



Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

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Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

Abstract

PHYSICIANS' ATTITUDES ABOUT RECOMMENDING SURGERY FOR EARLY STAGE LUNG CANCER AND POSSIBLE REASONS FOR RACIAL DISPARITIES

ABSTRACT

Purpose: Patient refusal for lung cancer surgery is significant, but other factors, such as negative framing of the treatment discussion, may be involved. Physician attitudes could influence the nuances of and therefore the conclusions of these discussions. We determined physicians' attitudes and the influence it has on possible decisions against lung cancer surgery, particularly surgical rates for blacks, using a companion survey.

Methods: The study is a prospective, multicenter observational trial conducted at five sites in North and South Carolina from December 2005 to December 2008. Study sites included a mix of academic and community-based health care systems. Enrollment involved generalist, oncology, pulmonary, and thoracic surgery practices. Eighty-four of 100 physicians identified as providing lung cancer advice to 437 patients diagnosed with early stage disease participated. The protocol was approved by each institution's Institutional Review Board prior to initiating the study. We measured physician demographic information, communication items, physician attitudes, reasons against surgery, and whether these reasons were more true for certain patient populations.

Results: Ninety percent of respondents agreed that medical comorbidities were important factors in recommending against surgery. Only 28% agreed that comorbidities contributed to the racial differences in surgical treatment. Half of respondents felt that non-compliance and difficult communication were at least moderately important in recommending against lung resection surgery and one-fifth regarded these issues to be reasons for black-white surgical disparities. Only 29% and 21% respectively felt that continued smoking or oxygen dependence were reasons to make recommendations against surgery.

Discussion: Physician-patient communication can make a significant impact on decision making regarding lung cancer surgery. Based on the results of this study, half of the physicians felt that "communication with the patient is difficult or inadequate" was a reason to recommend against surgery. A portion of these physicians felt that communication issues was "more true" for black patients. Therefore, methods of improving physician patient communication and systematic serial follow-up should be addressed to potentially reduce racial differences in lung cancer disparities in early stage disease.

Keywords

physician-patient relationship; pulmonary surgical procedures; integrated delivery of healthcare; decision making; health care disparities; racial disparities; physician opinion; lung cancer; lobectomy.

Cover Page Footnote

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Internal Medicine, Carolinas Medical Center, Charlotte, NC (6) the Leo Jenkins Cancer Center of the Brody School of Medicine, East Carolina University, Greenville, NC (8) the Department of Biostatistics, University of North Carolina at Chapel Hill, Chapel Hill, NC. Correspondence: Franklin R. McGuire, MD, Division of Pulmonary, Critical Care and Sleep Medicine, University of South Carolina, One Richland Medical Park, Suite 300, Columbia, SC 29203 (frmcguire1026@gmail.com). Author Contributions: Dr. McGuire had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Design and conduct of the study: McGuire, Cykert, Dalton, Dilworth-Anderson, Monroe, Walker, Corbie-Smith, Edwards, Bunton. Collection, management, analysis, and interpretation of the data: McGuire, Cykert, Dalton, Dilworth-Anderson, Monroe, Walker, Corbie-Smith, Edwards, Bunton. Preparation, review, or approval: McGuire, Cykert, Dalton, Edwards. Conflict of Interest: None reported. Financial Disclosures: None reported. Funding/Support: American Cancer Society grant #RSGPB-05-217-01-CPPB. Additional Contributions: We thank the American Cancer Society for its support of this research. We appreciate the contributions of the Cecil G. Sheps Center for Health Services Research.



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Methods: The study is a prospective, multicenter observational trial conducted at five sites in North and South Carolina from December 2005 to December 2008. Study sites included a mix of academic and community-based health care systems. Enrollment involved generalist, oncology, pulmonary, and thoracic surgery practices. Eighty-four of 100 physicians identified as providing lung cancer advice to 437 patients diagnosed with early stage disease participated. The protocol was approved by each institution's Institutional Review Board prior to initiating the study. We measured physician demographic information, communication items, physician attitudes, reasons against surgery, and whether these reasons were more true for certain patient populations.

51 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

McGuire et al.

Results: Ninety percent of respondents agreed that medical comorbidities were important factors in recommending against surgery. Only 28% agreed that comorbidities contributed to the racial differences in surgical treatment, while 56% felt that lack of trust in the medical system was a factor explaining the disparity in surgical rates. Half of respondents felt that non-compliance and difficult communication were at least moderately important in recommending against lung resection surgery and one-fifth regarded these issues to be reasons for black-white surgical disparities. Only 29% and 21% respectively felt that continued smoking or oxygen dependence were reasons to make recommendations against surgery.

