19, but the looming crises from the impacts on surgical backlogs, oncology delays, and mental health are critical threats that will consume us all over the coming years. So how do we align, focus, and prioritize innovations that if implemented would deliver real clinical value and improve the overall healthcare system?

In part-1 of this series, I will highlight some of the key points that I took away from our panel discussion at the 21st Annual Healthcare Summit: [“Overcoming Barriers and Facilitating Implementation”](#). Fair warning – there are no easy answers; it is critical to continue the dialogue, join the debate, and develop processes and standards that support implementation of PM.

As we heard in the panel session, despite the remarkable achievements and amazing promise of PM, there are a number of barriers to innovation and implementation: financial (funding), systemic (processes that don’t “fit” traditional healthcare), lack of knowledge (information is growing too fast to keep up), bias (individuals biased either for or against specific PM opportunities), and not least politics (aligning PM opportunities with political priorities). Your innovation may be brilliant with lots of data to support your claims, but that doesn’t mean it will be adopted by Canada’s public health system. Whether it is human papillomavirus (HPV) testing to replace traditional Papanicolaou (PAP) smears for cervical cancer or additional newborn screening for Severe Combined Immune Deficiency (SCID), the benefits would seem compelling, yet implementation across Canada has been spotty at best. However, it’s not all bad news, there are many success stories like reducing HPV vaccine dosage, being able to test for many genetic based diseases even if not on a population screening level, and drug therapies based on an individual’s genetics. Canada’s publicly funded healthcare system

has historically put-up barriers to private sector innovations; yet it is critical that the public sector work closely with innovators, researchers, accelerators and entrepreneurs. Many Canadian entrepreneurs look outside Canada for most of their customers – we need to find ways to help them sort through the complex Canadian healthcare landscape and launch their breakthroughs at home in Canada: alternative reimbursement programs, risk/reward sharing opportunities, value-based compensation and other options to pull innovations through to implementation.



Provincial governments as primary funders need to better understand innovation and the role they should play to ensure the implementation of real clinical value through PM. Ministries and departments are often disconnected between and within levels of government; often PM and genomics testing benefits accrue in one funding envelope while the expenses occur in another. Data collection and availability is inconsistent and often locked behind privacy concerns. These barriers further isolate innovators from decision makers.

The pandemic has focused attention on laboratory capacity, and laboratory professionals are at the front-line of PM, especially when it comes to “-omic”

and related testing. Advancements in laboratory medicine is integrally linked to value-based health care and well positioned to deliver innovations for improving the healthcare system.

Another significant barrier to implementing PM is the chasm between data, information, and knowledge; there is just so much new data being generated and information being shared that it has become seriously challenging to maintain sufficient knowledge of what it all means and how to use it to support innovation and implementation. There are also issues of navigating the privacy and security of health data, which can be overcome if experts in the combined arenas work together. This chasm exists across all levels of healthcare; from technicians to medical specialists and threatens our ability to implement PM solutions in Canada.

Our panel of experts described a number of barriers and shared personal examples of how they think the “system” could facilitate implementation – you can [watch the session here](#). Let’s keep the dialogue going; share your own stories about overcoming barriers to implementing PM or send me your feedback and comments to jimslater55@icloud.com.

Don’t miss Part-2 where we will suggest ways that the public and private sectors, government and other healthcare funders can align, focus, and prioritize the implementation of Personalized Medicine.

FOR MORE INFORMATION, SEE SUGGESTED READINGS:

1. [The Personalized Medicine Report: 2020 Opportunity, Challenges, and the Future](#)
2. [Personalized Medicine: Motivation, Challenges and Progress](#)
3. [What are some of the challenges facing precision medicine and the Precision Medicine Initiative?](#)

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THE NEW SCIENCE OF AGING PUTS HEALTHSPAN AT THE FOREFRONT

THERE HAS BEEN a significant shift in how researchers view aging. Previously, longevity or life expectancy was the focus, but now healthspan is the priority, which aims to help people live longer and with a higher degree of wellness. This has opened the door to game-changing scientific advances and a more individualized approach to identifying health risks and how to manage them, thanks to the use of biomarkers for early detection, prevention, and disease management.

