

The OPTN/UNOS Thoracic Organ Transplantation Committee met on July 18, 2008 in Chicago, Illinois. The following is a report of the Thoracic Committee's deliberations. The report is presented by agenda item and the order in which each item was discussed. The Thoracic Committee will next meet on November 21, 2008.

1. Meeting of the Heart Subcommittee

The Heart Subcommittee met during the Thoracic Committee meeting on July 18, 2008. The Subcommittee reviewed data prepared by UNOS. The data presentation included data analyses requested at its March 9, 2008 Subcommittee meeting. A key charge of the Heart Subcommittee (and the Thoracic Committee) is to monitor the heart allocation system. The Committee has been monitoring the impact of the recent modification to Policy 3.7.10 (Sequence of Adult Heart Allocation) that was implemented in July, 2006.

Data analysis indicated the following trends:

- There are no major changes in the waiting list in the following areas: total number of candidates; total number of active candidates; distribution of medical urgency status; distribution of age group; distribution by region; and, center volume.
- There appears to be a slight increase in the number of 65 years of age and older heart candidates who are registered as Status 1A. The Committee will monitor this trend.
- Overall, there has been a decline in death rates in the waiting list population. This rate dropped from 15.7 deaths per patient years during 3/12/2005-7/11/2006 to 13.1 deaths per patient years during 7/12/2006-11/11/2007. The waitlist mortality among the Status 1A candidate population dropped from 115.2 deaths per patient years to 77.8 deaths per patient years during this same time period. The waitlist mortality among the Status 1B candidate population dropped from 31.4 deaths per patient years to 22.2 deaths per patient years during this same time period. Finally, the waitlist mortality among the Status 2 candidate population dropped from 5.8 deaths per patient years to 5.2 deaths per patient years.
- It appears that candidates are travelling shorter distances to receive a transplant in the post-policy implementation period (after July, 2006) than they were before this time period.
- A vast majority of the donation service areas (DSAs) are performing fewer Status 2 transplants than before July, 2006.
- A larger number of the DSAs are exporting and importing hearts with a net rate of "0."
- The number of transplants in the most recent complete year (post-implementation) is essentially identical to the prior year.
- The distribution of status at transplant has changed. There is an increase in transplants among the Status 1A candidate population, and decrease in transplants among the Status 2 candidate population. During 7/12/2005-7/11/2006, 40.2% of the transplants were performed among Status 1A candidates, and 25.0% among Status 2 candidates. During 7/12/2007-4/11/2008, 51.8% of the transplants were performed among Status 1A candidates, and 11.7% among Status 2 candidates. (During this same time period, the percentage of transplants among Status 1B increased only slightly – 34.8% in the era preceding 2006 and 36.4% in the era after 7/12/2007.)

The Committee requested the following data for review at its next Committee meeting.

- Distance/geography
 - Compare distance between the candidate's home zip code and the listing center pre- and post-policy by region and by medical urgency status at listing.
 - Provide waiting list outcomes, particularly mortality, based on distance groupings.

- Examine the distribution of candidates' home zip codes to assess whether there are geographic areas that appear to be less well served following the policy implementation.
- Waiting list mortality
The Committee would like to see waiting list mortality (deaths per patient-year) within Status 1A, by region.
- Post-transplant survival
The Committee requested post-transplant survival rates at 1-year post-policy implementation, overall, and by medical urgency status at the time of transplant.
- Status criteria
 - Determine if there is a difference in the number of days between listing and initiation of inotropic therapy or VAD implantation since the policy implementation. It is possible that if centers are waiting to list candidates when they are more critical, then there may be shorter time between listing and initiation of therapy.
 - Tabulate the number of Status 1A listings by criterion within each region, including the outcome of these status justification submissions (e.g., approved, denied, indeterminate). If possible, tabulate the number of submissions where the case was approved but at least one reviewer indicated that the case was not appropriate. For criteria D and E cases, provide additional summaries of clinical information submitted on the status justification form stratified by the review outcome.
 - Summarize the patterns of inotrope usage and dosages, as well as CVP, for candidates in Status 1A due to criterion D.
- Identify regions in figures/tabulations displaying the number of net exported organs.

2. Impact of Ventricular Assist Device (VAD) on Heart Waiting List Mortality and Post-Transplant Mortality

The Committee continued its discussion of the role of VAD in developing a heart allocation score. The Committee reviewed data analyses prepared by UNOS and SRTR. The Committee is concerned that OPTN data underestimate mortality among candidates with VAD who are inactivated on the waiting list and who are never transplanted.

