

2011 Community Cancer Program at Doctors Medical Center

ONCOLOGY

ANNUAL REPORT

For Calendar Year 2010 Data

Special Section: Lymphoma

- Lymphoid Malignancies, Abdol A. Mojab, MD
- Imaging Evaluation of Non-Hodgkin Lymphoma, Michael Tekautz, MD

DOCTORS
MEDICAL CENTER

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Community Cancer Program at Doctors Medical Center 2011 Annual Report: Welcome and Introduction

The Community Cancer Program at Doctors Medical Center continues to excel.

Our dedicated physicians, including primary care practitioners, surgeons, medical oncologists, and radiation oncologists, in conjunction with the hospital's nurses and support staff, provide excellent and compassionate care at the bedside.

The Community Cancer Program coordinates cancer awareness and prevention and educational programs for the community. This includes various support groups for survivors and working with the local offices of such national groups as the American Cancer Society.

The Cancer Committee has chosen lymphoma for this year's topic. In this report we provide an overview of lymphoma, including updated statistics on cases diagnosed or treated at Doctors Medical Center in 2010 and compare these with national and state data.

Robert Purvis, Jr., MD

Mission Statement

The Community Cancer Program at Doctors Medical Center is dedicated to delivering high quality cancer care in a compassionate environment using a multidisciplinary approach and integrative services. Doctors Medical Center is proud to employ Oncology Certified Nurses specially trained and committed to delivering standardized quality cancer care, as endorsed by the National Oncology Nursing Society. It is our desire to serve our community with a distinguished cancer program. Doctors Medical Center strives to provide state-of-the-art medical care and education to our cancer patients and their families.



The Community Cancer Program at Doctors Medical Center is proud to be accredited by the Commission on Cancer/American College of Surgeons.

Acknowledgements

It is with great appreciation that we acknowledge the dedicated efforts of the physicians and staff members who willingly expend their time to produce this Annual Report.

The Cancer Registry

The Cancer Registry is a system used for collection, management and analysis of data on all inpatients and outpatients with cancer and benign brain tumors. The Cancer Registry is the only system that monitors all types of cancers diagnosed or treated at DMC and serves as a valuable source for research investigations and many other aspects of cancer management.

Each year Cancer Registry data is submitted to the National Cancer Database. The data is used to provide feedback to assess quality of patient care, thus enabling our cancer program to compare treatment and outcomes with regional, state and national patterns of care. The DMC Cancer Registry was established in 1990. Currently there are 22,374 cases accessioned in our registry. In 2010, 655 cases were accessioned, including 32 Lymphoma cases.

Annual follow-up is an important and required function of the cancer registry. It is a reminder to encourage routine medical examinations. Physicians and/or patients are contacted annually to record and update patient progress. The statistical significance of registry survival data is supported when successful follow-up meets or exceeds 90 percent, the target rate established by the American College of Surgeons (ACoS) for an approved program. The Cancer Registry is currently doing lifetime follow-up on 11,600 analytic cases. DMC's overall follow-up rate is currently at 92%.

The DMC registry is staffed by one full-time nationally certified tumor registrar (CTR), and one full-time follow-up/Tumor Board secretary. For more information on the cancer registry call DMC Cancer Registry at 209-576-3785.

~Inell Magdaleno, CTR

Doctors Medical Center: Community Cancer Program

<u>PROGRAM SERVICES</u>	<u>FOR MORE INFORMATION</u>
~ Annual Cancer Survivor Celebration	Doctors Medical Center (209) 578-1211
~ Early Detection and Prevention Programs	Oncology Program Coordinator LaDonna Martinez, RN (209) 342-3415
~Cancer Support and Educational Groups	
~Oncology Symposium	Cancer Registry Inell Magdaleno, CTR (209) 576-3785
~Cancer Committee	Director, Patient Care Services Joan Fonda, MSN, RN (209) 576-3866
~Cancer Conferences/ Tumor Boards	
~Cancer Registry	Support Groups Jeanne Carlisle, LCSW (209) 576-3878
~Diagnostic Imaging	
~Da Vinci Robotic Surgical System	
~Dedicated Oncology Unit	
~Nutrition Services	www.dmc-modesto.com
~Oncology Clinical Social Services	
~Pharmacy Services	
~Case Management	
~Infusion Services	

