Clinical Highlights from the National Cancer Data Base, 1999

Amy M. Fremgen, PhD, CTR; Kirby I. Bland, MD; LaMar S. McGinnis, Jr, MD; Harmon J. Eyre, MD; Charles J. McDonald, MD; Herman R. Menck, MBA; Gerald P. Murphy, MD

Abstract

The National Cancer Data Base (NCDB), a joint project of the Commission on Cancer of the American College of Surgeons and the American Cancer Society, collects and analyzes data from a wide variety of sources throughout the United States, including small community hospitals. Due to this unique reporting system, individual facilities can compare their own data with the aggregate data from the NCDB, using their findings to evaluate local patient care practices.

This article highlights the principal findings of the NCDB and Patient Care Evaluation articles published in 1998 on breast, prostate, cervical, endometrial, gallbladder, head and neck, nasopharyngeal, rectal, thyroid, and vaginal cancers, as well as on melanoma, brain tumors, and Hodgkin’s disease.

With more than five million cancer cases in the NCDB for the years between 1985 and 1995, sufficient numbers of even rare cancers have been accrued to permit some types of epidemiologic and clinical assessments. (CA Cancer J Clin 1999;49:145-158.)

Introduction

The mission of the National Cancer Data Base (NCDB), which is a joint project of the Commission on Cancer of the American College of Surgeons and the American Cancer Society, is to function as a community cancer management and outcomes data base for health care organizations. The NCDB is unique among the other cancer data bases that operate in the United States, including the National Cancer Institute’s Surveillance, Epidemiology and End Results registry and the Centers for Disease Control and Prevention’s network of state registries in the National Program of Cancer Registries. The NCDB is unique because it is a system for cancer care surveillance not only...
at the national, regional, and state levels, but also at the hospital/community level. By allowing hospitals to monitor and compare their own data with aggregate data, the NCDB can be used to help influence patient care. This is accomplished through a national network of physician liaisons between the Commission on Cancer and 2,200 cancer hospitals in the United States. Working with their respective hospital cancer committees, the liaison physicians use local and benchmark data provided by the NCDB to help assess cancer care at the local level.

Other clinical experts serve on 16 disease site teams that monitor important site-specific developments in cancer care to ensure up-to-date analyses of NCDB data. These data are collected from hospital registries, both longitudinally during annual Calls for Data, and cross-sectionally through the vehicle of specially designed Patient Care Evaluation studies.

**Sources of the Data**

The methodology of the NCDB has been previously described. For this article, case information was taken from seven NCDB Calls for Data for cancers of all types (diagnosis years, 1985 through 1995) and two special Patient Care Evaluation studies, which included prostate cancer (1992) and cervical cancer (1992). In total, about 1,600 hospitals have voluntarily submitted data in response to one or more of these data requests. The cumulative total of cases (through 1995) on which this report is based is 5,252,446.

**Regional Diversity and Breadth of the NCDB**

For the diagnosis year 1995, a total of 1,114 hospitals from 50 states and the District of Columbia reported 655,627 cases to the NCDB. Detailed information for previous years has already been published. Hospitals responding in 1995 ranged widely in annual number of cases reported: 16.8% had more than 1,000 cases; 36.4% had 500 to 999; 22.9% had 300 to 499 cases; 18.9% had 100 to 299 cases; and 5% had fewer than 100 cases. Reports in 1995 came from a variety of hospital types: 1.9% were National Cancer Institute-recognized cancer centers, 10.7% were government hospitals, 9.2% were teaching hospitals, 23.0% were large community hospitals, 26.7% were medium/small community hospitals, and 23.1% were non-governmental hospitals that were not approved by the Commission on Cancer or recognized by the NCI.

Data from six regions in the United States (Northeast, Southeast, Midwest, South, Mountain, and Pacific) were compared and found to be remarkably similar in terms of distribution for 43 primary cancer sites and nine age categories. In addition, within each region, reported cases represented a wide range of income strata and ethnicities. Several states, however, reported relatively few cancer cases.

Cases reported to the NCDB are most likely representative at the regional (but not state) level, with regard to types of cancer and ages of patients. NCBD data are most representative for cancer patients who have been definitively diagnosed and treated, and least likely to be representative of patients who fell through the care net or had diseases not likely to be diagnosed or treated in a hospital or by a physician with an affiliation or relationship with a hospital cancer registry or research center.