The impact of this new way of thinking will have a seismic, global impact. Every nation is experiencing growth in the proportion of older people that make up its population. The population of individuals aged 65 years or more (65+) is the fastest growing demographic compared to all other age groups. By 2050, projections say the 65+ age group will comprise [16 per cent of the world's population](#). These changes are driving a revolution in the science of aging and technology...forming what is now known as the Longevity Economy.

A rapidly aging population will mean that there are fewer working-age people in the economy. This may worsen the supply shortage of qualified workers similarly to what was seen throughout the COVID-19 pandemic. The consequences could be far reaching, including declining productivity, higher labour costs, delayed expansion and loss of competitiveness globally.

This also means fewer workers from which to collect taxes, resulting in higher costs for healthcare, pensions, social services and other publicly funded programs. This results in a new urgency towards improving health outcomes for aging populations and improving their quality of life as they get older. To put things into perspective, slowing down aging to increase life expectancy by just one year would [save the U.S. economy \\$38 trillion](#), according to a study published by Dr. David Sinclair, professor of genetics, Harvard Medical School.

Aging is a complex process occurring in every one of our 30-70 trillion cells, albeit at different rates depending on lifestyle and an individual's unique biochemical makeup. At the fundamental core, aging is a biological process of functional decline and loss of regenerative capabilities. This decline occurs at every level,

from the tissue and its surrounding micro-environment to the molecular level functioning of proteins themselves. The new science of aging has made it possible to analyze what's happening to cells at a biochemical level and allow insights into the molecular processes that impact aging and disease.

Using the latest science, Molecular You can identify early biomarkers outside of normal ranges and provide interventions to help normalize them before chronic symptoms and disease occurs. Applying nutrition and exercise modification research, Molecular You has developed comprehensive, evidence-based nutrition and exercise actions plans that help normalize the biomarkers detected to be outside of normal ranges and influence lifestyle changes that improve quality of life. The more patients know and take appropriate action, the better they can adapt to lifestyles that maintain their health. The goal of healthy aging is to slow down the aging process and halt the development of chronic diseases, leading to better health outcomes and higher quality of life.

Ideally, before the onset of chronic disease, the combination of comprehensive biomarker analysis and personalized nutrition and exercise actions is an effective preventative measure and improves health outcomes and quality of life. Molecular You supports healthy aging through technology, ideally suited to individuals who are interested in learning about their health on a deeper level and taking personalized steps to age in a healthier way. By monitoring biomarker responses, patients have choices for interventions intended to increase healthspan.



EMPOWERMENT THROUGH BIOMARKER ANALYSIS

Biomarker analysis can also be applied at the disease management stage. Consider that once an individual has developed a chronic disease, the likelihood of other comorbidities increases since they often share similar disease mechanisms. This makes unlocking the information held by blood through biomarkers, to

detect and manage disease, imperative. Their greatest value is in the continuous monitoring of health and disease status in response to interventions – lifestyle, pharmacologic or therapeutic – a means that can stave off chronic diseases and allow individuals to have a long healthspan.

The ability to age well can be managed through lifestyle modifications, especially important for individuals in their 40s and 50s since this is when biomarkers associated with aging start to fall outside of normal physiological ranges. This occurs silently in the absence of symptoms. By the time symptoms do arise and medical attention is sought, chronic disease has already set in and it becomes a matter of disease management.

A preventive approach is a better strategy. Identifying a chronic disease earlier can help prevent further comorbidities. With that in mind, Molecular You's development of an age gauge is being created to give a comprehensive health overview for individuals and provide insight into how they are aging – fast, normal or slow, then be followed up with suggested actions to reach their longevity goals. This age gauge uses mathematical models to determine a biological age – a method that goes beyond merely the year someone was born.

POISED FOR THE FUTURE

The growth of the aging population and the increasing stress on our healthcare systems highlight the need for solutions in the longevity and healthy aging space. Molecular You is fast becoming a leader in this space and is poised to make a significant impact in the emerging longevity economy, a sector worth an estimated \$25 trillion in 2021 and expected to hit \$36 trillion by 2026.

By bringing market-leading, comprehensive biomarker analysis and personalized lifestyle action plans associated with these biomarkers, older adults can work towards improved health outcomes and quality of life. This will have a tremendous impact on the healthy aging and longevity market. This is the future.

More information about healthy aging biomarkers, see: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8081649/pdf/42415_2021_Article_15.pdf

To find out more about this advancing science and technology, please reach out to:

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