

# Innovation in Healthcare RMATRIX Hawaii & Beyond

RCMI Multidisciplinary And Translational  
Research Infrastructure EXpansion in  
Hawaii

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# John A. Burns School of Medicine

## UNIVERSITY OF HAWAII AT MĀNOA



- Established in 1965 as a 2-year program
- Adopted 4-year degree program in 1973
- >2100 M.D. Graduates

*Aloha!*



**John A. Burns School of Medicine**  
University of Hawai'i at Manoa

# Students



**~1800 applicants, 64 chosen, 90% Hawai'i residents**



# Kaka'ako Campus



Ten acre,  
\$150  
million  
campus  
opened in  
2005.





# Research: Infectious Disease



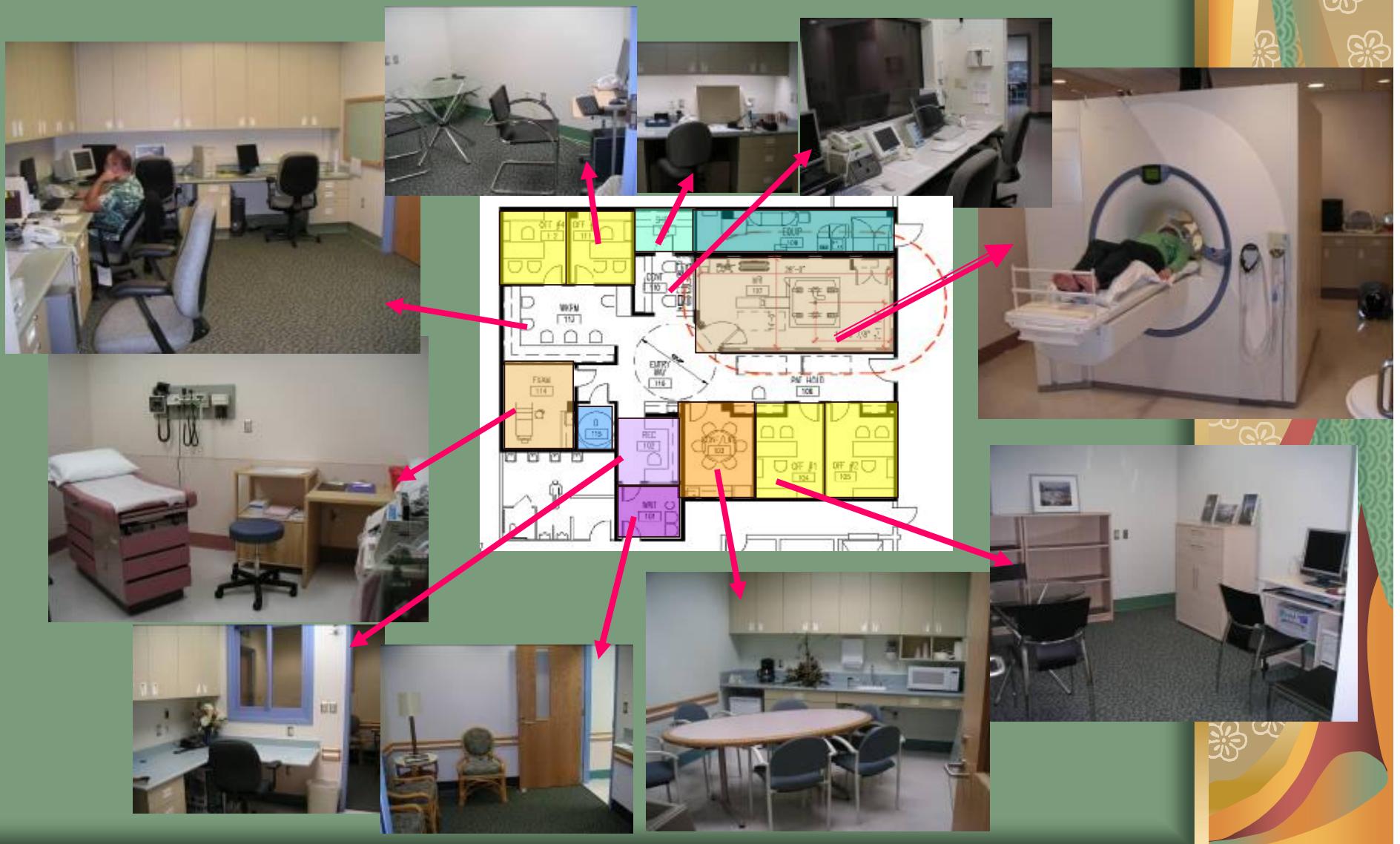
Biosafety Level 3  
laboratory on  
site

