1. The time required to translate a genetic discovery to clinical applicability can take an average of 15 to 20 years, with a cost of nearly $1.7 billion for each successful new therapeutic.

2. While meaningful clinical applications following the completion of the Human Genome Project have been limited in most fields, the resulting discoveries have provided novel insights into unsuspected disease mechanisms, elucidating potential treatment targets.

3. Previous genetic findings have led to modern treatments such as statin therapy for reducing low-density lipoprotein and coronary artery disease risk, imatinib for chronic myeloid leukemia, and ivacaftor for cystic fibrosis.

4. Cardiovascular disease (CVD) risk prediction, pharmacogenomics, novel drug targets like PCSK9, and clinical actionability of genetic mutations are areas that have translated, or have the potential to translate, into the clinic.

5. Several programs have been initiated to fund and/or speed the progression of translational efforts. These include the Clinical and Translational Science Award, Centers for Accelerated Innovations, and National Center for Advancing Translational Sciences (NCATS) – all within the National Institutes of Health – as well as the American Heart Association's Science & Technology Accelerator.

6. In addition to recently launched scientific programs, other steps for aiding the translation of genetic discoveries include improved phenotyping, especially in the setting of large observational data sets, and systems genetics to increase understanding of complex genetic traits.

7. A range of tools, from stem cells and somatic cell lines to knockout mice and other model organisms, are available to study the mechanisms of relationships between genes and disease.

8. Phenotype screening, unlike traditional target-based screening, provides an avenue for evaluating a drug's systemic effects in addition to a basis for the development of drugs used in combination to impact a pathway or phenotype.

9. Additional programs have been launched to facilitate the ultimate translation of genetic targets. Examples include the NCATS Bridging Interventional Development Gaps program for preclinical studies and the NCATS Discovering New Therapeutic Uses for Existing Molecules program to make previously generated drugs available to academic investigators for testing against new targets or disease indications.

10. Although recent genetics discoveries have the potential to drive new clinical discoveries, this process takes time, and it is important for both the scientific and lay communities to have realistic expectations about how translation progresses.