

# **Cancer Incidence**

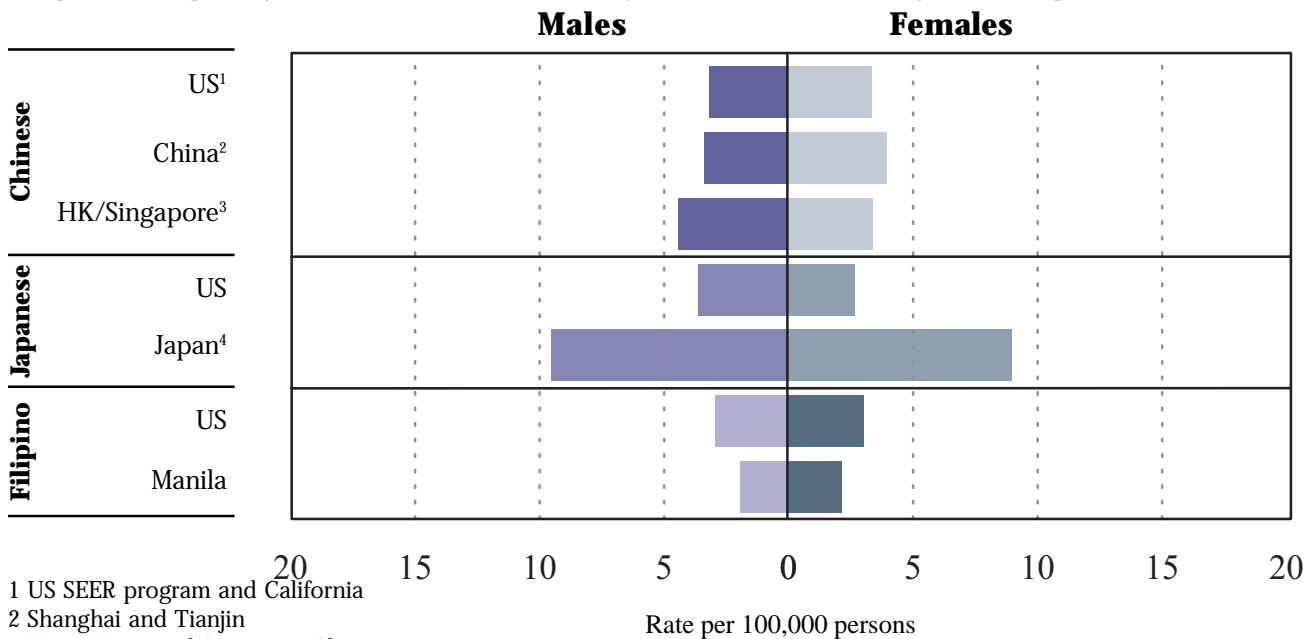
## BILIARY TRACT

Cancer of the biliary tract includes malignancies of the gallbladder, the extrahepatic bile duct and the ampulla of Vater. Gallbladder cancer, the most common form of biliary tract cancer, is more common in females than in males, while extrahepatic bile duct cancer is more common in males (cancer of the ampulla of Vater, a very rare tumor, is included with extrahepatic bile duct cancer for the sake of this discussion)<sup>1</sup>. Biliary tract cancer is uncommon in the United States (about 1.5 cases per 100,000 persons per year)<sup>2</sup>, and incidence has been declining, perhaps due to the increasing rate of cholecystectomy (removal of the gallbladder) for other gallbladder disease<sup>3</sup>. However, incidence of biliary tract cancer is much more common in Japan and among Japanese immigrants to the US; average annual incidence rates are about 9 and 3 cases per 100,000 persons per year, respectively. Patients with cancer of the biliary tract generally have a poor prognosis, with a five-year survival of about 12%<sup>4</sup>.

dians<sup>1</sup>, and in fact have been found in approximately 70-90% of gallbladder cancer cases<sup>4</sup>. The size of the gallstone and the duration of its presence also have been linked with increased risk of gallbladder cancer<sup>1</sup>. The association between gallbladder cancer and pigment gallstones has yet to be clearly defined; a study done in Japan found that almost 70% of gallstones occurring in biliary tract cancer were cholesterol gallstones rather than the more prevalent pigment gallstones<sup>5</sup>.

While gallstones are not associated as strongly with cancer of the extrahepatic bile duct as with gallbladder cancer, these two types of cancer do share many other risk factors. Infection with liver flukes, and chronic infection with the bacteria *Salmonella typhi* and *Salmonella paratyphi*, which often affect the gallbladder and biliary tract, may increase risk of gallbladder cancer<sup>1,6</sup>. Ulcerative colitis<sup>4</sup>, inflammatory bowel disease<sup>7</sup>, and prior gastrectomy (removal of the stomach)<sup>8</sup> increase risk of extrahepatic bile duct cancer. Occupational exposures possibly associated with biliary tract cancer

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



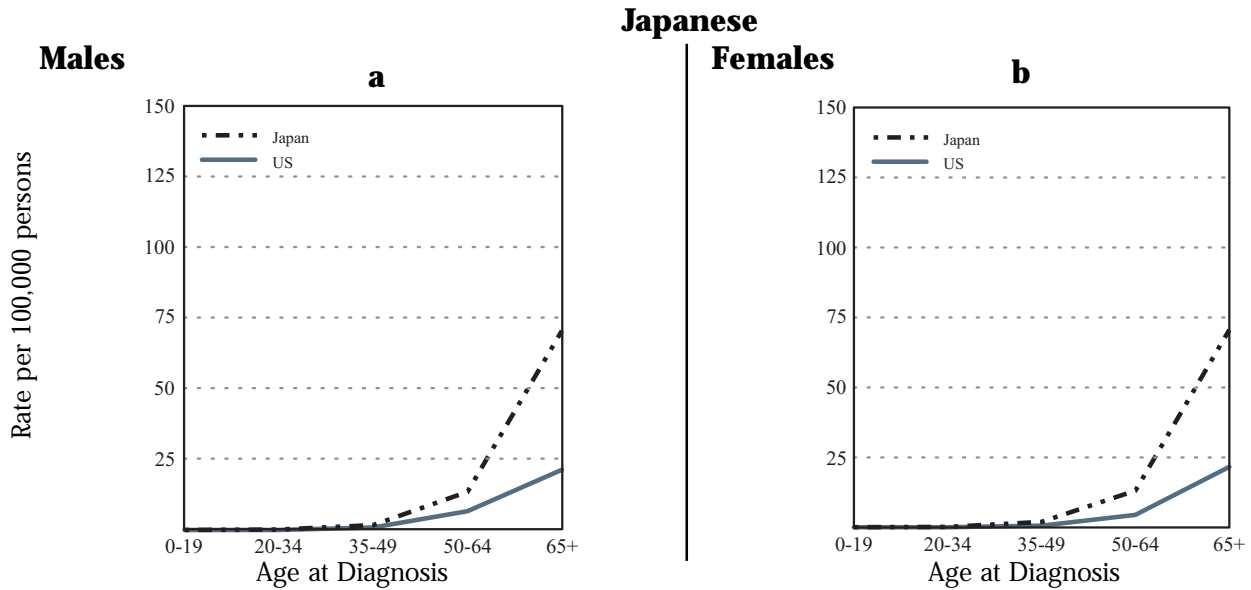
1 US SEER program and California  
 2 Shanghai and Tianjin  
 3 Hong Kong and Singapore-Chinese  
 4 Miyagi, Nagasaki, Osaka, Yamagata, Saga