With more than five million cases now in the NCDB reported for the years between 1985 and 1995, there are potentially useful numbers of rare types of cancer available for study. For example, there are 18,824 cancers of the tonsil, 2,351 of the jejunum, 6,231 of the ampulla of Vater, 1,559 of the trachea, and 2,945 hairy cell leukemias.

The following highlights summarize the principal findings of the NCDB and Patient Care Evaluation articles published in 1998.
Breast Cancer: 10-Year Survey

- A continuous improvement in care has been noted.
- More than half (56.2%) of all cases reported in 1995 were diagnosed as stage 0 or I disease compared with 42.5% in 1985.5
- Early-stage patients were also more often treated with partial mastectomy (58.0% of both stage 0 and I patients). In 1995, 53% of patients with stage 0 disease treated with partial mastectomy received no radiation or chemotherapy; 42.0% received radiation alone. Of patients with stage I disease treated with partial mastectomy, 20.5% received no radiation or chemotherapy, 40.9% received radiation alone, and 32.8% received chemotherapy alone.
- Favorable 10-year relative survival rates were reported for stage 0 (95%) and stage I (88%) breast carcinoma patients.
- Patients who were identified with stage I disease but were not selected for axillary dissection had a poorer survival rate than those who received axillary dissection. For example, of those stage I patients who had no radiation or chemotherapy, and no axillary dissection, the 10-year relative survival rate was 66%, compared with 85% for similar patients who underwent axillary dissection.
- 10-year relative survival rates for patients with other stages of disease were: Stage II, 66%; stage III, 36%; and stage IV, 7%.

Melanoma: Cutaneous and Non-cutaneous

- A review of 84,836 patients diagnosed with melanoma from 1985 through 1994 indicated a site distribution of 91.2% cutaneous, 5.2% ocular, 1.3% mucosal, and 2.2% unknown.6
- For patients with cutaneous melanoma, the American Joint Committee on Cancer (AJCC) stage of disease distribution was stage 0, 14.9%; stage I, 47.7%; stage II, 23.1%; stage III, 8.9%; and stage IV, 5.3%.
- Disease-specific survival rates were 80.8% for cutaneous, 74.6% for ocular, 29.1% for unknown primaries, and 25.0% for mucous membrane melanomas. Factors associated with decreased survival included more advanced stage, nodular or acral lentiginous histologies, older age group, male gender, non-white race, and lower income.
- Multivariate analysis identified stage, histology, gender, age, and income as independent prognostic factors.
Melanoma: Increased Survival of Young Women

- Long-term survival of 23,341 melanoma patients was analyzed by patient gender and age, stage of disease, disease morphology, and anatomic subsite. There was little difference in the frequency distribution of melanoma between men and women with respect to stage of disease or morphology. Gender differences, however, did appear with respect to the anatomic subsite of melanotic tumors.
- Overall, young women (45 years of age and under) enjoy superior survival rates when compared with older women (55 years of age and older) and men of any age. The survival advantage held by young women is particularly pronounced among patients diagnosed with advanced stage disease. It is postulated that female hormones may have a protective role in the development of metastatic melanoma.
- Since the favorable outcome for women might be related to hormonal status, the survival analysis compared only younger (under 45 years, of which most women would be premenopausal) and older (over 55 years, of which most women would be postmenopausal) patients.
- The relative and observed survival rates for younger women were better than those of men for every stage, histological type, and anatomic subsite. There was little difference between the survival rates of older men and women with late-stage disease—stages III and IV.
- Among patients with stages I and II disease, there was a slight advantage in favor of older women over men of comparable age. For younger patients, however, there was a statistically significant improvement in survival for women, compared with men, at all stages of disease. Of particular note, was a 20-point difference in survival between women and men with stage III disease and a 25-point difference between men and women with stage IV disease.
- The difference in relative survival rates between older men and women by histologic type was minimal. Likewise, there were no differences in survival rates between older men and older women with respect to the anatomic subsite of the tumor. Among men and women in younger age groups, women enjoyed significantly better survival outcomes with four of the five tumor sites.
Prostate Cancer

