



*“Bringing world class innovations to market
by bridging discoveries into commercial products.”*



Aging in Place: Healthy Aging With Digital Health

June 18, 2017

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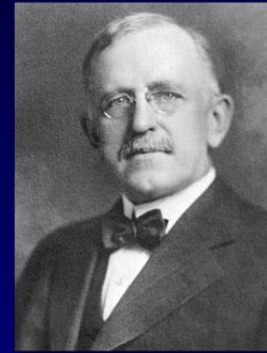
Disclosure

During this presentation, I will be discussing new technologies and companies. The use of these technologies and companies is for the purpose of examples and should not be construed as an endorsement by the Cleveland Clinic, eHealth Ventures and/or the presenter as an endorsement to use, purchase, or invest in any of the technologies or the companies represented during the presentation.

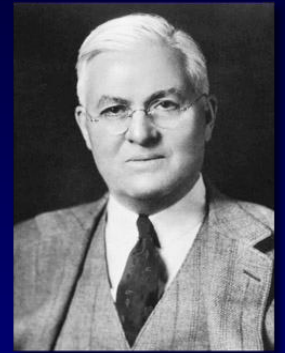
Since 1921

A Unique Model of Care

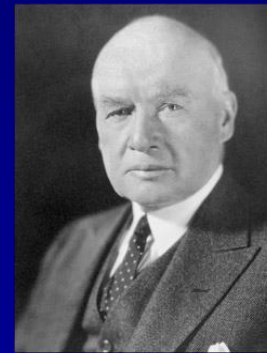
- **Four doctors share a vision**
 - **Non-profit, physician-led group practice**
 - **Collaboration across disciplines**
 - **All physicians are salaried**
 - **Patient-centered mission**



FRANK E. BUNTS, MD



GEORGE CRILE SR., MD



WILLIAM E. LOWER, MD



JOHN PHILLIPS, MD

Cleveland Clinic

- **7.3 M Patient Visits**
- **51,000 Employee Caregivers**
- **27 Institutes providing care in 120 subspecialties**
- **Locations**
 - **Main Campus**
 - **12 Community Hospitals**
 - **18 Family Health Centers in NE Ohio**
 - **21 Express and Urgent Care Centers in NE Ohio**
 - **Facilities in Florida, Nevada, Toronto & Abu Dhabi**
- **EMR Leader – My Chart**
- **Top 2 Hospital by U.S. News & World Report**



Cleveland Clinic is ranked as one of America's top 2 hospitals by U.S. News & World Report.

Cleveland Clinic Innovations

We promote innovation and expand treatment of the sick through the deployment of technologies developed by Cleveland Clinic and our Healthcare Innovations Alliance Partners.

Through commercialization, we translate emerging diagnostics, therapies, devices, health IT and business solutions into beneficial medical products through spin-off companies, licenses and equity partnerships.

Innovations Scorecard Since 2000

- **3,000 Patent Applications**
- **500 Royalty Licenses**
- **77 Spin-Offs**
- **\$1B + in Equity Investments**
- **\$80M to Inventors**
- **\$167M in State & Federal Grants**
- **1,200 Jobs Created**
- **World-Wide Recognition**



eHealth Ventures

The logo for AMGEN, featuring the word "AMGEN" in a bold, blue, sans-serif font.The logo for Cleveland Clinic, featuring a green and blue cross icon followed by the text "Cleveland Clinic" in a black, sans-serif font.The logo for Maccabi Healthcare Services, featuring a blue swoosh above the word "Maccabi" in a bold, blue, sans-serif font, with "Healthcare Services" in a smaller, blue, sans-serif font below it.The logo for MEDISON, featuring the word "MEDISON" in a bold, black, sans-serif font with a red and white circular icon, and the tagline "Delivering Innovative Healthcare" in a smaller, black, sans-serif font below it.The logo for SCI, featuring the letters "SCI" in a bold, white, sans-serif font inside a dark blue square, followed by the Chinese text "上海创瑞投资" and the English text "SHANGHAI CREATION INVESTMENT" in a smaller, black, sans-serif font.