### Risk Factors

The major risk factor for gallbladder cancer is previous or concurrent presence of gallstones. The two types of gallstones associated with gallbladder cancer are cholesterol gallstones, which are more common in Western countries, and pigment gallstones, which are more common in Asia. In the US, cholesterol gallstones are more common in groups with relatively high rates of gallbladder cancer, such as females and American In-

occurrence include organic solvents<sup>9</sup> and working in rubber factories<sup>10</sup>. The risk of biliary tract cancer increases with the number of pregnancies, earlier age at first pregnancy, or earlier age at menarche<sup>11</sup>. Exposure to exogenous estrogens, such as in hormone replacement therapy, has been shown to increase the risk of gallstones and therefore of biliary tract cancer<sup>12</sup>. Risk is less strongly associated with chronic diarrhea<sup>13</sup>, increased body mass index<sup>14,15</sup>, high caloric intake<sup>16</sup>, high carbohydrate intake<sup>13</sup> and increased sugar consump-

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



tion<sup>16</sup>. A decreased risk of gallbladder cancer has been found with consumption of whole grain foods<sup>17</sup> or fruits and vegetables<sup>16</sup>. Tobacco use has been shown to increase the risk of biliary tract cancer slightly, while alcohol consumption has been shown to decrease risk, perhaps due to its ability to reduce cholesterol saturation<sup>14</sup>.

Among the high-risk Japanese population, identified risk factors include a history of biliary tract disease, family history of gallstones, a taste for oily foods, family history of cerebral vascular accident, “thin” body type (below a certain weight and height) and exposure to environmental water pollution by agricultural chemicals such as chlornitrofen<sup>5,18</sup>. Consumption of animal fats, fruits and vegetables, alcohol, a family history of heart disease or obesity, and “taking snacks” were found to decrease the risk of disease<sup>5</sup>. Genetic factors associated with biliary tract cancer have also been identified; a recent study of Japanese patients with gallbladder cancer found that greater than 50% of the tumors had mutations in the p53 gene<sup>19</sup>.

**Incidence**

For biliary tract cancer as a whole, incidence does not vary greatly by sex: females in Japan, for example, had an average annual age-adjusted incidence rate of 9 cases per 100,000 persons, while males in Japan had a rate of 9.5 cases per 100,000 (Figure 1). However, the rate of biliary tract cancer for Japanese in Japan was approximately three times that of the other racial/ethnic groups, and higher than that for US Japanese. Within the US populations, Japanese females had the highest incidence rate of biliary tract cancer (4 cases per

100,000); Chinese males had the second highest rates (3 cases per 100,000).

Because incidence rates of biliary tract cancer are considerably higher in Japanese populations than in other racial/ethnic groups, age-specific data are presented only for Japanese. Incidence of biliary tract cancer rose dramatically after age 50 (Figures 2a-2b). Among Japanese ages 35-49 in Japan, females had three and a half times the incidence rate of US females of the same age, while Japanese males of this age group had twice the incidence rate of US Japanese males. In persons over age 65, rates for both males and females in Japan were three times higher than rates in US Japanese. The reasons for these rate differences between Japanese in Japan and US Japanese are not known.