*Dengue Fever  
Avian Flu  
West Nile Virus  
HIV/AIDS*



# Existing Resources

3 T MR scanner (\$3 million) - Office of National Drug Control Policy  
UH-QMC 3 T MR Research Facility (~\$2 million) - Queens Medical Center





# Institute for Biogenesis Research

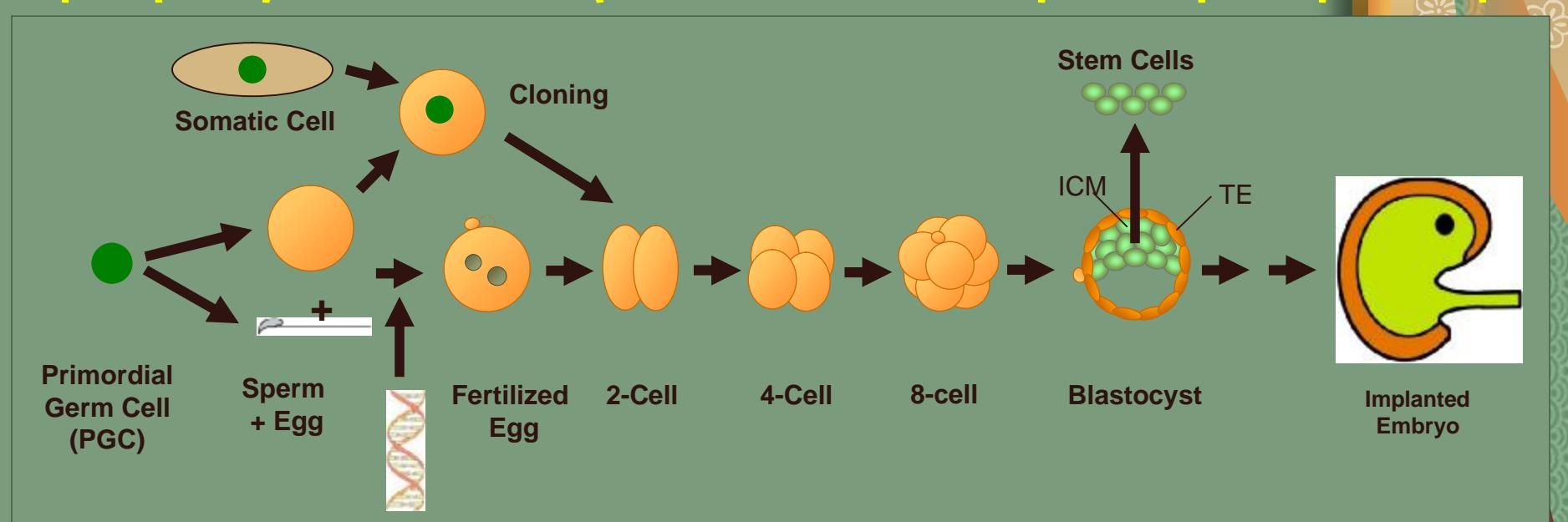


**Founder, Dr. Ryuzo Yanagimachi**



- Assisted fertilization
- Transgenesis

**Dr. W. Steven Ward, Principal Investigator**



Steve Ward  
*Sperm Chromatin*

Stefan Moisyadi  
*Active Transgenesis*

Monika Ward *Sperm Genetics and Function*

Vernadeth Alarcon  
*Cell Differentiation in The Early Embryo*

Yusuke Marikawa  
*Body Plan Formation*

Ryuzo Yanagimachi *Fertility*

Yukiko Yamazaki *PGCs and Cloning*

Rich Alisopp  
*Telomerase & Stem Cells*

Scott Lozanoff  
*Morphogenesis & Birth Defects*



# National Children's Study

- 1,000 Oahu children carefully monitored for twenty years
- Medical and environmental data





