



UNIVERSITY OF GUAM
UNIBETSEDĀT GUAHAN
Cancer Research Center

University of Guam/ University of Hawaii Cancer Center Partnership

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U54 CA143728

Pacific Global Health Conference
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UNIVERSITY OF HAWAII
CANCER CENTER

University of Guam /University of Hawaii Cancer Center Partnership (U54) – An Introduction

Population demographics & economic and healthcare indicators – GU & HI

Cancer Incidence & Mortality – GU & HI

Cancer Disparities – GU

Student training in cancer research

U54-funded research

Comprehensive Minority Institution/ Cancer Center Partnership (U54)

Comprehensive partnership between Minority Serving Institution (MSI) & NCI-designated Cancer Center aimed at understanding reasons behind significant cancer disparities and related impact on minority populations.

- University of Guam/University of Hawaii Cancer Center Partnership began in 2003, and is funded through August 2014 by the NIH
- Of 12 U54 grantees, UOG/UHCC Partnership is the only U54 focusing on Pacific Islanders
- PIs: Helen JD Whippy, PhD, UOG & Carl-Wilhelm Vogel, MD, PhD, UHCC

Mutual Benefit

- Research laboratory; unique ethnic, cultural and environmental characteristics of Hawaii, Guam and the US-associated Pacific Islands (USAPI).
 - Distinct multi-ethnic populations unique to this region
- Shared commitment to cancer research and care in order to address regional health disparities.



Specific Aims

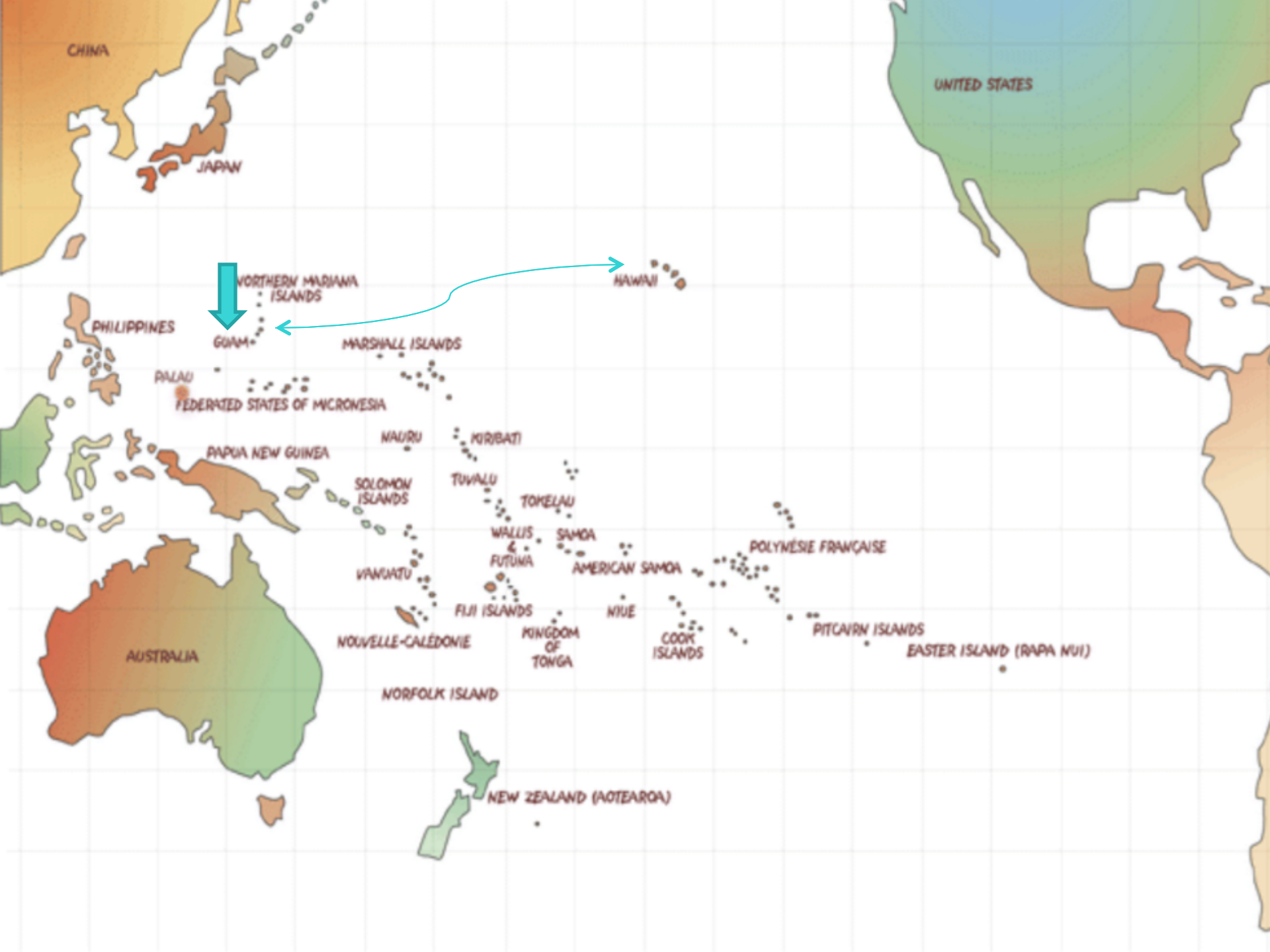
- Increase # of minority scientists of Pacific Islander ancestry in cancer research, and provide education and training opportunities for Pacific Islander students;
- Increase cancer research activities and number of UOG faculty involved in cancer research;
- Strengthen the research focus at UHCC on cancer health disparities; and
- Enhance awareness of cancer and cancer prevention, and reduce the impact of cancer on the Territory of Guam, Hawaii and the USAPI.

