Personalized medicine is the tailoring of medical treatment to the individual characteristics of each patient. The approach relies on scientific breakthroughs in our understanding of how a person’s unique molecular and genetic profile makes them susceptible to certain diseases. This same research is increasing our ability to predict which medical treatments will be safe and effective for each patient, and which ones will not be.

Personalized medicine may be considered an extension of traditional approaches to understanding and treating disease. Equipped with tools that are more precise, physicians can select a therapy or treatment protocol based on a patient’s molecular profile that may not only minimize harmful side effects and ensure a more successful outcome, but can also help contain costs compared with a “trial-and-error” approach to disease treatment.

Personalized medicine has the potential to change the way we think about, identify and manage health problems. It is already having an exciting impact on both clinical research and patient care, and this impact will grow as our understanding and technologies improve.

Personalized Medicine Is Impacting Patient Care in Many Diseases. For Example...

…in Breast Cancer: One of the earliest and most common examples of personalized medicine came in trastuzumab. About 30% of patients with breast cancer have a form that over-expresses a protein called HER2, which is not responsive to standard therapy. Trastuzumab was approved for patients with HER2 positive tumors in 1998 and further research in 2005 showed that it reduced recurrence by 52% in combination with chemotherapy.1

…in Melanoma: BRAF is the human gene responsible for the production of a protein called B-Raf, which is involved in sending signals inside cells to direct cell growth, and shown to be mutated in cancers. In 2011, a drug called vemurafenib, a B-Raf protein inhibitor, and the companion BRAF V600E Mutation Test were approved for the treatment of late stage melanoma. Vemurafenib only works in the treatment of patients whose cancer tests positive for the V600E BRAF mutation. Around 60% of patients with melanoma have a BRAF mutation, and approximately 90% of those are the BRAF V600E mutation.2

…in Cardiovascular Disease: Prior to the development of a gene expression profiling test to identify heart transplant recipients’ probability of rejecting a transplanted organ, the primary method for managing heart transplant rejection was the invasive technique of endomyocardial biopsy – a heart biopsy. Today, a genetic diagnostic test is performed on a blood sample, providing a non-invasive test to help manage the care of patients post-transplant. New research suggests that ongoing testing may be useful in longer-term patient management by predicting risk of rejection and guiding more tailored immunosuppressive drug regimes.
Who Is Personalized Medicine?
The people and groups engaged in personalized medicine and helping to drive it forward

The realization of personalized medicine relies on the input and contributions of a broad community of stakeholders, all working together toward a shared goal of harnessing breakthroughs in science and technology to improve patient care.

Accelerating the Adoption of Personalized Medicine

As the ecosystem of stakeholders works to advance personalized medicine, collaboration with government regulators and policymakers is necessary to encourage widespread use of these new tools and technologies. The regulatory process must evolve in response to advances that are targeted to smaller patient populations based on genetic profiles, and policies and legislation must be enacted that provide incentives for innovative research and adoption of new technologies. Together, progress in the research, clinical care, and policy enabling personalized medicine has great potential to improve the quality of patient care and to help contain health care costs.

Personalized medicine is rapidly having an impact on how drugs are discovered and developed; how patients are diagnosed and treated; and how health care delivery is channeling its resources to maximize patient benefits. The Age of Personalized Medicine website is dedicated to highlighting the advances being made in the field, the individuals working to enable those advances, and the implications for health and health care policy.

Join the discussion: www.AgeOfPersonalizedMedicine.wordpress.com