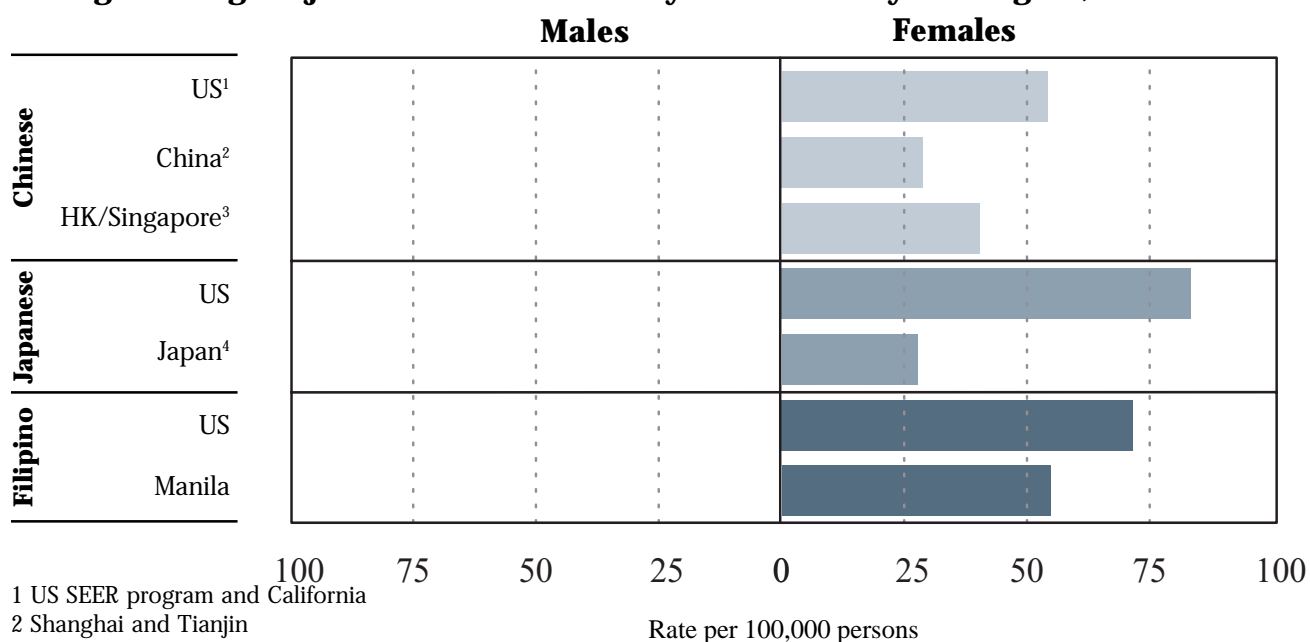
## BREAST

Breast cancer was the most commonly diagnosed cancer among Chinese, Japanese, and Filipino females in the United States as well as in Asia, with one exception; in Japan, it was the second most commonly diagnosed cancer in women following stomach cancer<sup>1</sup>. Between 1970 and 1985, rates increased more rapidly in Asian females than in other racial/ethnic groups; this increase was particularly evident for Japanese females in Japan and in the US, for Filipinas in the US, and for Chinese females in Singapore<sup>2</sup>. The rapid rise in breast cancer incidence rates beginning in the early 1980s may have been largely artifactual, that is, due to an increase in use of breast cancer screening via the implementation of mass screening programs in several countries<sup>3</sup>. Though breast cancer is a common malignancy, survival due to this disease is relatively favorable; five-year relative survival in the US is about 85%<sup>4</sup>.

related to migration that have been shown to increase breast cancer risk among Asian females include longer duration of residence in the US, birth in the US compared to Asia, having grandparents born in the US rather than Asia, and having resided in urban rather than rural communities in Asia<sup>5</sup>.

Use of menopausal estrogens, lower levels of physical activity, nulliparity, fewer live births, higher age at first live birth, less breast-feeding, earlier onset of menstruation, and higher post-menopausal body weight have all been associated with an increased risk of developing breast cancer<sup>5,6,8-11</sup>. Many of these risk factors are associated with an increase in exposure to the female sex hormone estrogen, which may be involved in stimulating breast tissue growth<sup>8,9</sup>. However, other studies have suggested that the risks associated with these reproductive factors are small and that the differences in breast cancer rates among Asians in Asia, Asians in the US, and whites must be largely a result of other environmental and lifestyle factors<sup>5</sup>.

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

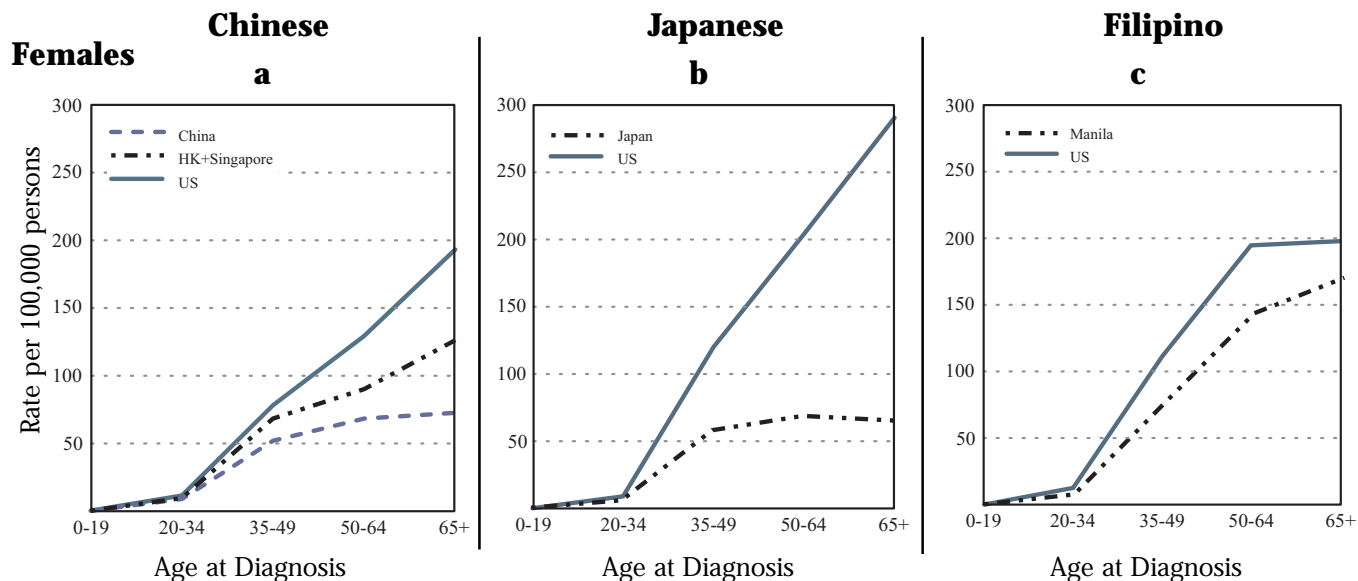


- 1 US SEER program and California
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### Risk Factors

Studies indicate that for Asian women, risk of breast cancer is increased for immigrants to the US<sup>5,6</sup>. Age at immigration to the US has been shown to be important in determining risk for Japanese females, with higher risk among those who migrated at an earlier age<sup>7</sup>. These observations suggest that lifestyle and environmental factors associated with Westernization play crucial roles in the etiology of this disease<sup>6,8</sup>. Factors

A well-established risk factor for breast cancer is a family history of breast and/or ovarian cancer<sup>9</sup>. Women with more than one first-degree relative (mother, sister and/or daughter) with breast cancer have up to a five-fold higher risk than women without such a family history<sup>9</sup>. Women whose family history includes first-degree relatives with pre-menopausal or bilateral breast cancer have up to a nine-fold higher risk<sup>9</sup>. Mutations in two genes, BRCA1 and BRCA2, have been associated

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

with a strong susceptibility to breast and ovarian cancer development. It is estimated that mutations in BRCA1 are responsible for 5-7% of all breast cancers<sup>9</sup>. However, neither the prevalence of these mutations nor their penetrance (risk of disease associated with the gene) in Asian populations are well known.

An association between diet and breast cancer has been suggested but remains controversial. It has been postulated that a diet low in fat and high in fiber may decrease risk of the disease, but evidence has been inconclusive<sup>12-14</sup>. Tofu and other soy products have been explored as protective factors against breast cancer development<sup>15,16</sup>.

## Incidence

The age-adjusted rate of breast cancer between 1988-1992 was about three times higher in US Japanese females than their counterparts in Japan (Figure 1). For Chinese and Filipinas, international differences were less dramatic. These interethnic patterns may reflect the longer duration of residence in the US for Japanese as a group than for Chinese and Filipinos<sup>17</sup>; as they acculturated, Japanese females may have been more likely to adopt the reproductive and dietary lifestyles that appear to be associated with increased breast cancer risk.