Special Thanks: 2010-2011 Cancer Committee Members

<u>PHYSICIAN MEMBERS</u>	
Robert Purvis, Jr., MD <i>Chairman</i>	Cheryl Harless, RN, MBA <i>Past Director, PCS</i>
Peter Sien, MD <i>Cancer Conference Chair</i>	Kari Kuenzinger, RN <i>Past Quality Manager</i>
Kathleen Eve, MD <i>Cancer Liaison Physician</i>	Sima Nazi, RN, BSN <i>Past Oncology Program Coordinator</i>
Mussa Banisadre, MD	Carin Sarkis <i>Associate Administrator</i>
Philip Beck, MD	Julie Baker, RN <i>Past Quality Improvement Nurse</i>
Jay Chen, MD	Jeanne Carlisle, LCSW <i>Social Services</i>
Garfield Pickell, MD	Karen Hall, RN <i>Palliative Care Manager</i>
Michael Tekautz, MD	Estella Loogman, RN, MSN, OCN
R. Michael Williams, MD, PhD	Inell Magdaleno, CTR <i>Cancer Registry</i>
<u>EMPLOYEE MEMBERS</u>	
Lani Dickinson, RN, BSN, MBA <i>Chief Nursing Officer</i>	LaDonna Martinez, RN <i>Oncology Program Coordinator</i>
Joan Fonda, MSN, RN <i>Director, PCS</i>	Jeff Steckler, COTA
	Yee-Way Ting, PharmD

Lymphoid Malignancies

Malignancies of lymphoid cells range from the most indolent to the most aggressive human malignancies. These cancers arise from cells of the immune system at different stages of differentiation, resulting in a wide range of morphologic, immunologic and clinical findings. Some malignancies almost always present as leukemia with involvement of blood and bone marrow, whereas others almost always present as lymphoma. Some may present with a mixture of both.

WHO classification of lymphoid malignancies. In 1999 WHO classified lymphoma based on morphologic, immunologic and genetic information. This classification has important clinical and therapeutic relevance.

General aspects of lymphoid malignancies. The relative frequency of various lymphoid malignancies is shown below. Chronic lymphocytic leukemia is the prevalent leukemia in western countries, uncommon in Asia, more common in whites than blacks. It occurs most frequently in older adults (men) and is very rare in children. Etiology for typical CLL is not known. Non-Hodgkin's lymphomas are more frequent in the elderly and more frequent in men. Patients with primary and secondary immunodeficiency states are predisposed to developing NHL; those include patients with HIV infections, patients who had organ transplant and patients with inherited immune deficiencies like sicca syndrome and rheumatoid arthritis. T-Cell lymphomas are more common in Asia than western countries; certain subtypes of B-Cell lymphoma such as follicular lymphoma are more common in western countries.

Etiology. A number of environmental factors have been implicated in the occurrence of NHL, including infectious agents, chemical exposures and medical treatments. Several studies have demonstrated an association between exposure to agricultural chemicals and an increase incidence in NHL. (Table 15-4, Table 15-5)

Table 15-5

Diseases or Exposures Associated with Increased Risk of Development of Malignant Lymphoma

Inherited immunodeficiency disease	Autoimmune disease
Klinefelter's syndrome Chediak-Higashi syndrome Ataxia telangiectasia syndrome Wiskott-Aldrich syndrome Common variable immunodeficiency disease	Sjögren's syndrome Celiac sprue Rheumatoid arthritis and systematic lupus erythematosus
Acquired immunodeficiency diseases	Chemical or drug exposures
Letrogenic immunosuppression HIV-1 infection Acquired hypogammaglobulinemia	Phenytoin Dioxin, phenoxyherbicides Radiation Prior chemotherapy and radiation therapy

Table 15-4

Infectious Agents Associated with the Development of Lymphoid Malignancies

Infectious Agent	Lymphoid Malignancy
Epstein-Barr virus	Burkitt's lymphoma Post-organ transplant lymphoma Primary CNS diffuse large B-cell lymphoma Hodgkin's disease Extranodal NK/T-cell lymphoma, nasal type
HTLV-I	Adult T cell leukemia/lymphoma
HIV	Diffuse large B-cell lymphoma Burkitt's lymphoma
Hepatitis C virus	Lymphoplasmacytic lymphoma
Helicobacter pylori	Gastric MALT lymphoma
Human herpesvirus 8	Primary effusion lymphoma Multicentric Castleman's disease

Note: CNS central nervous system; HTLV human T-cell Lymphotropic virus; MALT muosa-associated lymphoid tissue; NK natural killer

