

CANCER PATTERNS AND TRENDS IN THE BAHAMAS¹

Alfred F. Brathwaite²

To learn more about cancer trends in the Bahamas, the author conducted a review of available diagnostic and autopsy records at the country's major hospital. This article reports the results of that review.

Introduction

The Commonwealth of the Bahamas is a former British territory that became independent in 1973. Hamilton and Persaud (1), in reviewing the subject of cancer among blacks in the West Indies, noted that there was a paucity of good cancer data in the region and did not include any figures from the Commonwealth of the Bahamas in their 1981 presentation. Nevertheless, many autopsies have been performed in the Bahamas in recent years, and these provide a source of information that has not previously been tapped. Therefore, in order to learn more about cancer trends in the Bahamas, all cancer diagnoses contained on autopsy records for the period 1965-1979 were compiled and reviewed. In addition, for purposes of comparison, a similar compilation was made of data from surgical histologic diagnoses of cancer cases performed at the Princess Margaret Hospital's Histology Department.

The five-hundred bed Princess Margaret Hospital is the largest medical institution in the country. Located in Nassau (the capital) on the island of New Providence, it provides the only histology service in the Bahamas. Most Bahamian autopsies are performed here, although some are occasionally done at the smaller Rand Hospital in Freeport, Grand Bahama, and a few are done on rare occasions

at facilities on some of the other islands. These additional autopsies, which are commonly performed by Princess Margaret Hospital staff members, are sometimes included in the records of that hospital.

The hospital also offers histopathology services to the nearby Turks and Caicos Islands, but records resulting from those services have not been included in the present work. In a similar vein, despite the fact that the Bahamas is a tourist-oriented country, it seems unlikely that cases involving expatriates would have a significant bearing on the overall results. It is also true that some Bahamian residents take their health problems to the United States for diagnosis or treatment; but again, the number of people involved is not considered large enough to greatly influence the observed patterns and trends reported here, at least with respect to the more common malignancies.

Background Information

Over the fifteen-year period studied, the Bahamas' population grew from approximately 160,000 to 220,000 people. Blacks accounted for some 60 per cent of the population, with Caucasians making up most of the remainder. In general, the prevailing pattern of life could be considered a blend of West Indian and North American. The crude rates of both live births and deaths declined between 1971 and 1977, the crude live-birth rate dropping from 30.0 to 22.1 per thousand inhabitants and the crude death rate falling from 6.3 to 4.9 per thousand inhabitants. Crude cancer mortality was estimated at 68 deaths per 100,000 population in 1977, with the roles

¹Also appearing in Spanish in the *Boletín de la Oficina Sanitaria Panamericana* 96(5), 1984.

²Project Manager, Caribbean Health Laboratory Project, PAHO. Formerly Consultant Pathologist, Princess Margaret Hospital, Nassau, Bahamas.

of the two sexes in that mortality being fairly equal (2).

Before proceeding further, it is worth reviewing the cancer-related information published for the year 1977 in the *Vital Statistics Report* of the Bahamas (2) and the *Hospital Statistics Report* of the Princess Margaret Hospital (3). These documents indicate that 150 deaths (excluding stillbirths) were certified as being due to a malignancy. In all, 91 of the people involved had been permanent residents of New Providence, 18 had lived on Grand Bahama, 26 had lived in other parts of the Bahamas, and 15 had lived abroad. Regarding age, four were less than 30 years old when they died, 29 were between 30 and 49, 67 were between 50 and 69, and 47 were 70 years old or more; in three cases the subject's age was not stated. Thus, at least 76 per cent of the subjects were said to be 50 years of age or more—a finding subsequently supported by the postmortem data reviewed here.

Of these 150 subjects, 62 died at the Princess Margaret Hospital. Nine of these 62 deaths were attributed to cancers of the lungs, bronchi, or trachea; nine were attributed to female breast cancer; seven to stomach cancer; four to esophageal cancer; 13 to less common types of cancer; and 20 to unspecified cancers. In general, the proportions of these 62 deaths attributed to the more common forms of cancer bear some similarity to the proportions found in the 1965-1979 postmortem data. In addition, 157 patients discharged from the hospital had experienced malignancies—these malignancies involving the cervix in 31 cases, the reticuloendothelial system in 17 cases, the breast in 16 cases, the stomach in 16 cases, the buccal cavity or pharynx in eight cases, and the prostate in eight cases.