Discussion: Physician-patient communication can make a significant impact on decision making regarding lung cancer surgery. Based on the results of this study, half of the physicians felt that "communication with the patient is difficult or inadequate" was a reason to recommend against surgery. A portion of these physicians felt that communication issues was "more true" for black patients. Therefore, methods of improving physician patient communication, improving trust in the medical system, and systematic serial follow-up should be addressed to potentially reduce racial differences in lung cancer disparities in early stage disease.

Keywords: physician-patient relationship; pulmonary surgical procedures; integrated delivery of healthcare; decision making; health care disparities; racial disparities; physician opinion; lung cancer; lobectomy.

INTRODUCTION

Lung cancer remains the leading cause of cancer death (National Cancer Institute, 2012). A child born in 2009 in the USA has an estimated 7% chance of dying from lung cancer (National Cancer Institute, 2012). Race is a factor in survival for lung cancer patients, with black males facing a 10 percent decrement in 10 year survival rate when compared to whites (National Cancer Institute, 2012). This disparity has been apparent for more than a half a century (Henschke et al., 1973) and remains an obstacle to equity in the US health care system. While trying to elucidate potential etiologies of this disparity, retrospective data (Bach, Cramer, Warren, & Begg, 1999; McCann et al., 2005) and now a prospective report (Cykert & Phifer, 2003) have documented lower rates of lung cancer resection for black patients with stage one and two disease compared to whites. This disparity in surgical resection is closely associated with the higher mortality experienced by blacks (Bach et al., 1999). Retrospective review and database analysis have helped focus the question but have limited power to explain these disparities on a granular level. Patient refusal is significant but other factors such as offering of surgical treatment or at least negative framing of the treatment discussion may be involved (Cykert & Phifer, 2003; Lathan, Neville, & Earle, 2006). The physicians' role in both fostering disparity and in the elimination of the disparity are well defined (American College of Physicians, 2010). In this setting, physician attitudes could influence the nuances and subsequent conclusions of these conversations. Thus physician attitude is a potential contributing factor to systematic cancer disparities. As part of a recent prospective cohort study to examine possible reasons for decisions against lung cancer surgery and lower surgical rates for blacks, we performed a companion survey of physicians caring for lung cancer patients (Cykert et al., 2010). In this survey, we explored physician attitudes about race and disparities in lung cancer care as well as physicians' opinions about possible reasons for recommendations against lung cancer surgery.

METHODS

We enrolled 437 newly diagnosed patients with early stage, non-small cell lung cancer. Inclusion criteria were as follows: patients were required to be at least 18 years old, have a tissue diagnosis or > 60% probability of non-small cell lung cancer using Bayesian methods, and be limited to Stage I or II disease by clinical and radiological testing. Patients were identified from direct referral from practices or through the utilization of a chest CT review protocol. After being informed of the diagnosis of probable or definite lung cancer, but before the establishment of a treatment plan, patients were administered a 106-item survey. For one item, we asked patients to identify the physician who had provided the most information about his or her lung cancer care. After informed consent was obtained, we asked these physicians to complete a self-administered 93-item survey (see appendix A). Physicians were given the initial survey and two reminders. They were allowed to submit the survey on paper or electronically. Once the survey was returned, or non-response established, linkage files were destroyed, and the data were aggregated anonymously. Providers completed only one questionnaire regardless of how many of their patients were enrolled in the study. The survey consisted of five main sections: 1) physician demographic information, 2) communication items concerning both content and approach, 3) an assessment of physicians' attitudes toward lung cancer treatment and lung cancer patients, 4) possible reasons that respondents might consider to recommend against surgery, and

5) whether these reasons were more true for black patients, neutral, or more true for white patients. Note that all sections, except the demographic section, consisted of statements followed by Likert-type response scales. All items and corresponding Likert scales are listed in Appendix A. Data were entered into STATA 10 for analysis. Given the exploratory nature of the study, results were summarized as descriptive statistics.