# Geriatric Medicine Department



- Aging population
- Nationally-ranked programs tailored to Hawai'i's diverse communities
- Recent FOX-AO3 discovery



# Native Hawaiian Health Department



**diabetes**

**heart disease**

**asthma**

**obesity**

**Center for Native and Pacific  
Health Disparities Research**



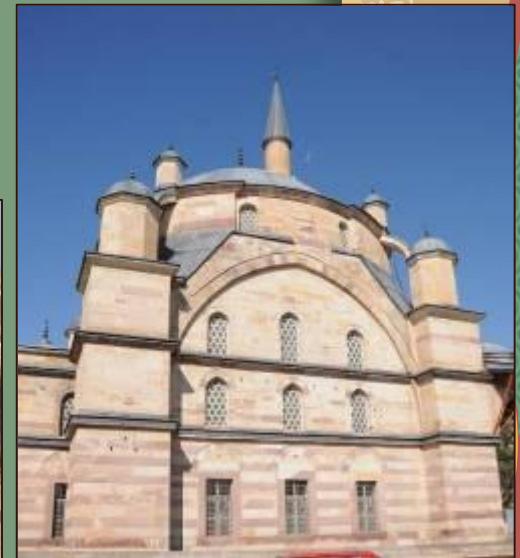
**Dr. Marjorie Mau  
Dr. Keawe'aimoku  
Kaholokula**



# Cancer Research

## ■ MESOTHELIOMA

■ Dr. Michele Carbone, Landon Prize for  
International Collaboration



**Turkey**



## Some of the NIH Programs at JABSOM

- INBRE (Science – Investigator Pipeline)
- CRECD (MS/PHD Clinical Research)
- RCRII (Clinical Research Center)
- CCRE (Cardiology)
- COBRE (Cardiology, Biogenesis, Trop Med)
- CCHD (Center for NHPI Health Disparities)
- SNRP (Neuroimaging – Amphetamines/HIV)

# Translational Research Concept

- Research Centers in Minority Institutions (RCMI)
- **RCMI Clinical & Translational Research Infrastructure (RCTR) application**
- Develop and strengthen infrastructure required for the conduct of clinical and translational research in RCMI institutions
- JABSOM was eligible to apply because of:
  - Clinical Research Center (CRC),
  - CCRE (Center of Clinical Research Excellence);
  - Clinical Research Education and Career Development (CRECD)