Although the document reporting this information indicated that the 13,399 patients discharged in 1977 consisted 89 per cent of Bahamians, 6 per cent of Haitians, and 5 per cent of others, no breakdown by country of origin was provided for the cancer patients. Similarly, although some occupational data were provided on some of the 1,067 people dying in the Bahamas in 1977 (notably on the

705 said to have resided in New Providence),³ these data could not be effectively related to the postmortem cancer data.

Materials and Methods

Although the Princess Margaret Hospital is owned and run by the Government, doctors not in the service of the Government may use the hospital facilities to treat private patients who require hospitalization. Therefore, autopsy subjects coming from within the hospital include both public and private patients, though of course not all people dying in the hospital are autopsied.

All these autopsies are performed at the Rand Laboratory, which began operating in 1964 and which is located on the hospital grounds. This laboratory is responsible for all autopsies conducted on New Providence. It also investigates most deaths on the Bahamas, aside from a few on Grand Bahama, that are thought to have possible medico-legal significance.

In all, some 60 per cent of the subjects autopsied are not hospital patients but rather people who die outside and who are then brought to the hospital—most often to facilitate certification of death. By and large, over 95 per cent of these arrivals receive postmortem examinations, some of which yield findings of considerable forensic importance.

The autopsy information presented here on cancer deaths between 1965 and 1979 was obtained from entries in the Rand Laboratory autopsy ledger on causes of death that were made at the time the respective autopsies were performed. Such entries are made routinely on all autopsies. All available histology slides of autopsy material and complete postmortem reports were also reviewed; this resulted in

³Of the 705, there were 417 who were not potentially active economically or whose occupation was not stated, 122 craftsmen or industrial workers, 100 people employed in recreational or other services, 22 professionals or related workers, 13 administrative employees, 13 salespeople, 12 farmers or fishermen, and six transportation workers.

some additional cancers being discovered, but also prompted deletion of other cancers cited in the autopsy ledger that were not histologically confirmed.

For purposes of comparison, histopathologic diagnoses based on surgical specimens obtained in 1968, 1973, and 1978 were retrieved from the files of the hospital's histology department. No attempt was made to ascertain the correctness of these diagnoses, which were made by qualified pathologists.

Results

Autopsies

According to the Government's *Vital Statistics Report* for 1977 (2), a total of 1,067 deaths (excluding stillbirths) occurred that year in the Bahamas. Of these, 806 occurred on the island of New Providence, where roughly 70 per cent of the populace resides. Overall, 150 of the 1,067 deaths were attributed to cancer. In the same year 620 bodies received postmortem examinations at the Rand Laboratory; and of those examined, 56 (26 males and 30 females) were found to have malignancies. Thus, 58 per cent of the people dying were autopsied, including 37 per cent of those whose deaths were attributed to cancer. These figures appear reasonably similar to those for the other 14 years covered by the present study.

In conducting that study, the aim was not to compete with the *Vital Statistics Report*, but rather to supplement its data by providing findings more firmly grounded in pathology. However, autopsies are not always complete in the absolute sense of the word; and so some tumors may have been missed—especially ones at such sites as the brain, upper respiratory tract, prostate, and probably the intestines; also, some cancers of the lungs considered primary tumors may instead have been metastatic lesions.

In all, 9,076 autopsies were performed in 1965-1979. Of these, 719 subjects (roughly 8 per cent) harbored at least one malignancy. In

those individuals with more than one cancer, that one seemingly more advanced or considered the major factor responsible for death was the one listed. There were apparently 10 cases in which an individual was found to have two separate malignancies; most notably, four subjects with esophageal carcinomas were also found to have had malignant tumors in the cervix, tongue, breast, or testis.

As indicated in Table 1, males accounted for 385 of the 719 cases and females for 334. The largest numbers of cancers were found in the stomach, lungs, reticuloendothelial system, esophagus, breasts, liver, pancreas, and cervix. Cancers observed in less than 20 autopsy subjects are listed in Table 2. Available information on 708 of the subjects showed that 430 (60.7 per cent) died in the hospital and 278 (39.3 per cent) were dead when they arrived.

