

## NON-HODGKIN'S LYMPHOMA

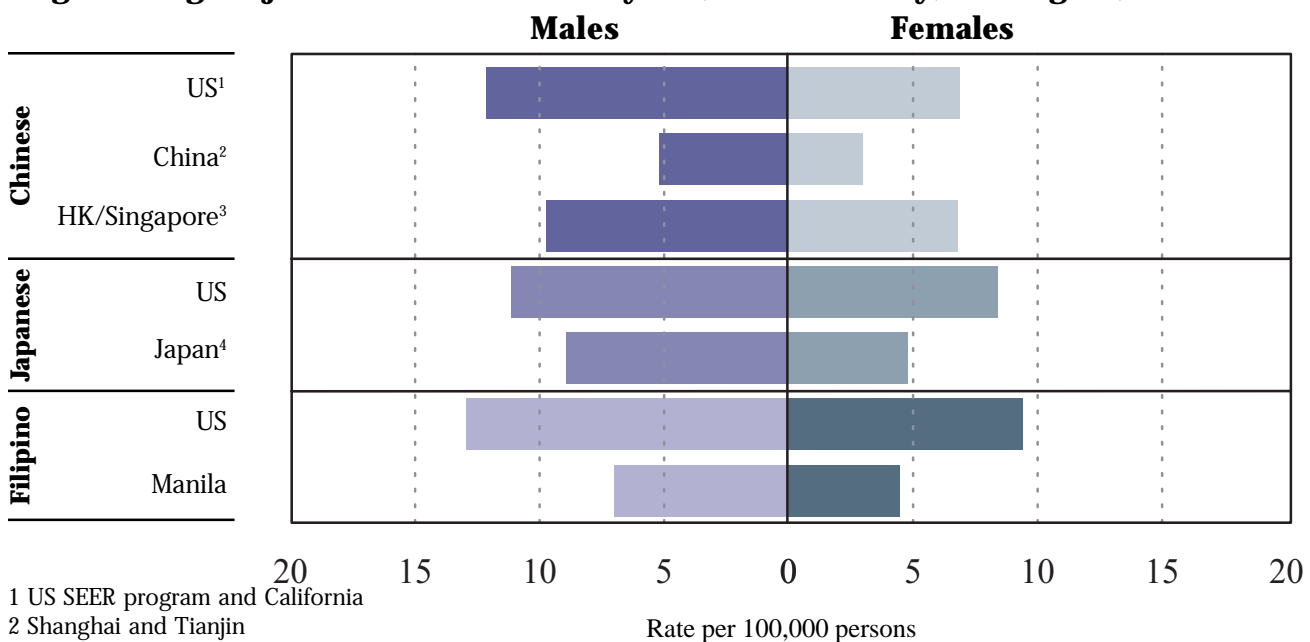
Non-Hodgkin's lymphomas (NHLs) are a heterogeneous group of malignancies in which the cancerous cell is one of the several types of white blood cells called lymphocytes. Although NHL tumors usually present in one or more lymph nodes, they may occur in extranodal sites, most commonly the stomach, skin or brain<sup>1</sup>. Different subtypes of NHL exhibit markedly different patterns of survival and are not easily organized by site, histology, immune cell type, or clinical features. Therefore, considering NHL as a single entity may be misleading if different subtypes of NHL have distinct etiologic mechanisms. However, the relatively low incidence of individual subtypes necessitates that they be aggregated for statistical purposes, as in this monograph.

In recent years, the incidence of NHL has been increasing worldwide<sup>2</sup>. In the United States and other Western countries, rates have been increasing three to four percent per year since the early 1970s<sup>3</sup>. NHL incidence in Asian countries also has been rising at an alarming pace.

risk factor is immunosuppression, either inherited or acquired. Transplant patients who are immunosuppressed by anti-rejection drugs have between a ten- and twenty-fold excess risk of developing NHL as compared to the general population<sup>6</sup>. In addition, chronic corticosteroid use, which induces moderate immunosuppression, increases risk, as does advanced infection with the human immunodeficiency virus (HIV). In fact, development of NHL in HIV-infected persons constitutes an AIDS-defining condition<sup>7</sup>. Infection with other viruses (Epstein-Barr virus, human T-lymphotrophic virus type 1<sup>5,8</sup>) also has been implicated in the development of some NHLs.

Studies of NHL in farmers, construction workers and persons occupationally exposed to wood products suggest that exposure to pesticides and herbicides, especially phenoxy herbicides, may also increase risk of lymphoma<sup>5</sup>. The role of other lifestyle factors, including diet, reproductive and sexual factors, remains unclear. New epidemiologic studies of NHL in the US suggest that chronic

**Figure 1: Age-adjusted incidence rates by sex, race/ethnicity, and region, 1988-1992**



- 1 US SEER program and California
- 2 Shanghai and Tianjin
- 3 Hong Kong and Singapore-Chinese
- 4 Miyagi, Nagasaki, Osaka, Yamagata, Saga

In Singapore, for example, the overall rate of NHL has doubled between 1968 and 1988, -- an annual rate of increase between four and five percent<sup>4</sup>. The impact of acquired immunodeficiency syndrome (AIDS)-related NHL probably accounts for some, but not all of these increases.