- The incidence of prostate carcinoma has been declining since 1992, after a period of marked increase.
- To assess other possible changes, a comparison was made between 103,979 prostate cancer patients diagnosed in 1992 and 72,337 diagnosed in 1995.8 The average age at diagnosis declined by two years between 1992 and 1995, and the proportion of African-Americans with prostate cancer increased from 8.8% to 11.8%. In addition, there was an increase in the proportion of patients diagnosed with localized disease and in the proportion of tumors with moderately differentiated histologic grade.
- The overall percentage of patients treated with radical prostatectomy increased while the use of external beam radiation decreased. Use of brachytherapy radiation treatment by implantation of radioactive seeds was infrequent but increasing.
- The annual prostate carcinoma death rate in the United States has declined an average of 1% per year since 1990.

Prostate Cancer: Metastatic Disease

- An analysis of newly diagnosed prostate cancer patients in 1984 (14,716) and 1990 (23,214) demonstrated a decrease over time, from 25.3% to 21.2%,9 in the percentage of patients diagnosed with stage IV disease.
- There was also an increase in the percentage of patients, 6.3% to 74.8%, receiving a prostate specific antigen test and an increase, from 82.0% to 92.7%, in the proportion of abnormal results.
- For patients with metastatic prostate cancer, the proportion diagnosed by transurethral resection of the prostate and perineal biopsy decreased over the two time periods, while there was an increase in transrectal biopsy and transrectal ultrasound.
- For these patients with advanced disease, treatment by orchiectomy alone increased from 31.8% to 40.7% while the administration of exogenous hormone therapy alone declined from 22.3% to 14.9%.
- Two- and five-year survival rates for the most common forms of therapy were 56.7% and 22.5% for orchiectomy; 57% and 24.6% for exogenous hormone therapy; and 50.3% and 23.5% for no cancer-directed therapy.
Brain Tumor Survival

- Analysis of more than 60,000 patients with a primary brain tumor diagnosed from 1985 to 1988 and 1990 to 1992 showed the most common histologies to be glioblastomas, astrocytomas, and meningiomas.\(^\text{10}\)

- Tumors with the most favorable prognoses included neurilemmomas (Schwannomas), with a five-year survival rate of 85%; pilocytic astrocytomas (77%), meningiomas (70%) and the less common gangliogliomas (88%), hemangioblastomas (84%), and germinomas (76%).

- Patients with glioblastomas, the most common CNS malignancy, had the worst outcomes (2%). Other tumor types with poor prognoses included microgliomas (9%), lymphomas (13%), malignant gliomas (19%), and anaplastic astrocytomas (22%).

- In general, survival rates for patients with primary brain tumors decreased with age. The youngest patients (younger than 15 years of age) with glioblastomas or anaplastic astrocytomas had lower survival rates than those between 15 and 24 years of age. The youngest patients among those with medulloblastomas and ependymomas also had the lowest survival rates.

- Survival differences by anatomic location were also noted within histologies.

Brain Craniopharyngioma

- A review of 285 patients diagnosed with craniopharyngiomas from 1985 to 1988 and 1990 to 1992 indicated an overall survival rate of 86% at two years and 80% at five years.\(^\text{11}\) Survival decreased with age. The five-year survival rate for 82 patients younger than 20 years of age was 99%; for 168 patients between 20 and 64, was 79%; and for 35 patients 65 years of age or older, was 37%.

- This is a rare brain tumor that occurs at a rate of 1.3 per million person years; 338 cases are expected to occur annually in the United States, with 96 occurring in children younger than 15 years old.
Cervical Cancer: Radiation and Chemotherapy Trends

- Several trends emerged from a comparative analysis of 11,721 patients diagnosed with cervical cancer in 1984 and 1990.12
- The use of radiation alone or as a component of the initial course of therapy declined from 70% to 60%, coincident with a 32% increase in the use of hysterectomy alone and a 34% reduction in the use of radiation alone. The percentage of all patients receiving combined hysterectomy and radiation (pre- or postoperative) was basically unchanged—10.2% in 1985 and 9.3% in 1990. Among patients treated by radiation without hysterectomy, the use of intracavitary brachytherapy exceeded interstitial brachytherapy in both study years. Among patients treated by local radiation without hysterectomy, the use of adjunctive chemotherapy increased from 6.9% in 1984 to 24.8% in 1990, with increasing use of concurrent administration rather than sequential.
- Although differences in age, histology, race/ethnicity, and insurance status were observed, these general management trends were seen in all groups. Changes in the use of radiation and surgery may reflect the increasing trend toward surgery by gynecologic oncologists in the management of early-stage cervical cancer. Despite controversy concerning its efficacy, the use of adjuvant systemic chemotherapy to supplement local treatment modalities appears to be increasing rapidly.