# Health Disparities in Hawaii

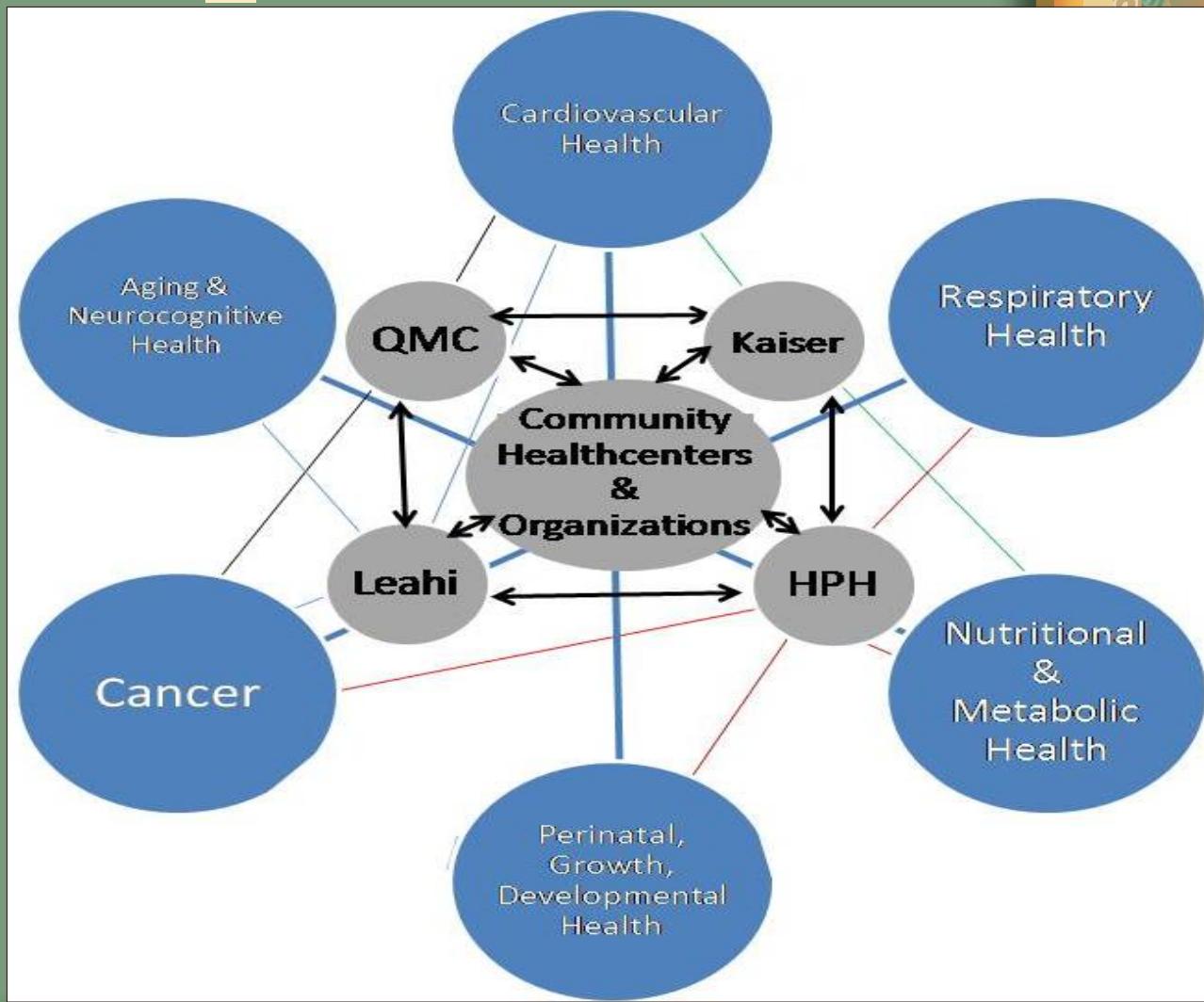
Health inequities lead to health disparities in Native Hawaiians, Pacific Islanders, Asians in Hawaii:

**HEALTH Initiatives** (Health Equity & Lifestyle Transformation in Hawaii)

- Cardiovascular Health
- Respiratory Health
- Cancer Health
- Nutrition & Metabolic Health
- Perinatal and Growth/Developmental Health
- Aging & Neurocognitive Health