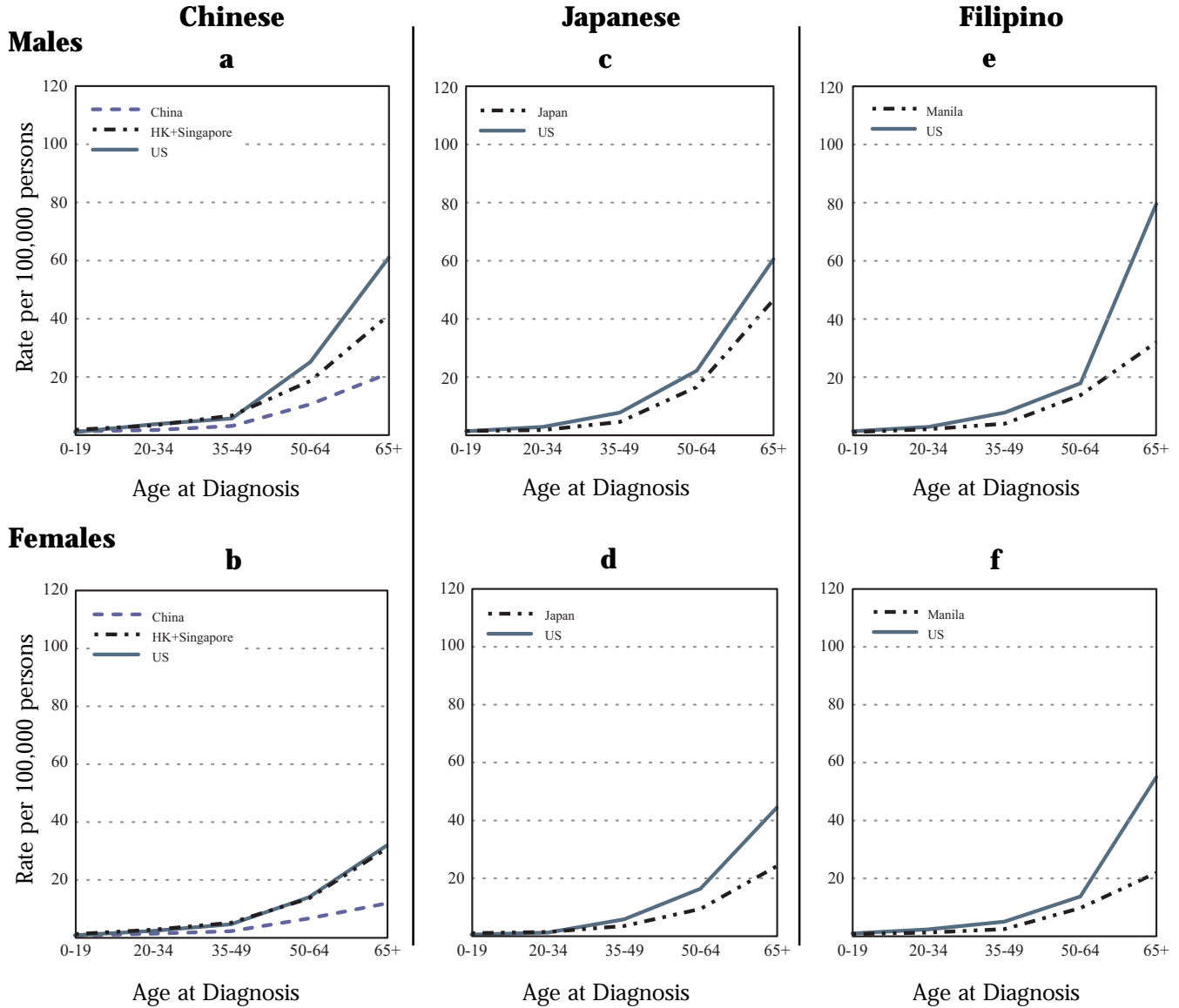
### Risk Factors

Epidemiologic studies have identified only a few strong correlates of NHL risk in either Western or Asian populations<sup>5</sup>. Male sex is universally associated with higher risk of NHL for reasons that are not clear. Another important

antigenic stimulation may impact B-cell differentiation as to promote lymphoma development<sup>5,9</sup>.

Genetic risk factors for NHL are poorly or little explored. Racial/ethnic differences in NHL incidence are observed within the US and internationally; worldwide, Asian populations generally experience lower incidence rates than white or black populations<sup>2</sup>. After settling in the US, Chinese, Japanese and Filipino migrants and their descendants continue to experience lower rates of NHL than US non-Hispanic whites<sup>10</sup>. Although there is no consistent pattern of overall NHL risk related to generation of

Figure 2: Age-specific incidence rates by race/ethnicity, sex, and region, 1988-1992



residence in the US, the risk of developing follicular types of NHLs is significantly higher for descendants of Chinese and Japanese migrants than for the migrants themselves<sup>10</sup>.

**Incidence**

Regardless of racial/ethnic group, males experienced 30-40% higher incidence rates of NHL than females, a difference also observed in non-Asian populations<sup>9</sup>. Between 1988 and 1992, age-adjusted rates of NHL in Chinese, Japanese and Filipino populations were uniformly higher for the US than for Asia (Figure 1). For Chinese and Filipino populations, rates in the US were nearly double the corresponding rates in China and Manila. Much of the excess risk in the US can be attributed to marked elevations in incidence in persons over 50 years of age, as apparent in the age-specific incidence curves for Chinese and Filipinos of both sexes (Figures 2a-b, 2e-f). Interestingly, within Chinese populations in Asia, rates in China

were markedly lower than rates in Hong Kong/Singapore (Figure 1). These patterns suggest a positive association between NHL rates and regional level of economic development, as observed in other international data<sup>5</sup>. As AIDS-specific incidence information was not available for the populations included in this monograph, the contribution of differences in AIDS prevalence among populations to differences in population risk of NHL could not be explored.

## OVARY

Ovarian cancer is the sixth most common cancer in women worldwide, although incidence rates tend to be lower in Asians than other populations<sup>1</sup>. Asians residing in the United States generally have slightly higher rates than Asians living in Asia, although within the US there is little difference in incidence rates between foreign-born and US-born females of Asian descent<sup>2</sup>. In the US, only a quarter of all cases of ovarian cancer are diagnosed at a localized stage, and consequently, five-year survival rates are only 46%<sup>3</sup>. However, Asian females tend to be diagnosed at earlier stages than non-Hispanic white or black females and therefore tend to have slightly better survival than non-Asian females<sup>4</sup>.

