Annual report cancer program
(1988 statistics)
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During 1988 the Cancer Committee of St. Luke's Medical Center oversaw the Cancer Program as a Center of Excellence. New programs which were instituted in 1988 were the Interleukin 2/LAK Cell Therapy for various malignancies, intraoperative radiation therapy, a new in-house malignant glioma protocol and a new Photodynamic Therapy Protocol for lung tumors. Efforts were made to increase the activity through specific goals and increasing meeting frequency to bimonthly. A major effort was to improve the awareness of the medical staff, especially the primary care physicians, as to the services available at St. Luke's Medical Center for their cancer patients. Activities included direct communication with the Primary Care Departments through written reports, and requests that their departmental members who function on the Cancer Committee serve as liaisons. Preliminary efforts for planning an Early Detection and Screening Program and a Hospice Program at St. Luke's were begun. Mr. Greg Fecteau was appointed as the Cancer Program Director.

Dr. Howard Lewis was appointed chairperson of a Quality Assurance Subcommittee. During 1988 the subcommittee reviewed patients with pancreatic cancer, bronchogenic cancer, and head and neck cancer.

The American College of Surgeons' review focused on carcinoma of the colon and rectum, 15% of all the U.S. malignancies, as does this annual report. In the United States in 1988, 147,000 individuals were diagnosed with colorectal carcinoma and 61,500 succumbed to the disease. For the State of Wisconsin there were 3,100 individuals who presented with the disease and 1,400 who died from colorectal cancer. Recent advances in the treatment of this disease have been incremental, and in part related to separating the treatment of colon cancer from that of rectal cancer, due to different biological patterns.

When diagnosed early it is highly curable; however, when diagnosed late it is highly fatal with a tendency toward distant spread, and, in the rectal area, loco-regional recurrence. Fortunately, appropriate use of combinations of surgery, systemic chemotherapy and radiation therapy have led to improvements in outcome. Additionally, there is increasing emphasis on the etiology of colorectal cancer, indicating that it may be caused or promoted by environmental factors, especially dietary factors that affect the enteric milieu.

Early detection procedures may lead to the recognition of more curable patients. The following are recommendations for screening of the general population: yearly fecal occult blood tests and sigmoidoscopy should be done every 3-5 years beginning at age 40.

Colorectal carcinoma illustrates well the need for cooperation between the primary care physician in educating for prevention and performing early detection procedures, and the surgeon, radiation therapist, and medical oncologist in treating the patient when disease is identified and/or recurrent.

Marcia J.S. Richards, M.D.
Chairperson, Cancer Committee 1988
A comfortable, homelike atmosphere is featured at the Vince Lombardi Cancer Clinic.

The Lombardi Board of Directors recently approved St. Luke's Medical Center as its recipient charity and relocated the Vince Lombardi Cancer Clinic to St. Luke's Medical Center, Milwaukee, Wisconsin. While the Vince Lombardi Golf Classic is a tribute to one of America's memorable sports personalities, its more compelling purpose is to fight cancer, the disease that claimed Vince Lombardi's life.

In 1971, concerned members of North Hills Country Club in Menomonee Falls, Wisconsin, were joined by golfers from other clubs and by Milwaukee area citizens who shared a love and respect for Coach Lombardi. The Classic was born. It is governed by a committee that donates time, talent and great energy toward the goal of defeating cancer in the true Lombardi spirit and drive for excellence.

Dedication and extra effort have made the Annual Vince Lombardi Memorial more successful each year. To date, the Lombardi Classic Memorial has donated $1,158,552 for cancer research. The goal for 1990-1994 is $1,000,000! The 1990 Vince Lombardi Memorial Classic will be held June 15 & 16, 1990.

The Finance and Revenue Committee of the Classic believe that approximately one-half of this million dollars will be raised by the various activities associated with the Memorial Golf Classic which include:

- Golf Classic - North Hills Country Club
- Super Raffle - Sponsored by Sundance Photo
- Run for Daylight (run/walk) - Sponsored by Schwister Ford and F&M Banks
- Auction
- Corporate and individual donors
The other 50% will be funded through the BLOCKS OF GRANITE Program. Donations are made to the Lombardi Foundation-Trust which give Blocks of Granite participants various financial options to meet their needs.

Many people have made major contributions of time, effort and money to make the Lombardi Memorial Classic one of the finest charitable events in the United States. St. Luke's Medical Center is honored to be affiliated with these outstanding individuals and their fight against cancer.

St. Luke's Medical Center is committed to excellence in oncology through the Cancer Center of Excellence. The comprehensive cancer team that exists here addresses all components of cancer care, from the most experimental research trials to state-of-the-art application of established therapy, and from earliest diagnosis to compassionate care of the terminally ill. The Vince Lombardi Cancer Clinic will exist within and grow with that Center of Excellence.

As Vince Lombardi stated,

"The quality of a person's life is in direct proportion to their commitment to excellence, regardless of their chosen field of endeavor."

We believe that the key to saving the Vince Lombardi’s of the future from untimely cancer death lies in establishing a center that will make cancer a preventable and controllable disease in the community of Milwaukee and the State of Wisconsin.

Greg Fecteau
Director, St. Luke's Cancer Program
Care and Treatment for Colon Cancer

Commentary on Colorectal Cancer

The incidence of colon cancer diagnosed for the last ten years at St. Luke's Medical Center has remained stable.

Marcia J.S. Richards, M.D.
Chair
Cancer Committee

Colorectal cancer affects approximately one person in 20 in the United States and most western countries. It is second in incidence and mortality only to cancer of the lung. When diagnosed in its early stages it is highly curable with surgical management, but unfortunately is often not identified until it has spread regionally or even in some patients presenting with distant spread.

As in many other malignancies, early detection results in the greatest chance of cure with the American Cancer Society recommending digital rectal examination yearly in all individuals over age 40, a stool blood test for occult bleeding is recommended yearly and a proctoscopic examination every 3-5 years after age 50.

Surgery alone is highly curative in the early stages, but when there is regional nodal spread and/or deeply invasive tumors, combined results with combined adjunctive radiation therapy and chemotherapy have led to improved results in rectal lesions, and, most recently, systemic treatment has resulted in improved survivals in patients with lesions presenting at a higher level.