Approach to the patient. Initial evaluation of the patient should include a careful history and physical examination. In CLL the patient evaluation should include a CBC, blood for flow cytometry, chemistry panel, serum protein, electrophoresis and a bone marrow biopsy. Some physicians believe that the bone marrow study is not always required. Patients often have imaging studies of the chest and abdomen, looking for pathologic lymphadenopathy. (Table 15-7)

In patients with non-Hodgkins lymphoma, the initial evaluation includes a CBC, chemistry panel, CT scan of the chest, abdomen and pelvis or a PET scan, measurement of LDH and B2-microglobulin as well as serum protein, electrophoresis and bone marrow biopsy. The staging system for both Hodgkin's lymphoma and non-Hodgkin's lymphoma is the Ann Arbor Staging System originally developed for Hodgkin's disease. The Prognosis of NHL is best assigned using the International Prognostic Index (IPI). This is a powerful predictor of outcome in all subtypes of NHL. (Table 15-8, Table 15-9)

Treatment Principles. Treatment of NHL is guided by clinical behavior. Approaches can be broadly classified by cell type and clinical behavior as indolent, aggressive or highly aggressive. Aside from watchful waiting for some indolent lymphomas, conventional treatment has been chemotherapy, radiotherapy or a combination of these modalities. Novel treatments, including monoclonal antibodies are now in most prac-

tice. Autologous and allogenic transplantation are also part of management for patients with high risk of relapse following conventional treatments.

Table 15-7

Staging of Typical B-Cell Lymphoid Leukemia

Stage	Clinical Features	Median Survival (Years)
RAI System		
0: Low Risk	Lymphocytosis only in blood and marrow	>10
I: Intermediate risk	Lymphocytosis + lymphadenopathy + Splenomegaly ± hepatomegaly	7
II	Lymphocytosis + anemia	1.5
III: High risk	Lymphocytosis + thrombocytopenia	
IV		

Binet System

A	Fewer than three areas of clinical lymphadenopathy; no anemia or thrombocytopenia	>10
B	Three or more involved node areas; no anemia or thrombocytopenia	7
C	Hemoglobin ≤10g/dL and/or platelets <100,000/μL	2

Table 15-8

Ann Arbor Staging System for Hodgkin's Disease

Stage	Definition
I	Involvement of a single lymph node region or lymphoid structure (e.g., spleen, thymus, Waldeyer's ring)
II	Involvement of two or more lymph node regions on the same side of the diaphragm (the mediastinum is a single site; hilar lymph nodes should be considered "lateralized" and, when involved on both sides, constitute stage II disease)
III	Involvement of lymph node regions or lymphoid structures on both sides of the diaphragm
III1	Subdiaphragmatic involvement limited to spleen, splenic hilar nodes, celiac nodes, or portal nodes
III2	Subdiaphragmatic involvement includes paraaortic, iliac, or mesenteric nodes plus structures in III1
IV	Involvement of extranodal site(s) beyond that designated as "E" More than one extranodal deposit at any location
A	No symptoms
B	Unexplained weight loss of >10% of the body weight during the 6 months before staging investigation Unexplained, persistent, or recurrent fever with temperatures >38°C during the previous month
E	Localized, solitary involvement of extralymphatic tissue, excluding liver and bone marrow

Table 15-9

International Prognostic Index for NHL

Five clinical risk factors:

- Age ≤60 years
 - Serum lactate dehydrogenase levels elevated
 - Performance status ≥2 (ECOG) or ≤70 (Karnofsky)
 - Ann Arbor stage III or IV
 - >1 site of extranodal involvement
- Patients are assigned a number for each risk factor they have
Patients are grouped differently based on the type of lymphoma

For diffuse large B-cell lymphoma:

- 0, 1 factor = low risk: 35% of cases; 5-yr survival, 73%
- 2 factors = low-moderate risk: 27% of cases; 5-yr survival, 51%
- 3 factors = high-intermediate risk: 22% of cases; 5-yr survival, 43%
- 4, 5 factors = high risk: 16% of cases; 5-yr survival, 26%

For diffuse large B-cell lymphoma treated with R-CHOP:

- 0 factor = very good 10% of cases; 5-yr survival, 94%
- 1, 2 factors = good 45% of cases; 5-yr survival, 79%
- 3, 4, 5 factors = poor 45% of cases; 5-yr survival, 35%

~Abdol A. Mojab, MD

PROGRAM SPOTLIGHT:

GENERAL CANCER SUPPORT GROUP

Participants faced with all types of cancer receive education and support in a warm and caring environment. This group is designed to allow participants to have open dialogue with others who are facing life-altering illnesses. Topics include, but are not limited to: relationships, coping skills, treatment issues, and body image. The group meets every Thursday from 4:00PM-5:30PM in the DMC Conference Center. For more information, please contact Jeannie Carlisle, LCSW at (209) 576-3878.