Gallbladder

- In looking for possible temporal trends over the period from 1989 to 1995, no substantial differences were observed in the diagnosis, treatment, and survival of patients with carcinoma of the gallbladder.13 The study period includes the time when laparoscopic cholecystectomy was introduced and became standard practice for most patients with symptomatic cholelithiasis. The data do not support any adverse effect on outcome results with the introduction of this laparoscopic procedure.
- Carcinoma of the gallbladder was predominantly diagnosed in women (71% vs 29%), and in an older population, with only 18% of patients younger than 60 years of age. AJCC stage at time of diagnosis was: Stage 0, 4%; stage I, 10%; stage II, 13%; stage III, 17%; stage IV, 44%; and unknown stage, 12%.
- Five-year relative survival by stage for patients diagnosed between 1989 and 1990 was stage 0, 60%; stage I, 39%; stage II, 15%; stage III, 5%; and stage IV, 1%.
Endometrial Carcinoma in African-American Women

- African-American women have a lower incidence of uterine carcinoma but higher mortality rates compared with white women. The NCDB data indicate that African-American patients also have less favorable histologies than white patients, a more advanced stage of disease at diagnosis, and more poorly differentiated (higher grade) tumors.

- In a study of patients diagnosed between 1985 and 1994, 11% of African-American women and 3% of whites were diagnosed with squamous cell carcinoma, clear-cell carcinoma, or papillary serous cystadenocarcinoma. Only 53% of African-American patients were diagnosed with stage 0 or I disease compared with 69% of white patients. Of African-Americans diagnosed with stage I disease, 22% had a tumor grade of 3 or 4, compared with 13% of whites.

- For patients diagnosed between 1988 and 1989, the overall five-year relative survival rate was 55% for African-American women and 86% for white women. For patients with stage 0 or I disease, the survival rate was 70% for African-American women rate compared with 95% for white women.

- The five-year relative survival rate for patients with AJCC pathologic stage I adenocarcinomas who underwent surgery was 79% for African-Americans and 98% for whites. Survival for the African-American patients began to drop noticeably during the third year after diagnosis compared with survival for white patients.

- Differences in treatment between the two groups were surprising: African-American women were treated less often for their disease than white women, even within diagnostic stage groups. African-American women who received treatment were treated less often with surgery and were provided less frequently with multimodality (surgery and radiation) therapies within stage groups.
### Head and Neck Cancer

- In this analysis of 295,022 cases of head and neck cancer, the largest proportion of cases occurred in the larynx (20.9%); oral cavity, including lip (17.6%); and thyroid gland (15.8%). Squamous cell carcinoma (55.8%) was the most common histology, followed by adenocarcinoma (19.4%) and lymphoma (15.1%).
- Income level (low), race (African-American), and tumor grade (poorly differentiated) were most notably associated with advanced stage. Treatment was usually with surgery alone (32.4%), surgery and radiation therapy (25.0%), and radiation alone (18.9%).
- The overall five-year, disease-specific survival rate was 64.0%. Cancer of the lip was associated with the best survival rate (91.1%), and cancer of the hypopharynx, the worst survival rate (31.4%).