Although the number of patients in our review are limited, trends for improved survival are noted in patients with local and regional disease occurring between the studies. This may be in part due to an increasing percentage of patients receiving combined treatment. In spite of patients in 1983 presenting with a slightly increased frequency of regional spread, the overall survival of patients was still improved.

At this time early identification of patients with colorectal cancer, particularly in known high risk groups, as well as possible prevention through dietary changes with colorectal cancer is the key in improving the outlook for patients with colorectal cancer.

Marcia J.S. Richards, M.D.
Chair
Cancer Committee
It has been estimated that as many as 35% of cancer deaths may be attributed to dietary habits. The prevention of colon cancer by changing dietary habits is a worthwhile goal and may save lives. The National Cancer Institute would like us to reduce average consumption of fat from 40% to 25% or less of total calories by the year 2000. Recent research indicates that high fat diets may increase the risk of developing colon cancer. However, research has not supported the theory that high fiber diets will help to prevent colon cancer. A 1987 New York study of approximately 500 colon cancer cases showed an almost two-fold increase in risk with a high fat intake but no difference in risk for a high dietary fiber intake.

Advice to reduce the fat content of our diets is being promoted by both national cancer and heart organizations. The American diet, and more specifically the Midwestern diet, can benefit from some recommended changes which are consistent with good health. Reducing the fat content of our diets by using low fat dairy products, choosing lean meats, fish and poultry, using a minimum of fats and oils in the cooking process, limiting gravies and sauces and cutting down on high fat desserts will help us make the necessary changes in our dietary habits.

Sharon Thompson, R.D.

Cancer of the colon and rectum represents a serious health threat in the United States. It is second only to lung cancer for incidence in this country, involving nearly 150,000 new cases a year. Approximately 60,000 to 70,000 deaths each year will be as a result of metastatic colon carcinoma. The lifetime probability of developing colorectal cancer in individuals with no additional risk factors is approximately 5%.

Early detection of colon cancer has long been viewed as an important step in reducing the morbidity and mortality of this disease. This theory is based on solid data suggesting that survival is directly related to the stage of the disease with the best prognosis being observed in patients discovered early and the worst in those discovered late. And while prevention of colon cancer must ultimately be a goal, a more short term goal of early detection will doubtless save thousands of lives.
In deciding who would benefit from screening programs for colon cancer, one must understand who is at risk for this disease. It is well known that the incidence of colon cancer rises sharply after age 40, more sharply after age 50, doubling thereafter with each decade. Patients who have had prior colorectal cancer have a higher risk of recurrent disease. Those individuals who have certain types of colonic polyposis may be at higher risk for developing colon carcinoma subsequently. Patients with Gardner’s syndrome, Peutz-Jegher’s syndrome and the familial cancer syndrome must be considered at high risk. Finally, underlying ulcerative colitis has long been known to be a risk factor for colorectal cancer. Approximately a thousand new cases of colorectal cancer a year are discovered in this group of patients. The longer the history of the disease and the more of the bowel that is involved in the disease, the higher the risk for developing subsequent colon carcinoma.

After identifying those groups at risk, one must choose the tests for screening which are most likely to yield a low rate of false positives and false negatives. To date, there have been 3 major modalities used to screen for colorectal cancer. The first is the digital rectal examination with or without occult blood testing of the stool. At one time, it was thought that nearly three-quarters of colon cancers were within the reach of an examining finger. Current data, however, would suggest that only about a quarter of them occur within the reach of the examining finger, less than 10% are detectable (palpable) by digital exam. Thus, digital rectal examination seems to be a low-yield procedure for the discovery of early colon and rectal cancers.

Sigmoidoscopy has also been used as a tool for evaluating early colon cancer. With a flexible sigmoidoscope, the entire rectosigmoid can be examined, allowing evaluation of an area where 55% of cancers and adenomas occur. Unfortunately, the effectiveness of sigmoidoscopy as a screening tool has not been well studied. In a study by Memorial Sloan-Kettering Cancer Center, a screening program of using rigid sigmoidoscopy detected 58 cancers in 47,000 patients screened. Of these, 81% were either Dukes’ A or B lesions, and the 15-year survival in these patients was 90%. Other studies have produced similar results. Unfortunately, this is a relatively expensive and time-consuming test, and one that cannot be done effectively in large populations. Its usefulness may lie in the evaluation of patients screened through other techniques who need further evaluation.

Occult blood testing of the stool was first proposed in 1901 and has become a widely-used tool for screening the intestinal tract for malignant and non-malignant pathology. Many studies utilizing occult blood testing techniques have been undertaken, including 4 large controlled trials. Several conclusions can be reached from
these trials. First, the predictive value of this test for pre-
malignant lesions and cancer is strongly dependent upon age,
with a poor predictive value for those patients under age 50. Sen-
sitivity of the test in those patients over age 50 was estimated to
be approximately 70%, and the specificity of the test, 98%. It
was clear that patients whose tumors were discovered using the
occult blood testing has a much earlier stage than a comparable
control group whose tumors were discovered by other means.

Patients whose tumors were discovered on the first screening test
had a much higher incidence of true positives than those patients
who were tested on second and subsequent screenings. Obviously,
patient compliance and adherence to the pre-testing diet is essen-
tial, and false positives in large series can be high if appropriate
instructions are not followed closely by the patient.

What then can we conclude about the best form of screening and
early detection for colorectal cancer? When all the modalities
above were tested on a cost-effective basis, it appears that the
most cost-effective screening program for large populations is an
annual stool blood test done with appropriate diet restrictions,
and either a flexible or rigid sigmoidoscopy every 5 years. While
not as sensitive as yearly sigmoidoscopy, the cost savings is
substantial and the difference in survival is relatively small in
comparison.

Occult blood testing is a simple and inexpensive tool for detecting
GI pathology. It can be especially useful in older patients and
those who will comply with a restricted diet. For large population
screening, it is the single most cost-effective method to detect
early disease. It should be done on an annual basis.