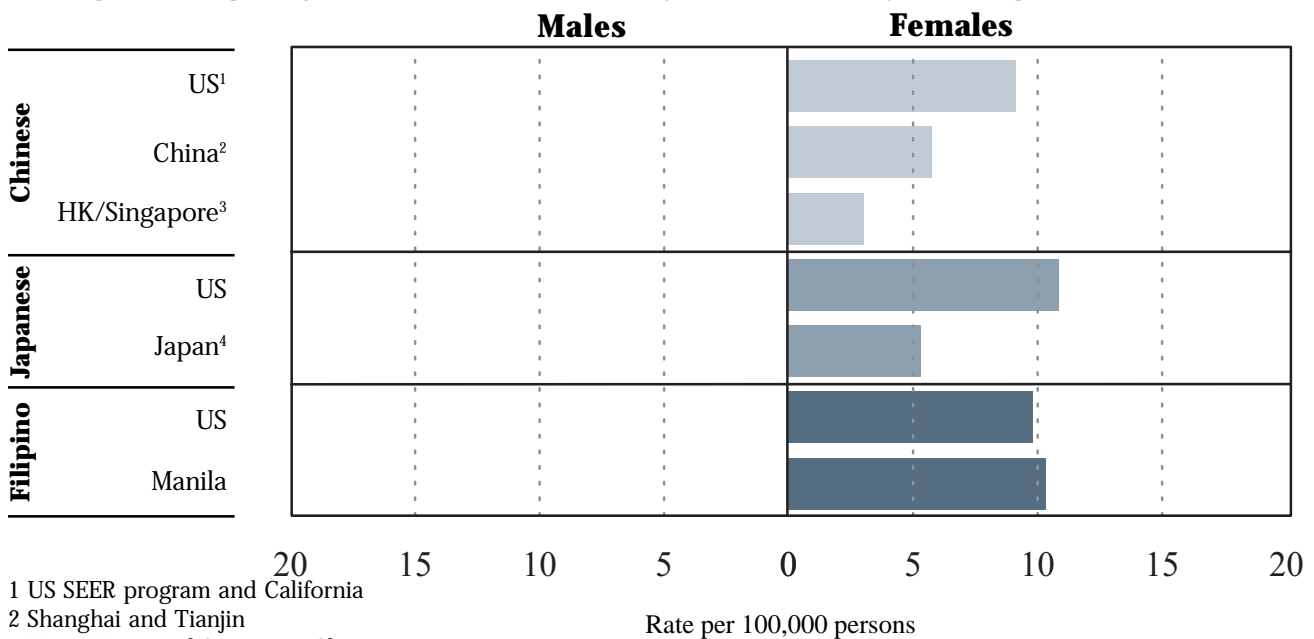
### Risk Factors

The most common histopathologic type of ovarian cancer is epithelial, which accounts for 90-95% of all cases<sup>5</sup> and has been the focus of most epidemiologic studies

but the evidence is inconclusive<sup>6</sup>. A recent review paper proposed that the risk of ovarian cancer may be increased through excess stimulation of the epithelial cells of the ovary by androgens (male sex hormones such as testosterone); conversely, progesterone stimulation of the ovary may decrease risk<sup>7</sup>.

There is also evidence of genetic susceptibility to ovarian cancer related to mutations in the BRCA1 and BRCA2 genes implicated in familial breast cancer<sup>8</sup>, and women with a diagnosis of breast cancer have a 30-70% increased risk of ovarian cancer<sup>5</sup>. However, the very few studies conducted in Asian populations indicate that BRCA1 mutations appear to be rare in Japanese families with breast and ovarian cancer<sup>9</sup>. Mutant forms of the protein p53 have been found in up to 50% of ovarian tumors, and such mutations appear to be related to an increased lifetime number of ovulations<sup>10</sup>.

**Figure 1: Age-adjusted incidence rates by race/ethnicity and region, 1988-1992**

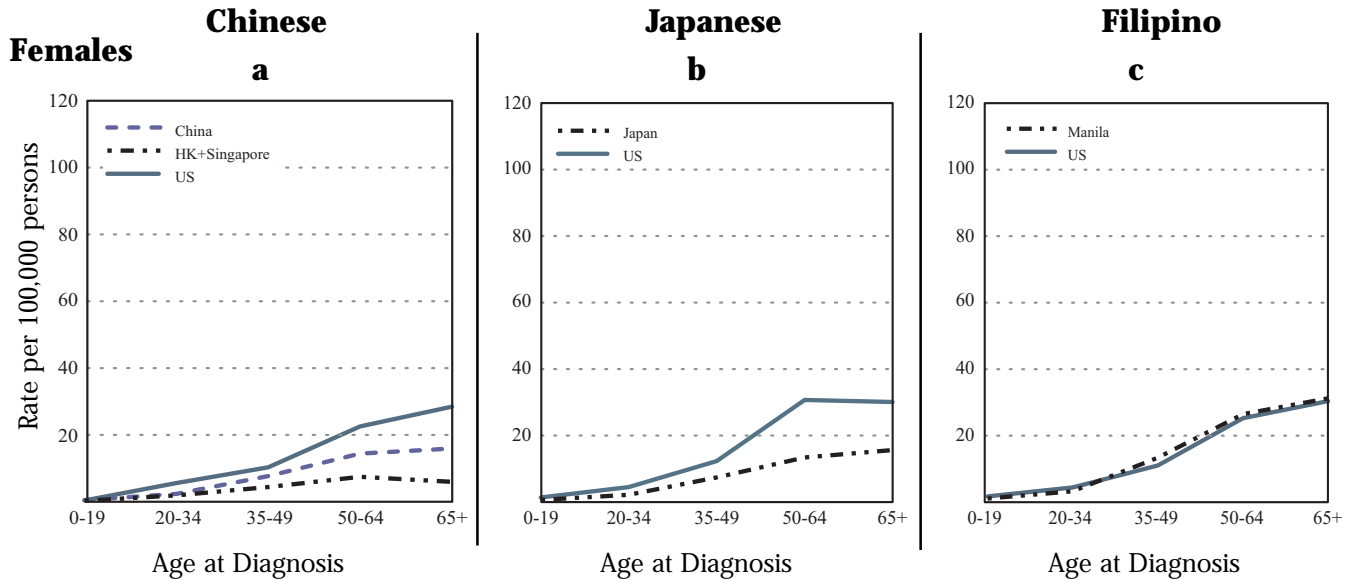


1 US SEER program and California  
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on ovarian cancer. Reproductive factors that inhibit ovulation appear to decrease risk of ovarian cancer. These factors include: having four or more pregnancies, using oral contraceptives for a prolonged time, and breastfeeding for more than one year<sup>6</sup>. Incessant ovulation and increased gonadotropin (follicle stimulating hormone or luteinizing hormone) stimulation have been found to increase risk<sup>7</sup>. Early age at menarche, late age at first birth or at menopause, and estrogen replacement therapy may increase risk slightly,

High doses of ionizing radiation have a moderate relationship with ovarian cancer occurrence. Females who received a high dose of radiation (100 or more rads) during the bombing of Hiroshima and Nagasaki had a two-fold higher risk of ovarian cancer than Japanese women who did not have this exposure<sup>11</sup>. This effect decreased with age at the time of the bombing; no increase in risk was demonstrated for women over age 50. Other risk factors less consistently associated with ovarian cancer include perineal talc use, fertility

**Figure 2: Age-specific incidence rates by race/ethnicity and region, 1988-1992**



drugs, milk and caffeine consumption, and history of mumps<sup>5</sup>. The relatively few studies of dietary risk factors for ovarian cancer suggest an increased risk correlated with an increased intake of animal fats, dairy fats and lactose, and a decreased risk associated with increased vegetable fiber consumption<sup>5</sup>.

**Incidence**

As shown in Figure 1, ovarian cancer incidence rates were higher in US than Asian populations for Chinese and Japanese women but not for Filipino women. Rates for US Chinese females were about 1.6 times higher than rates for Chinese in China and about three times higher than rates for Chinese in Hong Kong/Singapore. Similarly, the incidence rate of ovarian cancer for US Japanese females was about twice the rate for Japanese in Japan. However, US Filipinas had approximately the same rate of ovarian cancer as Filipinas in Manila.