Certain malignancies—including those of the stomach, esophagus, lungs, liver, pancreas, larynx-nasopharynx, and urinary bladder—were more common among men than among women. In contrast, aside from cancers of the biliary passages and thyroid, most of the cancers affecting women predominantly were cancers of the female reproductive apparatus (breasts, uterus, or ovaries). A similar predominance of male cases in U.S. cancer mortality data has been discussed by Burbank (4). As Table 3 indicates, data from the present study also indicate that female autopsy subjects dying of certain types of cancer tended to die at a later age than male subjects with comparable cancers.

Information available about various malignancies at specific sites included the following:

Stomach cancers: The ratio of male to female cases was about two to one. The 98 autopsied subjects ranged in age from 26 to 97 years, but only three were less than forty years of age when they died, while 70 (71.4 per cent) were between fifty and eighty years of age (Table 4). The chronological distribution of cases over the fifteen-year period was even.

Lung cancers: Eleven malignancies of the lung were seen in 1965-1969, 34 were seen in

Table 1. Postmortem data on the more common cancers observed in 719 persons autopsied during the period 1965-1979, by sex and average age at death.

Cancer site	Cases observed		Mean age at death (in years)	Sex of autopsy subjects	
	No.	%		Males	Females
Stomach	108	15.0	63.8	73	35
Lungs	70	9.7	60.8	47	23
Reticuloendothelial system	68	9.5	—	37	31
Esophagus	57	7.9	59.2	45	12
Breasts	55	7.6	54.5 ^a	1	54
Liver	42	5.8	54.4	31	11
Pancreas	41	5.7	58.4	28	13
Cervix	39	5.4	56.7	0	39
Brain	31	4.3	—	15	16
Large intestine (colon-rectum-anus)	27	3.8	59.9	15	12
Kidneys	27	3.8	57.9 ^b	13	14
Prostate	25	3.5	71.5	25	0
Body of uterus	22	3.1	61.1	0	22
Other sites (see Table 2)	91	12.7	—	45	46
Site unknown	16	2.2	—	10	6
Total	719	100	—	385	334

^aMean applies only to the 54 female cases.

^bMean applies only to the 25 cases involving adenocarcinomas.

Table 2. Postmortem data on the less common cancers (involving less than 20 subjects) observed in 719 persons autopsied during the period 1965-1979, by sex.

Cancer site	Cases observed		Sex of autopsy subjects	
	No.	%	Males	Females
Ovary	17	2.4	—	17
Urinary bladder	14	1.9	11	3
Gall bladder and ducts	12	1.7	4	8
Soft tissue	10	1.4	5	5
Skin	8	1.1	5	3
Mouth	5	0.7	3	2
Larynx	5	0.7	5	0
Adrenals (neuroblastoma)	4	0.6	3	1
Penis	4	0.6	4	0
Salivary gland	2	0.3	1	1
Mesothelium	2	0.3	0	2
Nasopharynx	2	0.3	2	0
Thyroid	2	0.3	0	2
Bone	2	0.3	1	1
Vulva	1	0.1	0	1
Testis	1	0.1	1	0
Total	91	12.7	45	46

Table 3. The average age at death of autopsy subjects with various common types of cancer observed more frequently in males than in females, by sex.

Cancer site	Average age at death in years of:	
	Males	Females
Stomach	61.5	68.3
Lungs	59.1	64.2
Esophagus	58.6	61.3
Liver	50.2	66.5
Pancreas	57.2	61.8
Urinary bladder	72.9	62.7

1970-1974, and 25 were seen in 1975-1979. The mean age at death did not vary significantly throughout the period; 76 per cent of the subjects were over age 50, and 56 per cent were over age 60. Only one victim, a woman, was less than 40 years of age when she died.

Reticuloendothelial cancers: Leukemias and lymphosarcomas accounted respectively for 25 and 20 of the 68 cases recorded among the autopsy subjects. Other reticuloendothelial malignancies observed included nine multiple myelomas, five Hodgkin's lymphomas, six reticulum cell sarcomas, and four unspecified

Table 4. Ages at death of those 1965-1979 autopsy subjects with cancers at certain common sites, by age group.