Patients in extremely high-risk categories, as has been mentioned
earlier, require individualized approaches. When analyzed on a
cost-benefit basis, these patients would likely benefit from more
intensive study on a more regular basis. For example, colonoscopy
may be more appropriate in patients with inflammatory bowel
disease than flexible sigmoidoscopy. Additionally, in patients with
familial polyposis or other syndromes associated with multiple
colonic polyps, the colonoscope allows for removal of the polyp at
the time of diagnosis, and thus would be a more cost-effective
approach.

In conclusion, screening for colorectal carcinoma has clear advan-
tages in increasing early detection and improving survival. Careful
analysis of cost effectiveness and appropriate application of various
techniques to patients at higher risk must be applied when con-
sidering screening of large populations. When appropriate screening
methods are applied, however, it is clear that a substantial survival
benefit may be obtained. Ultimately, these survival benefits may
result in a substantial repayment of the cost of such screening.

Robert Taylor, M.D.
Colon Cancer: The Role of Endoscopy

Colorectal carcinoma is the second most common cause of cancer death in the United States. While there is controversy regarding what procedures, if any, should be used to screen the general population for colon carcinoma, there is agreement regarding recommendations for the population at high risk for colon cancer. This population includes: a family history of polyposis syndrome or colon cancer, individuals with a sporadic neoplastic polyp, prior colon cancer or chronic inflammatory bowel disease.

Patients with a family history of a polyposis syndrome (familial polyposis, Gardner’s syndrome, etc.) need to be screened for colon polyps. Detection of adenomatous polyps (usually during childhood) indicates the need to perform proctocolectomy to prevent malignancy.

Sporadic adenomatous, villous or mixed colon polyps are premalignant and the precursor of colon cancer. Any colon polyp greater than 1/2 cm. should be completely removed and evaluated histologically. Approximately 50% of individuals with an adenomatous polyp will have other adenomas throughout the colon and many with carcinoma of the colon will have associated adenomatous polyps. After endoscopic removal of a benign adenomatous polyp, follow up colonoscopy is indicated at one year to be certain a metachronous polyp has not developed and that the patient has a “clean” colon. After the colon has been cleared of polyps, colonoscopy can be performed on a three year interval to evaluate for recurrent polyps.

Endoscopic removal of in situ carcinoma within the head of a polyp requires the same type of surveillance as a benign colon polyp. Endoscopic removal of invasive carcinoma requires further surgical resection for cure. In a patient who is not a candidate for definitive surgical therapy, endoscopic follow up with cautery or laser therapy may be performed every 3-6 months for palliation.

After surgical resection of a colorectal carcinoma, colonoscopic surveillance is indicated. A suture line recurrence is felt to be uncommon and thus recurrent colon cancer usually is outside of the bowel wall. The importance of colonoscopy in patients with colon cancer is to evaluate for either synchronous polyps or for metachronous lesions. Ideally, complete colonoscopy should be performed prior to a colon resection but if this is not possible because of an obstructing carcinoma, colonoscopy can be performed 3-6 months after surgery to remove any synchronous polypoid lesions. Repeat colonoscopy is then indicated every 1-2 years to evaluate for formation of new polyps.
Patients with panulcerative colitis are at increased risk for carcinoma after 10 years of disease whether it is active or inactive. The early premalignant changes are categorized histologically from low to high grade dysplasia. Annual surveillance colonoscopy with multiple biopsies is mandatory in patients with chronic panulcerative colitis of 7-10 years duration to rule out dysplasia, and in left-sided ulcerative colitis of 15-20 years duration. High grade dysplastic changes are an indication for total colectomy because of the high association of colon cancer.

Flexible sigmoidoscopy is a screening procedure for asymptomatic adults over the age of 50 to detect and prevent rectosigmoid carcinoma. Flexible sigmoidoscopy is not a substitute for total colonoscopy in the surveillance of colon cancer or in high risk patients. Polypoid lesions are not to be removed during flexible sigmoidoscopy in patients whose colons are not adequately cleansed because of the danger of explosion.

Endoscopic evaluation of the colon is indicated for detection of carcinoma and colon polyps. The procedure may be therapeutic in the prevention of carcinoma by removal of colon polyps or by local control of carcinoma in patients who are not candidates for definitive surgery.

John T. Bjork, M.D.
Chief, Section of Gastroenterology

You will be introduced to two new and exciting areas of colorectal surgery. The first is the sphincter sparing procedure or coloanal anastomosis. This may be accomplished with either the direct coloanal procedure or with the colo-pouchanal procedure. The second, and perhaps more exciting, is the use of the argon or neodymium:YAG laser for the palliative treatment of colorectal cancer.

The most recent statistics provided by the American Cancer Society show that there will be 151,000 cases of new colorectal cancer in 1989. The colon accounting for 107,000 and the rectum for 44,000. In the state of Wisconsin there will be 3,200 new cases of colorectal cancer.

Coloanal Anastomosis
This is the ultimate procedure to preserve the anal sphincters and thus avoid permanent colostomy. However, it should not be considered a substitute for the standard abdominoperineal
resection for an extensive lower rectal carcinoma. Any procedure must first completely remove the neoplasm along with the adjacent lymph nodes, and second, preserve the sphincters to avoid the need for a permanent colostomy and maintain adequate sphincter function.

The stapling instruments available and the demonstration that rectal carcinoma rarely extends distally beyond 1 cm, have resulted in the feasibility of doing the sphincter saving procedure.

Upper third rectal carcinomas are amenable to anterior resection. The middle third carcinomas may be resectable without the sacrifice of the sphincters and the anal canal. Most carcinomas in the lower third will require a standard abdominoperineal resection.

The coloanal anastomosis may be accomplished directly or with a J-shaped colo-pouchanal anastomosis. The latter is an attempt to increase the reservoir capacity although not affecting stool continence.

Indications for this procedure include the following:
- Middle third rectal carcinomas
- Familial Polyposis
- Adenoma
- Ulcerative rectocolitis
- Villous tumor
- Stenosis of a very low anterior resection
- Radiation Proctitis
- Carcinoid
- Rectal fistula
- Hirschsprung's disease
- Failed low anterior resection
- Megarectum
- Rectal Crohn's

Contraindications for this procedure include the following:
- Metastatic disease
- High grain malignancy
- Bulky pelvic tumor
- Local spread to the sphincter complex
- Advanced age (70) or debilitation
- Acute inflammation in the area of surgery
- Pre-existing impaired anal continence

Complications of this procedure include an anastomotic stricture or anastomotic leak. Transient urinary retention may also occur and pelvic sepsis is a possibility.