Rationale

- Significant health disparities, including cancer
- Significant risk factors:
 - Smoking & Alcohol
 - Betel Nut & related health issues
 - Diets high in fat and salt
 - Hepatitis B & C
 - Radiation exposure

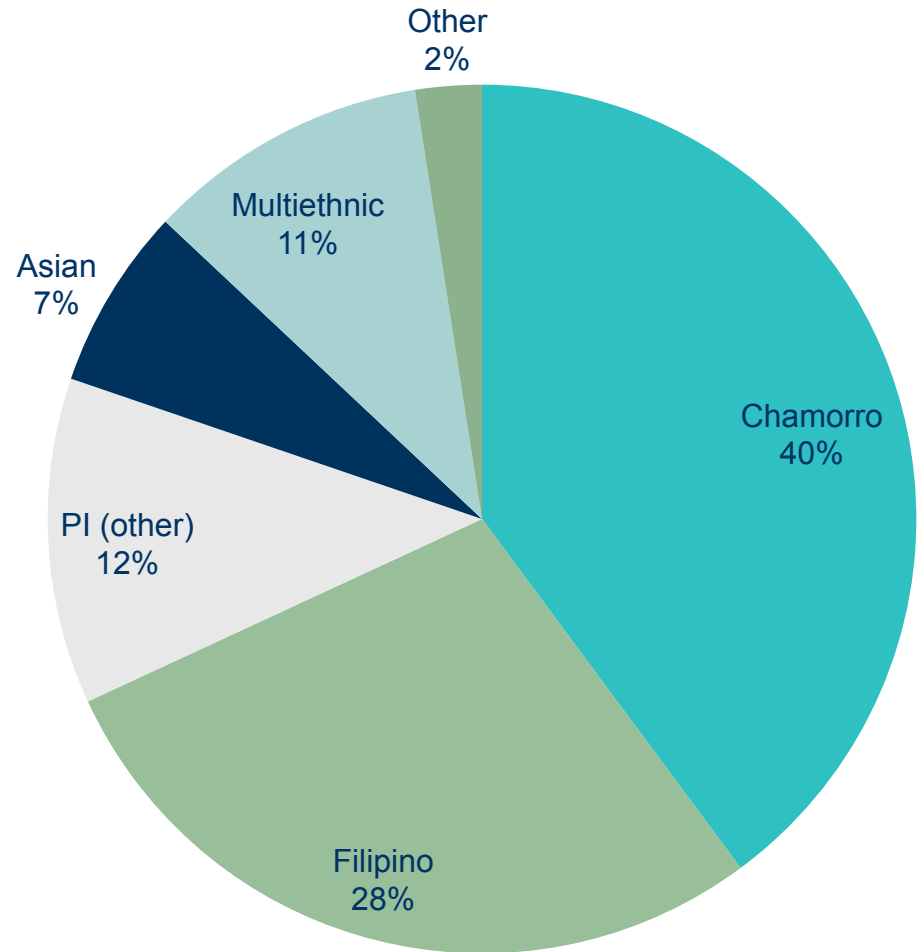


- Pacific Islanders: highly underrepresented among cancer researchers & cancer health care professionals.