Cancer site	Ages of autopsy subjects at death, in years							Total	
	<30	30-39	40-49	50-59	60-69	70-79	80-89		≥90
Liver	1	5	7	9	6	5	0	0	33
Cervix	2	3	9	11	9	3	2	0	39
Pancreas	2	3	10	5	12	4	3	2	41
Breasts ^a	1	8	16	11	9	6	2	1	54
Esophagus	0	1	8	20	19	7	2	0	57
Lungs	0	1	15	14	24	7	7	1	69
Stomach	1	2	11	23	23	24	12	2	98

^aFemale cases only.

lymphomas. One of these cases, involving a reticulum cell sarcoma of the thigh, was listed as a soft-tissue malignancy rather than as a reticuloendothelial malignancy; and conversely, three cases—one involving the stomach, another the colon, and the other the skin—were classed as reticuloendothelial cancers rather than being placed in other categories. The ages at death of subjects with these cancers varied considerably, as was to be expected. Because of the wide range of subtypes and the imprecise system of subclassification employed, no further analysis was attempted.

Esophageal cancers: McGlashan (5) notes that esophageal cancer is a problem in the West Indies and that causative factors may include use of tobacco and ingestion of alcohol and bush teas. Although alcohol consumption and smoking are prevalent in the Bahamas, the drinking of bush teas is not considered common.

Liver cancers: The number of liver cancer cases was evenly distributed over the fifteen-year study period. Cirrhosis of the liver, the principal associated condition, was observed in 13 (31 per cent) of the 42 recorded cases.

Cancers of the female reproductive organs: There were slight rises in the numbers of subjects autopsied with breast and ovarian cancers over the fifteen-year study period, but there was no significant change in the numbers with malignant tumors of the uterine cervix or endometrium.

In addition to the 54 cases of female breast cancer listed, two additional female subjects

were found to have "second" tumors in the breast—one being a subject with esophageal cancer and the other a subject with stomach cancer. Twenty-three of these 56 cancers occurred in the right breast, 15 in the left, and four in both; in 12 cases the laterality of the cancer was not specified. As Table 4 shows, about 17 per cent of the female autopsy subjects dying of breast cancer did so below age 40, about half died between 40 and 60, and about 33 per cent died above 60 years of age; the corresponding percentages for cancer of the uterine cervix were 13, 51, and 36 per cent.

Histology

Regarding the histopathologic diagnoses reviewed (Table 5), the total numbers of surgical specimens received by the Princess Margaret Hospital's histology department in 1968, 1973, and 1978 were 947, 1,956, and 2,028, respectively; and the total numbers of cancer diagnoses involved, respectively, in the same three years were 123 (51 male cases, 72 female cases), 118 (54 male cases, 64 female cases), and 149 (66 male cases, 83 female cases). The combined case total for the three years in question was 390 cases, with 171 (43.8 per cent) involving males and 219 (56.2 per cent) involving females. This, together with the autopsy data, suggests that the male:female ratio is lower (weighted toward females) for cancers diagnosed during life than it is for cancers seen at death. This may be explained

Table 5. The frequency of cancers detected by histologic diagnosis of surgical specimens at the Princess Margaret Hospital's histology department in 1968, 1973, and 1978, showing data for the three years combined.

Cancer site	No of subjects	% of subjects	Mean age of subjects at time of diagnosis
Breasts	63	16.2	44.9
Cervix	53	13.6	47.7
Skin (basal cell carcinoma)	33	8.5	55.2
Oral cavity	29	7.4	55.6
Skin (non-basal cell carcinoma)	24	6.2	48.6
Stomach	22	5.6	59.8
Reticuloendothelial system	18	4.6	-
Prostate	18	4.6	70.2
Esophagus	16	4.1	61.5
Large intestine	13	3.3	54.8
Larynx	12	3.1	-
Endometrium	11	2.8	60.8
Ovary	10	2.6	55.0
Liver	7	1.8	51.0
Lungs	6	1.5	59.0
Other sites	35	9.0	-
Site unknown	20	5.1	-
Total	390	100	-

partly by the high incidence of visible and treatable breast and cervical cancers in women, and partly by the fact that women tend to die later than men. The figures in Table 5 do not include 18 cases of cervical carcinoma *in situ* (which were distributed evenly over the three study years), nor do they include a similar case involving the vulva that was diagnosed in 1973. Overall, the data in the table indicate that the cancer most frequently diagnosed from surgical specimens was female breast cancer, followed by cancers of the cervix, skin (basal cells), and oral cavity.