UNOS reported that a vast majority of heart candidates with VAD implants are being transplanted within one year. Candidates with VAD-related complications have a slightly lower rate of being transplanted.

The SRTR reported the following:

- Status 1B VAD patients who had their VAD for more than 30 days at the time of transplant had similar mortality risk to those without VAD at the time of transplant.
- The 29 Status 1B patients with a VAD for 30 days or less at transplant had significantly higher mortality risk than either non-VAD patients or Status 1B patients with a VAD for more than 30 days.
- Patients listed as Status 1A at transplant had higher mortality risk than non-VAD patients regardless of the time since VAD placement and complication status, although the difference was only statistically significant for those with a VAD for more than 30 days and no complication.

The VAD data in WaitlistSM is incomplete. To better understand the waitlist experience of candidates with VAD, the Committee requested the following programming: addition of VAD implant date and type (brand, RVAD, LVAD) data elements. These data will be collected at the time a candidate is removed from the waiting list. The Committee voted in favor of this addition (23-yes, 0-no, 0-abstention), and requested that these fields be implemented as part of the current PCO₂ programming effort. UNOS staff will evaluate this programming feasibility.

The Committee also requested the following data analysis for discussion at its next meeting:

- Determine if the distribution of VAD usage has changed pre- and post-policy. Examine candidates at the time of listing as well as VAD-reported-ever during the waiting list period.

The Heart Subcommittee will convene in the near future to continue this VAD discussion.

3. Criteria for Status 1A and 1B Heart Justification Forms

The Committee discussed the following questions posed initially by a Committee member: What is the role of the Heart Review Board regarding the evaluation of data submitted in the justification forms? Is the Review Board expected to approve all forms submitted to them or are they expected to provide comments to the centers submitting justification forms, especially when clinical information provided on the forms raises questions? Currently, UNOS staff members forward all heart status justification forms to the Heart Review Boards for approval. Essentially, Heart Review Boards do not always agree with the submitted information, and some Boards have, at times, denied the status justification requests.

The Committee opined that if the candidate meets the criteria outlined in policy, and this is demonstrated on the forms, then the Review Boards should not deny the status justification requests. The Committee supported the notion that the Review Boards could submit comments to the centers. The Committee considered collecting data on center behavior related to heart justification forms. For example, if a candidate meets a status based on a minimum requirement, the centers could be asked to “check” other criteria that may also apply.

The Committee asked the Heart Subcommittee to develop a guidance document for the Review Board. This document would not dictate medical practice. The Heart Subcommittee will meet later this year and also discuss the data collection concept described above.

4. Policy 3.7.7: Allocation of Thoracic Organs to Heart-Lung Candidates

The Committee continued its discussion on the need to clarify Policy 3.7.7. The Committee reviewed the UNOS data analysis on waiting list outcomes for heart-lung candidates.

Death rates per 100 person years appear to be higher for adult heart-lung candidates compared to adult heart candidates in Status 1A and Status 2 heart-alone candidates. However, death rates per 100 person years appear to be similar between adult heart-lung candidates and Status 1B heart alone candidates, as well as overall. Death rates per 100 person years appear to be similar between adult heart-lung candidates and lung-alone candidates. (There are too few pediatric heart-lung candidates for meaningful comparisons to death rates for heart or lung candidates.)

An ideal solution to resolve the confusion surrounding Policy 3.7.7 – determining when one list is exhausted before referring to another list – is to develop a single allocation algorithm for heart-lung candidates. The Committee charged the Heart and Lung Subcommittees to continue the following discussions: how the lung, heart, and heart-lung match-runs are being used by the Organ Procurement Organizations (OPOs); and, how best to prioritize heart-lung candidates. The Heart Subcommittee will consider policy changes as well as providing guidance to the OPOs as methods for addressing the problem.

5. Status 1A: Pediatric Heart Status

The Committee discussed questions from a community member regarding the interpretation of pediatric heart transplant candidate status under the definition (d) for Status 1A. The following excerpt from the community member's letter details the question posed to the Committee:

“Again, I am writing simply to clarify the status of an infant less than six months of age with congenital heart disease, such as hypoplastic left heart syndrome, who is listed for cardiac transplantation but has been stabilized by surgically placed pulmonary artery bands and catheter placed ductal stenting, who remain in the hospital or who potentially may be discharged to home if their clinical status is favorable.”