About 2/3 of the patients can discriminate stool from gas. The cure rate is as good, in properly selected patients, as standard surgical therapy. There is little or no mortality and a low morbidity associated with the procedure.

The Use of Laser in the Treatment of Neoplasms of the Colorectum

Of the new cases of colorectal cancer, a reported 8.5% - 30% are not resectable for cure at the time of the first diagnosis. The
use of the laser for the palliation of obstruction and bleeding in such cases has been reported as high as 97% successful. Two of the available lasers which are useful for these procedures are the argon and Nd:YAG (yttrium-aluminum-garnet). The argon laser has a tissue penetration of 1mm and the Nd:YAG penetrates to 4mm. Therefore, the argon laser is used for superficial lesions and the Nd:YAG is used for the deeper and more protuberant lesions. The latter are first debulked with a loop before a laser is used to ablate the tissue. The laser and a fiberoptic endoscope can direct the energy to an anatomic site under precise visual control. Sufficient heat is generated to coagulate, necrose or vaporize the tissue. This procedure is an alternative to the use of a diverting colostomy, radiation therapy, chemotherapy, electrocoagulation and cryotherapy. The laser has the distinct advantage over these procedures in that it can be done on an ambulatory basis, there is no proctitis and little delayed hemorrhage. It can be done above the peritoneal reflection, and it may be repeated as often as necessary. The procedure is done without the need for spinal or general anesthesia which may be important for some patients.

Indications for this procedure include the patient's refusal of surgery, serious medical problems and the extent of the tumor with bleeding and/or obstruction. The laser may also be used for the non-palliative situation. Of the 45% of colon cancer that presents in the left colon, 10-15% present with obstruction. The laser can be used to relieve that obstruction that would allow preoperative preparation of the bowel. This would obviate the need for a two or three stage procedure.

As with any procedure, there is a learning curve. The cecum does not allow the margin of error that exists in the treatment of a rectal lesion. There are certain complications that can occur. There may be bleeding, fistula formation, perforation, abscess, and when it fails, in a small percent of cases, a colostomy would be required to relieve the obstruction. Patients can die from complications. However, considering the patients that become candidates for this procedure, laser therapy appears to meet the standards of a good palliative procedure in patients who will survive less than 15 months. The use of the laser for curative intent, except as noted above for the preoperative relief of obstruction, remains a future possibility. The limiting factor being more accurate staging techniques which are not available at the present.

Terence V. Roth, M.D.
Department of Surgery

Colorectal Cancer Surgery

1978 - 1983
COMPARISON OF SURVIVAL
BY YEAR AND STAGE

1978
STAGE KEY / # PATIENTS
A = ALL STAGES / 113
L = LOCAL - IN SITU / 54
R = REGIONAL / 32
D = DISTANT / 26
UNKNOWN / 1

1983
STAGE KEY / # PATIENTS
A = ALL STAGES / 129
L = LOCAL - IN SITU / 45
R = REGIONAL / 50
D = DISTANT / 33
UNKNOWN / 1
Post Operative Radiation Therapy for Rectal Carcinoma

A wide variety of radiotherapy methods are used at St. Luke's Medical Center to help treat colon cancer. Pre-operative, intra-operative, post-operative and palliative radiotherapy are all offered.

Colorectal carcinoma is second only to lung cancer as the leading cause of cancer deaths in the United States. Surgery is the primary treatment but radiotherapy is useful.

The most common application is in the post-operative adjuvant setting in which the patient has been adequately surgically staged. Those patients with high risk factors for local regional or distant failure would be recommended to receive adjuvant therapy. This would include patients with positive lymph nodes and/or patients with tumor infiltration through the rectal wall or both. Using the so-called Astler-Collier modification of the original Duke's staging, this would include patients with Stage B2, C1 or C2 disease. These patients are at a very high risk for local regional failure; multiple institutional studies have shown improvement in local regional control and improvement in survival with post-operative pelvic irradiation. Indeed, the most publicized randomized study from the G.I. tumor study group showed the most benefit from the group of patients that received both chemotherapy and radiation therapy. In fact, this showed a statistically significant improvement in the survival.

Here at St. Luke's these high risk patients are either entered on one of the national protocols or treated in the following fashion: pelvic irradiation is begun as soon as the patient recovers from the operation and 5FU chemotherapy is given concurrently usually during the first three days and last three days of the radiation therapy using IV bolus technique. In general, this is very well tolerated by the patient and can be done all as an out-patient receiving the chemotherapy at the Vince Lombardi Cancer Clinic prior to coming to the out-patient Radiation Oncology Department for the actual radiation treatment. Depending on the original stage of the patient, the post-operative radiation can decrease local regional recurrence from 30 to 70% down to a 10 to 25% range. Whether or not improved local regional control in itself will benefit local regional failure in rectal carcinoma is a very important goal as these patients are a very difficult management problem, particularly with intractable pain when they recur.

Mitchell Pincus, M.D.
Patients who are found to have apparently localized colorectal cancer are managed with surgical resection. Unfortunately many of these patients leave the operating room with undetectable deposits of residual disease which eventually become clinically apparent as local, regional or distant metastasis. The median survival from the diagnosis metastatic disease is 6 to 8 months. The challenge for chemotherapy is to eradicate these small deposits of cancer that remain post-operatively and thereby increase survival.

Based on the reasoning that drugs found capable of decreasing large nodules of metastatic disease would be prime candidates for use in the post-op setting, the search for effective chemotherapy programs began in patients with measurable metastatic disease. These studies identified three effective chemotherapy drugs: 5 fluorouracil, mitomycin C and the chlorothymine triazenes (BCNU, CCNU, and Methyl-CCNU). Treatment with these drugs lead to major tumor shrinkage in approximately 20% of patients, but complete regressions of tumor were extremely rare. When tested in the post-operative patients, a very slight delay in tumor recurrence rate was seen, but this was clinically and statistically insignificant. There was a clear need to develop more potent chemotherapy before expecting any substantial improvement in post-operative survival.