Clinicians in the Bahamas generally agree that the country has a relatively high incidence of cancer of the alimentary tract. The present study indicates that such cancers accounted for 81 (20.8 per cent) of the cancerous surgical specimens examined; and if cancers of the

liver and pancreas are included, the total rises to 92 specimens (23.6 per cent). In this vein, cancers of the female reproductive system accounted for 78 (20 per cent) of the cases involved, and if breast cancers are included this total rises to 141 cases (36.2 per cent). Similarly, cancers of the skin accounted for 57 (14.6 per cent) of the cases; and cancers of the male reproductive system accounted for 5.4 per cent. Altogether, these specific types accounted for about 80 per cent of the cases covered. Considering males alone, the largest number of cases, in descending order, involved the skin (37), prostate (18), oral cavity (18), esophagus (16), stomach (16), reticuloendothelial system (11), larynx (11), large intestine (6), and liver (6).

In general, the cancers found in both the surgical specimens and autopsy material conformed to the usual histologic types and patterns of anatomic spread. Regarding the autopsy specimens, aside from one leiomyosarcoma and one lymphoma, all the gastric tumors observed were adenocarcinomas, five being described as *linitis plastica* varieties. Of the eight skin tumors observed, four were melanomas and four were invasive squamous cell malignancies. The 27 renal tumors examined postmortem included 25 adenocarcinomas and two Wilm's tumors; the 22 malignancies of the uterine body included 15 endometrial adenocarcinomas, five sarcomas, and two choriocarcinomas; the 10 soft tissue tumors included two angiosarcomas, two undifferentiated retroperitoneal tumors, a fibrosarcoma of the back, a neurofibrosarcoma, a synovial sarcoma of the leg, an alveolar soft-part sarcoma of the hip, a reticulum cell sarcoma of the thigh, and a mediastinal sarcoma. Of the 27 tumors of the large intestine (all adenocarcinomas), 21 were described as being cancers of the sigmoid colon (7), rectum (3), cecum (3), hepatic flexure (3), splenic flexure (1), transverse colon (1), ascending colon (1), descending colon (1), and anorectum (1). Fifteen of the 21 cancerous brain-masses whose locations were specified were found to be cerebral, the other six being cerebellar.

Discussion and Conclusions

The foregoing autopsy data (see Table 1) indicate that the commonest sites of cancers responsible for the deaths studied in males were the stomach, lungs, esophagus, reticuloendothelial system, and liver in that order; and that in female subjects the commonest sites were the breasts, cervix, stomach, reticuloendothelial system, and lungs in that order.

The data obtained from surgical specimens examined in 1968, 1973, and 1978 do not suggest a marked overall increase in cancer during those years, the numbers of cases involved being 123 in 1968, 118 in 1973, and 149 in 1978. Although these numbers are small, they indicate that the most commonly diagnosed cancers (for both sexes combined) were those of the breasts, skin, cervix, oral cavity, stomach, prostate, reticuloendothelial system, large intestine, and larynx. By and large, the frequencies observed appear to resemble those indicated by other available national and Princess Margaret Hospital statistics.

These surgical specimen results also suggest that the incidence of esophageal and female breast cancers may be rising, with breast cancer becoming more common in younger age groups, while the incidence of invasive cervical cancer may be falling. More specifically, the number of esophageal cancers diagnosed was four in 1968, four in 1973, and eight in 1978; all were diagnosed in males, and the average age at diagnosis was similar in all three years. In a similar fashion, the number of female breast cancers diagnosed was 15 in 1968, 18 in 1973, and 30 in 1978. The average ages at diagnosis were 47.4, 46.6, and 42.8, respectively; and while seven of the 1978 patients were under 30 years of age, only one patient was under that age in each of the two earlier years.

