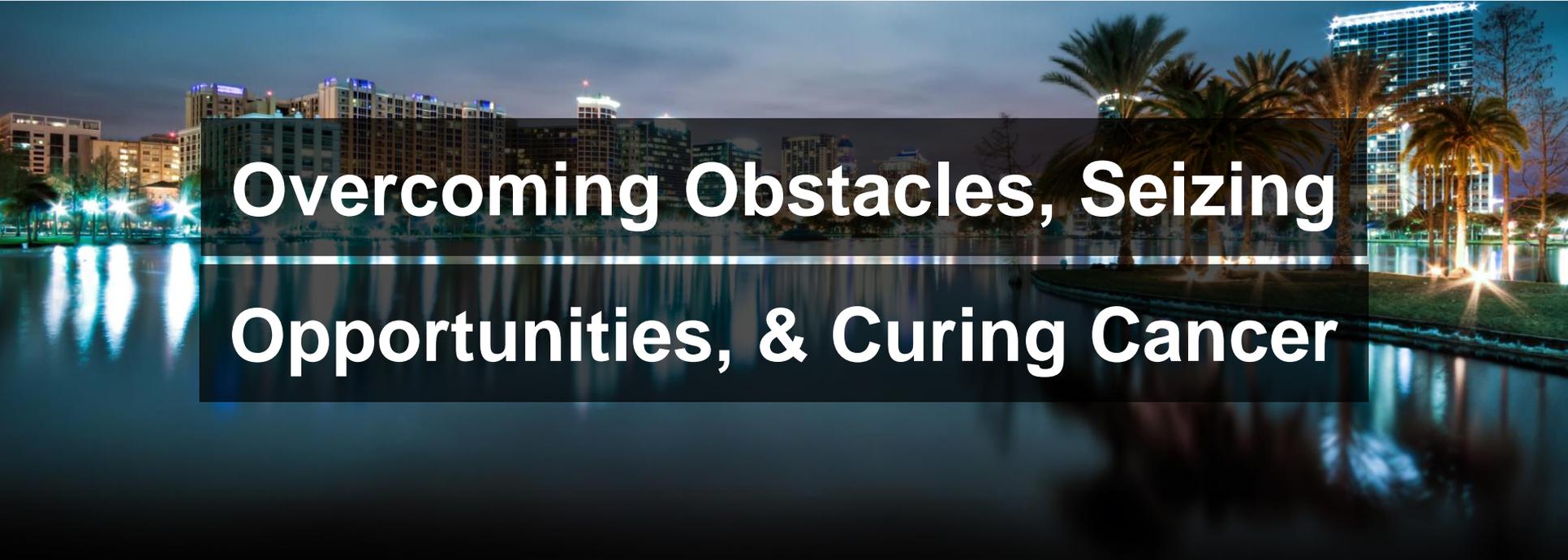




PRECISION MEDICINE  
SUMMIT  
A HIMSS EVENT

FEBRUARY 11, 2019  
ORLANDO, FL

A nighttime photograph of a cityscape with palm trees and buildings reflected in water. The scene is illuminated by city lights, creating a vibrant and modern atmosphere.