Recent efforts have concentrated on increasing the effectiveness of 5 Fluorouracil. This drug is a chemical analogue of the nutrient uracil. It is sufficiently similar to uracil to be incorporated into the pyrimidine metabolic pathways where it interferes with RNA and DNA synthesis. With the expectation of increasing 5 FU's effectiveness, other pyrimidine active drugs were combined with 5 FU. Although the combinations were more effective at killing colon cancer cells, in clinical trials they proved to be excessively toxic, and there was no net improvement in the therapeutic index. There was, however, one exception. Leucovorin, when combined with 5 FU lead to a million fold increase in affinity to the target enzyme thymidylate synthetase, a substantial increase in cancer killing potency and only a modest increase in clinical toxicity. At least 3 randomized trials have now shown that 5 FU-leucovorin is superior to 5 FU alone in patients with advanced disease.

Other efforts to improve the effectiveness of 5 FU have focused on the pharmacokinetics of the drug. The drug disappears from the circulation with a half life of 10 minutes. Active intracellular metabolites have prolonged half lives which vary among tissues. In the earliest trials, 5 FU was given as an intravenous bolus, either daily for 5 days or repeated weekly. It was found that by
Colorectal Cancer Chemotherapy
(continued)

Prolonging the period of intravenous injection from a bolus to a continuous 24 hour or 120 hour infusion, the drug was no longer myelosuppressive, but there was an increase in mucosal toxicity. Trials of very prolonged continuous infusions of 3 months duration have been found to be very well tolerated and significantly more effective than bolus injections of 5 FU.

A third approach to improve the usefulness of 5 FU was to combine 5 FU with agents which can enhance the intrinsic immune response. Levamisole, a drug with antiparasitic activity, has been shown to stimulate immune responses, particularly depressed T-cell activity. Treatment with levamisole results in increased antibody production, increased delayed hypersensitivity and increased phagocytosis. The drug has little if any anti-tumor activity by itself, but when given together with 5 FU in patients with resected colon carcinoma, there was a very significant decrease in recurrences, and an improvement in overall survival.

Armed with these more effective chemotherapy programs, large scale clinical trials are now in progress to test the value of these treatments when given to patients with resected colorectal cancer. For colon carcinoma, the trials are designed to directly compare the usefulness of 5 FU combined with leucovorin or levamisole and will help define the optimal dose and schedule for post-operative chemotherapy. For rectal cancer, the trials are evaluating the impact of infusional 5 FU compared to more conventional bolus administration of 5 FU, and will define the contribution of Methyl CCNU to the outcome of these patients.

Preliminary results from these adjuvant chemotherapy trials indicate an improvement in disease free survival of 33% when compared with patients treated with surgery alone. Since over 150,000 Americans develop colorectal cancer each year, the socio-economic impact of this improvement is very large. It therefore becomes critically important to rapidly confirm the effectiveness of these treatments and to encourage widespread use of optimal therapy for our patients with colorectal cancer.

Ronald Hart, M.D.

Clinical Trials in Colorectal Cancer

Recent adjuvant studies of colorectal cancer have shown a significant improvement in disease control and disease free survival. These developments have received a great deal of media coverage and many of your patients may be asking how they can receive such treatments or participate in the on-going trials. However, patients are frequently disappointed to find that they are not eligible to receive these treatments because their surgery did not meet the strict criteria specified in the clinical trial. The following
is a compilation of operative techniques and operative note documentation that is required by the current clinical trials. By including these aspects in the medical record of your patients with resectable colorectal cancer, your patients will have the option of participating in these national clinical trials.

**Common To All Trials**

- State that the abdomen was explored to rule out metastatic disease and mention negative as well as positive findings.
- State that the entire liver was visualized.
- Describe extent of extra-rectal or extra colonic extension (lesion extends beyond the posterior rectal wall for approximately 1 cm with cm of uninvolved perirectal fat).
- Note the level at which vessels were ligated and clipped (i.e., inferior mesenteric was ligated below the origin of the left colic vessels).
- Note areas of adherence of tumor, mark resected specimen with a clip at areas of adherence and obtain a biopsy of unresected tissue at areas of adherence.

**Rectal Cancer Trials**

- **Clip Placement.** As many patients undergo surgery after a colonoscopy and biopsy, and without a barium enema, it can be very difficult to localize the initial tumor site for the radiation boost field. It is therefore very important to either perform a pre-operative imaging study (BE or CT) to define tumor location or to leave surgical clips at the tumor bed as a radiation marker. Use small vascular clips to mark areas of tumor adherence and place large hemoclip at proximal extent of vascular ligature to define nodal volumes for potential irradiation.

- **Pelvic Reconstruction.** Since these trials are designed to maximize the radiation dose which can be delivered safely, any maneuvers to keep the small bowel out of the pelvis will minimize the volume of small bowel irradiated. Possible techniques include reperitonealization of the pelvic floor, using an omental sling, retroverting the uterus, etc.

- **Specimen Marking.** To assist the pathologist in defining histologic margins, place a suture on the anterior rectal wall, clip areas of adherence or areas of suspected narrow margins and place a suture on the proximal extent of vascular ligature to define proximal nodes for sampling. (Obtain a biopsy of unresected tissue at areas of adherence).

Ronald Hart, M.D.
Learning to live with cancer presents extraordinary physical, emotional and social challenges to the patients and their families. The oncology social worker plays a vital role in helping the patient and family deal with the practical concerns and stresses involved. The overall goal of these efforts is the maximum appropriate use of the health care system and the best possible adaptation to illness by the patient within the values and individual coping style of the individual patient and his/her family.

By aiding the patient/family in resolution of financial, job-related or other day-to-day problems, or by providing the opportunity to talk out their questions and feelings, the oncology social worker assists the entire family to mobilize their own inner coping resources as well as the resources of the hospital and community.

For the last one-and-a-half years, one social worker has been assigned primarily to the oncology program (in-patient unit and one radiation and one medical oncology clinics). This reflects both the growth of the program and its importance.