Based on the request above, the Committee discussed the language in Policy 3.7.4 (Pediatric Candidate Status), which outlines the medical urgency status for pediatric heart candidates, and considered language revisions. However, upon discussion, the Committee decided that the existing language in Policy 3.7.4(d) makes use of the word “may” in the second sentence (see excerpt below).

[...] (d) A candidate less than six months old with congenital or acquired heart disease exhibiting reactive pulmonary hypertension at greater than 50% of systemic level. Such a candidate may be treated with prostaglandin E (PGE) to maintain patency of the ductus arteriosus; [...]

The Committee therefore determined that the existing policy language is satisfactory. Policy 3.7.4(f) enables a physician to request a status exception if a candidate does not meet the criteria in Policy 3.7.4(d). However, the Committee will reconsider the language in the pediatric heart policy as part of the effort to re-write the existing policy language. UNOS staff will communicate the Committee's deliberations to the community member.

6. Reveal Registry Presentation: Does the LAS Score Underestimate the Risk of Death in Listed PAH Patients?

Invited guests Raymond L. Benza, MD and Dave Miller, PhD presented to the Committee findings from the Reveal Registry regarding how well the LAS serves patients with pulmonary hypertension. Dr. Benza and Miller both are affiliated with the Reveal Registry. Dr. Benza is also the medical director of the Heart Failure, Heart Transplantation, Mechanical Support and Pulmonary Hypertension Program at Alleghany General Hospital. Mr. Miller is also the senior director for Statistical Analysis with ICON Clinical Research (Lifecycle Sciences Group).

Dr. Benza and Miller reported on what the pulmonary hypertension community regards as inadequacies of the LAS with respect to candidates with pulmonary hypertension. The LAS:

1. Underestimates the likelihood of dying on the transplant list, and, thus, falsely lowers the waitlist urgency; and,
2. Overestimates the likelihood of dying post-transplant, and, thus, falsely lowers the post-transplant survival estimate.

The LAS scores don't adequately reflect the spectrum of disease severity experienced by patients with pulmonary hypertension. An analysis of the data collected through the Reveal Registry and the LAS indicate the need to add the following two variables to the LAS: mean right atrial pressure (MRAP) that is 15 or higher; and 6-minute walk distance per 100 meters (6mwd). Adding these two variables to the LAS will more accurately portray the disease progression of lung candidates with pulmonary hypertension. The lung allocation score of a candidate with pulmonary hypertension will increase with disease progression if the MRAP ≥ 15 and 6mwd are added to the LAS. This analysis focused on waiting list mortality as the Registry does not yet have sufficient data to perform post-transplant survival analyses.

The Committee will consider the addition of MRAP ≥ 15 and 6mwd to the LAS. The Committee requested that the SRTR, Reveal Registry, and the OPTN develop a plan to merge their data sets. All are interested in this collaboration, and UNOS will facilitate this collaboration. The SRTR, UNOS, and Reveal Registry will meet via teleconference in the weeks following the July meeting to develop a data sharing plan (how and what data elements can be shared), and research questions. The Committee requested that the Lung Subcommittee review this research plan.

7. Request to Standardize Reference Used for Determining Percent Predicted Forced Vital Capacity (FVC)

The Committee reviewed a request from a community member (lung transplant candidate) to standardize, through policy, the reference set used in measuring FVC. The community member advocated the use of the reference set recommended by the American Thoracic Society (ATS).

The Committee discussed the request. The Committee recommended that the request to use a specific reference set should be made to the candidate's transplant center. Evaluation of pulmonary function tests (PFTs) are based on a reference set for the local population. The calculation of the FVC should be patient-specific. The recommendation that centers use a normative set may harm some candidates while helping others. The Committee encourages physicians to use a reference set that is best for the patient. The type of reference set that is used should be documented in the policies of the local PFT laboratories.

UNOS will communicate the Committee's deliberations to this community member.

8. Public Comment Proposal to Add "Change in Bilirubin" to the LAS

UNOS staff provided an update on the Committee's votes on the language in its public comment proposal to add "change in bilirubin" as a factor in the waitlist model of the lung allocation score. The Committee voted as follows: 12 supported the proposal (three requested language amendments); none of the members who voted opposed the proposal; and, one Committee member abstained from voting.

The SRTR had analyzed the inclusion of bilirubin in the LAS along with the inclusion of creatinine. The data in the current public comment proposal creates confusion regarding the impact of the change in bilirubin factor, alone, on the lung allocation score. The Committee is interested in learning which patients had changes in their lung allocation scores due to creatinine versus bilirubin. The Committee requested that the SRTR provide the following data before the November, 2008 Board of Directors' Meeting:

- *Modify Figure 1 and Table 4 in the public comment document policy proposal. The modified figure and table should reflect analyses based only on bilirubin (and other existing LAS factors).*

The Committee anticipates requesting the Board to approve this policy proposal at the November meeting. The change in bilirubin proposal is currently being reviewed by the public. This public comment cycle began on June 30, 2008 and will conclude on September 24, 2008.