eHealth Ventures is a consortium of world-class medical organizations, industry leaders, and seasoned financial investors who are partnering to identify, fund and commercialize emerging digital health companies

What is the problem

- People are living longer
- Hong Kong Population 85 years and older
 - 2005 – 82,700
 - 2015 - 163,200

Population 65 -69

2005 -246,200

2015 – 363,400

Population 70-84

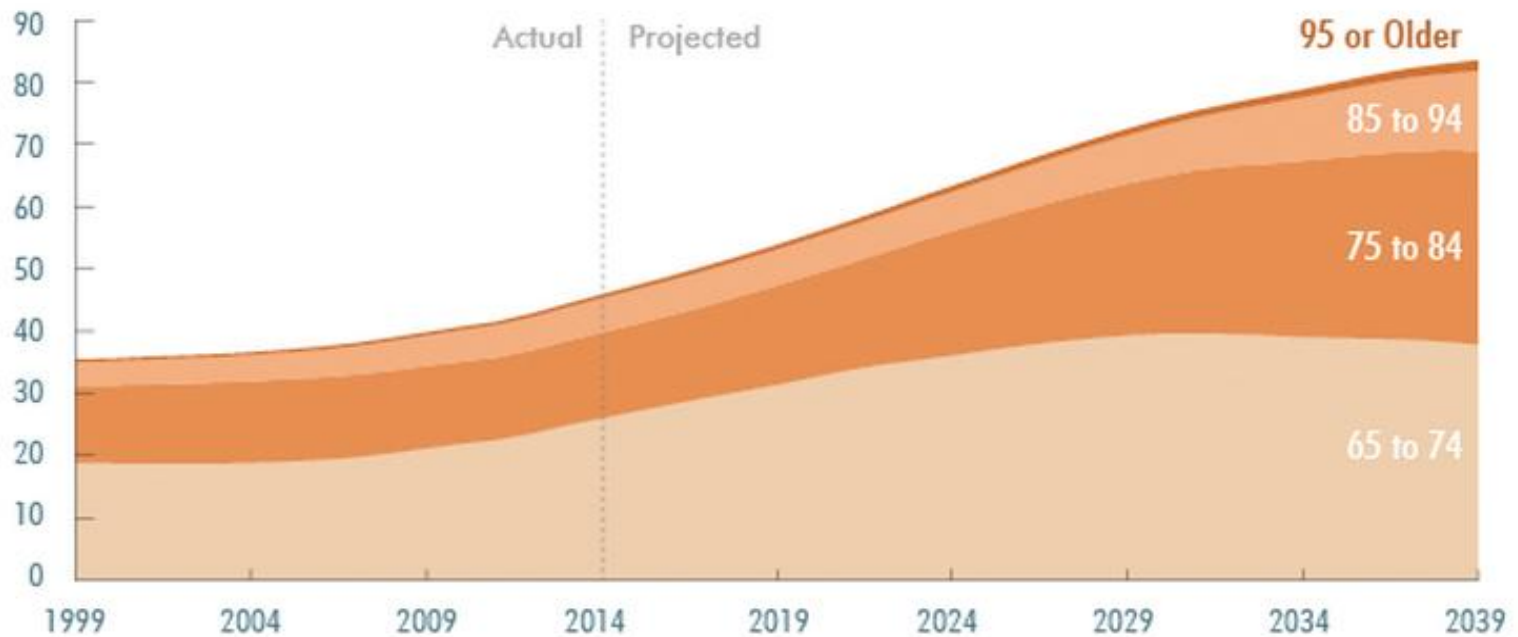
2005 – 505,800

2015 – 590,700

What is the Problem

Number of People Age 65 or Older, by Age Group

Millions of People



What is the Problem

- **Medical innovation, better care, better medicine, better access to care, new technologies, medicines, diagnosis and treatments.....**
- **PEOPLE ARE LIVING LONGER**

An Example of the Challenge?