BREAST CANCER SUPPORT GROUP

This group is designed to address the special challenges impacting women with a diagnosis of breast cancer and who are in treatment or about to begin treatment. The group meets on the 1st and 3rd Wednesday of every month from 5:00PM-6:30PM in the Doctors Medical Center Conference Center. For more information, please contact Jeannie Carlisle, LCSW at (209) 576-3878.

Imaging Evaluation of Non-Hodgkin Lymphoma

Lymphoma is a general term for a group of cancers that originate in the lymphatic system. The lymphomas are divided into two major categories; Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL).

NHL comprises 85 to 90% of all cases of lymphoma, and is the focus of this publication. NHL represents a diverse group of cancers, with the distinctions between types based on the characteristics of the cancerous cells. It is the fifth most common cancer in men and women in the U.S.

The World Health Organization (WHO) classification is the currently accepted world wide classification system for lymphoma. Within this system there exist 27 distinct types of lymphoma. In the United States, more than half of the newly diagnosed NHL consists of either diffuse large B-cell lymphoma (31%) or follicular lymphoma (22%).

The diagnosis and management of NHL have undergone significant changes in the past 15 years. These changes are linked with higher expectations for imaging, such as the detection of more subtle lymphoma manifestations, the evaluation of residual changes, and the better assessment of treatment response.

Diagnosis. Appropriate management of NHL begins with an accurate and precise diagnosis. Traditionally, this has necessitated a surgical biopsy specimen to obtain adequate tissue. To obtain tissue of greatest diagnostic quality, a new diagnosis of NHL will ideally be based on an excisional lymph node biopsy. Although fine needle aspiration can be accurate and cost-effective in the diagnosis of certain types of NHL, and is accurate in the setting of relapsed disease, excisional biopsy remains the standard of care for initial diagnosis and for clinical scenarios in which cellular morphology and nodal architecture are relevant to the diagnosis.

Staging. Staging is characterized as either clinical stage if it is based on physical examination, imaging and bone marrow biopsy, or pathologic stage if confirmed by one or more additional surgical staging procedures, such as staging laparoscopy or endoscopy.

While there are several potential modalities in the imaging armamentarium, FDG-PET/CT has quickly risen to the forefront. With the advance of combined PET/CT devices, anatomic masses can be dissected simultaneously based on size criteria and molecular characteristics such as their glucose metabolism. This is important, because clinical practice and clinical trials still rely on anatomic response criteria, and the value of molecular and anatomic tumor characterizations for response predictions can be compared directly. The ability to accurately characterize masses and PET/CT's high sensitivity and specificity for staging, restaging and treatment monitoring have led to wide-spread acceptance of PET/CT imaging in the evaluation of NHL.

At initial staging, PET/CT has been shown to be more accurate than CT alone, with a reported sensitivity and specificity greater than 90%. The detection of additional nodal and extranodal sites as well as exclusion of disease suspected on CT has been reported to change the staging of disease in up to 59% of cases of lymphoma. Diagnosis of all sites of lymphoma involvement, above and below the diaphragm, is of the utmost clinical importance for accurate staging. The detection of extranodal lymphoma involvement can also affect disease staging. PET/CT has a higher accuracy for identification of extranodal disease as compared with CT. However, certain areas of involvement can be problematic for PET/CT. For example, MALT lymphoma has an overall detection rate of 55% on PET/CT, even less for gastric involvement. CNS involvement is also poorly evaluated with PET/CT; this is much better evaluated with MRI.

It should be noted that PET/CT alone is not sufficient to replace biopsy for bone marrow staging. However, it can provide valuable information in patients with heterogeneous bone marrow involvement, in whom biopsy sampling errors can occur.

Restaging and Response. With appropriate therapy, the chances for cure are high, even in cases of recurrent NHL. Accurate assessment of the response to therapy and follow-up of patients who have achieved a complete response, with the purpose of early diagnosis of relapse, are thus clinically significant for improving patient outcome.

PET/CT is the most commonly accepted modality used for monitoring response to therapy. There are clear advantages over the use of CT alone. Although residual masses are frequent after therapy and have been encountered in up to 60% of patients with NHL, viable residual lymphomas is found in only 18% of these morphologic abnormalities. Given the prevalence of PET/CT over CT alone in following NHL, response criteria have been revised to incorporate this change.