# HEALTH Initiatives

## HHealth Equity & Lifestyle Transformation in Hawaii



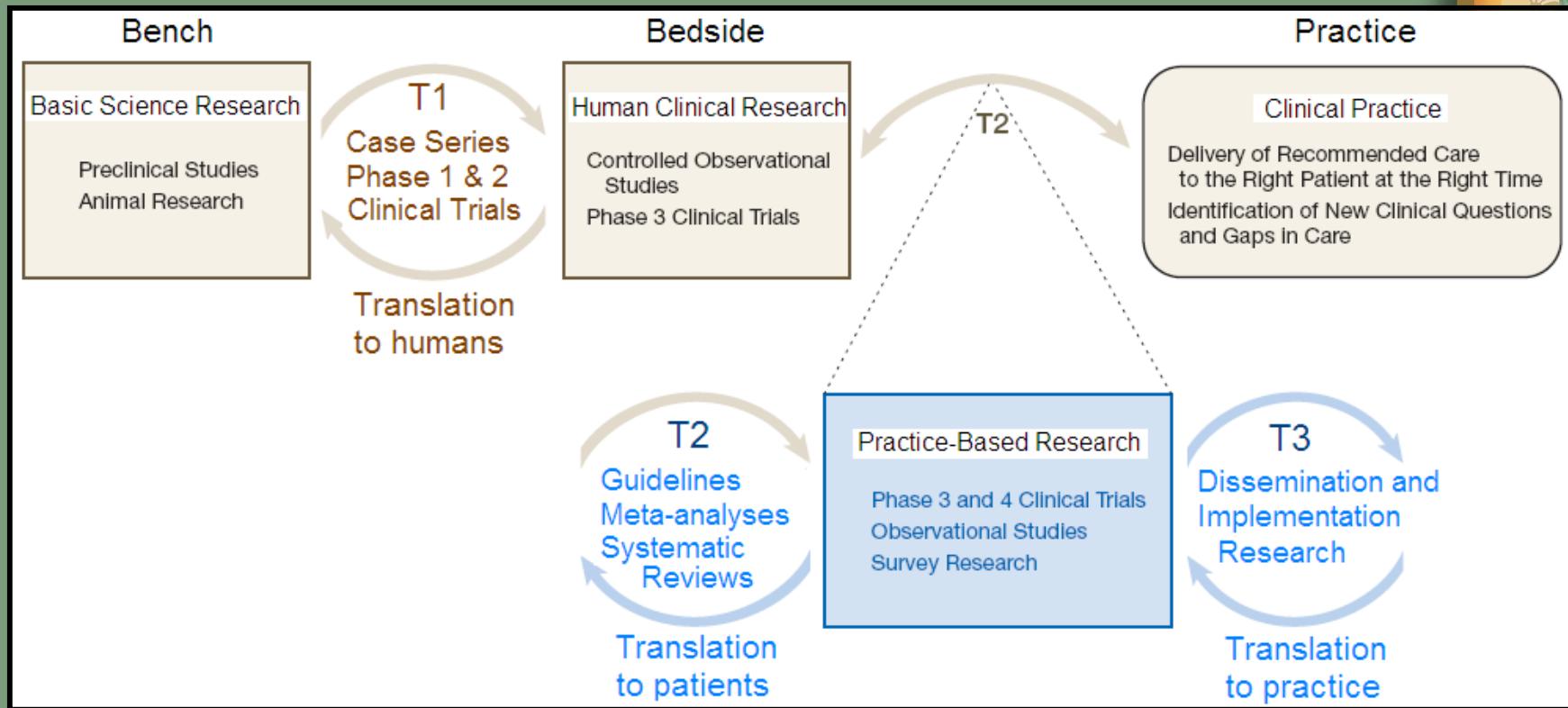
# R MATRIX Key Functions

1. Collaborations and Partnerships
2. Community-Engaged Research
3. Participant and Clinical Resources
4. Multidisciplinary Research Education, Training, and Career Development
5. Biomedical Informatics
6. Research Design & Biostatistics
7. Research Ethics
8. Regulatory Knowledge & Support
9. Evaluation Milestones

# RMATRIX Objectives

1. Integrated “home” for clinical and translational science in Hawaii
2. Consolidate, assimilate, and enhance existing infrastructure to strengthen RCMI Programs
3. Support investigators thru research education, training, and career development
4. Foster research collaborations across disciplines and throughout the communities
5. Partner in Community Engaged Research

# NIH Roadmap for Medical Research: Need for Collaborations and Partnerships



# Why Now? Why Here?

- National Health Plan focus on reducing health disparities within the population
  - Why do some population subsets have more disease or worse disease?
- Controversy/confusion on interplay of factors influencing health
  - Socio-economic and demographic status
  - Genetics, ethnicity, cultural practices
  - Access to healthcare, medicines, procedures
- Hawaii provides the multicultural, multiethnic community that can answer this issue

# Translation to the community

- Telemedicine
  - Endocrinology, Psychiatry
  - Chronic disease management
- Preventive Programs
  - Childhood obesity
  - Hawaii 5-2-1-0