Age-specific incidence patterns followed the same general trend as the age-adjusted rates among the Chinese (Figure 2a), with the rates in US Chinese consistently about one and a half to three times higher than the Chinese and Hong Kong/Singapore populations, respectively. Rates in US Japanese (Figure 2b) were also higher than those of Japanese females in Japan across all age groups. For Filipinas, age-specific rates were almost identical for those living in the US and Manila. The reasons for these rate differences between Asians residing in Asia and US Asians are not known, but may be related to differing reproductive patterns.

## PANCREAS

Cancer of the pancreas is the ninth most commonly occurring cancer and the fifth leading cause of cancer death in the United States<sup>1</sup>. Survival from pancreatic cancer is poor, with a median survival time of only three months<sup>2</sup>. In general, pancreatic cancer incidence rates are lower in Asia than in the US, except for Japan, where incidence and mortality rates resemble those in the US<sup>3</sup>. Current methods of pancreatic cancer diagnosis are not an effective means of early disease detection, as most patients are diagnosed with metastatic disease<sup>4</sup>. The use and availability of diagnostic measures vary by country, which may explain in part the geographic differences in incidence and mortality rates<sup>4</sup>. Variation in diagnostic criteria also may be a factor.

### Risk Factors

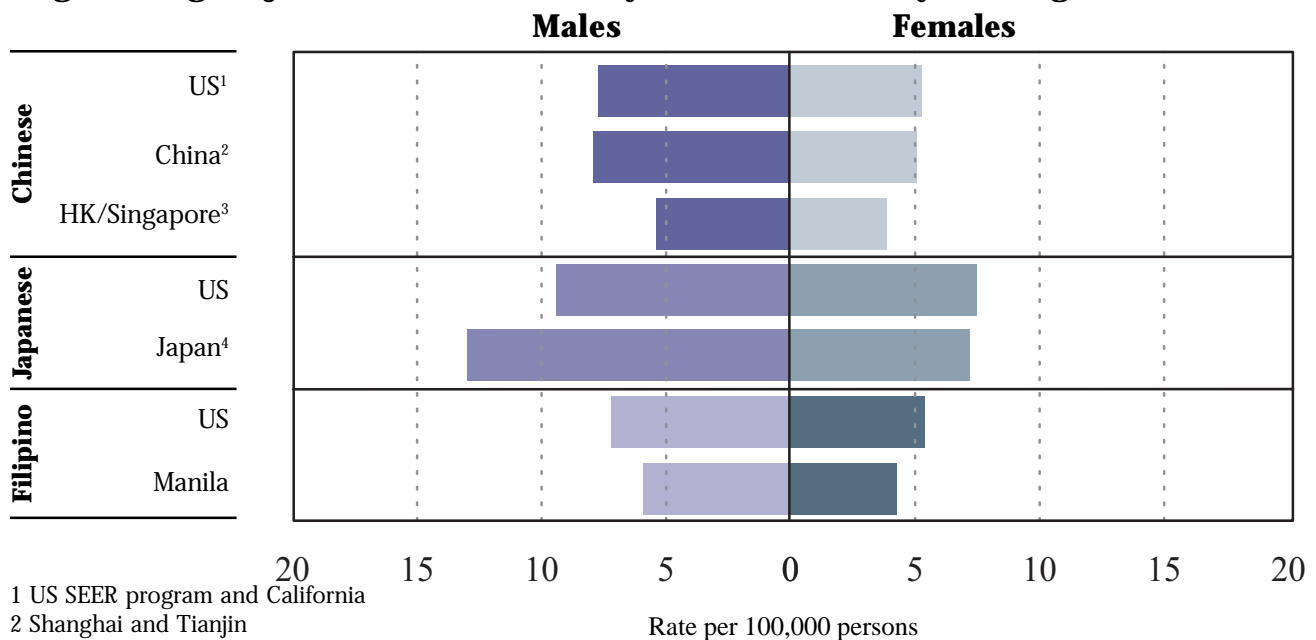
The major risk factor for pancreatic cancer development is age, with most diagnoses occurring in persons aged 65 to 79<sup>5</sup>. Overall, pancreatic cancer is about 50%

Though ingested food does not come into direct contact with the pancreas, dietary factors are believed to be associated with pancreatic cancer occurrence<sup>12</sup>. Consumption of vegetables<sup>13</sup> may have a protective effect against pancreatic cancer, while increased dietary fat intake and heavy alcohol consumption have been associated with an increased risk of disease<sup>13,14</sup>.

### Incidence

For the period 1988-1992, males had higher age-adjusted incidence rates of pancreatic cancer than females across all racial/ethnic groups and countries of residence (Figure 1). The rates of pancreatic cancer for US Chinese were similar to those of their counterparts living in China, while the incidence rates for Chinese living in Hong Kong/Singapore were slightly lower. Japanese males had higher average annual rates of pancreatic cancer in Japan than in the US (13 cases versus 9 cases per 100,000, respectively), while Japanese fe-