RESULTS

One hundred physicians were identified by participating patients. Eighty-four completed the questionnaire, a response rate of 84%. Physician characteristics are summarized in Table 1. Note particularly the racial-ethnic composition of the group: Respondents were predominantly white, 73%. Other races represented included: 11% Asian, 7% Hispanic, and 5% African-American. About half practiced in academic settings while the remainder practiced in community settings. Twenty percent of those surveyed were thoracic surgeons, 40% pulmonologists, 16% oncologists, and 20% were general internists. The mean number of years in practice was 12.6 years, with a range of 1 to 34 years. Roughly 33% had been practicing for five or fewer years. Another 14% had been in practice for 6-10 years, and 53% had been in practice for 11 or more years. Providers were asked how many stage I/II non-small cell lung cancer patients they saw each year. One-third of respondents reported seeing 1-5 patients per year, and 6% reported seeing 50 or more patients per year. Over half of the sample reported being "moderately" or "very" religious (as opposed to "not at all" or "slightly"), and nearly two-thirds of the sample reported being "moderately" or "very" spiritual.

Table 1. Physician provider characteristics	
	N (%)
Age (median)	45
Race	
White	60/82 (73.2)
African-American	4/82 (4.9)
Other	18/82 (22.0)
Gender (% male)	61/82 (74.4)
Years in practice	
1-5	27/81 (33.3)
6-10	11/81 (13.6)
11 or more	43/81 (53.0)
Type of practice	
Academic group practice	39/82 (47.6)
Other	43/82 (52.4)
Specialty	
Thoracic surgeon	17/83 (20.5)
Other, physician	64/83 (77.1)
Other, non-physician	2/83 (2.4)
Early stage NSCLC patients seen per year	
1-5	28/83 (33.7)
6-10	18/83 (21.7)
11-20	17/83 (20.5)
21-50	15/83 (18.0)
>50	5/83 (6.0)
Religiosity	
Not at all or slightly	28/82 (34.1)
Moderately or very	54/82 (65.8)
Spirituality	
Not at all or slightly	20/82 (24.3)
Moderately or very	62/82 (76.6)
Region of residency*	
Northeast	15/82
Midwest	7/82
South	45/82
West	2/82
Not available	13/82

*Regions are based on US Census Bureau of census definitions.

Clinical Factors

The vast majority (91%) of providers agreed that all patients should undergo pulmonary function testing prior to surgery. However, only a quarter of providers agreed with a historic benchmark that “No patient with a postoperative FEV1 that is <40% of predicted should go to surgery.” Twenty-one percent of respondents agreed that oxygen dependent patients should not have surgery. When considering smoking status in the lung surgery calculus, almost one-third (29%) agreed that patients who continued to smoke should not have lung cancer surgery – a proportion comparable to those that felt patients who could not bathe or dress themselves should not have surgery (35% and 29% respectively), see Table 2.

Table 2. Provider attitudes about clinical management of patients with lung cancer

	N (%) Providers responding "Strongly Agree" or "Agree"
All patients should have pulmonary function tests done preoperatively.	74 (91.4)
No patient with a postoperative FEV1 that is <40% of predicted should go to surgery.	19 (23.5)
Patients who are oxygen dependent before surgery should not have surgery.	17 (21.3)
Patients who are often non-compliant with other medical treatments should not have lung cancer surgery.	13 (16.0)
Patients who continue to smoke should not have lung cancer surgery.	24 (29.3)

Physician attitudes about communication

Specific communication items assessed and the distribution of responses are described in Table 3. Providers were particularly consistent in their agreement (85%) that they discuss with patients the possibility of post-surgical deterioration in their ability to do physical activity. In the context of patient perceptions and their full understanding of medical information pertaining to cancer, only 56% of providers agreed that they always confirmed patients' understanding of the potential cure rate of their lung surgery and similarly 53% agreed that they confirmed patients' understanding of their risk of death during or shortly after surgery. The teach-back, a technique in which providers ask patients to state what they have heard as a method to confirm understanding, was used by less than one quarter of respondents. Only 45% of the physician respondents provided supplementary educational materials usually through a nurse educator or pamphlet. Only one provider used a supplementary video.

Table 3. Provider attitudes about communication with patients with lung cancer

	N (%) Providers responding "Strongly Agree" or "Agree"	
When I talk to patients about surgery, I discuss the possibility that their ability to do physical activity may deteriorate after surgery.	70 (85.4)	
I always encourage patients to express their fears about having lung cancer.	56 (68.3)	
I always encourage patients to express their fears about having surgery.	56 (75.7)	*10 missing for this item
I always find a way to confirm that patients understand their predicted rate of cure from having lung cancer surgery.	45 (55.6)	
I always find a way to confirm that patients understand their risk dying during or shortly after lung cancer surgery.	43 (53.1)	
I always find a way to confirm that patients understand the possibility of debility after lung cancer surgery.	59 (72.3)	
When I talk to patients about surgery, I discuss the probability, in percentage terms, of curing their cancer.	55 (68.0)	

*Sample N = 84. Slight variations in percentages are due to missing values on some items.

