Enabling Sustainable Health in Our Communities

http://www.mauliola.net

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The Problem: Diabetes Disparities

**DIABETES STATS**

25.8 million
More than 8 percent of the U.S. population has been diagnosed with diabetes.

79 million
Approximately 35 percent of adults, 20 and older, have prediabetes — most have not been diagnosed.

71,382
The number of deaths directly attributed to diabetes annually in the United States. Diabetes also contributes to another 231,404 deaths per year.

2050
The year by which 1 in 3 Americans will have diabetes.

More than 30 MILLION Americans have diabetes

Health care costs for Americans with diabetes are 2.3X greater than those without diabetes

Diagnosed diabetes costs America $327 BILLION per year

$1 IN $7
Health care dollars is spent treating diabetes and its complications

Today, 4,110 Americans will be diagnosed with diabetes. Additionally, diabetes will cause 295 Americans to undergo an amputation and 137 will enter end-stage kidney disease treatment.

Learn how to fight this costly disease at diabetes.org/congress
Diabetes Disparity in Hawai‘i

- T2DM prevalence tripled in last 30 years [CDC 2011]
- 9.3% prevalence in US [ADA 2012]
- 8.4% prevalence in State of Hawai‘i [Hawaii BRFSS 2013]
- 7.9% to 8.4% increase in diabetes prevalence from 2005-2013 [Huakai 2014]
Regional and Population Health Disparities

http://www2.jabsom.hawaii.edu/native/comm_ulu-reports.htm
Behavioral Risk Factors

http://www2.jabsom.hawaii.edu/native/comm_ulu-reports.htm
Social-Economic & Education Disparity

http://www2.jabsom.hawaii.edu/native/comm_ulu-reports.htm
Environment: Social Status

Behavior: Risk Factors

Biology: Epigenetics-Gut Microbiome-Brain Axis

Health: Disease Outcomes

Question:
Can community-based initiatives not designed on health help?

Seeking Solutions:
Measuring health impact of community-based initiatives that incorporate cultural knowledge & practice

Goal: Prevention-focused health care!

DNHH-Community Partnerships: ‘Ulu network
MAʻO: Mala ʻai ʻopio (youth food garden)

- Mission: to restore a thriving and resilient community food and education system is based on a successful and progressive 16-year kahua (foundation) of growing organic fruits and vegetables while cultivating youth leadership in Waiʻanae.
- 23-acre certified organic farm located in Lualualei valley in Waiʻanae. Trains new farmers and community leaders by having them co-manage the social enterprise operations as they produce, process, market and distribute over 2 tons of high quality organic fruits & vegetables.
- Youth Leadership Training (YLT) is a 2-year opportunity for youth 16-24 years old with roots in Waiʻanae to participate in a college internship & work program that provides tuition support at Leeward Community College or UH West Oʻahu, a monthly stipend, & real-world job experience.

www.maoorganicfarms.org
Measuring the Impact of Community-Based Program on Health

Engage & Recruit

Collect Data

- MA‘O interns (n=40)
- Social network (n=360)

Analysis

- Diabetes risk (A1C)
- BMI
- Blood pressure
- Mental health
- Gut microbiome composition
- Diet, social economics, etc.
- Health behaviors
- Social network influences

Disseminate

- Health impact
- Economic impact
- Policy implications?

- Papers
- Presentations
- Reports

Year 0

Year 1
Preliminary Results of Research
Health and Economic Impacts

<table>
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<th></th>
<th># Reduction</th>
<th>Direct</th>
<th>Direct + SN</th>
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<tr>
<td>Prediabetes</td>
<td>-32.12</td>
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<td>Diabetes</td>
<td>-8.72</td>
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<tr>
<td>Total Savings</td>
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When taken into account over the lifetime, the economic impact of MAʻO amounts to several millions of dollars in diabetes risk prevention alone (community at-large).
Enable communities to promote healthy lifestyles via evidence-based data of impact to eliminate diseases of health disparities

✓ Engage

✓ Evaluate
- Diabetes risk: A1C, BMI, BP
- Mental health
- Gut microbiome
- Immunoepigenetics
- Nutrition, Socioeconomics, etc.

✓ Empower

Health Impact
- Pre-MA‘O
- Diabetic
- Healthy
- Pre-Diabetic
- Post-MA‘O
- >60%

Social Impact
- $120,000/yr
- Education
- Wellbeing
Conclusion: Health is a Shared Responsibility

• Studies like ours allows communities to be valuable partners in the health care system

• Enables sustainable health care by shifting the focus from treatment- to prevention-oriented approaches

• Develop new methodologies for communities to assess the impact of their programs in a rigorous scientific manner; this enables them to play a vital role in the health care ecosystem

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