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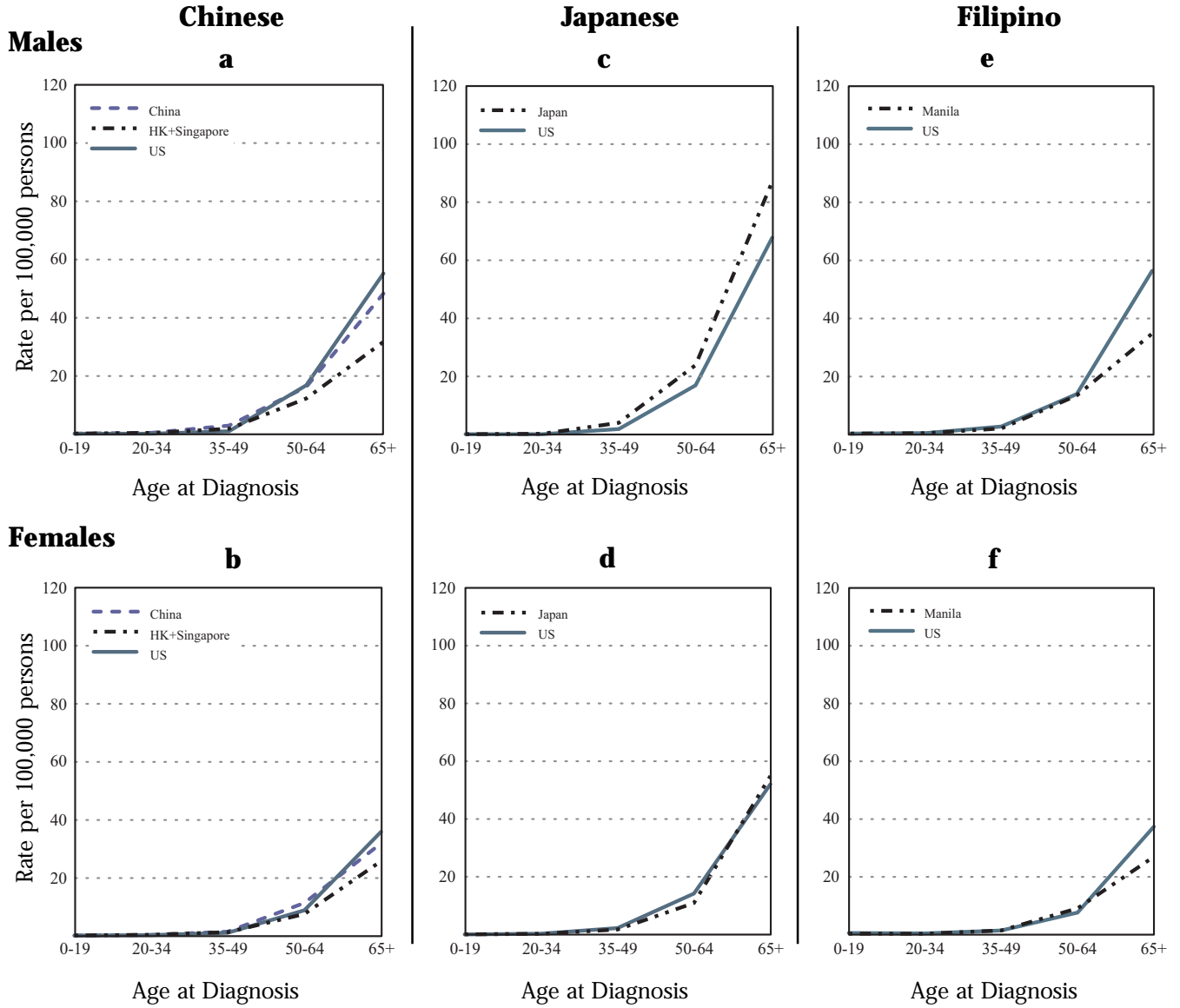
more common in males than in females, although sex differences vary by race/ethnicity, geography, and histology<sup>1,6</sup>. Cigarette smoking has been shown to be an important risk factor for pancreatic cancer. Disease risk increases with the quantity and duration of smoking<sup>7</sup> and decreases after smoking cessation<sup>8</sup>. Occupational exposures found to increase risk include asbestos exposure<sup>9</sup>, working in the leather tanning industry<sup>10</sup>, and exposure to DDT<sup>11</sup>.

males had similar incidence rates in the two countries. Among Filipinos, incidence rates of pancreatic cancer were slightly lower in Manila than in the US.

Chinese, Japanese and Filipino females in the US had age-specific rates of pancreatic cancer comparable to those in Asia (Figures 2b, 2d, 2f). Among males, however, incidence rates were higher for US Chinese and US Filipinos over age 65 than for their counterparts in Asia, while rates were lower in US Japanese than Japanese males in Japan (Figures 2a, 2c, 2e). The

# PANCREAS

**Figure 2: Age-specific incidence rates by race/ethnicity, sex, and region, 1988-1992**



differences observed in pancreatic cancer incidence rates may be due to diagnostic discrepancies or to varying dietary factors between racial/ethnic groups and locations.

## NON-HODGKIN'S LYMPHOMA

### Five-Year Counts, Average Annual Age-Adjusted Incidence Rates and 95% Confidence Intervals by Registry Group and Sex, 1988-1992<sup>1</sup>

| Registry Group | Count | US Standard |        | World Standard |        |
|----------------|-------|-------------|--------|----------------|--------|
|                |       | Rate        | 95% CI | Rate           | 95% CI |

#### TOTAL

|                            |      |      |           |     |         |
|----------------------------|------|------|-----------|-----|---------|
| <b>Chinese</b>             |      |      |           |     |         |
| US <sup>2</sup>            | 378  | 9.3  | 8.3-10.3  | 7.5 | 6.7-8.3 |
| China <sup>3</sup>         | 2208 | 4.0  | 3.8-4.1   | 3.4 | 3.3-3.6 |
| HK <sup>4</sup> /Singapore | 2893 | 8.1  | 7.8-8.4   | 6.9 | 6.6-7.1 |
| <b>Japanese</b>            |      |      |           |     |         |
| US                         | 414  | 9.6  | 8.6-10.6  | 7.7 | 6.9-8.6 |
| Japan <sup>5</sup>         | 5588 | 6.5  | 6.3-6.7   | 5.4 | 5.2-5.5 |
| <b>Filipino</b>            |      |      |           |     |         |
| US                         | 463  | 11.0 | 10.0-12.1 | 8.6 | 7.8-9.4 |
| Manila                     | 599  | 5.6  | 5.1-6.1   | 4.6 | 4.2-5.0 |

#### MALES

|                 |      |      |           |      |          |
|-----------------|------|------|-----------|------|----------|
| <b>Chinese</b>  |      |      |           |      |          |
| US              | 231  | 12.0 | 10.4-13.7 | 9.5  | 8.3-10.9 |
| China           | 1350 | 5.1  | 4.8-5.4   | 4.4  | 4.1-4.6  |
| HK/Singapore    | 1628 | 9.6  | 9.1-10.1  | 8.0  | 7.6-8.4  |
| <b>Japanese</b> |      |      |           |      |          |
| US              | 219  | 11.0 | 9.4-12.6  | 9.0  | 7.7-10.4 |
| Japan           | 3284 | 8.8  | 8.4-9.1   | 7.1  | 6.8-7.3  |
| <b>Filipino</b> |      |      |           |      |          |
| US              | 262  | 12.8 | 11.3-14.5 | 10.1 | 8.8-11.4 |
| Manila          | 353  | 6.9  | 6.0-7.8   | 5.7  | 5.1-6.4  |

#### FEMALES

|                 |      |     |          |     |         |
|-----------------|------|-----|----------|-----|---------|
| <b>Chinese</b>  |      |     |          |     |         |
| US              | 147  | 6.9 | 5.8-8.2  | 5.7 | 4.8-6.7 |
| China           | 858  | 3.0 | 2.8-3.2  | 2.6 | 2.4-2.7 |
| HK/Singapore    | 1265 | 6.8 | 6.4-7.2  | 5.8 | 5.4-6.1 |
| <b>Japanese</b> |      |     |          |     |         |
| US              | 195  | 8.4 | 7.1-9.7  | 6.6 | 5.6-7.6 |
| Japan           | 2304 | 4.8 | 4.6-5.0  | 4.0 | 3.8-4.2 |
| <b>Filipino</b> |      |     |          |     |         |
| US              | 201  | 9.4 | 8.0-10.9 | 7.2 | 6.2-8.3 |
| Manila          | 246  | 4.5 | 3.9-5.2  | 3.6 | 3.2-4.1 |

<sup>1</sup> Data are not shown for rates based on fewer than 5 cases.