Reasons for NOT recommending surgery

Providers were asked to rate the importance of thirteen factors that may cause them NOT to recommend surgery for a given patient on a four point Likert Scale consisting of not important, somewhat important, moderately important, and extremely important. Medical comorbidities were considered at least moderately important by 90% of respondents (Table 4).

	N (%)	
	Not important or somewhat important	Moderately or extremely important
Patient's medical comorbidities	8 (10.1)	71 (89.9)
Patient's own preferences	12 (15.2)	67 (84.8)
Patient's lack of health insurance	78 (98.7)	1 (1.3)
Patient's financial barriers	76 (96.2)	3 (3.8)
Patient's lack social support	60 (76.0)	19 (24.1)
Patient does not complete medical work-up	18 (22.8)	61 (77.2)
Patient's disbelief of diagnosis	42 (53.2)	37 (46.8)
Patient does not comply with medications or visits	37 (47.4)	41 (52.6)
Patient's fear of surgery	42 (53.9)	36 (46.2)
Patient's religious beliefs	41 (52.6)	37 (47.4)
Patient's lack of trust in the medical system	44 (56.4)	34 (43.6)
Communication with patient is difficult or inadequate	38 (48.7)	40 (51.3)
Patient's age	56 (71.8)	22 (28.21)

At the lower end of the spectrum, only 1% of physician respondents thought that lack of health insurance was of “moderate importance” though 10% thought insurance “somewhat important”. Specifically failing to complete the medical work up was identified as at least a “somewhat important” reason to recommend against surgery by 97% of respondents (77% at least moderately important). General non-compliance was viewed as at least “somewhat important” to recommend against surgery by 88% (at least “moderately important” by 51%). Lack of social support was identified as at least a “somewhat important” reason to recommend against surgery by 76% of physician respondents but only 18% felt this to be a “moderately” or “extremely important” reason. Eighty-two percent of respondents felt that difficult communication was at least a “somewhat important” reason to recommend against surgery with 51% agreeing that this reason was at least “moderately important”. A patient’s age (28%) was among the least important reasons for recommending against surgery with comorbidities a greater consideration as described above.

Perceptions of factors explaining racial disparities in surgical rates

The survey asked respondents to identify the factors that explained the difference in surgical rates between black and white patients followed by the response items, “more true for black patients”, “about the same for both”, and “more true for white patients”. The results for this section are presented in Table 5.

	More true for black patients	About the same	More true for white patients
	N (%)		
Medical comorbidities	22 (27.5)	56 (70.0)	2 (2.5)
Patient preference	29 (36.7)	45 (57.0)	5 (6.3)
Physician bias	21 (26.3)	56 (70.0)	3 (3.8)
Lack of health insurance	40 (50.0)	40 (50.0)	0 (0.0)
Financial barriers	38 (47.5)	41 (51.3)	1 (1.3)
Lack of social support	21 (26.3)	57 (71.3)	2 (2.5)
Patient does not complete medical work-up	13 (16.3)	67 (83.8)	0 (0.0)
Disbelief of diagnosis	20 (25.0)	59 (73.8)	1 (1.3)
Lower compliance with medications or visits	17 (21.3)	63 (78.8)	0 (0.0)
Fear of surgery	27 (33.8)	53 (66.3)	0 (0.0)
Religious beliefs	19 (23.8)	61 (76.3)	0 (0.0)
Lack of trust in the medical system	45 (56.3)	34 (42.5)	1 (1.3)
Less fear of metastatic cancer	6 (7.5)	71 (88.8)	3 (3.8)
Inadequate or difficult patient- doctor communication	18 (22.5)	62 (77.5)	0 (0.0)
Difficulty entering or navigating the medical system	33 (41.3)	47 (58.8)	0 (0.0)

The only factor for which more than 5% of respondents answered “more true for white patients” was the item citing patient preference as the reason for the decision against surgery (6.3% “truer for white patients”) although 37% agreed that this choice was “truer for black patients”. Lack of trust (56%) and difficulty entering or navigating the care system (41%) were prominently noted as “truer for black patients” as reasons for surgical rate differences.

About half of respondents perceived that health insurance and financial barriers served as reasons for surgical differences that were “truer for black patients” although this result was in the context of very few physicians feeling that insurance or finances were important reasons for recommending against surgery. Other significant factors identified to potentially explain surgical differences for which the response was “truer for black patients” include: non-compliance 21%, lack of social support 26%, fear of surgery 34%, patient’s religious beliefs 24%, difficult communication 23%, and medical comorbidities 28%.

DISCUSSION

Racial disparity remains a problem in the US health system. It is partly to blame for the significant gap in life expectancy between whites and blacks in the US, 4.5 years for females and 6.3 years for males (Harper, Lynch, Burris, & Davey Smith, 2007). Race factors into survival for a wide range of conditions including a variety of lung diseases: pulmonary hypertension, asthma, and idiopathic pulmonary fibrosis (Grant, Lyttle, & Weiss, 2000; Kawut et al., 2005; Williams et al., 2008). When defining potential causes, it is rational to consider genetics/pathophysiology, socioeconomic/access, culture, and bias (system, physician, or patient). In the case of lung cancer, the disparity does not persist if patients are treated equally, be it chemotherapy, radiation, or surgery (Akerley, Moritz, Ryan, Henderson, & Zacharski, 1993; Bach et al., 1999; Blackstock et al., 2002; Graham et al., 1992). There is no significant genetic or pathophysiologic etiology to explain the disparity.

Socioeconomic status (SES) is a major factor in health disparity. In our community, state cancer registry database analysis has shown factors associated with decreased surgical resection rates to be rural residency, poverty, and being a Medicaid recipient (Esnaola et al., 2008). The connection between lower SES and lower resection rate is not isolated to our state. A joint analysis of 24 years’ worth of SEER and National Longitudinal Mortality Study data show that higher mortality in blacks is associated with lower SES and lower likelihood to undergo surgery for a diagnosis of lung cancer (Ou, Zell, Ziogas, & Anton-Culver, 2008). In the British health system, data review exposes the likelihood of having surgery for lung cancer declines as the patients’ SES declines (Raine et al., 2010). With a poverty rate 2.5 times the rate of whites, this affects blacks disproportionately.

Health insurance coverage is a factor particularly when the patient has Medicaid (Esnaola et al., 2008; Liu et al., 2006). However, in this study, neither health insurance nor patient finances were cited as factors in recommending for or against surgical treatment. This leaves cultural and social factors and/or bias as playing possible prominent roles (Abreu, 1999; Schulman et al., 1999). These potential causes of the disparity likely hinge on the patient-physician interaction.

Access to care does not solely depend on having insurance coverage. In our previous work, lack of having a regular source of care was associated with failure to complete resection for African-American patients. In this companion survey, physicians acknowledged that difficulty navigating the medical system was a significant explanation for the disparity, 41% “more true for black patients. An overwhelming 77% felt that a reason to recommend against surgery was failure to complete the medical work up showing how important a factor the patient’s ability to navigate the system is. While only 16% felt that failure to complete medical work up was “more true for black patients”, lower compliance with medications or medical visits

was considered “more true for black patients” by 21%. Although these numbers do not represent majorities, the black-white surgical gap for early stage lung cancer has consistently been documented at 10 to 15 percent for decades (Bach et al., 1999; Cykert & Phifer, 2003; Lathan, Neville, & Earle, 2006). Given patients' misperceptions of prognosis (Cykert & Phifer, 2003) as well as their potential anger, disbelief (Kübler-Ross, 1992), and mistrust (Gordon, Street, Sharf, Kelly, & Soucek, 2006) at the time of diagnosis, rather than classifying these patients as non-compliant and leaving them to their fate, a better approach might be systematically follow up with all patients that do not initially engage in care and offer other opportunities. A registry system as used by Bickell et al. (2008) for breast cancer care could be used to “complete the medical work up” and attenuate “non-compliance” (Bickell et al., 2008).

Perhaps the most significant findings of our survey were in the realm of communication. Fifty one percent of physicians felt “communication with the patient is difficult or inadequate” was a reason to recommend against surgery and 23% felt that difficult communication restricting surgery was “more true” for black patients. We know the impact of communication on decision making in this setting is significant (Cykert et al., 2010). Because the determination by the physician regarding communication is subjective and poor communication is inherently intertwined with patient refusal this is an area of focus for an intervention. With the evidence of inadequate routine discussion of outcomes from surgery there is vast potential for improving this variable in the disparity. Only 56% of our respondents always confirm that patients understand their predicted rate of cure with lung surgery and only 53% always find a way to confirm their risk of dying during or shortly after the surgery. These findings are consistent with previous work that demonstrates that confirmation of patients' understanding through the teach-back or other methodologies is used infrequently by physicians in general (Schillinger & Sarkar, 2009) while, in specific, one half of patients in lung cancer care do not understand their treatment options right after their visit (Gabrijel et al., 2008). The fact that only half of physicians who care for lung cancer patients attest that they confirm patient knowledge indicates that these physicians or another member of the team could employ the teach-back – a technique that has been proven to be effective in low health literacy populations (Paasche-Orlow et al., 2005; Wilson, Baker, Nordstrom, & Legwand, 2008; Yin et al., 2008).

When asking about specific objective durable modes of communication we found only 45% of the physician respondents provided supplementary education apart from the office visit. Low health literacy has been shown to contribute to racial differences in HIV medication adherence (Waldrop-Valverde et al., 2010), receipt of preventive care (Bennett, Chen, Soroui, & White, 2009), and glycemic control (Osborn, Cavanaugh, Wallston, White, & Rothman, 2009; Rothman, et al., 2004) making it likely that cancer care is similarly affected. Therefore, addressing the low utilization of teach-back technique and the lack of educational supplementary efforts described in this report could favorably impact the decisions of African-Americans and narrow the lung cancer surgery gap.

Potential limitations of this study should be noted. First, the survey was only administered to physicians who provide lung cancer care to patients enrolled in our cohort study in North and South Carolina. However, respondents were trained in multiple regions in the United States (Table 1) and the surgical rates reported in our companion study were similar to those reported in administrative data throughout the country (Bach et al., 1999; Cykert et al., 2010; Farjah et al., 2009; Lathan, Neville, & Earle, 2006). Second, by asking providers directly

61 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
McGuire et al.

about reasons that lower the likelihood of black cancer patients going to surgery, a social desirability bias may have blunted responses to these items. Therefore, we may have underestimated the impact of perceptions of non-compliance and lack of social support on providers' decision-making. In our study, specific physician opinions were not directly linked to actual clinical care. Also, we had a small sampling of African American physicians. Specifically, only one African American surgeon and three medical physicians were surveyed making up less than 5% of the physician responders. Though a low percentage, this is above the national average of physicians that are African American. Future studies that directly correlate attitudes, implicit bias, and surgical decisions would be more informative.

CONCLUSION

Physician-patient communication can make a significant impact on decision making regarding lung cancer surgery. Based on the results of this study, half of the physicians felt that "communication with the patient is difficult or inadequate" was a reason to recommend against surgery. A portion of these physicians felt that communication issues was "more true" for black patients. Providers also felt that trust in the medical system was a significant factor in the disparity.

Therefore, methods of improving physician patient communication, trust in the medical system, and systematic serial follow-up should be addressed to potentially reduce racial differences in lung cancer disparities in early stage disease.

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Appendix A: Disparities in Surgery Rates after Lung Cancer Diagnoses:

Provisional Physician Questionnaire: Revised 3/21/06

Site:

Physician ID#: ___ ___ ___

- CMC
- ECU
- MC
- UNC
- USC

This questionnaire asks you about your judgments and activities for managing the care of patients with Stages I and II non-small cell lung cancer. We believe it will take you no longer than 10 minutes to complete this questionnaire. Thank you for your time for helping us improve the care for these patients.

1. What is your specialty area? (please check one)

- ₁ Thoracic Surgeon
- ₂ Pulmonary Medicine
- ₃ Medical Oncology
- ₄ General Internal Medicine
- ₅ Family Practice
- ₆ LNP
- ₇ PA

2. How many years have you been practicing in this specialty? _____ years

3. Thinking about the patients to whom you give substantial help in making cancer treatment decisions, approximately how many patients do you see per year with stages I or II non-small cell cancer? Do you see..... (Please check one)

- ₁ 1-5
- ₂ 6-10
- ₃ 11-20
- ₄ 21-50
- ₅ >50

For the next set of questions, we are interested in your views of contraindications for lung resection surgery for individuals with stage I or II non-small cell lung cancer. There are no right or wrong answers for these questions – we are interested in your clinical opinion.

4. Please list up to six items that you consider to be absolute contraindications to lung resection for these patients.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

5. Please list up to six factors that you would consider to be other reasons not to have lung resection surgery that are not absolute contraindications for these patients.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

6. Is there a **preoperative FEV1 result, in milliliters or percentages, that you feel absolutely contraindicates lung resection surgery?**

₀ No

₁ Yes (Please specify: _____ milliliters or percentages)

In the following questions, we are interested in your views about managing the care of patients who have stage I or II non-small cell lung cancer. Please check the box that indicates your level of agreement with the statements concerning patient management.

Managing the Care of Patients with Lung Cancer	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
7. All patients should have pulmonary function tests done preoperatively.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
8. No patient with a postoperative predicted FEV1 that is < 40% of predicted should go to surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
9. Patients who are oxygen dependent before surgery should not have surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
10. Patients who are physically limited to the point that they are only capable of moving from bed to a chair should not have	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

65 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

Managing the Care of Patients with Lung Cancer	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
lung cancer surgery even if their FEV-1 is acceptable.					
11. Patients who are not capable of dressing themselves should not have lung cancer surgery no matter what their FEV-1 measurement.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
12. Patients who are physically unable to bathe themselves should have lung cancer surgery as long as their FEV-1 is over 50% of predicted.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
13. Patients who are often non-compliant with other medical treatments should not have lung cancer surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
14. When I talk to patients about surgery, I discuss the possibility that	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

66 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

Managing the Care of Patients with Lung Cancer	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
their ability to do physical activity may deteriorate after surgery.					
15. When I talk to patients about surgery, I give them precise numbers about their risk of dying at surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
16. When I talk to patients about surgery, I discuss the precise chance that their cancer will not be cured by the surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
17. I always encourage patients to express their fears about having lung cancer.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
18. I always encourage patients to express their fears about having surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
19. I always find a way to confirm	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

67 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

Managing the Care of Patients with Lung Cancer	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
that patients understand their predicted rate of cure from having lung cancer surgery.					
20. I always find a way to confirm that patients understand their risk of dying during or shortly after lung cancer surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
21. I always find a way to confirm that patients understand the possibility of debility after lung cancer surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
22. Patients who continue to smoke should not have lung cancer surgery.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
23. When I talk to patients about surgery, I discuss the probability, in percentage terms, of curing their cancer.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

24. **In addition to your conversation with the patient, do you provide other educational opportunities to help patients understand their surgery?**

₀ No (*skip to Item 26*)

₁ Yes

25. **I provide the following educational opportunities.** (*Please check all that apply.*)

₁ Reading materials

₂ Video Cassettes / DVD's

₃ Meeting with a nurse educator

₄ Referral to another physician

₅ Other (please specify) _____

We are interested in your views about the relative importance of reasons for you not to recommend surgery for patients with stages I and II non-small cell cancer. For the questions below, please check the box that indicates the importance of these factors in not recommending lung resection surgery.

Possible Reasons for You to NOT Recommend Surgery	Not Important	Somewhat Important	Moderately Important	Extremely Important
26. Patient's medical comorbidities	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
27. Patient's own preferences	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
28. Patient's lack of health insurance	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
29. Patient's financial barriers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
30. Patient's lack of social support	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
31. Patient does not complete medical work-up	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
32. Patient's disbelief of diagnosis	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
33. Patient does not comply with medications or visits	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
34. Patient's fear of surgery	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

69 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

McGuire et al.

35. Patient's religious beliefs	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
36. Patient's lack of trust in the medical system	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
37. Communication with patient is difficult or inadequate	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
38. Patient's age	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Several reports that use data from administrative or insurance claims sources conclude that African-American (black) patients suffering from stages I or II non-small cell lung cancer undergo surgical therapy less often than white patients. Many factors may explain this difference between black and white patients. Please check the box below to indicate your opinion on the relative importance of the following explanations for this difference.

Factors Explaining the Difference in Surgery Rates of Black and White Patients	More True for Black Patients	About the Same for Both	More True for White Patients
39. Medical comorbidities	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
40. Patient preferences	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
41. Physician bias	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
42. Lack of health insurance	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
43. Financial barriers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
44. Lack of social support	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
45. Patient does not complete medical work-up	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
46. Disbelief of diagnosis	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
47. Lower compliance with medications or visits	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
48. Fear of surgery	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
49. Religious beliefs	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

70 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

Factors Explaining the Difference in Surgery Rates of Black and White Patients	More True for Black Patients	About the Same for Both	More True for White Patients
50. Lack of trust in the medical system	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
51. Less fear of metastatic cancer	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
52. Inadequate or difficult patient-doctor communication	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
53. Difficulty entering or navigating the medical system	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

54. **What do you or your staff do to make sure the patient understands what you've discussed about lung cancer and lung cancer surgery?**

For the following questions, please check the box that indicates your level of agreement with the statements.

	Strongly Disagree	Disagree	Agree	Strongly Agree
55. Cultural competence mainly refers to one's competency in caring for different ethnic groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
56. I feel that cultural competence is an ongoing process.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
57. Factors such as geographical location, gender, religious affiliation, sexual orientation, occupation, are NOT	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

71 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
McGuire et al.

	Strongly Disagree	Disagree	Agree	Strongly Agree
considered areas of concern when seeking cultural competence.				
58. I feel that there is a relationship between culture and health.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

59. I am knowledgeable about the world views, beliefs, practices, and or life ways of at least two cultural groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
60. I am aware of the cultural limitations of existing assessment tools that are used within ethnic groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
61. I am knowledgeable in the area of biological variations among different ethnic groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
62. Anatomical and physiological variations do NOT exist in different ethnic groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
63. I am aware of specific diseases common among different ethnic groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
64. I seek out education, consultation, and/or	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

72 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

	Strongly Disagree	Disagree	Agree	Strongly Agree
training experiences to enhance my understanding and effectiveness with culturally and ethnically diverse clients.				
65. I am aware of at least 2 institutional barriers that prevent cultural/ethnic groups from seeking healthcare services.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
66. I recognize the limits of my competence when interacting with culturally/ethnically diverse clients.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
67. When my values and beliefs “clash” with my client’s values and beliefs I become frustrated.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
68. I am aware of some of the stereotyping attitudes, preconceived notions and feelings that I have toward members of other ethnic/cultural groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
69. I am aware of at least 2 cultural assessment tools to be used when assessing clients in a healthcare setting.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

73 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
McGuire et al.

	Strongly Disagree	Disagree	Agree	Strongly Agree
70. It is MORE important to conduct a cultural assessment on ethnically diverse clients than with other clients.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
71. I feel comfortable in asking questions that relate to the client's ethnic/cultural background.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
72. I am involved with cultural/ethnic groups outside of my healthcare setting role.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
73. I believe that there are more differences WITHIN cultural groups than ACROSS cultural groups.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

75. **To what extent do you consider yourself a religious person? Are you...**
(Please check one answer)

- ₁ Very religious
- ₂ Moderately religious
- ₃ Slightly religious
- ₄ Not religious at all

74 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

McGuire et al.

₅ Don't know

76. To what extent do you consider yourself a spiritual person? Are you...

(Please check one answer)

₁ Very spiritual

₂ Moderately spiritual

₃ Slightly spiritual

₄ Not spiritual at all

₅ Don't know

For the following questions, please check the box that indicates your level of agreement with these statements that concern patients with stages I and II, non-small cell lung cancer.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
77. Patients with lung cancer caused it themselves by smoking	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
78. Lung cancer surgery almost always improves a patient's long term survival	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
79. Most patients with lung cancer are too old for meaningful cures	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

75 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
80. Advances in adjuvant chemotherapy have made me very enthusiastic about treating early stage non-small cell lung cancer	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
81. I'm not enthusiastic about lung cancer surgery because other smoking related illnesses severely limit quality of life.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
82. The problem with lung cancer patients is that you can't help people who won't help themselves.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
83. Computerized tomography screening for lung cancer will make a difference by revealing earlier stage disease.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

	Strongly Disagree	Disagree	Neither Agree	Agree	Strongly Agree
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76 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities
 McGuire et al.

			Nor Disagree		
84. Because of their unhealthy life style, lung cancer patients are very difficult to treat.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
85. With recent advances in the treatment of non-small cell lung cancer, we should start seeing statistical improvements in overall five-year survival.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
86. I enjoy treating patients diagnosed with non-small cell lung cancer.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

87. **What is your age?** _____ years

88. **What is your sex?**

₁ Male

₂ Female

89. **In what year did you graduate from Medical School?**

90. **Which Medical School did you attend?**

91. **Where did you complete your residency training?**

92. **Which best describes your primary practice?** *(Please check one)*

₁ Solo practice

77 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

McGuire et al.

- ₂ Small group practice (2-9 MDs)
- ₃ Large single specialty practice (10+ MDs)
- ₄ Large multiple specialty practice (10+ MDs)
- ₅ Group/Staff model HMO
- ₆ Academic group practice
- ₇ Other, please specify

93. What is your race? (*Please check one*)

- ₁ Black/African-American
- ₂ White
- ₃ Hispanic/Latino
- ₄ Asian
- ₅ Native American
- ₆ Other
- ₇ Mixed

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79 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

McGuire et al.

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80 Physicians' Attitudes about Recommending Surgery for Early Stage Lung Cancer and Possible Reasons for Racial Disparities

McGuire et al.

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