The National Academy of Engineering announced the 14 Grand Challenges for Engineering at the annual meeting of the American Association for the Advancement of Science. The committee also praised biomedical and biological engineering as the research field to fulfill the promise of personalized medicine. Included among these 14 challenges were Reverse–Engineering the Brain, Engineer better Medicines and Advance Health Informatics.

Recent scientific and technological developments and innovations have significantly improved the quality of life and saved lives in the developed world. But, these developments are not introduced to the developing and under-developed countries. We still face unprecedented health care challenges in the 21st century. The prevalence of major diseases today, from the global AIDS pandemic to antibiotic-resistant tuberculosis, cuts across the healthcare, political, economic, social, and biomedical disciplines: These diseases will continue affecting the world unless major measures are taken to develop comprehensive prevention and treatment programs. Thus, engineers and scientists are expected to play a critical role in developing novel and affordable health care technology and medications to solve global healthcare problems, especially in the developing and under-develop countries.

The objectives of this presentation are to discuss the global health care systems, financing, delivery and management. We will also focus on the recent technological advances in health care and their use in diagnosing, treating, and preventing diseases, using novel technologies to develop new drugs, technology regulation, and ethical issues surrounding the use of novel technologies.