Trends in cancer incidence among Asians in the Greater Bay Area: Application to Cancer Control

Gem Le, MHS[1, 2]
Scarlett Gomez, PhD[2]
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[1] Department of Epidemiology, UC Berkeley School of Public Health
[2] Northern California Cancer Center, Fremont, CA

Outline

- Overview of NCCC and cancer registry data
- Update on cancer incidence trends
- Summary and interpretation
- Using population-based data to guide cancer control

Epidemiology at NCCC

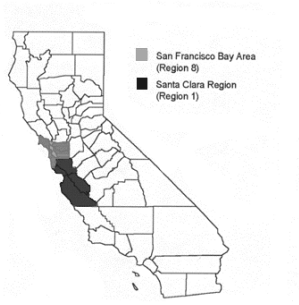
- Who gets cancer and why
- How best to detect and treat cancer
- How to improve the quality of life for patients
- Operate the Greater Bay Area Cancer Registry

What Does the Cancer Registry Do?

- Monitor local cancer incidence & trends
- Responds to local concerns about cancer
- Provides data for:
  - Health policy, planning & resource allocation
  - Setting healthcare priorities
  - Targeting specific populations for cancer screening and education
  - Assessing program effectiveness

GBACR* Region

Region 8:	Region 1:
Marin	Santa Clara
Alameda	Monterey
Contra Costa	San Benito
San Francisco	Santa Cruz
San Mateo	



*GBACR = Greater Bay Area Cancer Registry

Cancer Registries

Information Collected

- Personal Information (age, sex, race, residential address)
- Physicians and Hospitals
- Tumor characteristics
- Treatment
- Survival
- NO data on tobacco, alcohol, BMI, family hx

How Do We Get Our Data?

- Since 1988 physicians, hospitals & other treatment facilities required by state law to report new cases of cancer
- Strict confidentiality rules

Where do the data go?

- National Cancer Institute – SEER program
  - De-identified
  - San Francisco Bay Area since 1973
  - San Jose-Monterey since 1992
- California Cancer Registry
  - Since 1988
- Researchers
  - Scientific review approval
  - Institutional review board approval

Cancer Rates

$$\textbf{Rate} = \frac{\text{Number of events in specified time}}{\text{Population at risk of event in period}}$$

Annual cancer incidence rate = Number of newly diagnosed cancers per year / Number of persons at risk of developing cancer during that year.

Annual cancer death rate = Number of cancer deaths per year / Number of persons at risk of dying of cancer during that year.

Age-adjusted rates allow meaningful comparisons across groups, time periods, and geographic units.

Important Cancer Surveillance Rates

Rate	Numerator (events)	Denominator (population at risk)
Age-specific incidence rate	Number of cancers in specified age group	Number of persons in specified age group
Age-adjusted incidence rate	Number of cancers in total population	Number of persons in total population
Gender-specific incidence rate	Number of cancers in specific gender group	Number of persons in that gender group
Race-specific incidence rate	Number of cancers in specified racial group	Number of persons in that race group

Why are cancer surveillance statistics regularly not reported for Asian subgroups?

*Reliable population estimates by age and sex for Asian subgroups **not** available!*

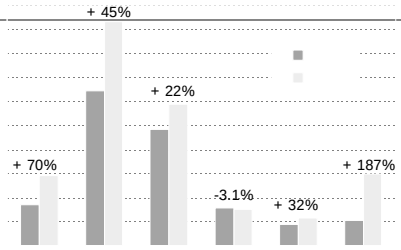
Cancer surveillance in Asian subgroups

- Cancer rates in Asian subgroups first reported in early 1990's
  - Ross et al (Br J Cancer, 1991)
  - NCCC Monograph on US Rates among Asians in the US and in Asia, 1988-1992
  - SEER monograph (Miller et al), 1988-1992
    - Identified nearly 6-fold excess of cervical cancer in Vietnamese compared with non-Hispanic white women

Cancer Incidence Among Asians
in the Greater Bay Area
1990-2002

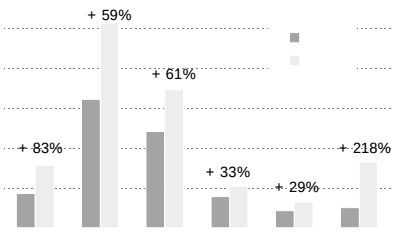
July 2005

Asian (alone) populations in GBA



South Asian 2000 = Bangladeshi, Asian Indian, Pakistani, and Sri Lanka.
South Asian 1990 = Asian Indian.