Categories of response include complete remission, partial remission and relapsed disease. Criteria for each category are described in the radiology literature and beyond the scope of this article. It should be noted that under current guidelines there is no category for mixed response. Even against a background of significant improvement and new lesion felt to be significant is considered disease progression.

Timing for PET/CT follow-up is important. For response imaging, PET/CT is recommended 6 to 8 weeks following chemotherapy or protocols using immunotherapy/chemotherapy combinations. For radiotherapy, follow-up is recommended 8-12 weeks after completion of treatment.

More recent studies reveal another potential use for PET/CT in NHL, namely evaluating response to chemotherapy during therapy, as opposed to after completion. PET/CT has the ability to identify non-responders to treatment after only two

cycles of chemotherapy. This allows for early modification of treatment regimens in non-responding patients. Research regarding this is ongoing and not yet complete, but early results show great promise.

The Future. A multitude of new PET radiopharmaceuticals are currently being developed to complement FDG-PET/CT imaging. These will include non-specific tracers, which take advantage of increased metabolic activity and vascularity of malignant tumors, and specific agents that bind to tumor-specific antigens or receptors. Advances are also being made with MRI, with potential for whole-body imaging. PET/MRI imaging devices are in early stage of development, but widespread use will be some years away.

~ Michael Tekautz, MD

PROGRAM SPOTLIGHT:

ONCOLOGY UNIT

The Doctors Medical Center Oncology Unit provides 24-hour comprehensive care for the hospitalized cancer patient. Care is provided by a multidisciplinary team composed of physicians, oncology certified nurses, pharmacists, clinical social workers, dietitians, rehabilitation specialists, respiratory therapists, practitioners, and case managers.

Consultative Cancer Conferences (Tumor Board)

The Consultative Cancer Conferences, or “Tumor Board”, play a key role in the treatment of patients diagnosed with cancer. Chaired by Peter Sien, MD, radiation oncologist, this team of oncologists, surgeons, pathologists and radiologists meet weekly to review unusual, aggressive and unpredictable cancer cases.

During each session, a patient history is provided to this multidisciplinary team of physicians. Along with the patient’s history and an analysis of their x-rays and pathology a treatment course is determined.

The mission of DMC’s Community Cancer Program is to motivate physicians to use this important treatment tool. Through the years a steady increase in the number of cases presented yearly has been noted. Equally important has been the increase in the number of physicians attending Tumor Board, especially the number of surgeons attending as well as presenting cases.

Meetings are held every Thursday morning at 7:30 a.m. in the DMC Conference Center. A continental breakfast is provided. We extend an invitation to you to take advantage of this valuable treatment tool. For more information or to present a case contact the Cancer Registry at 209-576-3785.

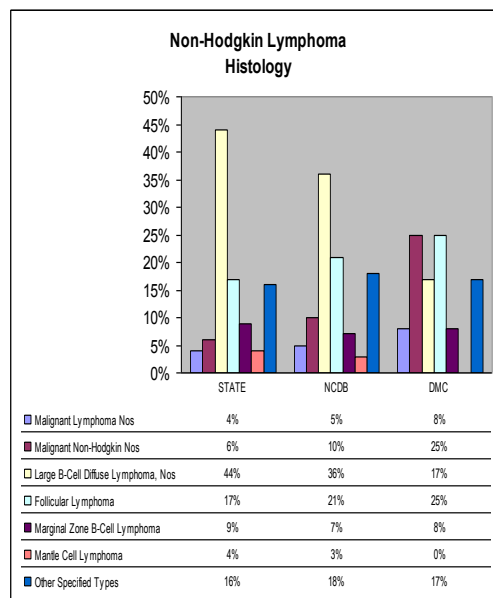
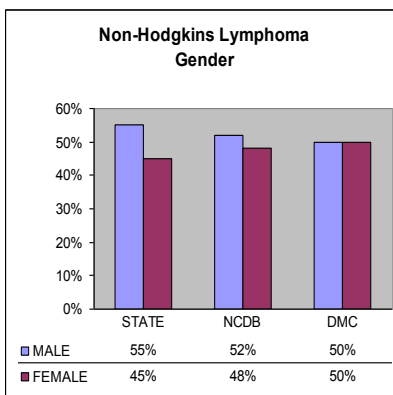
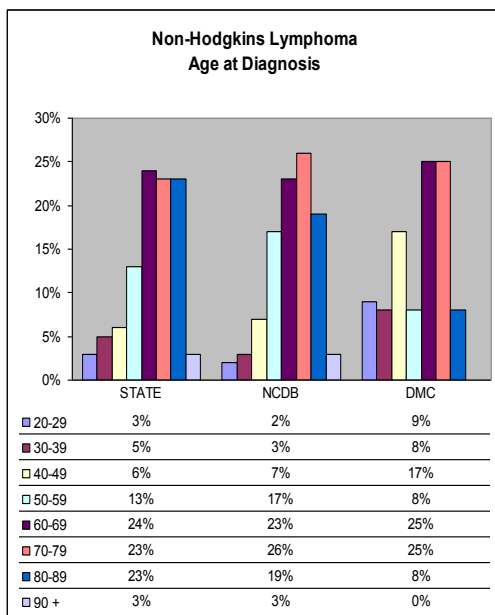
~Sharon Haarsma