Age-specific rates increased exponentially with age for all females, starting at ages 20-34 (Figures 2a-2c). Among US Filipinas (Figure 2c), the incidence rate leveled off after ages 50-64; among Japanese in Japan (Figure 2b), rates did not change substantially after ages 35-49. The age-specific curve among US Japanese resembled that of the general US population, with risk continuing to increase exponentially after ages 50-64<sup>18</sup>.

This pattern was also evident, if less dramatic, among Chinese females in the US and in Hong Kong/Singapore. These age-specific patterns suggest that geographic differences in risk are primarily associated with post-menopausal breast cancer.

## CERVIX UTERI

The cervix is the lower portion of the uterus between the uterine cavity and the vagina. Cervical cancer, which is predominantly squamous carcinoma, develops from preinvasive lesions that can be classified into low-grade and high-grade disease; low-grade cytology is viewed as a risk factor for cervical cancer, while high-grade cytology is considered a marker for cervical cancer itself<sup>1</sup>. These classifications are used in Papanicolaou (Pap) smear screening for early diagnosis and identification of females at high-risk of developing the disease<sup>1</sup>.

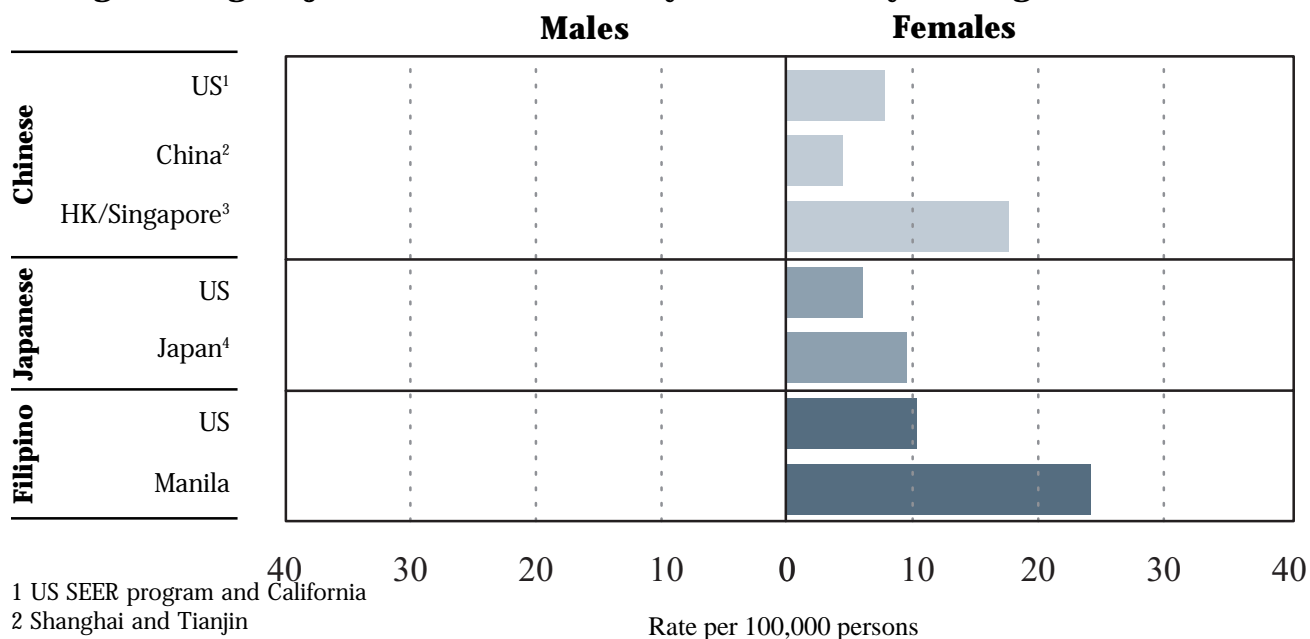
Incidence and mortality rates of cervical cancer have been greatly influenced by the implementation and efficacy of screening and treatment programs worldwide. The efficacy of Pap smear screening is evidenced by a 40% decline in cervical cancer mortality among United States whites since the 1970s<sup>2</sup>. Survival due to cervical cancer has also improved over time; currently, five-year relative survival for cervical cancer is about 70%<sup>3</sup>. Availability of access to screening, as well as

mitted agent<sup>1,2,6</sup>. Although HPV infection appears to be necessary for the occurrence of cervical cancer, other factors must be present in order for the disease to develop. Most of these risk factors are related to sexual behavior, including early age at first intercourse, higher number of sexual partners for both the female and her male partner(s), and infection with other sexually transmitted diseases such as *Trichomonas vaginalis*, herpes simplex virus, and chlamydia<sup>1,2,7,8</sup>. Although circumcision of the male sexual partner has been examined as a risk factor for cervical cancer, findings are inconclusive<sup>1</sup>. Other risk factors for cervical cancer include lower socioeconomic status, long-term use of oral contraceptives, cigarette smoking, and immunosuppression, such as that due to HIV infection<sup>1,2</sup>.

### Incidence

Between 1988-1992, Filipinas in Manila and Chinese in Hong Kong/Singapore were among the populations at highest risk in the world for cervical cancer, with the