Regarding cervical cancer, 23 cases were diagnosed in 1968, 16 in 1973, and 14 in 1978; the average age at the time of diagnosis (47.7 years) remained unchanged. This decline in cases could very well have resulted

from a pap-smear screening program for women that is now fairly well established in the Bahamas. (The relatively few diagnosed cases of cervical carcinoma *in situ* were detected via surgical biopsies rather than through cytological examinations, but they could well indicate that women were presenting late.) Despite the decline in invasive cervical cancer cases diagnosed from surgical specimens, however, the numbers of cases observed at autopsy changed little (from 12 in 1965-1969 to 13 in 1970-1975 to 14 in 1975-1979). It therefore seems likely that the observed decline in the incidence of such cancers will be reflected by a decline in mortality in the future.

In Jamaica, according to a 1979 editorial in the *West Indian Medical Journal* (6), the incidences of both breast and cervical cancer are relatively high. This is a surprising finding, because where cervical cancer rates are high, breast cancer rates are usually low. However, an earlier study by Bras et al. (7) found that cervical cancer was more common than breast cancer in Jamaica, and this latter pattern has been observed by other authors in Suriname (8, 9), Barbados (10), and elsewhere in the English-speaking Caribbean (11). In this context, Persaud (11) has described cervical cancer as a major public health problem in the area. These various findings made it interesting to observe that breast cancer appears slightly more common than cervical cancer in the Bahamas (see Tables 1 and 5), a circumstance that could reflect the country's relatively high standard of living.

In general, if a comparison is to be made between surgical diagnoses of breast and cervical cancers and autopsy results, then it should be noted that women diagnosed as having breast or cervical cancer tended to be nine or 10 years younger, on the average, than those dying of these diseases—suggesting that in the average fatal case death comes roughly a decade after diagnosis (Table 6). Similar juxtaposition of age data for cancers of the large intestine, stomach, and lungs suggests that death tends to follow diagnosis by an

Table 6. A comparison of the autopsy and surgical specimen data, showing the average number of cases detected, average number of autopsies, average age at diagnosis, and average age at death for subjects with cancers at certain common sites.

Cancer site	Autopsy subjects		Hospital patients	
	Average No. of autopsies per year	Mean age at death	Average No. of cases diagnosed per year	Mean age at diagnosis
Breasts	3.7	54.5 ^a	21	44.9
Cervix	2.6	56.7	17.7	47.7
Stomach	7.2	63.8	7.3	59.8
Lungs	4.7	60.8	2	59.0
Esophagus	3.8	59.2	5.3	61.5
Liver	2.8	54.4	2.3	51.0
Pancreas	2.7	58.4	1.3	59.5
Large intestine	1.8	59.9	4.3	54.8
Prostate	1.7	71.5	6	70.2

^aApplies only to female cases.

average of five, four, and two years, respectively. However, the caution required in seeking to interpret small numbers of figures is amply demonstrated by the age data on esophageal and pancreatic cancer diagnoses and deaths—because these data show that the average age at diagnosis exceeded the average age at death, a result most probably due to the small numbers of cases involved.

The fact that fewer lung and pancreatic cancers were diagnosed surgically than were observed at autopsy may be partly ascribed to the difficulties involved in obtaining biopsies of the affected tissues. Therefore, the circumstance that the diagnostic cytology department is currently well-staffed with able and highly motivated personnel is likely to produce an increase in at least the number of lung cancer cases diagnosed while the subject is alive.

McGlashan (12), in an analysis of Caribbean cancer mortality that did not include the Bahamas, noted that cancer accounted for just over 11 per cent of the deaths from all causes. The corresponding figure for the Bahamas in 1977 was 14.1 per cent overall and 12.9 per cent for those residing on New Providence.

Although there was some variation in the data for the 10 Caribbean islands studied by McGlashan, the author concluded that stomach cancer was the greatest cancer killer in the area. It should be noted, however, before comparing these findings with the high number of stomach cancers found among Bahamian autopsy subjects, that McGlashan's data were derived from death certificates and so are not directly comparable to the autopsy data.

To take this point a step further, it would be unwise to read too much into the available data. No cancer registry exists in the Bahamas, and one is clearly needed in order to better study cancer epidemiology. Something should also be said about the factors involved in the genesis of cancer, factors that have not been addressed in this analysis. Specifically, early and frequent sexual intercourse, multiple pregnancies, smoking, and alcoholism are all known to be relatively common in the Bahamas, and these should be among the matters addressed in planning future strategies that seek to reduce levels of cancer in the country.