Guam

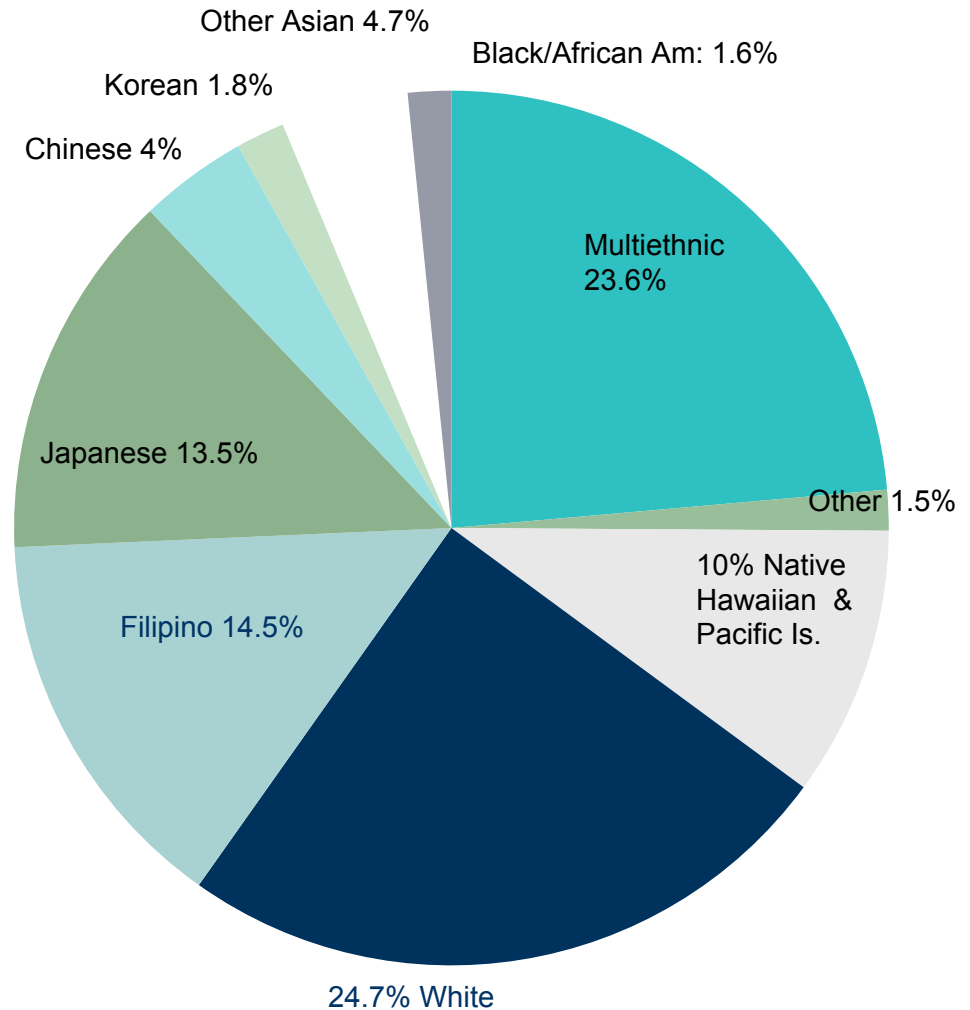
- Population
 - 165,674 (2011)
 - Median age: 29
 - Life expectancy: 79



Hawaii

- Population

- 1,374,810 (2011)
- Median age: 38.6
- Life expectancy: 81



Economic Indicators

	GUAM	HAWAII
POPULATION BORN ON GU/HI	52%	55%
FOREIGN BORN	32%	17.7%
MEDIAN INCOME	\$41,821 (2000)	\$61,821 (2011)
BELOW THE POVERTY LINE	23% (2001 est)	9.6% (2010)

Health Care Indicators

GUAM:

- 3 Cancer Centers (clinics)
- Two hospitals, only one is public
- Of the 12,000 patients served, nearly half are MIP, Medicare or Medicaid

HAWAII:

- 1 NCI-designated cancer center
- 7 public hospitals & 1 military providing ca care
- 8% population uninsured

Economy

- Primarily considered an urban area (93% of GU & 89% of HI population)
- Shared economic drivers:
 - Tourism
 - Military



CANCER INCIDENCE – Top 6

	FEMALES - GU	FEMALES - HI	MALES - GU	MALES - HI
1	Breast	Breast	Prostate	Prostate
2	Lung & Bronchus	Colon & Rectum	Lung & Bronchus	Lung & Bronchus
3	Colon & Rectum	Lung & Bronchus	Colon & Rectum	Colon & Rectum
4	Uterus	Uterus	Liver	Bladder
5	Thyroid	Leukemia	NH Lymphoma	Melanoma
6	Cervix	Thyroid	Oral Cavity	Leukemia