9. Impact of Slowly Rising Bilirubin on Lung Transplant Waiting List Mortality

During its February, 2008 meeting, the Lung Subcommittee had requested the SRTR to analyze the impact on waitlist mortality due to slow rises in bilirubin. The current public comment proposal to add change in bilirubin focuses on a more rapid rise in bilirubin (6-month time frame).

The SRTR analyzed patients in the retrospective lung audit data. These patients were 12 years of age or older and were first listed for a lung transplant between January 1, 1998 and December 31, 2003. The SRTR reported that the impact on waiting list mortality when the time frame is wider than 6-

months was not statistically significant. The impact on waiting list mortality due to change in bilirubin is statistically significant when the time frame is within 6 months.

The Committee did not request additional analyses.

10. Impact of Transaminase on Lung Transplant Waiting List Mortality

During its February, 2008 meeting, the Lung Subcommittee had requested the SRTR to analyze the impact on waitlist mortality due to transaminase. The Lung Subcommittee queried whether transaminase would provide a more accurate assessment of a candidate's clinical condition as this variable may be correlated with right-sided heart failure.

The SRTR analyzed patients in the retrospective lung audit data. These patients were 12 years of age or older and were first listed for a lung transplant between January 1, 1998 and December 31, 2003. The SRTR analyzed the impact of current and change in transaminase on waiting list mortality. The SRTR reported that the data on transaminase in the retrospective study is frequently missing. Nevertheless, the impact on waiting list mortality due to transaminase is not statistically significant.

The Committee did not request additional analyses.

11. Update on the Lung Allocation System (LAS)

UNOS presented an analytical update on the impact of the LAS since its implementation in May, 2005. The following are the highlights:

- Prior to October, 2005, when normal clinical values were substituted for hemodynamic values, the Lung Review Board primarily reviewed exception requests for estimated values. Since October, 2005, half of the exception requests submitted to the Lung Review Board are for lung allocation scores, not estimated values.
- In the two complete years since the implementation of LAS, there has been an increase in lung utilization nationally. This increase, also seen in lung utilization due to donation after cardiac death (DCD) in donors ≤ 55 years of age, could also be attributed to the efforts of the HRSA Collaborative.
- Since the implementation of LAS, approximately half of the transplant recipients are in Group D. Prior to LAS, the majority of the recipients were in Group A.
- The distribution of lung allocation scores at the time of transplant varies by diagnosis group. Diagnosis Group D averages a lung allocation score of over 50, whereas diagnosis Group A tends to receive transplants at lower lung allocation scores. A majority of the transplant candidates have lung allocation scores around 30.
- The post transplant survival rate since the implementation of LAS is similar to the rate of survival before the implementation of LAS.

The Committee again expressed interest in the following programming: enabling patients and physicians to view lung allocation scores along with waitlist urgency and post-transplant survival. The Committee requested that these latter two elements be presented in number of days in the ensuing year. These days would describe how well the candidate would fair with and without a transplant. The Committee requested that UNOS program these two features (visible on the calculator page as well as WaitlistSM) as part of the PCO₂ programming effort. The Committee voted in favor of this programming request: 23-Supported; 0-Opposed; 0-Abstained. UNOS will evaluate the feasibility of programming these two features as part of the PCO₂ effort.

12. Review of TSAM Models for Lung Allocation

As part of its ongoing effort to refine the LAS, the Committee discussed the components underlying TSAM to assess whether additional refinements should be made. According to the SRTR's analysis, when the pediatric age definition is expanded, there appear to be fewer transplants. With the expansion of the pediatric age definition, there appears to be a slight change in waitlist mortality. There also appears to be a trend towards performing more double lung transplants. In the modeling, there isn't a lung offer number that impacts the probability of acceptance.

The Committee requested the following data analysis for review by the Lung Subcommittee:

- TSAM be rerun for three separate scenarios: prioritizing donors 12-25 years of age to candidates 12-17 years of age, 12-21 years of age, and 12-25 years of age. (In the analysis presented at this meeting, the SRTR had analyzed data using the same donor and candidate age groups). The Committee would like to view these results by fixed age groups for candidates and recipients, rather than with fluctuating limits.
- Provide results from TSAM for two scenarios: (1) sharing within Zone A for candidates beyond the 25th percentile of waiting list urgency (days lived in the next year on the waiting list, i.e., the quartile with the fewest expected days of life in the next year); and (2) sharing within Zone A for candidates beyond the 50th percentile of waiting list urgency. [NOTE: These analyses should be performed incorporating the scenarios described above.]