### Hodgkin's Disease

- To study time trends for Hodgkin’s Disease, the data were divided into two periods: 1985 to 1989, with 14,656 patients, and 1990 to 1994, with 20,377 patients. The 2,013 cases for 1985 represented 29.2% and the 4,790 cases for 1994, 60.6% of those estimated for 1985 and 1994, respectively, by the American Cancer Society.
- Staging of Hodgkin’s Disease is based on the presence and degree of tumor involvement in organs and groups of lymph nodes and is considered critical for patient management. The number of cases with either a pathologic or clinical stage increased from 51.7% between 1985 and 1989, to 75.7% between 1990 and 1994.
- Radiation therapy was used primarily to treat patients in stages I and II, although the overall use of radiation only declined from 25.1% between 1985 and 1989 to 15.2% in the period between 1990 and 1994.
- Chemotherapy increased from 30.3% to 34.4%. In the earlier time period, 11.9% of patients, and in the more recent period, 10.1% of patients, either did not receive cancer-directed treatment or treatment was undocumented. In the more recent period, 11.6% of stage I patients received no cancer-directed treatment or treatment was undocumented.
- Radiation therapy was used primarily for patients with stages I and II (77.9%), while chemotherapy alone was used mainly for stages II, III, and IV. The combined use of radiation and chemotherapy was used mainly for patients with stage II (44.8%).
- Overall, the disease-specific observed survival rate for patients in the earlier time period was 84.9%.
Nasopharyngeal Carcinoma: Patient Origin and Histology

- Geographic variations in nasopharyngeal carcinoma are thought to reflect complex interaction of genetic factors, dietary exposure to chemical carcinogens, and environmental exposure to viral agents. Nasopharyngeal carcinoma is more common in Asians than non-Asians, and is characterized by different histologic types.
- NCDB analyzed 5,069 reports of patients with primary nasopharyngeal carcinoma diagnosed between 1985 and 1994. Histologies were classified as keratinizing squamous cell carcinoma (73%), non-keratinizing carcinoma (8%), or undifferentiated carcinoma (19%). Non-keratinizing and undifferentiated carcinomas are generally responsive to radiation treatment, whereas keratinizing carcinomas are not.
- NCDB found that survival outcome according to patient origin groups reflected the concentration of radiosensitive histologies in each group.
- The patient origin groups with the highest concentration of keratinizing squamous cell carcinoma were Mexican-born Hispanics (83% keratinizing, 6% non-keratinizing, 11% undifferentiated); non-Hispanic whites born in the United States (78% keratinizing, 7% non-keratinizing, 15% undifferentiated); Hispanics not born in the United States or Mexico (69% keratinizing, 8% non-keratinizing, 23% undifferentiated); and African-Americans born in the United States (69% keratinizing, 7% non-keratinizing, 24% undifferentiated). The five-year relative survival rate for these groups was about 40%.
- The patient origin groups with the lowest concentration of keratinizing histologic types, and therefore with the highest concentration of radiosensitive types, were Japanese (32% keratinizing, 23% non-keratinizing, 45% undifferentiated); Chinese born in Hong Kong, Taiwan, or Macao (37% keratinizing, none non-keratinizing, 63% undifferentiated); Chinese born outside of China (47% keratinizing, 16% non-keratinizing, 37% undifferentiated); and other Asians born in the United States (51% keratinizing, 17% non-keratinizing, 32% undifferentiated). The five-year relative survival rate for these groups ranged from 76%, for the Japanese patients, to 54% for other Asians born in the United States.
Rectal Cancer

- Trends over time indicated a decrease in the percentage of stage I cases of rectal cancer, from 37.1% in 1985 and 1986, to 33.8% in 1994 and 1995. Additionally, the use of local excision as all or part of the primary treatment for these cases increased, from 22.7% in 1985 and 1986, to 32.5% in 1994 and 1995.\textsuperscript{18}

- Stage for stage, there has been an increase in the frequency with which anterior/posterior resections are performed. In 1985 and 1986, the frequency was 31.9% for stage I cases; 40.5% for stage II; 36.8% for stage III; and 42.2% for stage IV. This contrasts with surgical management in 1994 and 1995: Anterior/posterior resections were performed for 42.7% of stage I cases; 50.3% for stage II; 51.3% for stage III; and 48.6% for stage IV. Over this time period, there was a corresponding decline in the use of abdominoperineal resections.

- Multimodality treatment regimes, particularly those that combine surgery, radiation, and chemotherapy, are being used with greater frequency, especially in the treatment of stage II and III disease.