<sup>2</sup> US = SEER + California

<sup>3</sup> China = Shanghai + Tianjin

<sup>4</sup> HK = Hong Kong + Singapore Chinese

<sup>5</sup> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## NON-HODGKIN'S LYMPHOMA

### Five-Year Counts, Average Annual Age-Specific Incidence Rates and 95% Confidence Intervals by Registry Group, Age, and Sex, 1988-1992<sup>1</sup>

| Age Group | MALES |      |        | FEMALES |      |        |
|-----------|-------|------|--------|---------|------|--------|
|           | Count | Rate | 95% CI | Count   | Rate | 95% CI |

#### US<sup>2</sup>-Chinese

|       |     |      |           |    |      |           |
|-------|-----|------|-----------|----|------|-----------|
| 0-19  | 6   | 1.0  | 0.4-2.2   | <5 | -    | -         |
| 20-34 | 21  | 3.7  | 2.3-5.6   | 13 | 2.2  | 1.2-3.8   |
| 35-49 | 27  | 5.7  | 3.7-8.3   | 23 | 4.5  | 2.8-6.7   |
| 50-64 | 65  | 25.1 | 19.4-32.0 | 38 | 13.8 | 9.8-19.0  |
| 65+   | 112 | 61.0 | 50.2-73.4 | 69 | 31.7 | 24.7-40.1 |

#### China<sup>3</sup>

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | 80  | 1.3  | 1.0-1.6   | 35  | 0.6  | 0.4-0.8   |
| 20-34 | 141 | 1.7  | 1.4-2.0   | 91  | 1.2  | 1.0-1.5   |
| 35-49 | 201 | 3.1  | 2.7-3.6   | 119 | 2.1  | 1.7-2.5   |
| 50-64 | 448 | 10.6 | 9.6-11.6  | 290 | 6.5  | 5.8-7.3   |
| 65+   | 480 | 21.2 | 19.3-23.2 | 323 | 11.7 | 10.5-13.1 |

#### Hong Kong/Singapore Chinese

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | 110 | 1.8  | 1.5-2.2   | 60  | 1.1  | 0.8-1.4   |
| 20-34 | 195 | 3.3  | 2.9-3.8   | 146 | 2.6  | 2.2-3.0   |
| 35-49 | 282 | 6.7  | 5.9-7.5   | 192 | 5.0  | 4.3-5.7   |
| 50-64 | 482 | 18.6 | 17.0-20.4 | 320 | 13.4 | 12.0-15.0 |
| 65+   | 559 | 41.2 | 37.9-44.8 | 547 | 30.7 | 28.2-33.4 |

#### US-Japanese

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | <5  | -    | -         | <5  | -    | -         |
| 20-34 | 11  | 2.8  | 1.4-5.0   | <5  | -    | -         |
| 35-49 | 26  | 7.7  | 5.1-11.3  | 20  | 5.6  | 3.4-8.6   |
| 50-64 | 50  | 22.1 | 16.4-29.2 | 55  | 16.2 | 12.2-21.1 |
| 65+   | 128 | 60.5 | 50.5-71.9 | 115 | 44.3 | 36.5-53.1 |

#### Japan<sup>4</sup>

|       |      |      |           |      |      |           |
|-------|------|------|-----------|------|------|-----------|
| 0-19  | 142  | 1.4  | 1.2-1.7   | 78   | 0.8  | 0.7-1.0   |
| 20-34 | 129  | 1.7  | 1.5-2.1   | 92   | 1.2  | 1.0-1.5   |
| 35-49 | 381  | 4.5  | 4.1-5.0   | 282  | 3.3  | 2.9-3.7   |
| 50-64 | 1088 | 16.5 | 15.6-17.6 | 639  | 9.2  | 8.5-10.0  |
| 65+   | 1544 | 46.5 | 44.2-48.9 | 1213 | 23.9 | 22.6-25.3 |

#### US-Filipino

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | 10  | 1.3  | 0.6-2.4   | 5   | 0.7  | 0.2-1.6   |
| 20-34 | 17  | 2.9  | 1.7-4.6   | 14  | 2.1  | 1.2-3.6   |
| 35-49 | 36  | 7.3  | 5.1-10.2  | 29  | 4.8  | 3.2-6.9   |
| 50-64 | 43  | 17.8 | 12.8-23.9 | 42  | 13.5 | 9.7-18.2  |
| 65+   | 156 | 79.5 | 67.5-93.0 | 111 | 54.9 | 45.2-66.1 |

#### Manila

|       |    |      |           |    |      |           |
|-------|----|------|-----------|----|------|-----------|
| 0-19  | 48 | 1.0  | 0.7-1.3   | 25 | 0.5  | 0.3-0.8   |
| 20-34 | 65 | 2.0  | 1.6-2.6   | 37 | 1.0  | 0.7-1.4   |
| 35-49 | 66 | 3.9  | 3.0-5.0   | 38 | 2.2  | 1.6-3.1   |
| 50-64 | 99 | 13.7 | 11.1-16.6 | 76 | 9.4  | 7.4-11.8  |
| 65+   | 75 | 31.9 | 25.1-40.0 | 70 | 21.7 | 16.9-27.4 |

<sup>1</sup> Data are not shown for rates based on fewer than 5 cases.