SUMMARY

With the aim of learning more about cancer epidemiology in the Bahamas, the author reviewed

data available at the Princess Margaret Hospital in Nassau, a facility where most histologic diagnoses

and autopsies are performed. The specific data reviewed included those on autopsies performed during the years 1965-1979 and those on surgical specimens examined in 1968, 1973, and 1978.

This review indicated that of 9,076 subjects autopsied, 719 contained at least one malignancy. The number of males affected slightly exceeded the number of females (385 to 334). However, there were considerably more cases of stomach, esophageal, lung, liver, pancreatic, laryngeal-nasopharyngeal, and urinary bladder cancers among men than among women; and this male predominance was only partially balanced out by cancers of the female reproductive organs (breasts, uterine cervix, and endometrium). Overall, taking both sexes together, the cancers most commonly observed among the autopsy subjects were cancers of the stomach (108 cases), lung (70), reticuloendothelial system (68), esophagus (57), breast (55), liver (42), pancreas (41), and cervix (39).

In contrast to the autopsy figures, those from surgical diagnoses performed on living patients indicated that women accounted for 56 per cent of the cases diagnosed. This divergence may be explained partly by the high incidence of visible and treatable

breast and cervical cancers among women and also partly by the fact that women tend to die later than men.

Overall, the surgical data do not suggest any marked general increase in cancer cases from 1968 to 1978. However, they do suggest a possible rise in esophageal and breast cancer cases during that period, as well as a decline in the incidence of cervical cancer. This latter decline could be related to a pap-smear screening program that is now fairly well established in the Bahamas.

At the same time, the autopsy data suggest that breast cancer mortality was higher than cervical cancer mortality during the study period. This pattern contrasts with that found in many other parts of the English-speaking Caribbean, where cervical cancer tends to predominate. It does not seem due to the cervical cancer screening program, as that program appeared to have had a significant effect only on cervical cancer diagnoses—not mortality—during the period in question. It is possible, however, that the high ratio of breast cancer mortality to cervical cancer mortality could be associated with the relatively high standard of living prevailing in the Bahamas.

REFERENCES

- (1) Hamilton, P.J.S., and V. Persaud. Cancer Among Blacks in the West Indies. In C. Mettlin and G. P. Murphy (eds.). *Cancer Among Black Populations*. Liss, New York, 1981.
- (2) Commonwealth of the Bahamas, Department of Statistics. *Vital Statistics Report, 1977*. Nassau, Bahamas.
- (3) Commonwealth of the Bahamas. *Hospital Statistics Report, 1977*. Compiled by L. S. Aponso. Nassau, Bahamas, 1978.
- (4) Burbank, F. Males dominate once again: U.S. cancer mortality. *N Engl J Med* 285:461, 1971.
- (5) McGlashan, N. D. A West Indies Geographic Pathology Survey. Occasional Paper 12. University of Tasmania, 1982.
- (6) *West Indian Medical Journal*. Editorial: Cancer surveillance in the Caribbean. *West Indian Med J* 28:1-2, 1979.
- (7) Bras, G., D. C. Watler, and A. Ashmeade-Dyer. The incidence of malignant neoplasms in Jamaica. *Br J Cancer* 19:681, 1965.
- (8) Brathwaite, A. F. Cancer statistics from surgical pathology data, Suriname, 1976 and 1977. *Suriname Medical Bulletin* 2:124, 1978.
- (9) Wiersema, J. P., and R. S. Barrow. Cancer, especially of the cervix uteri, in Suriname. *Trop Geogr Med* 13:347, 1961.
- (10) Fraser, A. D., and H. St. C. White. In *Annual Report (1970) of the Eastern Caribbean Clinical and Pathological Registry*, Queen Elizabeth Hospital, Barbados, 1971.
- (11) Persaud, V. Geographical pathology of cancer of the uterine cervix. *Trop Geogr Med* 29:335, 1977.
- (12) McGlashan, N. D. Cancer mortality in the Commonwealth Caribbean. *West Indian Med J* 30:142, 1981.