- Patients diagnosed between 1989 and 1990 with stage I rectal cancer had a five-year relative survival rate of 71.5%; stage II patients, 52.4%; stage III, 36.9%; and stage IV, 3.6%. A Cox proportional hazard model found stage of disease at diagnosis and tumor grade to be the strongest co-variables. Patients with poorly or undifferentiated tumors were 1.6 times as likely to die as were patients with well or moderately differentiated tumors.
Thyroid Carcinoma

- The 1985-to-1995 cohort of 53,856 thyroid carcinoma cases represents the largest contemporaneous, stage-stratified series yet reported.\(^1\)\(^9\) Because of the change in AJCC staging for this site, which occurred with publication of the 3rd edition of the American Joint Committee manual in 1988,\(^2\) only cases staged according to 3rd/4th edition\(^2\) definitions were used in the stage-stratified results.

- At five years, the current AJCC TNM staging system failed to prognostically discriminate between stage I and stage II papillary carcinoma patients (both groups with 100% survival) and between stage I and stage II follicular carcinoma patients (with 99% survival). Should this observation hold over time, a simplification of the current AJCC staging system may be warranted.

- The overall 10-year survival rate for those with papillary carcinoma was 93%, and for those with follicular carcinoma, 85%. Although five-year overall and stage-stratified survival for Hurthle cell carcinoma is similar to that of patients with follicular carcinoma, overall survival at 10 years is 9% lower, suggesting a marginally worse prognosis.

- Females predominated for all thyroid cancer histologies: Papillary (74%), follicular (74%), medullary (62%), and undifferentiated/anaplastic (64%).

- Total thyroidectomy, with or without lymph node sampling/dissection, was the most frequent surgical treatment for papillary and follicular neoplasms. Approximately 38% of patients who are treated with these procedures receive I-131 ablation/therapy. Only 2% to 3% of such patients are treated with I-131 alone.

- At five years, patients with T1, NO, MO disease (as well as stage I and II disease) survive comparably, whether treated by simple lobectomy or by more extensive procedures. A similar lack of treatment-related differences in survival for patients with advanced disease emphasizes the importance of longer follow-up for such patients.
Vaginal Cancer

- Vaginal cancer is extremely rare, accounting for approximately 0.1% to 0.2% of all cancers. NCDB reviewed 4,885 cases of primary vaginal cancer diagnosed from 1985 through 1994. The majority of cases were diagnosed as carcinomas: 25% in situ and 66% invasive. Other histologies included melanoma, 4%; sarcoma, 3%; and other or unspecified types of cancer.
- Among patients with carcinoma, the percentage of those with in situ lesions decreased with each decade of age, from 82% of patients younger than 20 years at diagnosis to 11% of women diagnosed at 80 years of age or older. Age did not appear to affect stage at diagnosis, however, for patients with invasive carcinoma.
- In situ carcinoma was nearly always treated surgically. Three quarters of patients with invasive carcinoma were treated with radiation therapy, 32% with surgery, and 12% with chemotherapy. Surgery was used to treat 50% of stage I patients but only about 25% of those with more advanced stage tumors were treated with surgery. When surgery was used at later stages, it tended to be more radical and was more often supplemented with adjuvant radiation or chemotherapy.
- Five-year relative survival rates of carcinoma patients diagnosed from 1985 through 1989 were: Stage 0 (in situ), 96%; stage I, 73%; stage II, 58%; and stages III-IV, 36%.
- African-American patients were relatively less likely to have melanoma (7%) than carcinoma (14%) or sarcoma (13%). Two thirds of the melanoma patients were treated surgically, and 40% received radiation. Surgery was used more often for advanced stages of melanoma. Neither the type of surgery nor the use of adjuvant radiation therapy was related to early-versus-late stage at diagnosis.
- The five-year relative survival rate for women with vaginal melanoma was 14%.