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



1 US SEER program and California  
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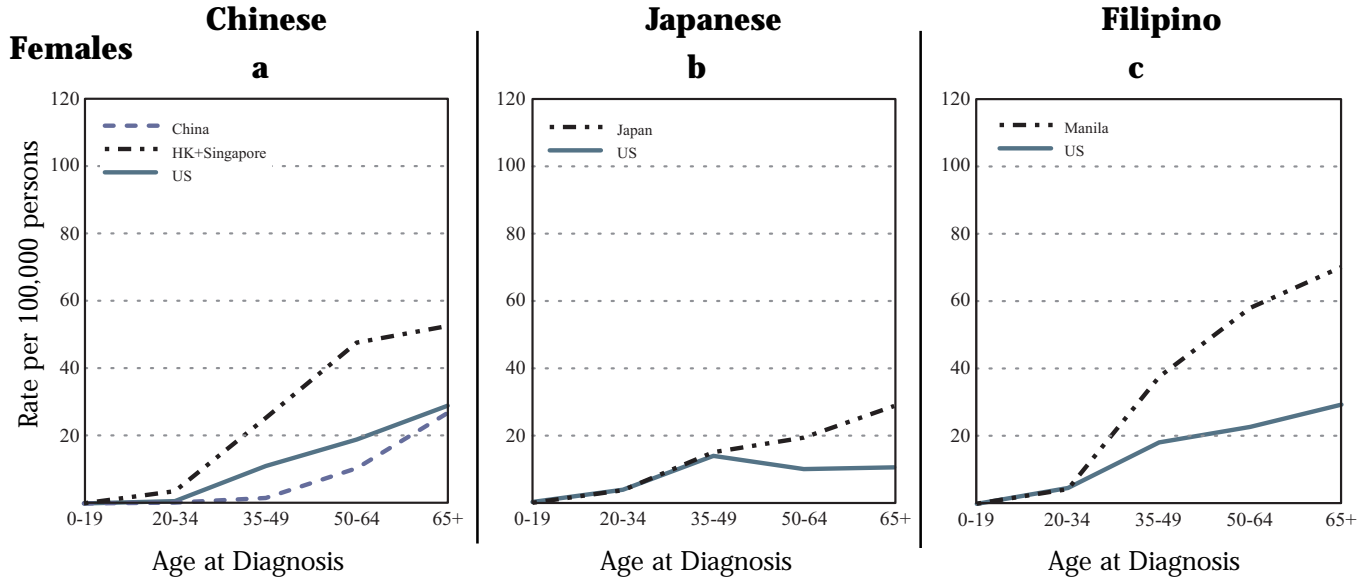
other social factors, can affect the prevalence of screening; increased age, higher socioeconomic status, and ability to speak the local language are important predictors of the likelihood of a woman having had a Pap smear<sup>4,5</sup>.

### Risk Factors

The primary risk factor identified in the development of cervical cancer is infection with certain strains of human papillomavirus (HPV), a common sexually trans-

disease ranking second and fourth, respectively, among all newly diagnosed cancers in females in these regions<sup>7,9</sup>. In contrast, among US Filipinos, Chinese, and Japanese females, cervical cancer ranked as the seventh, ninth, and tenth most commonly diagnosed cancer, respectively. Cervical cancer incidence rates were more than three times higher among Chinese females in Hong Kong/Singapore than in Chinese in China, and over twice as high as rates in Chinese females in the US (Figure 1). Similarly, Filipinas in Manila experi-

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



enced incidence rates of cervical cancer more than twice that of their US counterparts.

Cervical cancer occurrence increased rapidly with age starting with the 20-34 age group, except in Japanese females, for whom age-specific rates stayed relatively low throughout life (Figure 2b). Among Chinese females, age-specific rates increased more rapidly with age in Hong Kong/Singapore than in China or the US (Figure 2a). Similarly, Filipinas in Manila experienced a much larger rate increase with age than Filipinas in the US (Figure 2c). The differences in incidence rates between Asians in their native countries and Asians in the US may be partly attributable to increased exposure to HPV in Asian countries<sup>1</sup>.

# Tables

## ALL SITES

### 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>            | 9979   | 240.2 | 235.2-245.3 | 189.8 | 185.8-193.7 |
| China <sup>3</sup>         | 124669 | 223.9 | 222.6-225.2 | 181.1 | 180.1-182.1 |
| HK <sup>4</sup> /Singapore | 103876 | 300.9 | 299.0-302.7 | 244.3 | 242.8-245.9 |
| <b>Japanese</b>            |        |       |             |       |             |
| US                         | 12078  | 279.1 | 273.7-284.6 | 219.0 | 214.7-223.3 |
| Japan <sup>5</sup>         | 228277 | 259.3 | 258.2-260.4 | 205.7 | 204.8-206.5 |
| <b>Filipino</b>            |        |       |             |       |             |
| US                         | 10866  | 253.9 | 248.8-258.9 | 202.4 | 198.5-206.4 |
| Manila                     | 23644  | 245.0 | 241.4-248.6 | 200.0 | 197.2-202.7 |

#### MALES

|                 |        |       |             |       |             |
|-----------------|--------|-------|-------------|-------|-------------|
| <b>Chinese</b>  |        |       |             |       |             |
| US              | 5230   | 277.0 | 269.0-285.1 | 212.1 | 206.1-218.2 |
| China           | 70849  | 276.3 | 274.1-278.4 | 217.4 | 215.8-219.1 |
| HK/Singapore    | 57822  | 365.0 | 361.9-368.1 | 290.0 | 287.6-292.4 |
| <b>Japanese</b> |        |       |             |       |             |
| US              | 6239   | 320.0 | 311.3-328.9 | 240.2 | 233.7-246.8 |
| Japan           | 132199 | 352.3 | 350.4-354.3 | 272.0 | 270.5-273.5 |
| <b>Filipino</b> |        |       |             |       |             |
| US              | 5632   | 277.3 | 269.6-285.0 | 212.1 | 206.1-218.2 |
| Manila          | 10790  | 268.0 | 262.1-274.0 | 212.3 | 207.9-216.7 |

#### FEMALES

|                 |       |       |             |       |             |
|-----------------|-------|-------|-------------|-------|-------------|
| <b>Chinese</b>  |       |       |             |       |             |
| US              | 4749  | 210.4 | 204.0-216.8 | 171.6 | 166.5-176.9 |
| China           | 53820 | 182.5 | 180.9-184.1 | 151.9 | 150.6-153.2 |
| HK/Singapore    | 46054 | 250.4 | 248.0-252.7 | 206.6 | 204.6-208.6 |
| <b>Japanese</b> |       |       |             |       |             |
| US              | 5839  | 245.1 | 238.3-252.0 | 201.7 | 196.1-207.5 |
| Japan           | 96078 | 194.1 | 192.9-195.3 | 157.6 | 156.5-158.6 |
| <b>Filipino</b> |       |       |             |       |             |
| US              | 5234  | 222.6 | 216.1-229.1 | 188.6 | 183.3-193.9 |
| Manila          | 12854 | 231.3 | 226.9-235.9 | 193.7 | 190.1-197.3 |

<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

## ALL SITES

### 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  | 68   | 11.5   | 9.0-14.6      | 48   | 8.7    | 6.4-11.6      |
| 20-34 | 173  | 30.1   | 25.8-35.0     | 260  | 44.0   | 38.8-49.6     |
| 35-49 | 448  | 94.4   | 85.8-103.5    | 902  | 175.4  | 164.1-187.2   |
| 50-64 | 1266 | 488.8  | 462.2-516.5   | 1192 | 433.7  | 409.4-459.0   |
| 65+   | 3275 | 1782.7 | 1722.2-1844.8 | 2347 | 1078.5 | 1035.3-1123.1 |