Specific services provided by the social worker include help with governmental benefits delivery systems, financial problems, assessment of home situation, life-style changes related to illness, disability or compliance with treatment, discharge planning, and information and referral on a differential basis to community agencies: facilitating the successful interaction between the patient in the hospital, the family, and the larger environment.

All these tasks are performed within the context of the oncology unit's multidisciplinary team. Because of the acute nature of the problems, short term crisis intervention is the most common treatment modality. However, as the patient/family return to the hospital on many occasions for treatment of this chronic disease, long-term relationships develop which sustain the work on multiple issues and problems related to diagnosis, treatment, possible relapse and continued treatment or death.

This year the oncology social worker also led the re-establishment of the regional professional group for oncology social workers and edits their quarterly newsletter. Involvement with the American Cancer Society activities on a state level provides visibility for St. Luke's program and general information for social work.

Grace McCutcheon
Medical Social Worker
St. Luke's participated in this national study in 1988. One of the purposes of this study is to document changes in diagnostic and clinical management of colon cancer in the United States. We compared data from the present year, 1988, to five years ago, 1983. Twenty five successive cases were chosen starting with January of each year. All patients were diagnosed at St. Luke's and for the most part received their first course of therapy here. All cases were required to have a positive histology of adenocarcinoma.

Following are some of the more interesting comparisons. A history of previous cancer was documented in only 4 patients in 1983 and 3 patients in 1988.

Are there fewer recurrences?

<table>
<thead>
<tr>
<th></th>
<th>1983</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>No recurrence</td>
<td>14 pts.</td>
<td>18 pts.</td>
</tr>
<tr>
<td>Never disease free</td>
<td>10 pts</td>
<td>6 pts.</td>
</tr>
<tr>
<td>Recurrence</td>
<td>1 pt.</td>
<td>0 pt.</td>
</tr>
<tr>
<td>Unknown</td>
<td>0 pt.</td>
<td>1 pt.</td>
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</table>
Long and Short Term Study (continued)

1983 SURVIVAL CURVE

PERCENTAGE OF PATIENTS SURVIVING

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0

1YR 2YR 3YR 4YR 5YR YEARS SURVIVED

76% 68% 56% 52% 48%

AGE AND SEX OF PATIENTS AT DIAGNOSIS

NUMBER OF PATIENTS

0 5 10

Male Female

YEARS AGES

83 88 83 88 83 88 83 88 83 88

40-49 50-59 60-69 70-79 80-89
SURGICAL CASE DISTRIBUTION  
FOR 1983 AND 1988

COLECTOMY - REMOVAL  
OTHER ORGANS  

ABDOMINOPERINEAL RESECTION

HEMICOLECTOMY

PARTIAL COLECTOMY/  
ANTERIOR/POSTERIOR  
RESECTION

LOCAL EXCISION

EXPLORATORY WITH BIOPSY

BIOPSY ONLY

NUMBER OF PATIENTS

TREATMENT CASE DISTRIBUTION  
FOR 1983 AND 1988

SURGERY +  
RADIATION +  
CHEMOTHERAPY

SURGERY +  
CHEMOTHERAPY

SURGERY +  
RADIATION

SURGERY ONLY

BIOPSY ONLY

NUMBER OF PATIENTS
IS COLORECTAL CANCER BEING DETECTED EARLIER THAN FIVE YEARS AGO?

STAGE OF DISEASE AT DIAGNOSIS
1983 - 1988

1988

STAGE IV 16%
STAGE I 28%
STAGE III 16%
STAGE II 32%
STAGE UNKNOWN 8%
STAGE O = 0%

1983

STAGE IV 24%
STAGE I 12%
STAGE II 24%
STAGE O - 4%
STAGE UNKNOWN 4%

STAGE GROUPING

<table>
<thead>
<tr>
<th>STAGE</th>
<th>T</th>
<th>N</th>
<th>M</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAGE O</td>
<td>Ts</td>
<td>NO</td>
<td>MO</td>
<td>STAGE O - 4%</td>
</tr>
<tr>
<td>STAGE I</td>
<td>T1 or T2</td>
<td>NO</td>
<td>MO</td>
<td>STAGE III 32%</td>
</tr>
<tr>
<td>STAGE II</td>
<td>T3 or T4</td>
<td>NO</td>
<td>MO</td>
<td></td>
</tr>
<tr>
<td>STAGE III</td>
<td>Any T</td>
<td>N1,N2,N3</td>
<td>MO</td>
<td></td>
</tr>
<tr>
<td>STAGE IV</td>
<td>Any T</td>
<td>Any N</td>
<td>M1</td>
<td></td>
</tr>
</tbody>
</table>
This past year the Section of Radiation Oncology in cooperation with the Department of Urology have performed Milwaukee's first case of temporary interstitial iridium implants for patients with carcinoma of the prostate. The program is designed for patients with locally advanced carcinoma of the prostate (Bulky Stage B-II and Stage C) which generally is not amenable to radical prostatectomy and have a moderately high incidence of biopsy-proven residual tumor after conventional external beam radiation therapy.

Over the last several years Radiation Oncologists at St. Luke's Medical Center have developed a large experience with pelvic brachytherapy procedures using afterloading iridium 192 with a template technique for patients with cancer of the cervix, vagina and selected rectal cancers. The advantage of the temporary afterloading technique over the more commonly used permanent Iodine seed implants is there is no unnecessary radiation exposure to operating room personnel and improved control over the distribution of radiation.

The patient undergoes a bilateral pelvic lymphadenectomy followed by an Iridium implant to deliver 3000-3500 cGy in four days. The patient goes home on the fifth postoperative day and following the implant usually receives an additional 3000-4000 cGy with conventional external beam radiation therapy.

The use of this technique has been demonstrated at other institutions to have extremely low risk of complications and has shown improved local control, biopsy-proven, of locally advanced disease. To date five patients beginning in November, 1988, have been treated under the current protocol, all of whom had tolerated the procedure well and shown local tumor control at this early date. We believe that interstitial iridium implants of the prostate will compliment the ongoing Brachytherapy Program and will continue to play an important role in the treatment of locally advanced cancers.