<sup>2</sup> US = SEER + California

<sup>3</sup> China = Shanghai + Tianjin

<sup>4</sup> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## OVARY

### Five-Year Counts, Average Annual Age-Adjusted Incidence Rates and 95% Confidence Intervals by Registry Group, 1988-1992<sup>1</sup>

| Registry Group | Count | US Standard |        | World Standard |        |
|----------------|-------|-------------|--------|----------------|--------|
|                |       | Rate        | 95% CI | Rate           | 95% CI |

#### FEMALES

|                            |      |      |          |     |          |
|----------------------------|------|------|----------|-----|----------|
| <b>Chinese</b>             |      |      |          |     |          |
| US <sup>2</sup>            | 212  | 9.2  | 7.9-10.5 | 8.0 | 6.9-9.2  |
| China <sup>3</sup>         | 1726 | 5.8  | 5.5-6.1  | 5.2 | 5.0-5.5  |
| HK <sup>4</sup> /Singapore | 576  | 3.1  | 2.8-3.3  | 2.8 | 2.6-3.1  |
| <b>Japanese</b>            |      |      |          |     |          |
| US                         | 247  | 10.9 | 9.5-12.4 | 9.7 | 8.5-11.1 |
| Japan <sup>5</sup>         | 2546 | 5.4  | 5.2-5.6  | 4.8 | 4.6-5.0  |
| <b>Filipino</b>            |      |      |          |     |          |
| US                         | 241  | 9.8  | 8.6-11.2 | 8.7 | 7.6-9.9  |
| Manila                     | 675  | 10.4 | 9.5-11.3 | 9.2 | 8.4-9.9  |

<sup>1</sup> Data are not shown for rates based on fewer than 5 cases.

<sup>2</sup> US = SEER + California

<sup>3</sup> China = Shanghai + Tianjin

<sup>4</sup> HK = Hong Kong + Singapore Chinese

<sup>5</sup> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## OVARY

### Five-Year Counts, Average Annual Age-Specific Incidence Rates and 95% Confidence Intervals by Registry Group and Age, 1988-1992<sup>1</sup>

| Age Group                          | FEMALES |      |           |
|------------------------------------|---------|------|-----------|
|                                    | Count   | Rate | 95% CI    |
| <b>US<sup>2</sup>-Chinese</b>      |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 33      | 5.6  | 3.8-7.8   |
| 35-49                              | 53      | 10.3 | 7.7-13.5  |
| 50-64                              | 62      | 22.6 | 17.3-28.9 |
| 65+                                | 62      | 28.5 | 21.8-36.5 |
| <b>China<sup>3</sup></b>           |         |      |           |
| 0-19                               | 29      | 0.5  | 0.3-0.7   |
| 20-34                              | 173     | 2.3  | 2.0-2.7   |
| 35-49                              | 444     | 7.7  | 7.0-8.4   |
| 50-64                              | 641     | 14.4 | 13.3-15.6 |
| 65+                                | 439     | 15.9 | 14.5-17.5 |
| <b>Hong Kong/Singapore Chinese</b> |         |      |           |
| 0-19                               | 15      | 0.3  | 0.2-0.4   |
| 20-34                              | 108     | 1.9  | 1.5-2.3   |
| 35-49                              | 169     | 4.4  | 3.8-5.1   |
| 50-64                              | 178     | 7.5  | 6.4-8.6   |
| 65+                                | 106     | 6.0  | 4.9-7.2   |
| <b>US-Japanese</b>                 |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 17      | 4.4  | 2.6-7.1   |
| 35-49                              | 44      | 12.2 | 8.9-16.4  |
| 50-64                              | 104     | 30.6 | 25.0-37.1 |
| 65+                                | 78      | 30.0 | 23.7-37.5 |
| <b>Japan<sup>4</sup></b>           |         |      |           |
| 0-19                               | 52      | 0.5  | 0.4-0.7   |
| 20-34                              | 157     | 2.1  | 1.8-2.5   |
| 35-49                              | 25      | 7.3  | 6.8-7.9   |
| 50-64                              | 924     | 13.3 | 12.5-14.2 |
| 65+                                | 788     | 15.6 | 14.5-16.7 |
| <b>US-Filipino</b>                 |         |      |           |
| 0-19                               | 10      | 1.4  | 0.7-2.6   |
| 20-34                              | 27      | 4.1  | 2.7-5.9   |
| 35-49                              | 65      | 10.7 | 8.3-13.7  |
| 50-64                              | 78      | 25.0 | 19.8-31.2 |
| 65+                                | 61      | 30.2 | 23.1-38.8 |
| <b>Manila</b>                      |         |      |           |
| 0-19                               | 36      | 0.7  | 0.5-1.0   |
| 20-34                              | 106     | 2.9  | 2.4-3.6   |
| 35-49                              | 222     | 13.1 | 11.4-14.9 |
| 50-64                              | 211     | 26.2 | 22.8-30.0 |
| 65+                                | 100     | 31.0 | 25.2-37.7 |

<sup>1</sup> Data are not shown for rates based on fewer than 5 cases.

<sup>2</sup> US = SEER + California

<sup>3</sup> China = Shanghai + Tianjin

<sup>4</sup> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## PANCREAS

### Five-Year Counts, Average Annual Age-Adjusted Incidence Rates and 95% Confidence Intervals by Registry Group and Sex, 1988-1992<sup>1</sup>

| Registry Group | Count | US Standard |        | World Standard |        |
|----------------|-------|-------------|--------|----------------|--------|
|                |       | Rate        | 95% CI | Rate           | 95% CI |

#### TOTAL

|                            |      |     |         |     |         |
|----------------------------|------|-----|---------|-----|---------|
| <b>Chinese</b>             |      |     |         |     |         |
| US <sup>2</sup>            | 256  | 6.4 | 5.6-7.3 | 4.7 | 4.1-5.3 |
| China <sup>3</sup>         | 3449 | 6.4 | 6.1-6.6 | 4.9 | 4.8-5.1 |
| HK <sup>4</sup> /Singapore | 1531 | 4.6 | 4.4-4.9 | 3.6 | 3.4-3.7 |
| <b>Japanese</b>            |      |     |         |     |         |
| US                         | 379  | 8.4 | 7.5-9.3 | 6.1 | 5.5-6.8 |
| Japan <sup>5</sup>         | 8490 | 9.7 | 9.5-9.9 | 7.2 | 7.0-7.3 |
| <b>Filipino</b>            |      |     |         |     |         |
| US                         | 264  | 6.3 | 5.5-7.1 | 4.6 | 4.0-5.2 |
| Manila                     | 392  | 5.0 | 4.5-5.6 | 3.9 | 3.5-4.3 |

#### MALES

|                 |      |      |           |     |          |
|-----------------|------|------|-----------|-----|----------|
| <b>Chinese</b>  |      |      |           |     |          |
| US              | 148  | 7.7  | 6.4-9.0   | 5.7 | 4.7-6.7  |
| China           | 1973 | 7.9  | 7.5-8.2   | 6.1 | 5.8-6.3  |
| HK/Singapore    | 830  | 5.4  | 5.0-5.8   | 4.2 | 3.9-4.5  |
| <b>Japanese</b> |      |      |           |     |          |
| US              | 187  | 9.4  | 8.0-11.0  | 6.9 | 5.9-8.1  |
| Japan           | 4792 | 13.0 | 12.6-13.3 | 9.7 | 9.4-10.0 |
| <b>Filipino</b> |      |      |           |     |          |
| US              | 156  | 7.2  | 6.1-8.5   | 5.4 | 4.5-6.4  |
| Manila          | 211  | 5.9  | 5.0-6.8   | 4.7 | 4.0-5.3  |