# Overcoming Obstacles, Seizing Opportunities, & Curing Cancer

[www.HIMSSConference.org](http://www.HIMSSConference.org) | #PrecisionHIT

# The Future of Wellness

John D. Halamka MD

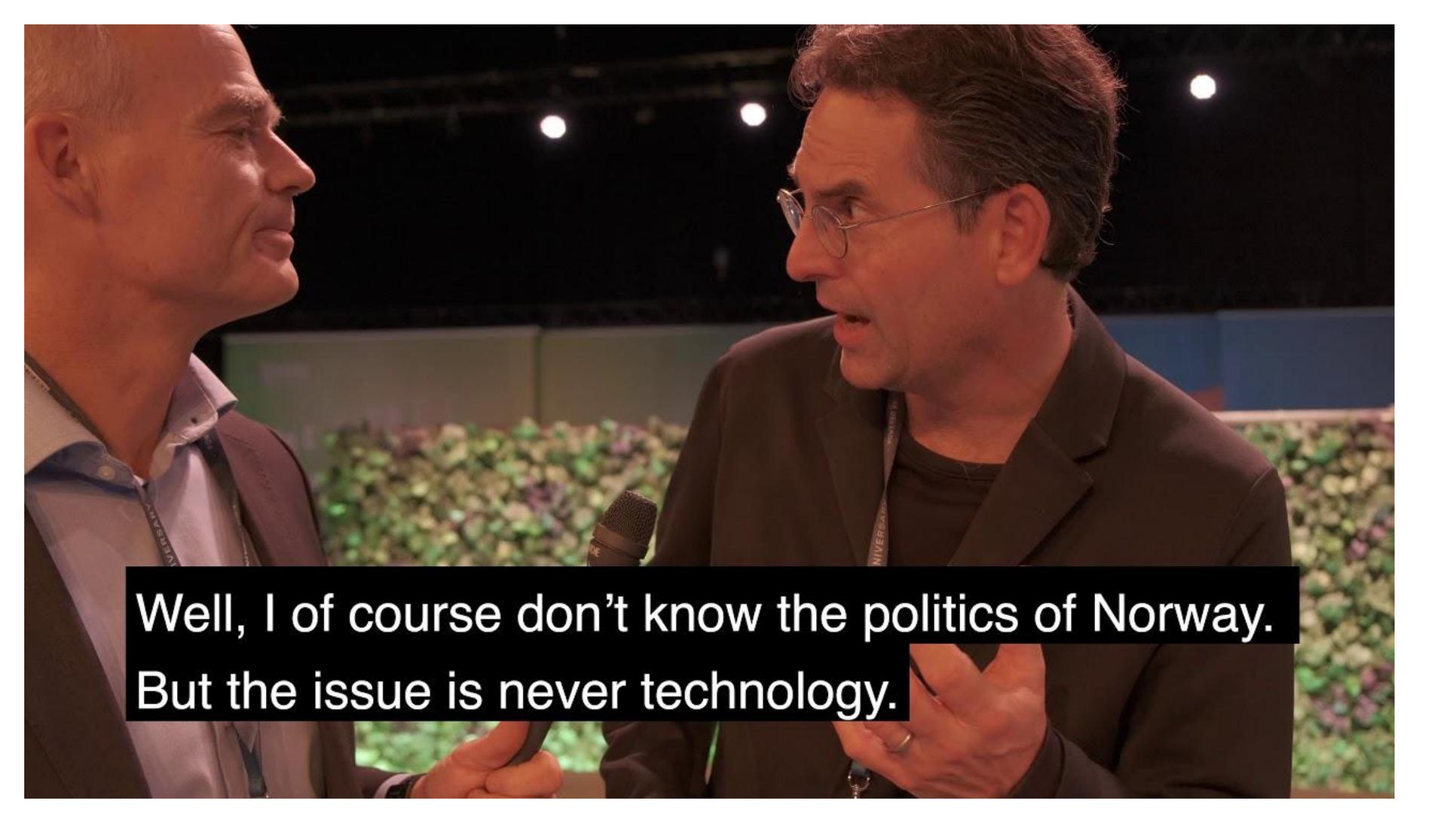
International Healthcare Innovation Professor,  
Harvard Medical School

# The Healthcare Experience Around the World

- Finding the right setting, right provider, and right care in China
- Coordinating care in India
- Exchanging Data in the Nordics
- Seeking Emergency Care in Scotland
- My Healthcare Record in Australia





A photograph of two men in conversation. The man on the right is speaking and gesturing with his hands. He is wearing glasses and a dark jacket. The man on the left is listening. They are both wearing lanyards with 'NIVERSAL' on them. The background is a dark stage with spotlights and a wall of greenery.

Well, I of course don't know the politics of Norway.  
But the issue is never technology.