- **As people live longer, there will be a sharp increase in the number of people with dementias, such as Alzheimer's disease (AD). In fact, 25% to 30% of people aged 85 and older have a high level of cognitive decline. Globally there are an estimated 47.5 million dementia sufferers, and the number is expected to increase to 75.6 million by 2030 and 135.5 million by 2050. AD is the most common form of dementia, affecting an estimated 5 million people older than 65 in the U.S – Forbes**



**OUR
BODIES ARE
OUT LIVING
OUR MINDS**



So what is the REAL PROBLEM?

- **More people will need services – 2x to 3x more than are being served today.**
- **They will need more services longer.**
- **AND... Hong Kong will not have the space or infrastructure necessary to meet the future demands.**
- **AND ... Hong Kong will never have the resources to ramp up to meet the demand, using current techniques.**

***“If you do not like change....
You are going to like
irrelevance even less” -***

General Eric Shinseki

Technology is Changing



Apollo Guidance Computer.

Dimensions: 24 x 12.5 x 6.5 inches

Weight: 70 pounds

Processor speed: 1 MHz

Memory: 2,048 words (32,768 bits or roughly 4kB)

Display: seven-segment numeric

Power consumption: 55 watts

Price: \$150,000 (est.)



Apple I Phone

Dimensions: 4.5 x 2.31 x 0.37 inches

Weight: 4.9 ounces

Processor speed: 800 MHz, dual core

Memory: 512 MB of RAM, built in storage up to 128 GB

Display: 3.5 inches, full color, 649 x 960 pixels

Power consumption: 0.7 to 1.5 watts

Price: starting at \$199 (with 2-year contract)

800 X more powerful

The Opportunity

- **You can serve a much larger population by using technology and remote outreach.**
- **One nurse can go to 6 homes in an 8 hour day.**
- **One nurse at a console could handle 50 or more patients a day remotely.**

The Opportunity

- **Adoption of computer and computer technology is significantly lower in the age group over 75 (about 33%) BUT**
- **For those in their 60s and 70s today they are dependent on PDAs and other devices and that will continue to grow.**
- **The group that is aging today is becoming more comfortable with technology and it is very much a part of their daily lives.**
- **Today, the “patient” and their family wants to be empowered and technology is encouraging and enabling that to occur.**

A Challenge

- **Today sensors and monitors are throwing off mountains of data....**
- **This can lead to more confusion.**
- **How do you manage the data to allow for true care decisions. What data do you need to have and when do you need to have it?**
- **That data has value, when properly organized into actionable steps.**
- **And how will you get paid, and how will this be funded?**

The Opportunity

- **“Every patient is an expert in their own chosen field, namely themselves and their own lives”** Emma Hill, Editor the Lancet

The Challenge to you

- **It cannot be business as usual.**
- **“It is not the owner of the stage coach who builds the railroad”** - Joseph Schumpeter
- **What will be your business over the next 20 years?**

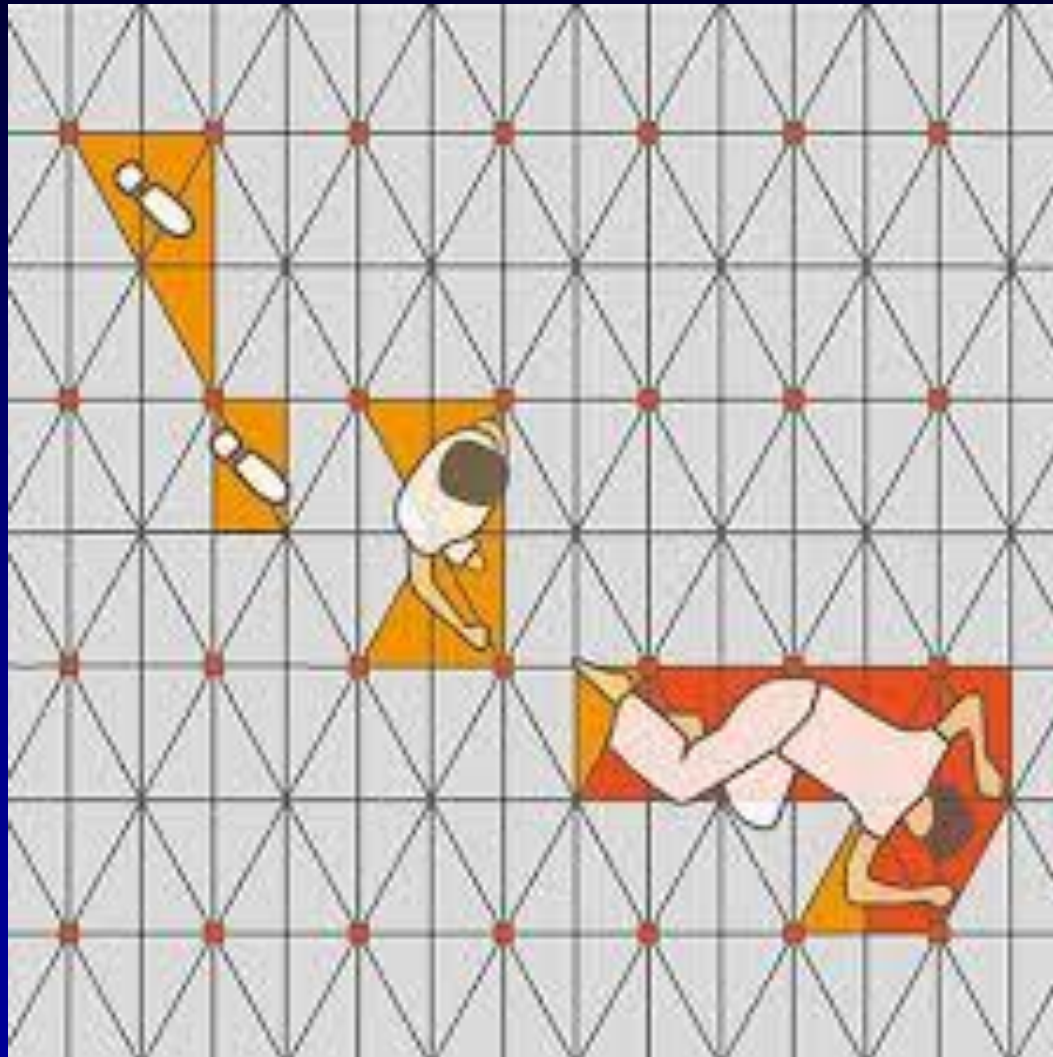
Aging in Place

- **The ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level.**

The Future is Here TODAY



The Future is Here Today



The Future is Here Today



The Future is Here Today

- **Echo Housing**
- **400 to 800 square foot built in your backyard to take care of mom and dad AND TO KEEP A CLOSE EYE ON THEM**
- **You can build in sensors – alternative to assisted living or nursing home**



The Future is Here Today



Robots

The Future is Here Today



The Future is Here Today



Intendu. The company provides people with neurological problems stemming from traumatic brain injury to age-related cognitive decline to train the brain through a series of personalized exercises that involve body-controlled adaptive videogames. The goals are customized to each user.

Disclosure: eHealth Ventures is an investor

The Future is Here Today



IBM Watson

Conclusion

- **The Silver Tsunami will only increase the need/opportunity to provide services.**
- **As people live longer the need to provide services will only increase.**
- **Providing service where people live will become increasingly more important.**

Conclusion

- **Technology will allow for the deliver of more services to more people who need them.**
- **Understanding how to use the data will be critical.**
- **Developing mechanisms to monitor and support people in their homes using technology.**
- **The technology will only improve. The care delivery process is the most important aspect of the services**



**The best way
to predict the future
is to create it.**

Peter Drucker

“The future belongs to those who seize the opportunities created by innovation.”

**Delos M. Cosgrove, MD
CEO & President
Cleveland Clinic**

Medical Innovation Summit

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- 100+ Speakers
- 40+ States
- 26+ Countries






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Cleveland Clinic

Every life deserves world class care.