Asian (alone and combination) populations in GBA



South Asian 2000 = Bangladeshi, Asian Indian, Pakistani, and Sri Lanka.
South Asian 1990 = Asian Indian.

Five most common cancers

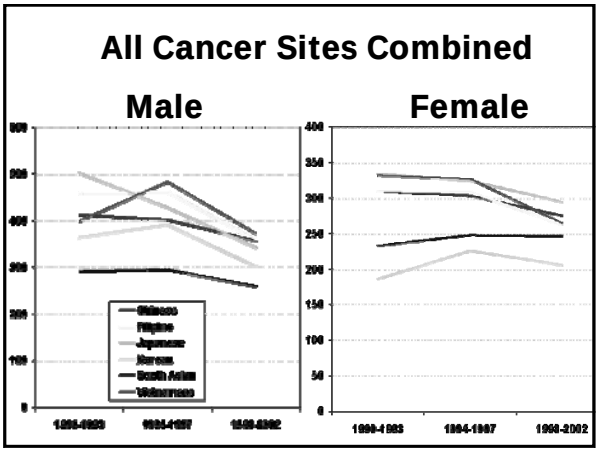
Five Most Common Cancers
Greater Bay Area, 1998-2002
MALE

	C	J	F	K	SA	V
Prostate	25%	29%	30%	10%	34%	15%
Lung	16%	17%	20%	16%	8%	17%
Colorectal	16%	13%	13%	17%	9%	11%
Liver	8%		5%	11%		17%
Stomach	6%	8%		13%		7%
NHL		5%	5%		9%	
Leukemia					7%	

Five Most Common Cancers
Greater Bay Area, 1998-2002
FEMALE

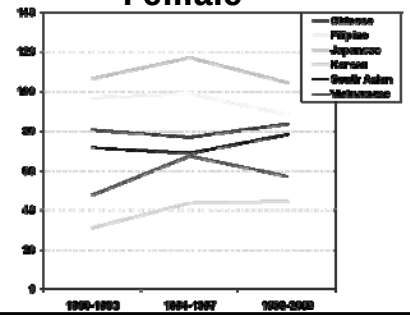
	C	J	F	K	SA	V
Breast	31%	35%	36%	25%	35%	25%
Colorectal	15%	15%	12%	12%	8%	11%
Lung	11%	9%	8%	9%	4%	11%
Uterine	5%	6%	7%		6%	
Stomach	4%	6%		10%		
NHL			4%			
Liver				5%		6%
Ovary					5%	
Cervix						7%