#### FEMALES

|                 |      |     |         |     |         |
|-----------------|------|-----|---------|-----|---------|
| <b>Chinese</b>  |      |     |         |     |         |
| US              | 108  | 5.3 | 4.3-6.5 | 3.7 | 3.0-4.5 |
| China           | 1476 | 5.1 | 4.8-5.4 | 4.0 | 3.7-4.2 |
| HK/Singapore    | 701  | 3.9 | 3.6-4.2 | 3.0 | 2.8-3.2 |
| <b>Japanese</b> |      |     |         |     |         |
| US              | 192  | 7.5 | 6.3-8.7 | 5.4 | 4.6-6.3 |
| Japan           | 3698 | 7.2 | 7.0-7.4 | 5.2 | 5.0-5.4 |
| <b>Filipino</b> |      |     |         |     |         |
| US              | 108  | 5.4 | 4.3-6.6 | 4.0 | 3.2-4.8 |
| Manila          | 181  | 4.3 | 3.6-5.0 | 3.3 | 2.8-3.8 |

<sup>1</sup> Data are not shown for rates based on fewer than 5 cases.

<sup>2</sup> US = SEER + California

<sup>3</sup> China = Shanghai + Tianjin

<sup>4</sup> HK = Hong Kong + Singapore Chinese

<sup>5</sup> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## PANCREAS

### Five-Year Counts, Average Annual Age-Specific Incidence Rates and 95% Confidence Intervals by Registry Group, Age, and Sex, 1988-1992<sup>1</sup>

| Age Group | MALES |      |        | FEMALES |      |        |
|-----------|-------|------|--------|---------|------|--------|
|           | Count | Rate | 95% CI | Count   | Rate | 95% CI |

#### US<sup>2</sup>-Chinese

|       |     |      |           |    |      |           |
|-------|-----|------|-----------|----|------|-----------|
| 0-19  | <5  | -    | -         | <5 | -    | -         |
| 20-34 | <5  | -    | -         | <5 | -    | -         |
| 35-49 | <5  | -    | -         | 5  | 1.0  | 0.3-2.3   |
| 50-64 | 43  | 16.6 | 12.0-22.4 | 24 | 8.7  | 5.6-13.0  |
| 65+   | 101 | 55.0 | 44.8-66.8 | 78 | 35.8 | 28.3-44.7 |

#### China<sup>3</sup>

|       |      |      |           |     |      |           |
|-------|------|------|-----------|-----|------|-----------|
| 0-19  | <5   | -    | -         | <5  | -    | -         |
| 20-34 | 25   | 0.3  | 0.2-0.4   | 18  | 0.2  | 0.1-0.4   |
| 35-49 | 178  | 2.8  | 2.4-3.2   | 78  | 1.3  | 1.1-1.7   |
| 50-64 | 679  | 16.0 | 14.9-17.3 | 502 | 11.3 | 10.3-12.3 |
| 65+   | 1090 | 48.1 | 45.3-51.0 | 877 | 31.8 | 29.8-34.0 |

#### HongKong/Singapore Chinese

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | <5  | -    | -         | <5  | -    | -         |
| 20-34 | 17  | 0.3  | 0.2-0.5   | 16  | 0.3  | 0.2-0.5   |
| 35-49 | 72  | 1.7  | 1.3-2.1   | 46  | 1.2  | 0.9-1.6   |
| 50-64 | 312 | 12.1 | 10.8-13.5 | 178 | 7.5  | 6.4-8.6   |
| 65+   | 427 | 31.5 | 28.6-34.6 | 458 | 25.7 | 23.4-28.2 |

#### US-Japanese

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | <5  | -    | -         | <5  | -    | -         |
| 20-34 | <5  | -    | -         | <5  | -    | -         |
| 35-49 | 6   | 1.8  | 0.7-3.9   | 8   | 2.2  | 1.0-4.4   |
| 50-64 | 38  | 16.8 | 11.9-23.1 | 48  | 14.1 | 10.4-18.7 |
| 65+   | 143 | 67.6 | 57.0-79.6 | 135 | 52.0 | 43.6-61.5 |

#### Japan<sup>4</sup>

|       |      |      |           |      |      |           |
|-------|------|------|-----------|------|------|-----------|
| 0-19  | <5   | -    | -         | <5   | -    | -         |
| 20-34 | 11   | 0.1  | 0.1-0.3   | 16   | 0.2  | 0.1-0.3   |
| 35-49 | 333  | 3.9  | 3.5-4.4   | 146  | 1.7  | 1.4-2.0   |
| 50-64 | 1563 | 23.8 | 22.6-25.0 | 755  | 10.9 | 10.1-11.7 |
| 65+   | 2883 | 86.8 | 83.7-90.0 | 2778 | 54.8 | 52.8-56.9 |

#### US-Filipino

|       |     |      |           |    |      |           |
|-------|-----|------|-----------|----|------|-----------|
| 0-19  | <5  | -    | -         | <5 | -    | -         |
| 20-34 | <5  | -    | -         | <5 | -    | -         |
| 35-49 | 12  | 2.4  | 1.3-4.3   | 7  | 1.2  | 0.5-2.4   |
| 50-64 | 33  | 13.6 | 9.4-19.1  | 23 | 7.4  | 4.7-11.1  |
| 65+   | 110 | 56.1 | 46.1-67.6 | 75 | 37.1 | 29.2-46.5 |

#### Manila

|       |    |      |           |    |      |           |
|-------|----|------|-----------|----|------|-----------|
| 0-19  | <5 | -    | -         | <5 | -    | -         |
| 20-34 | 5  | 0.2  | 0.1-0.4   | <5 | -    | -         |
| 35-49 | 30 | 1.8  | 1.2-2.5   | 20 | 1.2  | 0.7-1.8   |
| 50-64 | 95 | 13.1 | 10.6-16.0 | 71 | 8.8  | 6.9-11.1  |
| 65+   | 81 | 34.4 | 27.3-42.8 | 86 | 26.7 | 21.3-32.9 |

<sup>1</sup> Data are not shown for rates based on fewer than 5 cases.

<sup>2</sup> US = SEER + California

<sup>3</sup> China = Shanghai + Tianjin

<sup>4</sup> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki