special report

Revisions in the International System for Staging Lung Cancer*

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Revisions in stage grouping of the TNM subsets (T=primary tumor, N=regional lymph nodes, M=distant metastasis) in the International System for Staging Lung Cancer have been adopted by the American Joint Committee on Cancer and the Union Internationale Contre le Cancer. These revisions were made to provide greater specificity for identifying patient groups with similar prognoses and treatment options with the least disruption of the present classification: T1N0M0, stage IA; T2N0M0, stage IB; T1N1M0, stage IIA; T2N1M0 and T3N0M0, stage IIB; and T3N1M0, T1N2M0, T2N2M0, T3N2M0, stage IIIA. The TNM subsets in stage IIIB—T4 any N M0, any T N3M0, and in stage IV—any T any N M1, remain the same. Analysis of a collected database representing all clinical, surgical-pathologic, and follow-up information for 5,319 patients treated for primary lung cancer confirmed the validity of the TNM and stage grouping classification schema. ***(CHEST 1997; 111:1710-17)***

Key words: end results; lung cancer; neoplasm staging

Abbreviations: AJCC=American Joint Committee on Cancer; cStage=clinical stage, based on all diagnostic and evaluative information obtained prior to the institution of treatment or decision for no treatment; cTNM=clinical estimate of disease extent, based on all diagnostic and evaluative information obtained prior to the institution of treatment or decision for no treatment; T=primary tumor; N=regional lymph nodes; M=distant metastasis; pStage=surgical-pathologic stage, based on pathologic examination of resected specimens; pTNM=surgical-pathologic estimate of disease extent, based on pathologic examination of resected specimens; UICC=International Union Against Cancer (Union Internationale Contre le Cancer)

The importance of accurate, reproducible staging for patient management and clinical research efforts in lung cancer cannot be overemphasized. The truth of this tenet is confirmed in reviews of the

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current literature that reveal the staging information as our key for communicating information about lung cancer in all parts of the world.[1-4] Until effective systemic therapy is available for this disease, development of new treatment strategies depends on knowledge of the end results achieved for carefully staged groups of patients in the lung cancer population. For these reasons, we pursue refinements in the staging system based on experience and the application of new research and technology.

Materials and Methods

The end results illustrating the revised stage grouping rules were derived from a collected series of patients. Clinical, surgical-pathologic, and follow-up information on 1,524 consecutive, previously untreated, patients who received their primary treatment for non-small cell lung cancer at the University of Texas M. D. Anderson Cancer Center from 1983 through 1988 was combined with a previously published classification research database[5] (Table 1). In the duration covered by the collected series, 1975 to 1988, adjuvant therapies were not proved to have significant effect on survival rates in surgical patients, and combined therapies were common for nonsurgical patients. General use of CT for thoracic evaluation was reflected in the clinical staging evaluations of patients treated after 1982. Staging definitions for the T (primary tumor), N (regional lymph nodes), and M (distant metastasis) components were according to the International Staging System for Lung Cancer.[6] Death from cancer or unknown cause was the terminal event for survival calculations; deaths within 30 days of operation were excluded. The

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Supported in part by the Clifton F. Mountain Foundation.
Manuscript received January 2, 1997; revision accepted February 27, 1997.
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Table 1—*Collected Database for Classification Research*

Institution	No. of Cases
The University of Texas M. D. Anderson Cancer Center, 1975-1988*	4,351
Reference Center for Anatomic and Pathologic Classification of Lung Cancer, 1977-1982†	968
Total	5,319

*Consecutive patients treated for primary lung cancer, 1975 to 1980; surgical patients only, 1981 to 1982; consecutive patients (receiving no previous treatment) treated for non-small cell lung cancer, 1983 to 1988.

†Patients treated for primary lung cancer by the National Cancer Institute cooperative Lung Cancer Study Group—representative slide material and case documentation submitted to the Reference Center for Anatomic and Pathologic Classification of Lung Cancer at the University of Texas M. D. Anderson Cancer Center for confirmation of staging and histologic features.

Wilcoxon (Gehan) statistic was used for comparing the survival experience of patient groups.[7] Analysis was carried out using a software package (Statistical Program for the Social Sciences, 1994; SPSS Inc; Chicago).

Background Information

For the past 10 years, the International Staging System for Lung Cancer has provided a common language for communication about patients with this disease,[8] and the scientific community has been served well by its application. We have come almost full circle since 1946 when Denoix[9] proposed recommendations for classifying malignant tumors according to tumor-node-metastasis (TNM) descriptions—the concept of stage grouping came later.[10] In the milieu of current research on the biology of lung cancer, the usefulness of specific TNM subsets for clinical research investigations is apparent once again. More specific designations for patient groups may be useful or required for evaluating the implications of molecular components of lung tumors on survival.

Revisions in stage grouping of the TNM subsets in the schema of the International System for Staging Lung Cancer addressed two problems: first, the heterogeneity of end results existing for the TNM categories within stage groups, and second, a need for greater specificity in stage classification. It was important that these issues should be resolved with the least disruption of the

Table 2—*TNM Descriptors*

Primary tumor (T)	
TX	Primary tumor cannot be assessed, or tumor proven by the presence of malignant cells in sputum or bronchial washings but not visualized by imaging or bronchoscopy
T0	No evidence of primary tumor
Tis	Carcinoma *in situ*
T1	Tumor ≤3 cm in greatest dimension, surrounded by lung or visceral pleura, without bronchoscopic evidence of invasion more proximal than the lobar bronchus* (*ie*, not in the main bronchus)
T2	Tumor with any of the following features of size or extent: >3 cm in greatest dimension Involves main bronchus, ≥2 cm distal to the carina Invades the visceral pleura Associated with atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung.
T3	Tumor of any size that directly invades any of the following: chest wall (including superior sulcus tumors), diaphragm, mediastinal pleura, parietal pericardium; or tumor in the main bronchus <2 cm distal to the carina, but without involvement of the carina; or associated atelectasis or obstructive pneumonitis of the entire lung
T4	Tumor of any size that invades any of the following: mediastinum, heart, great vessels, trachea, esophagus, vertebral body, carina; or tumor with a malignant pleural or pericardial effusion,† or with satellite tumor nodule(s) within the ipsilateral primary-tumor lobe of the lung
Regional lymph nodes (N)	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis to ipsilateral peribronchial and/or ipsilateral hilar lymph nodes, and intrapulmonary nodes involved by direct extension of the primary tumor
N2	Metastasis to ipsilateral mediastinal and/or subcarinal lymph node(s)
N3	Metastasis to contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s)
Distant metastasis (M)	
MX	Presence of distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis present‡

*The uncommon superficial tumor of any size with its invasive component limited to the bronchial wall, which may extend proximal to the main bronchus, is also classified T1.

†Most pleural effusions associated with lung cancer are due to tumor. However, there are a few patients in whom multiple cytopathologic examinations of pleural fluid show no tumor. In these cases, the fluid is nonbloody and is not an exudate. When these elements and clinical judgment dictate that the effusion is not related to the tumor, the effusion should be excluded as a staging element and the patient's disease should be staged T1, T2, or T3. Pericardial effusion is classified according to the same rules.

‡Separate metastatic tumor nodule(s) in the ipsilateral nonprimary-tumor lobe(s) of the lung also are classified M1.

Table 3—*Stage Grouping—TNM Subsets**

Stage	TNM Subset
0	Carcinoma *in situ*
IA	T1N0M0
IB	T2N0M0
IIA	T1N1M0
IIB	T2N1M0
	T3N0M0
IIIA	T3N1M0
	T1N2M0
	T2N2M0
	T3N2M0
IIIB	T4N0M0
	T4N1M0
	T4N2M0
	T1N3M0
	T2N3M0
	T3N3M0
	T4N3M0
IV	Any T Any N M1

*Staging is not relevant for occult carcinoma, designated TXN0M0.

current system. At this time, we are on the threshold of applying new research on prognostic factors to clinical practice; therefore, it is essential to have a proven system used in randomized trials of new prognostic elements. Descriptors for the TNM components remain the same, with minor additions to aid in classifying multiple lung nodules. Satellite tumor nodule(s) in the primary tumor lobe of the lung are designated T4. Separate metastatic tumor nodule(s) in the ipsilateral nonprimary-tumor lobe(s) of the lung are designated M1 (Table 2). The need for consistency in lymph node classification as it relates to staging also has been addressed; however, a discussion of the American Joint Committee on Cancer (AJCC) recommendations that addressed this problem (Regional Nodal Stations for Lung Cancer Staging: Mountain/Dresler modification from Naruke/American Thoracic Society-Lung Cancer Study Group map) are beyond the scope of this report. It is well to keep in mind that the definitions for clinical and surgical-pathologic staging descriptors, or staging at any other point in the life history of the disease, must be the same, if they are to serve as common denominators and guidelines for selecting treatment, evaluating end results, and communicating information about lung cancer. Most patients are not treated surgically, and elements that can be determined only from pathologic examination of resected specimens are not included in the definitions and stage grouping rules. Revisions in stage grouping maintain the advantages of using only four stages of disease, with stage I reflecting the best prognosis and stage IV the worst.

Prognostic Implications of Stage Grouping

Stage grouping (Table 3) involves the concept of combining subsets of patients classified according to TNM descriptors into categories or stages, each having generally similar treatment options and survival expectations. This classification hierarchy is useful for end results reports, particularly investigations involving small numbers of patients, and for rapid recall of the prognostic implications of various levels of the anatomic extent of disease. In the International Staging System schema, considerable heterogeneity with respect to the end results for the TNM subsets in stage I, stage II, and stage IIIA disease has been shown—survival rates for the T1N0M0, T1N1M0, and T3N0M0 anatomic subsets appeared inconsistent with their designations in the staging schema.

Stage IA and Stage IB

End results reports from the major centers throughout the world consistently show a significantly better outcome for patients with T1N0M0

Table 4—*Clinical* (Top) *and Pathologic* (Bottom) *Stage IA and Stage IB by cTNM* (Top) *and pTNM* (Bottom) *Subset*

	Months After Treatment (Cumulative Percent Surviving)				
	12 (%)	24 (%)	36 (%)	48 (%)	60 (%)
cTNM*					
cT1N0M0 (n=687)	91	79	71	67	61
cT2N0M0 (n=1,189)	72	54	46	41	38
pTNM†					
pT1N0M0 (n=511)	94	86	80	73	67
pT2N0M0 (n=549)	87	76	67	62	57

*Pairwise comparison: cT1N0M0 vs cT2N0M0, $p<0.05$. Percentage distribution of cell types: adenocarcinoma, 49.7% (932/1,876); squamous cell carcinoma, 40.8% (765/1,876); large cell carcinoma, 3.5% (66/1,876); small cell carcinoma, 3.8% (71/1,876); NOS (carcinoma not specified) 2.2% (42/1,876).

†Pairwise comparison: pT1N0M0 vs pT2N0M0, $p<0.05$. Percentage distribution of cell types: adenocarcinoma, 54.5% (578/1,060); squamous cell carcinoma, 39.8% (422/1,060); large cell carcinoma, 3.5% (37/1,060); NOS (carcinoma not specified), 2.2% (23/1,060).

Table 5—*Clinical* (Top) *and Surgical-Pathologic* (Bottom) *Stage IIA and Stage IIB by cTNM* (Top) *and pTNM* (Bottom) *Subset*

	Months After Treatment (Cumulative Percent Surviving)				
	12 (%)	24 (%)	36 (%)	48 (%)	60 (%)
cTNM*					
cT1N1M0 (n=29)	79	49	38	34	34
cT2N1M0 (n=250)	61	42	34	26	24
cT3N0M0 (n=107)	55	37	31	27	22
pTNM†					
pT1N1M0 (n=76)	89	70	64	61	55
pT2N1M0 (n=288)	78	56	47	42	39
pT3N0M0 (n=87)	76	55	47	40	38

*Pairwise comparison: cT1N1M0 vs cT2N1M0, $p>0.05$; cT1N1M0 vs cT3N0M0, $p<0.05$; cT2N1M0 vs cT3N0M0, $p>0.05$. Percentage distribution of cell types: adenocarcinoma, 42.0% (162/386); squamous cell carcinoma, 44.3% (171/386); large cell carcinoma, 2.6% (10/386); small cell carcinoma, 8.0% (31/386); NOS (carcinoma not specified), 3.1% (12/386).

†Pairwise comparison: pT1N1M0 vs pT2N1M0, $p<0.05$; pT1N1M0 vs pT3N0M0, $p<0.05$; pT2N1M0 vs pT3N0M0, $p>0.05$. Percentage distribution of cell types: adenocarcinoma, 44% (199/451); squamous cell carcinoma, 51% (229/451); large cell carcinoma, 3.5% (16/451); NOS (carcinoma not specified), 1.5% (7/451).

lung tumors than for those in the other anatomic subsets.[11,12] Analysis of the present collected database according to **CLINICAL** estimates of the extent of disease reveals that 61% of patients with clinical stage IA disease and 38% of those with clinical stage IB tumors are expected to survive ≥5 years after treatment. The difference in survival rate between the two groups is statistically significant, $p<0.01$ (Table 4, *top*).

The end results of surgery confirm that an excellent prognosis for patients with surgical-pathologic T1N0M0 non-small cell tumors is a norm reported from most studies on lung cancer, and that this subset warrants an individual designation and separate reporting of end results. Reports of survival rates range from those similar to our own to 85% for selected groups of patients, such as those entered into special study programs.[13] Analysis of the collected database shows that 67% of the patients with surgical-pathologic stage IA disease and 57% of those with stage IB tumors are expected to survive ≥5 years following complete resection, $p<0.01$ (Table 4, *bottom*). These results, according to both clinical and surgical-pathologic staging criteria, are rational, are not unexpected, and are not related to any new breakthrough in treatment methods. They support the revised stage grouping designations. The concept that stages IA and IB include patients with the best prognosis who have no evidence of lymph node or other metastasis is maintained.

Stage IIA and IIB

A clinical presentation of cT1N1M0 disease (revised stage IIA) is infrequent and stage migration based on surgical-pathologic findings is common. The survival rate for this small group, however, was higher than the survival rate achieved for patients with cT2N1M0 tumors. Analysis of the collected database showed that 34% of patients with cT1N1M0 tumors and 24% of

Table 6—*Clinical* (Top) *and Surgical-Pathologic* (Bottom) *Stage IIIA by cTNM* (Top) *and pTNM* (Bottom) *Subset*

	Months After Treatment (Cumulative Percent Surviving)				
	12 (%)	24 (%)	36 (%)	48 (%)	60 (%)
cTNM*					
cT3N1M0 (n=40)	56	17	12	9	9
cT1-2-3N2M0 (n=471)	50	26	19	15	13
pTNM†					
pT3N1M0 (n=55)	65	38	30	30	25
pT1-2-3N2M0 (n=344)	64	40	32	26	23

*Pairwise comparison: cT3N1M0 vs cT1-2-3N2M0, $p>0.05$. Percentage distribution of cell types: adenocarcinoma, 43.2% (221/511); squamous cell carcinoma, 37.0% (189/511); large cell carcinoma, 2.8% (14/511); small cell carcinoma, 12.9% (66/511); NOS (carcinoma not specified), 4.1% (21/511).

†Pairwise comparison: pT3N1M0 vs pT1-2-3N2M0, $p>0.05$. Percentage distribution of cell types: adenocarcinoma, 58.9% (235/399); squamous cell carcinoma, 35.8% (143/399); large cell carcinoma, 3.8% (15/399); NOS (carcinoma not specified), 1.5% (6/399).

Table 7—*Clinical Stage IIIB and Stage IV by cTNM Subset*

	Months After Treatment (Cumulative Percent Surviving)				
	12 (%)	24 (%)	36 (%)	48 (%)	60 (%)
cTNM*					
cT4N0-1-2M0 (n=458)	37	15	10	8	7
cAny T N3M0 (n=572)	32	11	6	4	3
cAny T Any N M1 (n=1,427)	20	5	2	2	1

*Pairwise comparison: cT4N0-1-2M0 vs cAny T N3M0, $p>0.05$; cT4N0-1-2M0 vs cAny T Any N M1, $p<0.05$; cAny T N3M0 vs cAny T Any N M1, $p<0.05$. Percentage distribution of cell types: adenocarcinoma, 46.7% (1,149/2,457); squamous cell carcinoma, 26.4% (649/2,457); large cell carcinoma, 3% (73/2,457); small cell carcinoma, 18.5% (455/2,457); NOS (carcinoma not specified), 5.3% (132/2,457).

those with cT2N1M0 disease were expected to survive ≥5 years after treatment (Table 5, *top*).

Little difference was observed between the cumulative 5-year survival rates for patients with cT2N1M0 tumors and those with cT3N0M0 disease, 24% and 22%, respectively (Table 5, *top*). These nearly identical survival patterns support the rationale of designating the two subsets, cT2N1M0 and cT3N0M0, as stage IIB disease.

The end results according to surgical-pathologic stage show that a larger proportion of pT1N1M0 tumors occurred in the surgical treatment population than was identified in the clinically staged population. This represents considerable stage migration from the other clinical TNM groups. Fifty-five percent of the patients with pT1N1M0 disease were expected to survive ≥5 years following complete resection. This compares with 39% for those with pT2N1M0 tumors and 38% for those with pT3N0M0 tumors (Table 5, *bottom*). The significant differences in survival rates for the patients with pT1N1M0 disease and those with pT2N1M0 or pT3N0M0 disease support designation of T1N1M0 as stage IIA, while the nearly identical outcome for the groups with pT2N1M0 and pT3N0M0 disease argues for classifying these subsets as stage IIB. The prognostic implications of tumor size and location in association with intrapulmonary and hilar lymph node metastasis are identified. Further emphasized in the IIB category is the importance of no lymph node involvement associated with extrapulmonary extension of the primary tumor.

Stage IIIA

The revisions for stage grouping designate four categories, the T3N1M0, T1N2M0, T2N2M0, and T3N2M0 anatomic subsets, as stage IIIA disease. Patients with clinical T3N1M0 tumors had the poorest outcome, a cumulative survival rate of 9% at 5 years compared to 13% for the group with cT1-2-

Table 8—*Clinical* (Top) *and Surgical-Pathologic* (Bottom) *Stage**

	Months After Treatment (Cumulative Percent Surviving)				
	12 (%)	24 (%)	36 (%)	48 (%)	60 (%)
cStage†					
cIA (n=687)	91	79	71	67	61
cIB (n=1,189)	72	54	46	41	38
cIIA (n=29)	79	49	38	34	34
cIIB (n=357)	59	41	33	26	24
cIIIA (n=511)	50	25	18	14	13
cIIIB (1,030)	34	13	7	6	5
cIV (n=1,427)	19	6	2	2	1
pStage‡					
pIA (n=511)	94	86	80	73	67
pIB (n=549)	87	76	67	62	57
pIIA (n=76)	89	70	66	61	55
pIIB (n=375)	73	56	46	42	39
pIIIA (n=399)	64	40	32	26	23

*Overall comparison: $p<0.05$.

†Percentage distribution of cell types: adenocarcinoma, 47.2% (2,466/5,230); squamous cell carcinoma, 33.9% (1,773/5,230); large cell carcinoma, 3.1% (163/5,230); small cell carcinoma, 11.9% (624/5,230); NOS (carcinoma not specified), 3.9% (204/5,230).

‡Percentage distribution of cell types: adenocarcinoma, 53.0% (1,012/1,910); squamous cell carcinoma, 41.6% (794/1,910); large cell carcinoma, 3.6% (68/1,910); NOS (carcinoma not specified), 1.9% (36/1,910).

3N2M0 tumors (Table 6, *top*). The cT2N2M0 group represents 72% (340/471) of the cN2 category, those with cT3N2M0 tumors account for 22% (103/471), and patients with cT1N2M0 represent 6% (28/471). The survival rate for the patients with cT1N2M0 disease was higher than that for the other N2 subsets; however, due to the small number of patients, little influence on the overall survival for patients in the N2 category was shown. A cT1 primary tumor status evidently confers a survival advantage for patients with either hilar (stage IIA) or mediastinal lymph node metastasis (stage IIIA). In either case, however, the cT1N1-2M0 subsets are infrequently encountered and additional data are needed to refine their placement in the staging schema.

End results studies for patients with surgical-pathologic stage IIIA disease according to TNM subset reflect the improved survival for patients with stage IIIA tumors that are amenable to definitive surgical treatment. The 5-year cumulative survival rate after resection for patients with pT3N1M0 disease was 25%, and for those with pT1-2-3N2M0 tumors, 23%, $p>0.05$ (Table 6, *bottom*). Tumors classified pT1N2M0 represented 3% (61/1,850) of the total surgical-treatment population and, similar to the findings in the clinically staged population, a more favorable survival rate than for the pT2-3N2M0 subsets was shown. Increasing tumor size and invasive characteristics reflected in the T1, T2, and T3 classifications are apparently directly related to the extent of lymph node involvement and erosion of survival rates. Mediastinal metastasis at operation in patients with T1 primary tumors may be clinically silent and is likely to involve only one node. The end results for both the clinically and surgical-pathologically staged populations support the stage grouping of the four TNM subsets in stage IIIA (Table 3).

Stage IIIB and IV

The stage IIIB and IV categories remain unchanged, with two minor exceptions; that is, modification of the T4 and M1 descriptors shown in Table 2. Patients in the clinically staged T4N0-1-2M0 subsets had nearly identical outcomes at 5 years, cumulative survival rates, according to TNM subset, at 1 year of 29 to 43%, at 2 years, 14 to 15%, and at 5 years, 6 to 8%. The patients with a clinical classification of any T N3M0 had a poor outcome; a cumulative 32% survived 1 year, 11% for 2 years, and only 3% for 5 years. A cumulative 20% of the patients with stage IV disease, that is any T any N M1, survived 1 year, 5% for 2 years, and only 1% for 5 years (Table 7).

The stage IIIB category, including the T4 and N3 TNM subsets, was developed for the 1986 International Staging System recommendations to meet the needs of treatment specialists for staging that would eliminate ambiguities in commonly used terms, such as local and regional or limited and extensive disease. Analysis of the collected database showed that the difference in survival rates between the two groups of stage IIIB patients, T4 any N M0 and any T N3M0, was not significant, $p>0.05$; however, comparison of the outcome for each of these groups with that for the M1 patients, while possibly not clinically significant, was statistically significant: 7% (T4 any N M0), 3% (any T N3M0), and 1% (any T any N M1) expected to survive ≥5 years or more, $p<0.01$ (Table 7).

Classification for Multiple Tumor Nodules

The 1997 recommendations for staging include new rules for classifying multiple tumor nodules. The presence of satellite tumor(s), not lymph nodes, within the primary-tumor lobe of the lung should be classified T4. Intrapulmonary ipsilateral metastasis in a distant, that is, nonprimary-tumor lobe(s) of the lung, should be classified M1.

Stage Grouping of the TNM Subsets

The revised stage grouping rules divide stage I and stage II into A and B categories and modify stage IIIA to more accurately represent the prognostic implications of the anatomic extent of disease in each TNM subset. The T1N0M0, T2N0M0, and T1N1M0 anatomic subsets are designated as separate entities, and the T3N0M0 category is placed in stage IIB, which is consistent with the end results for this group (Table 3).

The end results according to clinical (Table 8, *top*) and surgical (Table 8, *bottom*) staging criteria confirm that the simple modifications for revised stage grouping maintain the integrity of the system we have used successfully for the past 10 years and make the system more responsive to the needs of clinical and research environments. Revised stage grouping provides for classifying seven subsets of patients according to the anatomic characteristics of their disease. These groups are reproducible and are compatible with conventional treatment assignment (Table 3). The staging system is relevant for classifying the four major cell types of lung cancer, squamous cell carcinoma, adenocarcinoma (including bronchioalveolar carcinoma), large cell carcinoma, and small cell carcinoma. It also may be applied to those tumors classified as "undifferentiated carcinomas" with no specific subtype identified. (The percentage distribution of cell types included in

the end results analyses is noted on each table, 4 through 8.) The value of specific TNM subset classification for designing investigational treatment protocols is emphasized by the present results. Comparison of the end results according to clinical and surgical-pathologic criteria shows the improvement in survival rates associated with more accurate staging and appropriate selection of patients for definitive surgical treatment, especially for the stage IIIA group.

In closing, I would like to point out a recent study by Brundage and Mackillop,[14] who undertook to investigate the reasons why published clinical trials have not resolved the lack of consensus regarding the most appropriate treatment for patients with locally advanced lung cancer. These authors noted diversity and heterogeneity in the spectrum of disease stage as culprits contributing to the lack of ability to generalize the results of clinical trials to the lung cancer population. The increased specificity of the revised recommendations for staging should enable more reproducible patient selection criteria for the design of research investigations and for end results reporting.

The revisions in stage grouping shown in Table 3 were accepted by the AJCC and the staging committees of the International Union Against Cancer (UICC) at the 1996 annual meeting of each organization. Participants and other representatives for the organizations are shown in the Appendix.

ACKNOWLEDGMENT: The author acknowledges the contributions of Kay E. Hermes, BS, Biomedical Analyst, to the research and writing of this report.

Appendix

American Joint Committee on Cancer Annual Meeting Scottsdale, Ariz, January 13, 1996

American Cancer Society
Myles P. Cunningham, MD
Robert J. McKenna, MD
Robert J. Schweitzer, MD*
American College of Physicians
B. J. Kennedy, MD*
Robert J. Mayer, MD*
John W. Yarbro, MD*
American College of Radiology
Jay S. Cooper, MD
Mack Roach III, MD
Joel E. Tepper, MD
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Blake Cady, MD*
Irvin D. Fleming, MD,* Chairman, AJCC
Frederick L. Greene, MD
College of American Pathologists
Gerald Nash, MD
David L. Page, MD*
Mark R. Wick, MD
National Cancer Institute
Sudhir Srivastava, PhD, MPH
Harvey I. Pass, MD
Edward L. Trimble, MD
Association of American Cancer Institutes
Stephen Edge, MD*
National Cancer Registrar's Association
Ms. Carol S. Venuti, CTR*
American Urological Association
Andrew C. von Eschenbach, MD*
American Society of Clinical Oncology
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Centers for Disease Control and Prevention
Daniel S. Miller, MD, MPH
The American Society of Colon and Rectal Surgeons
Mark L. Welton, MD
The Society of Gynecologic Oncologists
Howard W. Jones III, MD
The Society of Urologic Oncology
Ian M. Thompson, MD
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UICC Representatives to the AJCC
Gerald P. Murphy, MD,* UICC Secretary General
Leslie H. Sobin, MD, Chairman,
TNM Prognostic Factors Project Committee
*Participants at annual meeting; 1997 revisions in staging and recommendations for lymph node mapping adopted.

UICC-TNM Prognostic Factors Project Committee Meeting Geneva, Switzerland, April 30-May 1, 1996

Dr. Leslie Sobin (Project Chairman), Armed Forces Institute of Pathology, Washington, DC
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Dr. Nikolay N. Blinov, N.N. Petrov Research Institute of Oncology, St. Petersburg, Russia
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