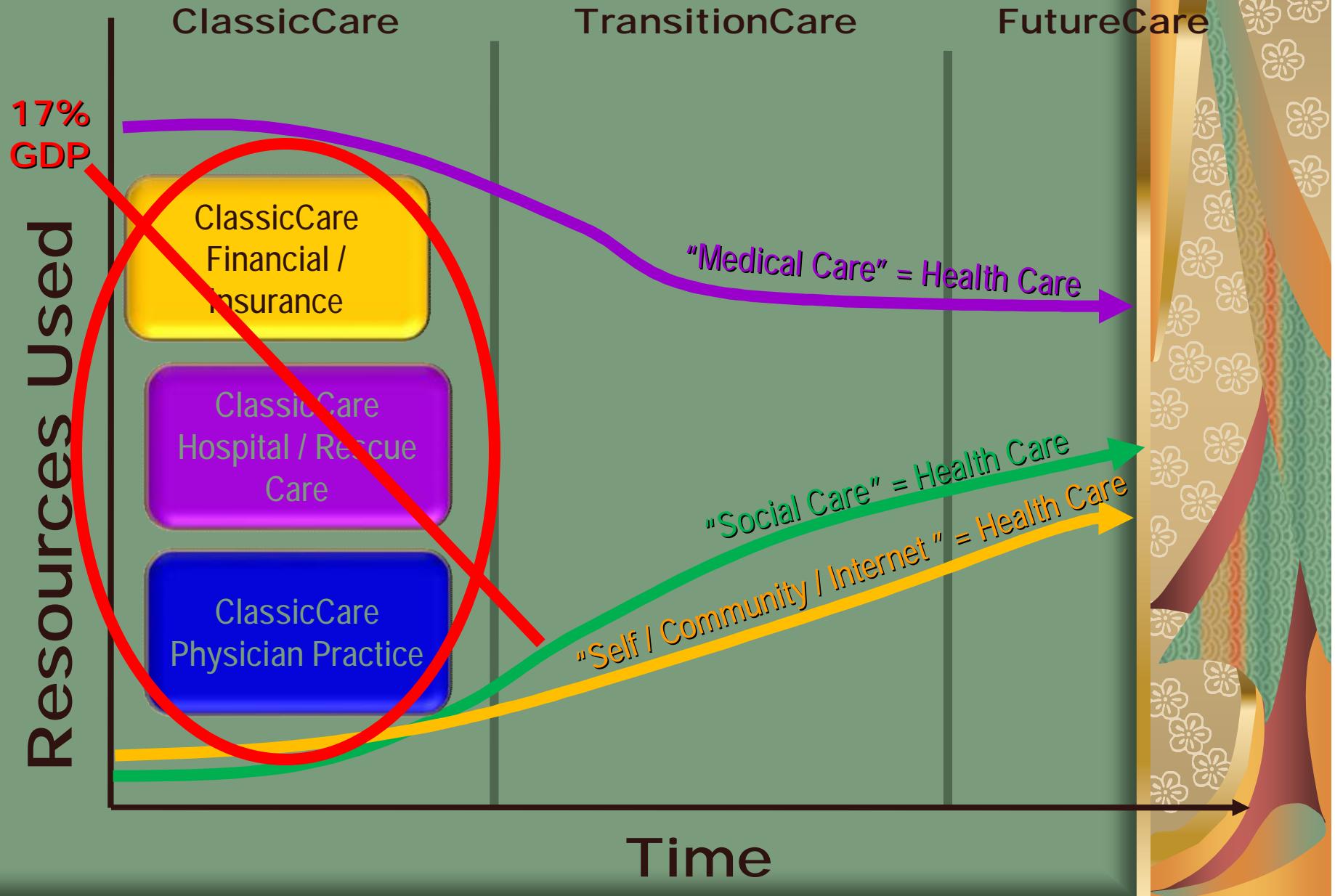
# Next steps

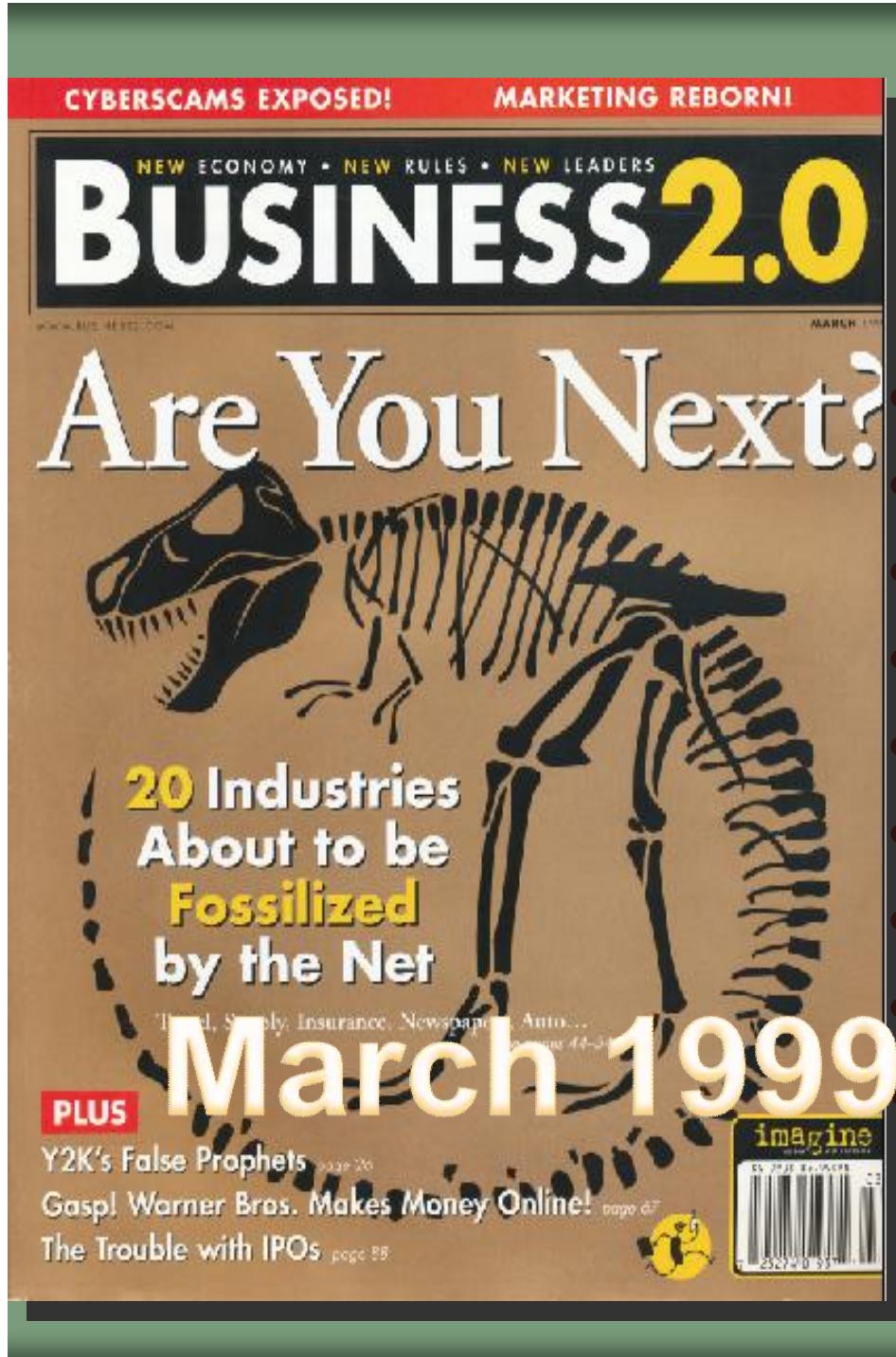
- Personalized medicine
  - Ethically & culturally tailored
- Transitions to new business models
  - Health focused
  - Use of alternative delivery systems
  - Minimization of redundancy
  - Evidence driven

# Personalized medicine

- Right treatment for Right person at the Right time
- Why do some treatments work for some and not others?
- Personalized dosing and treatment combinations driven by disease understanding and individual characteristics
  - Proteomics, genomics, epigenetics

# Possible Direction of US Health Care





# Vanishing Businesses/Industries

- Travel Agencies
- Lehman Bros.
- Printing Industry
- Block Buster Video
- Local Book Stores
- Local Newspapers
- Broadcast TV
- Corner Bank
- WAMU

# Our Potential Adventure