- GU: approx. 316 new cases per year
- HI: approx. 6,000 new cases per year

CANCER MORTALITY

	FEMALES - GU	FEMALES - HI	MALES - GU	MALES - HI
1	Lung & Bronchus	Lung & Bronchus	Lung & Bronchus	Lung & Bronchus
2	Breast	Breast	Prostate	Colon & Rectum
3	Colon & Rectum	Pancreas	Colon & Rectum	Prostate
4	Cervix	Colon & Rectum	Liver	Pancreas
5	NH Lymphoma	Ovary	Nasopharynx	Liver

- GU: approx. 144 deaths per year
- HI: approx. 2,000 deaths per year

Cancer Incidence Trends

For the period 2003 -2007, Guam had a **lower** over-all age-adjusted cancer incidence rate (282.2 per 100,000 population) compared to the 2005 U.S. rate (458.4 per 100,000).

However, some cancers occur more frequently on Guam than in the U.S. For instance, for the same period:

High Uterine Cancer Incidence

- **Uterine cancer was highest among Chamorro women - 49 times the U.S. rate (it was 39.5 times the U.S. rate for the period 1998 – 2002).**
- Risk factors implicated in uterine cancer include obesity, diabetes, high blood pressure, hormone replacement therapy, or a history of endometrial hyperplasia.

High Nasopharyngeal Cancer Incidence

- **Nasopharyngeal cancer (NPC) was highest among Chamorros - more than 14 times the U.S. rate.**
- Risk factors implicated in NPC include smoking, long-term inhalation of dust or smoke, use of mosquito coils, eating salted fish, Epstein-Barr virus infection, Southern China ancestry.

High Thyroid Cancer Incidence

- **Thyroid cancer was highest among Micronesians and was 3.5 times the U.S. rate.**
- Risk factors for thyroid cancer include radiation exposure (X-ray or radioactive fallout) and a family history of thyroid cancer.

High Incidence of Cancer of the Mouth and Pharynx

- **Cancer of the mouth & pharynx was highest among Micronesians - 2.9 times the U.S. rate.**
- Risk factors for mouth cancer include tobacco use of any kind, heavy alcohol use, HPV infection, radiation treatment of the head or neck area, or radiation exposure, excessive sun exposure to the lips, and betel nut use.

High Liver Cancer Incidence

- **Liver cancer was highest among Micronesians (6.5 times the U.S. rate) and Chamorros (3 times the U.S. rate).**
- Risk factors implicated in liver cancer include Hepatitis B or C infection (alcohol intake as a contributing factor), aflatoxin ingestion

Factors contributing to high rates

- **Tobacco and combined tobacco-betel nut use.**
- Preventable and curable cancers such as **cervical and breast cancers occur at a younger age**, and demonstrate high incidence rates comparable to other developing countries and result in high mortality due to **lack of primary prevention and early detection.**
- **Obesity and diet**
- Mammography and screening for most types of cancer is **not available** in many places in the Marshall Islands nor in the Federated States of Micronesia.
- Working equipment for diagnosis and early treatment of cervical cancer is **non-existent** in several areas of the Freely Associated States.

Student Training in Cancer Research

- Increase # of minority scientists of Pacific Islander ancestry in cancer research, and provide education and training opportunities for Pacific Islander students.
- **Full Program I (Training and Education):** *Minority Pacific Islander Cancer Research, Student & Faculty Development (J. Peterson / C. Vogel):*
 1. Student scholarships; and
 2. Specialization in cancer health disparities in Micronesian Studies Program

Student Training in Cancer Research

- **Scholarships** for students at the master's level at UOG: over 30 students supported to date
- **Scholarships** for students at the doctoral level at UH:
 - 1 PhD graduate now on faculty at UOG & involved in U54 research;
 - 3 doctoral students: 2 in year 2 & 1 in year 3
 - 1 master's student in nutrition



Training & Education Program

Student Tracking Matrix for U-54 / U-56 UOG/UHCC Partnership, as of July 2012

UOG students

¹ Please see listings of conferences under Conferences worksheet.

² Please see bibliography under Publications worksheet.