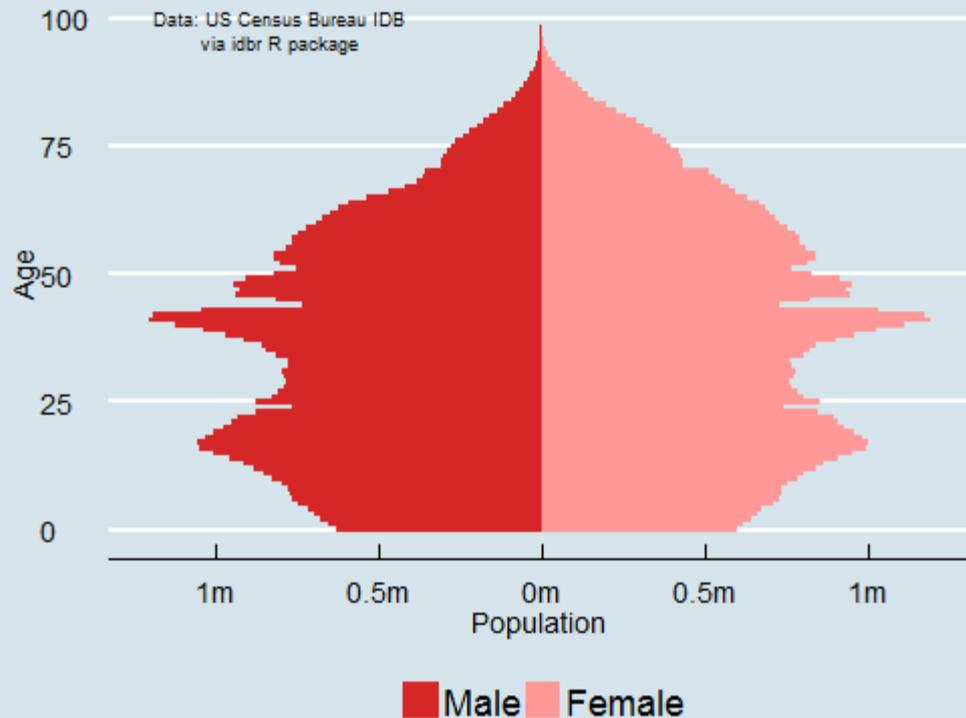


ONE OF THE MOST RESPECTED AND EXPERIENCED DIGITAL HEALTH EXPERTS IN THE WORLD LAST WEEK CALLED ON THE AUSTRALIAN DIGITAL HEALTH AGENCY (ADHA) TO STOP THE CURRENT TRAJECTORY OF THE MY HEALTH RECORD (MHR) PROJECT IMMEDIATELY AND REFOCUS AND PRIORITISE INVESTMENT WHERE IT WILL HAVE REAL AND NEAR-TERM BENEFIT FOR THE AUSTRALIAN HEALTH SYSTEM.

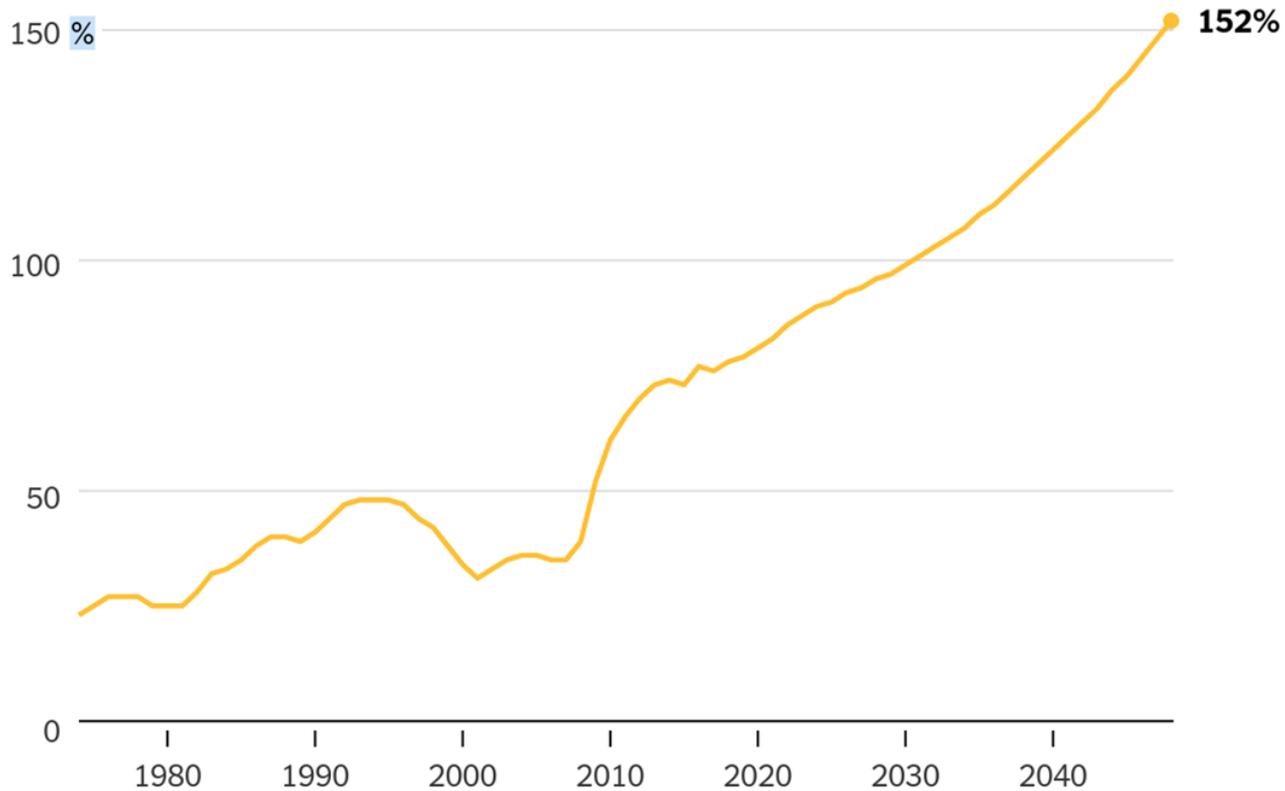
# What is the Urgency to Change?