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

|       |       |        |               |       |       |             |
|-------|-------|--------|---------------|-------|-------|-------------|
| 0-19  | 697   | 11.5   | 10.7-12.4     | 546   | 9.4   | 8.6-10.2    |
| 20-34 | 2381  | 29.0   | 27.8-30.2     | 3040  | 41.1  | 39.6-42.6   |
| 35-49 | 6675  | 104.4  | 101.9-106.9   | 8175  | 141.3 | 138.2-144.4 |
| 50-64 | 24656 | 582.3  | 575.1-589.6   | 18571 | 417.7 | 411.7-423.8 |
| 65+   | 36440 | 1607.2 | 1590.8-1623.8 | 23488 | 852.6 | 841.7-863.6 |

#### Hong Kong/Singapore Chinese

|       |       |        |               |       |        |               |
|-------|-------|--------|---------------|-------|--------|---------------|
| 0-19  | 989   | 16.6   | 15.6-17.6     | 791   | 14.3   | 13.4-15.4     |
| 20-34 | 2487  | 42.5   | 40.8-44.2     | 3037  | 53.1   | 51.2-55.0     |
| 35-49 | 7436  | 175.8  | 171.9-179.9   | 8242  | 214.3  | 209.7-218.9   |
| 50-64 | 20132 | 778.7  | 768.0-789.6   | 12522 | 524.9  | 515.8-534.2   |
| 65+   | 26778 | 1975.2 | 1951.6-1999.0 | 21462 | 1204.8 | 1188.7-1221.0 |

#### US-Japanese

|       |      |        |               |      |        |               |
|-------|------|--------|---------------|------|--------|---------------|
| 0-19  | 38   | 12.1   | 8.6-16.6      | 27   | 8.8    | 5.8-12.7      |
| 20-34 | 87   | 21.9   | 17.6-27.0     | 152  | 39.5   | 33.5-46.3     |
| 35-49 | 294  | 87.5   | 77.8-98.1     | 793  | 220.5  | 205.4-236.4   |
| 50-64 | 1300 | 575.0  | 544.2-607.2   | 1977 | 582.4  | 557.0-608.7   |
| 65+   | 4520 | 2136.5 | 2074.7-2199.7 | 2890 | 1112.5 | 1072.3-1153.8 |

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

|       |       |        |               |       |        |               |
|-------|-------|--------|---------------|-------|--------|---------------|
| 0-19  | 1168  | 11.7   | 11.1-12.4     | 952   | 10.0   | 9.4-10.7      |
| 20-34 | 1418  | 19.2   | 18.2-20.2     | 2201  | 29.5   | 28.3-30.8     |
| 35-49 | 10746 | 127.3  | 124.9-129.7   | 14431 | 168.9  | 166.2-171.7   |
| 50-64 | 47221 | 717.8  | 711.4-724.3   | 27080 | 390.5  | 385.9-395.2   |
| 65+   | 71646 | 2157.2 | 2141.5-2173.1 | 51414 | 1014.9 | 1006.2-1023.7 |

#### US-Filipino

|       |      |        |               |      |       |             |
|-------|------|--------|---------------|------|-------|-------------|
| 0-19  | 101  | 13.1   | 10.7-15.9     | 106  | 14.7  | 12.0-17.8   |
| 20-34 | 171  | 29.0   | 24.8-33.7     | 347  | 52.5  | 47.1-58.4   |
| 35-49 | 471  | 96.1   | 87.7-105.2    | 1403 | 231.9 | 219.9-244.4 |
| 50-64 | 1162 | 479.8  | 452.6-508.2   | 1597 | 511.8 | 487.0-537.6 |
| 65+   | 3727 | 1899.9 | 1839.4-1961.9 | 1781 | 881.0 | 840.6-922.9 |

#### Manila

|       |      |        |               |      |        |              |
|-------|------|--------|---------------|------|--------|--------------|
| 0-19  | 624  | 13.1   | 12.1-14.2     | 522  | 10.8   | 9.9-11.8     |
| 20-34 | 897  | 27.8   | 26.0-29.6     | 1363 | 37.8   | 35.8-39.9    |
| 35-49 | 1985 | 117.7  | 112.6-123.0   | 3563 | 210.0  | 203.1-217.0  |
| 50-64 | 3784 | 522.5  | 505.9-539.4   | 4175 | 519.1  | 503.5-535.1  |
| 65+   | 3500 | 1488.1 | 1439.2-1538.2 | 3231 | 1002.3 | 968.0-1037.4 |

<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

## BILIARY TRACT

### 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>            | 131  | 3.3 | 2.7-3.9 | 2.3 | 1.9-2.7 |
| China <sup>3</sup>         | 1980 | 3.7 | 3.5-3.8 | 2.8 | 2.7-2.9 |
| HK <sup>4</sup> /Singapore | 1243 | 3.8 | 3.6-4.1 | 2.8 | 2.7-3.0 |
| <b>Japanese</b>            |      |     |         |     |         |
| US                         | 136  | 3.1 | 2.5-3.7 | 2.2 | 1.8-2.6 |
| Japan <sup>5</sup>         | 8033 | 9.2 | 9.0-9.4 | 6.6 | 6.4-6.7 |
| <b>Filipino</b>            |      |     |         |     |         |
| US                         | 113  | 3.0 | 2.4-3.6 | 2.1 | 1.7-2.5 |
| Manila                     | 151  | 2.1 | 1.7-2.4 | 1.5 | 1.3-1.8 |

#### MALES

|                 |      |     |         |     |         |
|-----------------|------|-----|---------|-----|---------|
| <b>Chinese</b>  |      |     |         |     |         |
| US              | 59   | 3.2 | 2.4-4.1 | 2.3 | 1.7-2.9 |
| China           | 813  | 3.3 | 3.1-3.6 | 2.5 | 2.3-2.7 |
| HK/Singapore    | 626  | 4.4 | 4.0-4.7 | 3.2 | 2.9-3.4 |
| <b>Japanese</b> |      |     |         |     |         |
| US              | 63   | 3.6 | 2.6-4.6 | 2.6 | 1.9-3.3 |
| Japan           | 3380 | 9.5 | 9.1-9.8 | 6.8 | 6.5-7.0 |
| <b>Filipino</b> |      |     |         |     |         |
| US              | 56   | 2.9 | 2.2-3.7 | 2.0 | 1.5-2.6 |
| Manila          | 65   | 1.9 | 1.4-2.4 | 1.4 | 1.1-1.8 |