Howard J. Lewis, M.D.
Samuel J. Otto, M.D.
Marcia J.S. Richards, M.D.
Barry H. Usow, M.D.
Immunotherapy Program
(formerly LAK LAB)

Immunotherapy has joined surgery, radiation therapy and chemotherapy as an important weapon in the war against cancer and offers additional hope for today's cancer patients and tremendous promise for the future. Immunotherapy treatments employ natural stimulants of the anti-cancer arm of the immune system such as the interleukins and interferons as well as highly activated special white blood cells that destroy cancer cells without harming normal ones. The latest developments from biotechnology are available today through St. Luke's pioneering, state-of-the-art program.

The Immunotherapy Program has provided over 35 courses of IL-2/LAK treatment for patients with melanoma, kidney cancer, refractory lymphoma, carcinoid tumor, and cancers of the lung, liver, pancreas, colon and biliary tract. Immunotherapy is now standard treatment for malignant melanoma and kidney cancer and is most effective when delivered early in the course of the disease. The program now offers several types of Immunotherapy: IL-2/LAK therapy, TIL therapy, Interferon and H2 antagonists, and the combination immunotherapies of Interferon and IL-2/LAK, and Interferon and IL-2.

The Immunotherapy Program will be supported by a new immunology research laboratory in the coming year. This lab will employ novel biological tools to develop new and improved immunotherapies and provide scientific leads that can translate into clinical responses and offer additional hope.

Immunotherapy Program treatments are sponsored by the National Cancer Institute, major drug companies and medical science experts at St. Luke's. All of our treatments are approved by the FDA.

Immunotherapy is now available for all types of tumors. Our program is dedicated to the development of this promising technology and to providing the best cancer therapy available anywhere to the people of the southeast Wisconsin area. Cancer will soon become the number one killer of Americans. St. Luke's is meeting the challenge of cancer by becoming a leader in the development of powerful new weapons and fighting with these weapons in the front lines of the war against cancer.

Robert Petit, Ph.D.
Virginia (Ginny) Bourne, Clinical Nurse Specialist in Thanatology at St. Luke’s Medical Center was selected as one of 21 nurses in the United States to receive the Lane W. Adams Award presented by the American Cancer Society. As the American Cancer Society states, “The objective of the Lane W. Adams Award for 1989 is to recognize and reward individual nurses whose practice has been characterized by consistent excellence in providing compassionate, skilled care to persons with cancer and counsel to their families.” The concept of the “warm hand of service” was given special emphasis by Lane W. Adams when he served as Executive Vice-President of the American Cancer Society. The award for 1989 focused on nurses providing care in a variety of settings and recognized the importance of the critical role nurses provide in direct cancer care.

Ginny and the other award recipients were recognized at a special ceremony at the Waldorf Astoria Hotel in New York City in conjunction with the American Cancer Society’s National Board of Directors meeting on March 3, 1989.

Ginny was nominated for the award by a staff nurse at St. Luke’s, and her nomination was supported by two fellow nurses and two family members of patients whom she had provided support. Ginny was supported in her nomination for her “warm hand of service” to patients at St. Luke’s and to the community at large through the American Cancer Society.

She was fundamental in establishing the “Caring Connection”, a cancer support group, at St. Luke’s. The “Caring Connection” meets twice a month and Ginny serves as a facilitator for the group. She has also established support groups through the American Cancer Society for which she serves as a facilitator.

She meets with newly diagnosed cancer patients to help them cope with the changes in their lives that the diagnosis of cancer can bring. She may see the patients at various times throughout their illness. She assists the patient and family during the terminal phase of the illness to allow a dignified and comfortable death. Ginny also lends support and guidance to the nursing staff in caring for the terminally ill. Ginny has lectured extensively on the care of the terminally ill, and is nationally known for her effort. She has demonstrated excellence in delivering patient care and serves as a role model for other nurses.

Sally DeVriend, RN
A highlight of our cancer program was the survey by the American College of Surgeons. We were granted three year approval again, with special regards to the outpatient oncology department. This survey is voluntary and measures the efforts of a hospital cancer program to provide optimal patient care. Essential program elements are quality control and audits, education, multidisciplinary exchange and monitoring of treatment through successful long term patient follow-up. Our follow-up at survey time was 99%.

Our registry has been in existence since 1960, with over 14,000 total patients. In 1988, 1,195 new patients were accessioned into the registry: 1,008 analytic, 187 non-analytic.

Kathy Bielinski
Cancer Registrar

1988 ALL SITES DISTRIBUTED BY STAGE

NOTE: IN SITU AND LOCAL STAGES MAKE UP 46.3% OF THE PATIENTS DIAGNOSED. EARLY DETECTION OF CANCER CONTRIBUTES SIGNIFICANTLY TO LONG TERM SURVIVAL.

DISTANT DISEASE
MAJOR SITES
LUNG 31%
LEUKEMIA-MYELOMA 15%
PROSTATE 9%
COLON 8%
BREAST 5%

LOCAL DISEASE
MAJOR SITES
BREAST 19%
SKIN 18%
PROSTATE 15%
LUNG 9%
BLADDER 7%
Cancer Registry Report

**1988**

DISTRIBUTION OF SITES BY SEX IN ORDER OF SITE FREQUENCY

- **MALE**
- **FEMALE**

<table>
<thead>
<tr>
<th>Site</th>
<th>Number</th>
<th>% of MALES</th>
<th>% of FEMALES</th>
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<tbody>
<tr>
<td>TESTIS</td>
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<td>10</td>
<td>10</td>
</tr>
<tr>
<td>LIVER, BILE, GALLBLADDER</td>
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<td>10</td>
</tr>
<tr>
<td>THYROID</td>
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<td>10</td>
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<tr>
<td>OTHER SITES</td>
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<tr>
<td>LYMPH NODES</td>
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<td>10</td>
</tr>
<tr>
<td>LARYNX</td>
<td>10</td>
<td>10</td>
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</tr>
<tr>
<td>PANCREAS</td>
<td>10</td>
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<tr>
<td>BRAIN</td>
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<td>HEMATOPOIETIC RETICULOENDOTHELIAL SYSTEMS</td>
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<td>BLADDER</td>
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<tr>
<td>ESOPHAGUS, STOMACH, SM. INTESTINE</td>
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<td>LIP, PHARYNX, ORAL CAVITY</td>
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<td>FEMALE ORGANS</td>
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</tr>
<tr>
<td>SKIN</td>
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<tr>
<td>COLON-RECTUM</td>
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<tr>
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<tr>
<td>LUNG</td>
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<tr>
<td>BREAST</td>
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</tr>
</tbody>
</table>