Name	Faculty Mentor	Full MA/MS U54 stipe	Partial U56 stipe	Partial U54 support	Partial support from UC	Completed 1st Year	Completed 2ndYear	Completed Thesis	Awards, Honors, Conference Presentations	Publications	Entered Doctoral Program	Began Research Assistant in Cancer Research	Subsequent position in cancer research
Marisha Artero	A.Ames	03/2011											
Kristine Borja	Y. Paulino			2010-2012								05/2010	
Joanna Cassi	A.Ames, I.Twaddle	01/2012				05/2011						01/2012	
Perrine Cruz	A.Ames	03/2011										11/2011	
Angeli Grace Cuenco	G.Badowski											11/2011	
Yan Dai	G.Badowski											11/2011	
Alvin Fejeran	T. Ames											08/2011	
Bradley Halbert	T. Ames			2012									
Rachel Hogue	N.Suleman											07/2012	
John Howard	Y. Paulino			2011/12								04/2011	
Carmen Kautz	J.Biggs	08/2010				2009	2010	07/2011	11/2010 ¹		2011 (TTU)	05/2010	
Rebecca Kim	N.Suleman											07/2012	
Wai Chi Lau	N.Suleman											07/2012	
Vince Manibusan	Y. Paulino											05/2010	
Vera Metra	T. Ames			2010-2012				12/2011	ICC			09/2011	
Melani Montano	A.Ames, R.Haddock	08/2010				05/2011	2011			2008, 2010 ²		05/2010	
Iumi Mori	R. Leon Guerrero			2011/12									
Sara Namazi	G.Denton	08/2010				2009	2010	05/2012					
Anjelika Okada	A.Ames	08/2010				05/2011						05/2010	
Ron Paulino	R. Leon Guerrero		2004-2005					MS Biology/UOG			Loma Linda Univ	U56	

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Student Training in Cancer Research

- Increase # of minority scientists of Pacific Islander ancestry in cancer research, and provide education and training opportunities for Pacific Islander students;
 - **Specialization** in cancer health disparities in UOG's Micronesian Studies Program
 - **Monthly cancer health disparities seminar** via video teleconference

Student Training in Cancer Research

- Increase # of minority scientists of Pacific Islander ancestry in cancer research, and provide education and training opportunities for Pacific Islander students;
 - **Graduate assistantships** on U54-funded cancer research: 8 currently funded projects with focus on betel nut, youth tobacco prevention, breast cancer risk, and cancer health information.

8 U54-Supported Research Projects

1. **Pilot Project I:** *Development of Protocols for Studying Oral Precancerous Lesions and Other Health Risks Among Betel Nut Users in Micronesia (Y.C. Paulino/ E. Hurwitz)*
2. **Pilot Project II:** *Sociocultural Factors Affecting Betel Nut Chewing among Pacific Islanders on Guam (K. Murphy/ T. Herzog)*
3. **Pilot Project III:** *Identification and Quantification of Alkaloids in Varieties of Areca (Betel) nut consumed on Guam (N. Suleman/ A. Wright)*
4. **Pilot Project IV:** *The Influence of Areca (Betel) Nut Chewing on the Oral Microbiome in Micronesia (Y. Paulino/ M. Goodman)*

U54-Supported Cancer Research

5. **Pilot Project V:** *Health Information Trends and Needs in the Pacific: A Test of the Respondent-Driven Sampling Method (L. Somera/G. Badowski/H-R. Lee)*
6. **Pre-Pilot I:** *Functional assessment of molecular components of Areca nut involved in pro-inflammatory mechanisms of immune cells (N.Suleman/ A. Wright/ R. Penner)*
7. **Pilot Program I (Outreach):** *Community Outreach to Reduce Tobacco Use Disparities among Pacific Islander youth Living in Guam (A. David /N. Palafox)*
8. **Full Project I:** *Development of a Breast Cancer Risk Model for the Pacific (R. Leon Guerrero / R. Novotny)*

Intended Outcomes

- Increased **# of UOG students** engaged in cancer research;
- Increased **# of cancer researchers of Pacific Island ancestry** in the US;
- Increased **# of UOG faculty engaged** in cancer research, training & education, & outreach;
- Increased **# of UOG faculty serving as PIs** on traditional investigator initiated grant awards in cancer research;
- Increased **# of peer-reviewed publications** by UOG faculty engaged in research and the **# of joint UOG/UHCC publications**;
- **Greater focus** of UHCC research on cancer health disparities among Pacific Islanders;
- **Increased awareness** of cancer & cancer prevention in the multiethnic communities served by UOG & UHCC;



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The U54 Team
in Guam -
March 2011



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**Mahalo
Si Yu'us Ma'ase**