#### FEMALES

|                 |      |     |         |     |         |
|-----------------|------|-----|---------|-----|---------|
| <b>Chinese</b>  |      |     |         |     |         |
| US              | 72   | 3.4 | 2.6-4.3 | 2.3 | 1.7-2.9 |
| China           | 1167 | 4.0 | 3.8-4.2 | 3.1 | 2.9-3.3 |
| HK/Singapore    | 617  | 3.4 | 3.2-3.7 | 2.5 | 2.3-2.7 |
| <b>Japanese</b> |      |     |         |     |         |
| US              | 73   | 2.7 | 2.0-3.5 | 1.9 | 1.4-2.4 |
| Japan           | 4653 | 9.0 | 8.7-9.3 | 6.4 | 6.2-6.6 |
| <b>Filipino</b> |      |     |         |     |         |
| US              | 57   | 3.1 | 2.2-4.0 | 2.2 | 1.6-2.8 |
| Manila          | 86   | 2.2 | 1.7-2.7 | 1.6 | 1.3-2.0 |

<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

## BILIARY TRACT

### 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 | -    | -         |
| 50-64 | 9  | 3.5  | 1.6-6.6   | 7  | 2.5  | 1.0-5.2   |
| 65+   | 47 | 25.6 | 18.8-34.0 | 62 | 28.5 | 21.8-36.5 |

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

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | <5  | -    | -         | <5  | -    | -         |
| 20-34 | 9   | 0.1  | 0.1-0.2   | 11  | 0.1  | 0.1-0.3   |
| 35-49 | 54  | 0.8  | 0.6-1.1   | 59  | 1.0  | 0.8-1.3   |
| 50-64 | 247 | 5.8  | 5.1-6.6   | 400 | 9.0  | 8.1-9.9   |
| 65+   | 503 | 22.2 | 20.3-24.2 | 696 | 25.3 | 23.4-27.2 |

#### Hong Kong/Singapore Chinese

|       |     |      |           |     |      |           |
|-------|-----|------|-----------|-----|------|-----------|
| 0-19  | <5  | -    | -         | <5  | -    | -         |
| 20-34 | 10  | 0.2  | 0.1-0.3   | 6   | 0.1  | 0.0-0.2   |
| 35-49 | 42  | 1.0  | 0.7-1.3   | 32  | 0.8  | 0.6-1.2   |
| 50-64 | 169 | 6.5  | 5.6-7.6   | 141 | 5.9  | 5.0-7.0   |
| 65+   | 404 | 29.8 | 27.0-32.9 | 438 | 24.6 | 22.3-27.0 |

#### US-Japanese

|       |    |      |           |    |      |           |
|-------|----|------|-----------|----|------|-----------|
| 0-19  | <5 | -    | -         | <5 | -    | -         |
| 20-34 | <5 | -    | -         | <5 | -    | -         |
| 35-49 | <5 | -    | -         | <5 | -    | -         |
| 50-64 | 15 | 6.6  | 3.7-10.9  | 15 | 4.4  | 2.5-7.3   |
| 65+   | 45 | 21.3 | 15.5-28.5 | 56 | 21.6 | 16.3-28.0 |

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

|       |      |      |           |      |      |           |
|-------|------|------|-----------|------|------|-----------|
| 0-19  | <5   | -    | -         | <5   | -    | -         |
| 20-34 | 11   | 0.1  | 0.1-0.3   | 8    | 0.1  | 0.0-0.2   |
| 35-49 | 145  | 1.7  | 1.4-2.0   | 163  | 1.9  | 1.6-2.2   |
| 50-64 | 887  | 13.5 | 12.6-14.4 | 907  | 13.1 | 12.2-14.0 |
| 65+   | 2336 | 70.3 | 67.5-73.2 | 3574 | 70.6 | 68.3-72.9 |

#### US-Filipino

|       |    |      |           |    |      |           |
|-------|----|------|-----------|----|------|-----------|
| 0-19  | <5 | -    | -         | <5 | -    | -         |
| 20-34 | <5 | -    | -         | <5 | -    | -         |
| 35-49 | <5 | -    | -         | <5 | -    | -         |
| 50-64 | 12 | 5.0  | 2.6-8.7   | 14 | 4.5  | 2.5-7.5   |
| 65+   | 43 | 21.9 | 15.9-29.5 | 39 | 19.3 | 13.7-26.4 |

#### Manila

|       |    |      |          |    |      |          |
|-------|----|------|----------|----|------|----------|
| 0-19  | <5 | -    | -        | <5 | -    | -        |
| 20-34 | 6  | 0.2  | 0.1-0.4  | <5 | -    | -        |
| 35-49 | 9  | 0.5  | 0.2-1.0  | 10 | 0.6  | 0.3-1.1  |
| 50-64 | 18 | 2.5  | 1.5-3.9  | 30 | 3.7  | 2.5-5.3  |
| 65+   | 32 | 13.6 | 9.3-19.2 | 44 | 13.6 | 9.9-18.3 |

<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

## BREAST

### 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>            | 1244  | 54.0 | 50.9-57.2 | 47.1 | 44.4-49.9 |
| China <sup>3</sup>         | 8670  | 28.7 | 28.1-29.3 | 25.9 | 25.3-26.5 |
| HK <sup>4</sup> /Singapore | 7556  | 40.2 | 39.2-41.1 | 35.5 | 34.7-36.4 |
| <b>Japanese</b>            |       |      |           |      |           |
| US                         | 1911  | 83.1 | 79.2-87.1 | 71.7 | 68.4-75.2 |
| Japan <sup>5</sup>         | 13357 | 27.5 | 27.1-28.0 | 25.0 | 24.6-25.4 |
| <b>Filipino</b>            |       |      |           |      |           |
| US                         | 1759  | 71.3 | 67.8-74.9 | 62.9 | 59.9-65.9 |
| Manila                     | 3274  | 54.5 | 52.5-56.6 | 47.7 | 46.0-49.5 |