**1988**

5 MAJOR SITES DISTRIBUTED BY AGE OF DIAGNOSIS

- **MALE**
- **FEMALE**

START OF OCCURRENCE YEARS
- 20-29 BREAST, SKIN
- 30-39 COLON/RECTAL, LUNG
- 40-49 PROSTATE

PEAK OF OCCURRENCE YEARS
- 60-69 SKIN BREAST
- 70-79 COLON/RECTAL, PROSTATE, LUNG

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25
St. Luke's Cancer Conferences

**Tumor Board Conference**
Conferences are held on the second and fourth Monday of every month at noon. This is a patient oriented, multi-disciplinary cancer conference. For more information or questions, please call 649-6225.

**Head and Neck Tumor Conference**
This is a conference to discuss selected difficult head and neck tumors from a multi-disciplinary approach. Conferences are held on the first and third Monday of every month at noon. For more information or questions, please call 649-3900.

**Security Savings & Loan Cancer Lectureship Series 1988**

**January 21, 1988**
**IMPACT OF AIDS ON NEUROLOGY AND NEUROSURGERY**
Mark L. Rosenblum, M.D.
Associate Professor of Neurosurgery
University of California Medical School, San Francisco, CA

**March 10, 1988**
**TESTICULAR CANCER: EVOLVING THERAPEUTIC OPTIONS IN THE 1980's**
Jerome P. Richie, M.D.
Elliott C. Cutler Professor of Urologic Surgery
Harvard Medical School
Chief of Urology
Brigham & Women's Hospital, Boston, MA

**March 31, 1988**
**RECENT ADVANCES IN THE TREATMENT OF SUPERFICIAL AND ADVANCED BLADDER CANCER AT STANFORD**
Frank M. Torti, M.D.
Associate Professor Medicine
Division of Medical Oncology
Chief of Urology
Stanford University Medical Center, Stanford, CA

**April 21, 1988**
**COMBINED CHEMOTHERAPY AND RADIATION THERAPY FOR PATIENTS WITH MUSCLE-INVADING BLADDER CARCINOMA: A PRELIMINARY REPORT OF A BLADDER SPARING EFFORT**
William U. Shipley, M.D.
Associate Professor Radiotherapy
Harvard Medical School, Boston, MA

**May 19, 1988**
**CURRENT MANAGEMENT OF PROSTATE CANCER**
Marc B. Garnick, M.D.
Associate Professor of Medicine
Harvard Medical School
Dana-Farber Cancer Institute, Boston, MA
June 7, 1988
NEW APPROACHES TO THE IMMUNOTHERAPY OF CANCER
Steven Rosenberg, M.D.
Chief of Surgery Branch
National Cancer Institute, Bethesda, MD

July 28, 1988
IRRADIATION OF PROSTATIC CANCER TECHNIQUE AND RESULTS
Malcolm A. Bagshaw, M.D.
Catharine & Howard Avery Professor
Chairman, Dept. of Therapeutic Radiology
Director, Division of Radiation Therapy
Stanford University School of Medicine, Stanford, CA

October 27, 1988
NEW THERAPIES FOR BLADDER CANCER
Alan Yagoda, M.D.
Professor Clinical Medicine
Cornell University Medical College
New York, NY
Acting Chief
Solid Tumor Service, Department of Medicine
Memorial Sloan-Kettering Cancer Center, New York, NY

November 10, 1988
LABORATORY AND CLINICAL EXPERIENCE IN INTRAOPERATIVE RADIATION
Timothy J. Kinsella, M.D.
Professor and Chairman
Department of Human Oncology
University of Wisconsin Medical School, Madison, WI
Deputy Director,
University of Wisconsin Clinical Cancer Center, Madison, WI

December 8, 1988
TREATMENT OF SUPERFICIAL AND INVASIVE BLADDER CANCER INCLUDING CYSTECTOMY AND A CONTINENT URINARY RESERVOIR
Randall G. Rowland, M.D.
Associate Professor and Director of Research
Department of Urology
Indiana University School of Medicine, Indianapolis, IN
Glossary

Stage - Extent of disease determined at the time of diagnosis and/or initial therapy.

IN SITU - a tumor classified microscopically as in situ, non-invasive, pre-invasive, non-infiltrating, intraductal, intraepithelial or intraepidermal.

LOCAL - neoplasm restricted to the organ of origin, but may be invasive or infiltrating within the organ of origin.

REGIONAL - a tumor that has extended beyond the limits of the organ of origin into (1) surrounding organs or tissues by direct extension, (2) regional lymph nodes by metastasis, or a combination of (1) and (2) and appears to have spread no further.

DISTANT - a neoplasm that has spread to other organs or lymph nodes remote from the primary tumor.

First Course of Treatment - The tumor directed treatments started within the first four months after diagnosis.

ANALYTIC CASES - Cases which are first diagnosed and/or given their first course of treatment at St. Luke's Medical Center.

NON-ANALYTIC CASES - Cases which are seen at St. Luke's Medical Center after the first course of treatment and those cases where the patient is diagnosed at autopsy.

Treatment

SURGERY - the partial or total removal of the tumor excluding biopsy.

RADIATION - cancer-related beam and non-beam therapy (non-beam includes radium, cesium and radioactive isotopes).

CHEMOTHERAPY - treatment of cancer using drugs.

COMBINED THERAPY - refers to any combination of surgery, radiation, chemotherapy, hormone therapy or other therapy administered jointly as a single course of treatment.

DIAGNOSTIC ONLY - cancer-related treatment not given; this may occur for many reasons; for example, patient refused treatment, diagnosed at autopsy, or the patient's general condition is unsatisfactory for treatment.

References


"The quality of each man's life is in the full measure of that man's personal commitment to excellence and to victory."

Vince Lombardi