Incidence trends

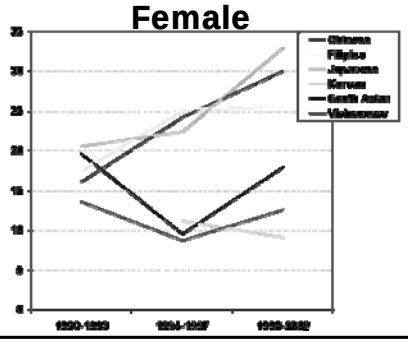


Screenable cancers

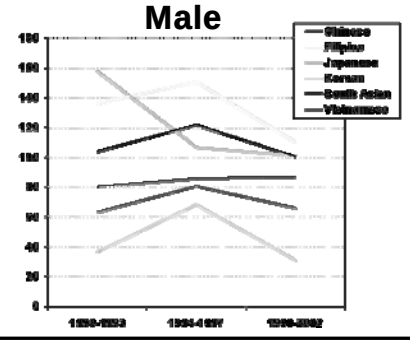
Invasive Breast Cancer Female



In Situ Breast Cancer Female

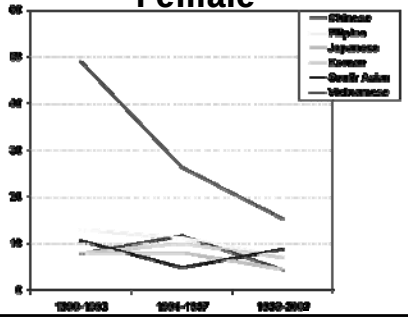


Prostate Cancer Male



Invasive Cervical Cancer

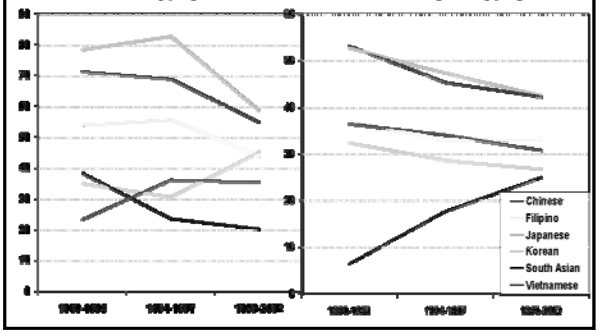
Female



Invasive Colorectal Cancer

Male

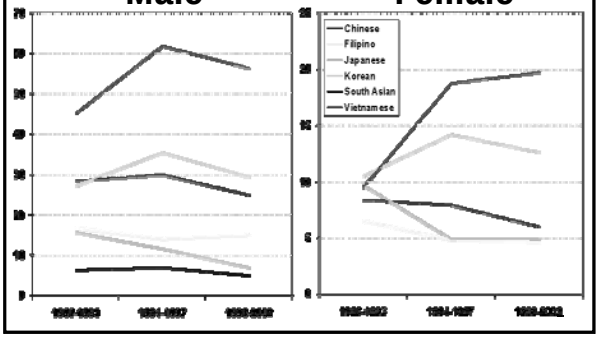
Female



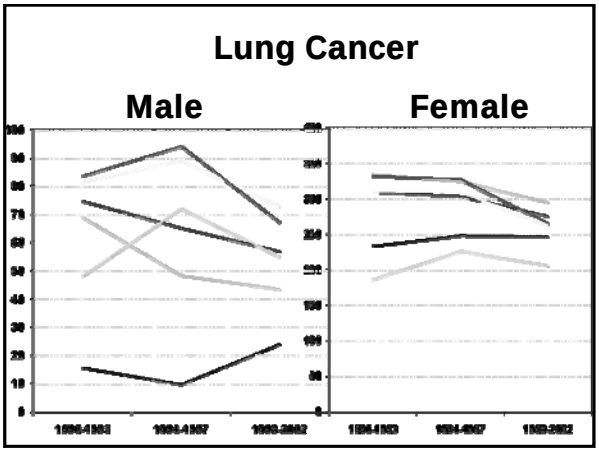
Liver Cancer

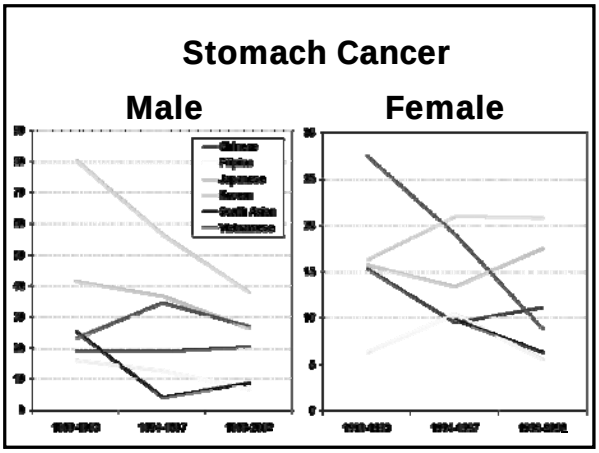
Male

Female



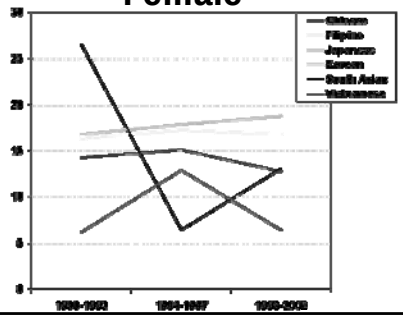
Other Common Cancers in Asians





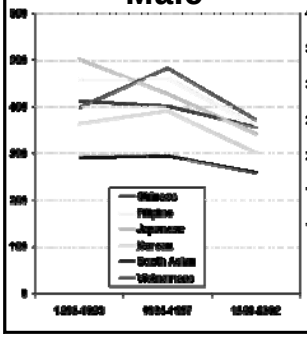
Corpus Uteri Cancer

Female

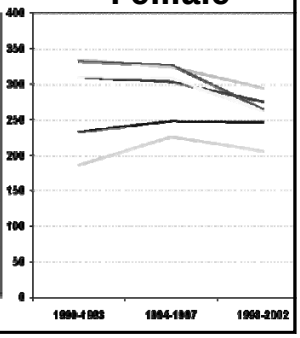


Leukemia

Male

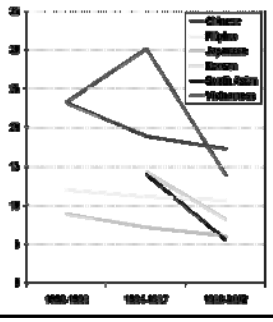


Female

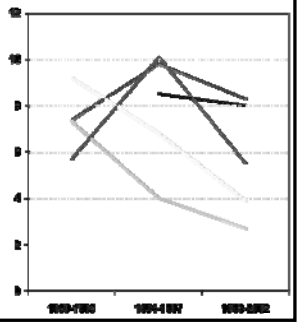


Oral and Pharyngeal Cancer

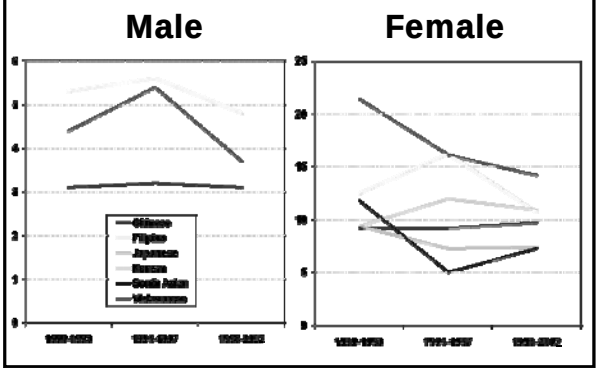
Male



Female



Thyroid Cancer



Summary

- Screenable cancers:
  - Breast: remained stable or continued to increase in Chinese, Koreans, South Asians and Vietnamese, while rates peaked during 1994-1997 and declined thereafter in Japanese and Filipino women
  - Cervical: Overall decrease in all groups; most dramatic decline in Vietnamese, but still have highest rates

Summary

- Screenable cancers:
  - Liver: highest in Vietnamese, stable or decreasing rates in all groups except Vietnamese women (2x increase)
  - Colorectal: Decline in all groups except Korean and Vietnamese males and South Asian females

Summary

- Other cancers:
  - Stomach: highest in Koreans, dramatic declines in all groups
  - Thyroid: highest in Vietnamese and Filipino females

Summary

- Other cancers:
  - Lung: declined or remained stable in all groups
    - Males: rates highest in Chinese, Filipino, and Vietnamese
    - Females: rates highest in Chinese and Vietnamese
  - Oral and pharyngeal cancer: highest in Vietnamese and Chinese, lowest in Koreans and South Asians

Discussion

- Using population-based data to guide cancer control
- Focus on prevention
  - Hepatitis B immunization
  - Smoking
  - Cancer screening