1 Data are not shown for rates based on fewer than 5 cases.

2 US = SEER + California

3 China = Shanghai + Tianjin

4 HK = Hong Kong + Singapore Chinese

5 Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## BREAST

### 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                              | 67      | 11.3  | 8.8-14.4    |
| 35-49                              | 401     | 78.0  | 70.5-86.0   |
| 50-64                              | 355     | 129.2 | 116.1-143.3 |
| 65+                                | 420     | 193.0 | 175.0-212.4 |
| <b>China<sup>3</sup></b>           |         |       |             |
| 0-19                               | <5      | -     | -           |
| 20-34                              | 647     | 8.7   | 8.1-9.4     |
| 35-49                              | 2995    | 51.8  | 49.9-53.6   |
| 50-64                              | 3030    | 68.2  | 65.7-70.6   |
| 65+                                | 1995    | 72.4  | 69.3-75.7   |
| <b>Hong Kong/Singapore Chinese</b> |         |       |             |
| 0-19                               | <5      | -     | -           |
| 20-34                              | 540     | 9.4   | 8.7-10.3    |
| 35-49                              | 2622    | 68.2  | 65.6-70.8   |
| 50-64                              | 2145    | 89.9  | 86.2-93.8   |
| 65+                                | 2245    | 126.0 | 120.9-131.3 |
| <b>US-Japanese</b>                 |         |       |             |
| 0-19                               | <5      | -     | -           |
| 20-34                              | 34      | 8.8   | 6.1-12.3    |
| 35-49                              | 431     | 119.8 | 108.8-131.7 |
| 50-64                              | 692     | 203.9 | 188.9-219.6 |
| 65+                                | 754     | 290.2 | 269.9-311.7 |
| <b>Japan<sup>4</sup></b>           |         |       |             |
| 0-19                               | <5      | -     | -           |
| 20-34                              | 415     | 5.6   | 5.0-6.1     |
| 35-49                              | 4920    | 57.6  | 56.0-59.2   |
| 50-64                              | 4735    | 68.3  | 66.4-70.3   |
| 65+                                | 3284    | 64.8  | 62.6-67.1   |
| <b>US-Filipino</b>                 |         |       |             |
| 0-19                               | <5      | -     | -           |
| 20-34                              | 83      | 12.6  | 10.0-15.6   |
| 35-49                              | 671     | 110.9 | 102.7-119.6 |
| 50-64                              | 606     | 194.2 | 179.1-210.3 |
| 65+                                | 399     | 197.4 | 178.5-217.7 |
| <b>Manila</b>                      |         |       |             |
| 0-19                               | 11      | 0.2   | 0.1-0.4     |
| 20-34                              | 275     | 7.6   | 6.8-8.6     |
| 35-49                              | 1287    | 75.8  | 71.8-80.1   |
| 50-64                              | 1153    | 143.4 | 135.2-151.9 |
| 65+                                | 548     | 170.0 | 156.1-184.8 |

<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> Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## CERVIX UTERI

### 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>            | 176  | 7.8  | 6.6-9.0   | 6.7  | 5.7-7.8   |
| China <sup>3</sup>         | 1314 | 4.5  | 4.2-4.7   | 3.6  | 3.4-3.8   |
| HK <sup>4</sup> /Singapore | 3256 | 17.6 | 17.0-18.2 | 15.6 | 15.0-16.2 |
| <b>Japanese</b>            |      |      |           |      |           |
| US                         | 135  | 6.0  | 5.0-7.1   | 5.7  | 4.7-6.8   |
| Japan <sup>5</sup>         | 4619 | 9.5  | 9.2-9.8   | 8.5  | 8.2-8.7   |
| <b>Filipino</b>            |      |      |           |      |           |
| US                         | 279  | 10.3 | 9.1-11.7  | 9.4  | 8.3-10.6  |
| Manila                     | 1531 | 24.1 | 22.8-25.5 | 21.6 | 20.4-22.7 |

1 Data are not shown for rates based on fewer than 5 cases.

2 US = SEER + California

3 China = Shanghai + Tianjin

4 HK = Hong Kong + Singapore Chinese

5 Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki

## CERVIX UTERI

### 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                              | <5      | -    | -         |
| 35-49                              | 57      | 11.1 | 8.4-14.4  |
| 50-64                              | 52      | 18.9 | 14.1-24.8 |
| 65+                                | 63      | 29.0 | 22.2-37.0 |
| <b>China<sup>3</sup></b>           |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 18      | 0.2  | 0.1-0.4   |
| 35-49                              | 94      | 1.6  | 1.3-2.0   |
| 50-64                              | 464     | 10.4 | 9.5-11.4  |
| 65+                                | 738     | 26.8 | 24.9-28.8 |
| <b>Hong Kong/Singapore Chinese</b> |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 208     | 3.6  | 3.2-4.2   |
| 35-49                              | 974     | 25.3 | 23.8-27.0 |
| 50-64                              | 1136    | 47.6 | 44.9-50.5 |
| 65+                                | 936     | 52.5 | 49.2-56.0 |
| <b>US-Japanese</b>                 |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 16      | 4.2  | 2.4-6.8   |
| 35-49                              | 53      | 14.7 | 11.0-19.3 |
| 50-64                              | 36      | 10.6 | 7.4-14.7  |
| 65+                                | 29      | 11.2 | 7.5-16.0  |
| <b>Japan<sup>4</sup></b>           |         |      |           |
| 0-19                               | 5       | 0.1  | 0.0-0.1   |
| 20-34                              | 299     | 4.0  | 3.6-4.5   |
| 35-49                              | 1358    | 15.9 | 15.1-16.8 |
| 50-64                              | 1419    | 20.5 | 19.4-21.6 |
| 65+                                | 1538    | 30.4 | 28.9-31.9 |
| <b>US-Filipino</b>                 |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 32      | 4.8  | 3.3-6.8   |
| 35-49                              | 113     | 18.7 | 15.4-22.5 |
| 50-64                              | 73      | 23.4 | 18.3-29.4 |
| 65+                                | 61      | 30.2 | 23.1-38.8 |
| <b>Manila</b>                      |         |      |           |
| 0-19                               | <5      | -    | -         |
| 20-34                              | 162     | 4.5  | 3.8-5.2   |
| 35-49                              | 655     | 38.6 | 35.7-41.7 |
| 50-64                              | 479     | 59.6 | 54.3-65.1 |
| 65+                                | 232     | 72.0 | 63.0-81.8 |

1 Data are not shown for rates based on fewer than 5 cases.

2 US = SEER + California

3 China = Shanghai + Tianjin

4 Japan = Miyaki, Osaka, Saga, Yamagata, Nagasaki