- Aging societies all over the world - Japan, Sweden, Germany, Italy, US
- Falling birth rates
- Shortage of clinicians
- Unsustainable costs
- Variations in quality

## Population structure of Japan, 1990



Federal debt as a share of gross domestic product, historical and projected.



# What New Tools are Available in 2019?

- Internet of things and connected health devices are exploding
- Artificial Intelligence and Machine Learning are mainstream tools available from multiple platform providers
- The era of apps and cloud hosted services has arrived
- Application Programming Interfaces are increasing in number and sophistication
- Policy drivers including value-based purchasing, promoting interoperability program and telemedicine friendly reforms

# The Connected Home 2019

- Cameras
- Sensors
- Ambient listening/voice control
- Hubs and integration
- APIs

# My Experiences with Connected Health Devices

- My own diagnosis and treatment of hypertension
- My wife's seeking a specialty referral
- My father's treatment for multiple sclerosis
- My mother's activities of daily living
- My collaboration with BIDMC@home development

# Challenges We Still Face

- Medical/legal precedent with storage, use, and alerts/reminders for patient generated healthcare data
- Data provenance and quality
- Turning data into information, knowledge and wisdom
- Understanding normal variation
- Security and privacy concerns

# How Will Machine Learning Change Healthcare?

- Augmenting, not replacing clinicians
- Helping families/patients/carers navigate the healthcare system
- Examples from South Africa and India
- Buoy Health, Ada and Babylon Health
- A BIDMC Case Study

# BIDMC Early Experiences with Machine Learning

- Optimizing the operating room schedule
- Predicting discharge date
- Predicting ambulatory no shows
- Automating fax workflow
- Enhanced search of the health record

# Apps/Cloud Hosted Services will Surround the EHR

- Examples from Athena's More Disruption Please, Epic's Orchard, and Cerner's App Gallery
- Medaware case study and prescription drug monitoring
- Protecting Access to Medicare Act and early experiences with Anvita Health
- Apple's Healthkit and the consumerization of healthcare
- Suki.ai and reducing clinician burden

# The Argonaut Project and the Evolution of APIs

- How it all started
- Year 1
- Year 2
- Year 3 and beyond
- The policy changes needed

# The Policy Changes Needed

- The reality of Information Blocking the upcoming rule
- Best practices for use and access to APIs, services and tools
- Reducing clinician burden of documentation
- Rationalizing quality measures
- Encouraging third party innovation

# Closing Thoughts

- The future for digital health in 2019 is very bright
- Although government has a role as convener and catalyst, the real acceleration will happen in the private sector and from foundations
- The technology we need is already in place from the consumer sector, we just need better integration
- API standards are rapidly maturing
- The urgency to act is clear - we're all patients, so let's make it happen