PROGRAM SPOTLIGHT:

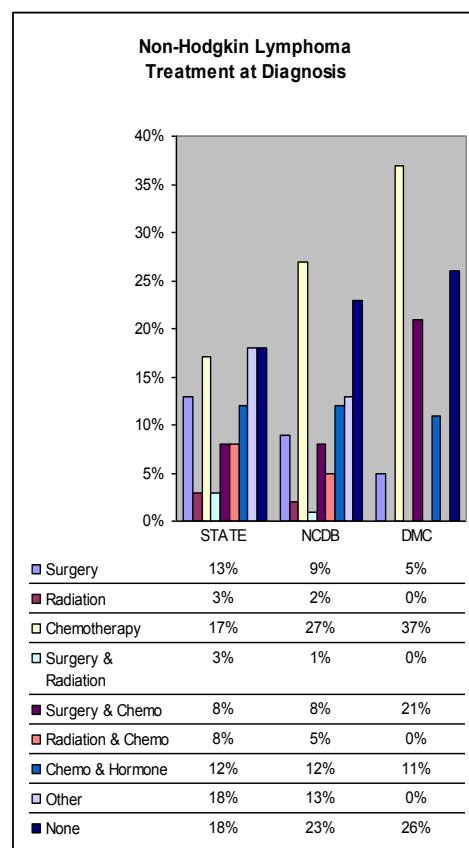
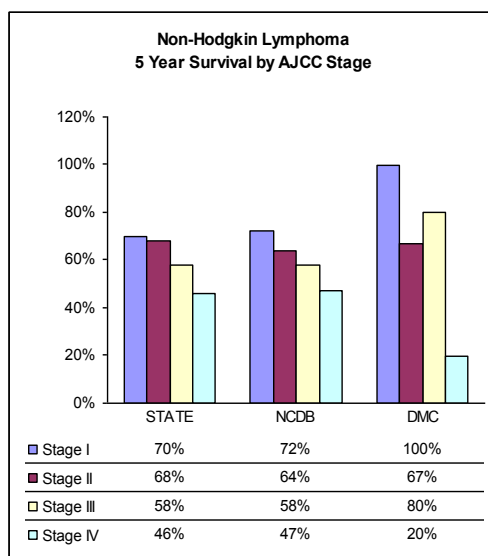
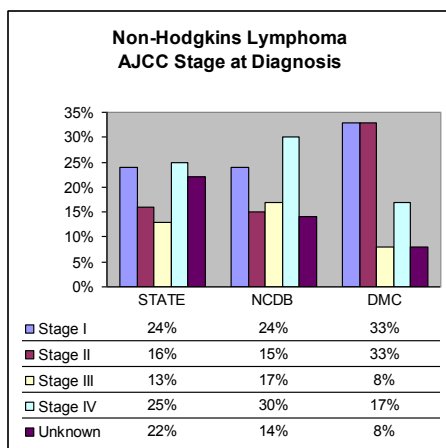
DA VINCI ROBOTIC SURGICAL PROGRAM

This system provides surgeons with an alternative to both traditional open surgery and conventional laparoscopy, putting the surgeon’s hands at the controls of a state-of-the-art robotic platform. This enables certain cancer patients to receive some of the most complex and delicate procedures through very small incisions with enhanced precision. The results of this technology may include less blood loss, a reduced length of stay, and decreased pain which enables the patient to get back to their normal activities.

National and State Comparison Reports: Based on 2010 Data



AJCC Stage and Treatment: Based on 2010 Data



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