References

1. Menck HR, Garfinkel L, Dodd GD: Preliminary report of the National Cancer Data Base. CA Cancer J Clin 1991;41:7-18.
2. Menck HR, Cunningham MP, Jessup JM, et al: The growth and maturation of the National Cancer Data Base. Cancer 1997;80:2296-2304.
3. Menck HR, Bland KI, Eyre HJ, et al: Clinical highlights from the National Cancer Data Base, 1998. CA Cancer J Clin 1998;48:134-145.
4. Menck HR, Bland KI, Scott-Conner CE, et al: Regional diversity and breadth of the National Cancer Data Base. Cancer 1998;83:2649-2658.
5. Bland KI, Menck HR, Scott-Conner CE, et al: The National Cancer Data Base 10-year survey of breast cancer treatment at hospitals in the United States. Cancer 1998;83:1262-1273.
6. Chang AE, Karnell LH, Menck HR: The National Cancer Data Base Report on cutaneous and noncutaneous melanoma: A summary of 84,836 cases from the past decade. Cancer 1998;83:1664-1678.
7. Kemeny MM, Busch E, Stewart AK, Menck HR: Superior survival of young women with malignant melanoma. Am J Surg 1998;175:437-445.
8. Mettlin CJ, Murphy GP, Rosenthal DS, Menck HR: The National Cancer Data Base report on prostate cancer following the peak in incidence rates in the United States. Cancer 1998;83:1679-1684.
9. Guinan P, Stewart AK, Fremgen AM, Menck HR: Patterns of care for metastatic carcinoma of the prostate gland: Results of the American College of Surgeons’ patient care evaluation study. Prostate Cancer and Prostatic Diseases 1998;1:315-320.

10. Surawicz TS, Davis F, Freels S, et al: Brain tumor survival: Results from the National Cancer Data Base. J Neurooncol 1998;40:151-160.

11. Bunin GR, Surawicz TS, Witman PA, et al: The descriptive epidemiology of craniopharyngioma. J Neurosurg 1998;89:547-551.

12. Russell AH, Shingleton HM, Jones WB, et al: Trends in the use of radiation and chemotherapy in the initial management of patients with carcinoma of the uterine cervix. In J Radiat Oncol Biol Phys 1998;40:605-613.

13. Donohue JH, Stewart AK, Menck HR: The National Cancer Data Base report on carcinoma of the gallbladder: 1989-1995. Cancer 1998;83:2618-2628.

14. Hicks ML, Phillips JL, Parham G, et al: The National Cancer Data Base report on endometrial carcinoma in African-American women. Cancer 1998;83:2629-2637.

15. Hoffman HT, Karnell LH, Funk GF, et al: The National Cancer Data Base Report on cancer of the head and neck. Arch Otolaryngol Head Neck Surg 1998;124:951-962.

16. Kennedy BJ, Fremgen AM, Menck HR: The National Cancer Data Base Report on Hodgkin’s disease for 1985-1989 and 1990-1994. Cancer 1998;83:1041-1047.

17. Marks JE, Phillips JL, Menck HR: The National Cancer Data Base Report on the relationship of race and national origin to the histology of the nasopharyngeal carcinoma. Cancer 1998;83:582-588.

18. Jessup JM, Stewart AK, Menck HR: The National Cancer Data Base report on patterns of care for adenocarcinoma of the rectum: 1985-95 Cancer 1998;80:2408-2418.

19. Hundahl S, Fremgen A, Fleming I, Menck HR: The National Cancer Data Base Report on thyroid cancer. Cancer 1998;83:1679-1684.

20. Beahrs O, Henson DE, Huster RP, Kennedy BJ (eds): Manual for Staging of Cancer, 3rd edition. Philadelphia, JB Lippincott, 1988.

21. Beahrs O, Henson DE, Huster RP, Kennedy BJ (eds): Manual for Staging of Cancer, 4th edition. Philadelphia, JB Lippincott, 1992.

22. Creasman WT, Phillips JL, Menck HR: The National Cancer Data Base Report on cancer of the vagina. Cancer 1998;83:1033-1040.

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**Artificial Intelligence Conference Planned**

Prototype artificial intelligence, sometimes called neural networks, for navigating complex prostate cancer treatment algorithms, has been developed, announced Leroy Korb, MD, of the Northwest Hospital in Seattle, and Jeff Brandt, PhD, of Xaim, Inc. (Colorado Springs, CO) at a special “Lunch and Learn” session held during the recent American Cancer Society’s Science Writers Seminar in Miami.

A “Conference on Prognostic Factors and Staging in Cancer Management: Contributions of Artificial Neural Networks and Other Statistical Methods,” will be held September 27-28, 1999, at the Crystal City Marriott in Arlington, Virginia. The conference is sponsored by the Institute for Clinical Research, Inc., the American Joint Committee on Cancer, and the International Union Against Cancer. Further information is available from Connie Blankenship of the American College of Surgeons, 312-202-5290; email: cblankenship@facs.org.