The Committee also requested that the SRTR provide its ISHLT abstract regarding LAS and geography to the Lung Subcommittee.

13. Lung Retrospective Data [Review of Forms]

The Committee's reviewed the "Adult Lung Data Collection" and "Pediatric Lung Data Collection" forms. These forms were used in the Lung Retrospective Data Collection Project. Data collected in the project have been used to refine the LAS. Examples of policy proposals that have resulted from a review of these data include the addition of current and change in PCO₂, and change in bilirubin. In light of the recent conference on cystic fibrosis patients (see next topic) as well as what has been cited in the literature, the Committee requested the following data analysis from the SRTR:

- Analyze the impact of sputum microbiology data from the retrospective project on waiting list mortality and post-transplant survival. Of particular interest are *Burkholderia cepacia* and *Staph aureus*. [Note: These data are available only for diagnosis grouping C.]

14. Summary of the Conference, "International Perspective on Lung Transplant: Adult and Pediatric Outcomes (Lansdowne, VA, June 25-27, 2008)

Drs. Stuart Sweet and Mark Barr, as well Dr. Leah Edwards (UNOS) provided a summary of this conference on better understanding the medical management of pediatric patients with cystic fibrosis. The conference was hosted by Dr. Ted Liou, Director of the Intermountain Adult Cystic Fibrosis Center at the University of Utah. In 2007, Dr. Liou published an article in the *New England Journal of Medicine* on the role of transplantation in the survival and quality of life of pediatric cystic fibrosis patients.¹ This article questioned the benefit of transplantation in this pediatric population. The transplant community strongly opposed this notion, but at the same time, in some cases, insurance companies began denying funding for transplantation in this population. Hence, Dr. Liou brought together prominent figures in pediatric transplantation and medical management of cystic fibrosis to develop a consensus about managing this patient population. The group determined that there is a

¹ Liou, T.G., Adler, F.R., Cox, D.R., & Cahill, B.C. (2007). Lung transplantation and survival in children with cystic fibrosis. *New England Journal of Medicine*, 357 (21), 2143-2152.

need to study survival and quality life of pediatric patients with cystic fibrosis. UNOS will update the Committee on this study in the future.

15. Alternative Allocation System (AAS)

UNOS staff provided an overview of the new variance application process.

On July 18, 2008, the Thoracic Organ Transplantation Committee reviewed one new application for a thoracic alternative allocation system (AAS), and a request to dissolve an existing alternative allocation system.

Hawaii Medical Center East (HISF) submitted a new application for a heart AAS (see Exhibit A). HISF's application proposes a "more liberal use of blood type O hearts in Hawaii." In its application, HISF stated that the proposed AAS is already in use. The Committee reviewed the documentation submitted by HISF and determined that the application did not contain adequate detail about the AAS algorithm HISF proposes to follow, and did not include a research plan or what data analyses HISF plans to perform. HISF has not been cited by the UNOS Department of Evaluation and Quality for violating the national heart allocation system. Recent modifications to Policy 3.7.2 (Geographic Sequence of Thoracic Organ Allocation) and Policy 3.7.10 (Sequence of Adult Heart Allocation) enable HISF to allocate hearts to their candidates (all statuses) before these hearts are allocated to other zones. Therefore, the Committee decided to seek more information from HISF regarding its proposed AAS (i.e., how the AAS differs from the national heart allocation system). The Committee intends to revisit this AAS application during its November, 2008 Committee meeting.

LifeCenter Northwest (WALC) submitted its intent to dissolve its existing heart, lung, and heart-lung AAS (see Exhibit B). WALC reported that it is not exporting hearts at a rate it anticipated since using its AAS. (This latter information is not in the dissolution letter, but was obtained through communications between WALC and UNOS.) The Committee expressed interest in learning the impact this dissolution would have on heart allocation. However, the Committee approved WALC's request for dissolution (17-Yes, 0-No, and 0-Abstention).

The Committee also requested that all variances be posted on the UNOS website.

UNOS staff will communicate the Committee's deliberations to the Policy Oversight Committee and to the AAS applicants.

16. Impact of Donor Profile Index on Heart Recipient Mortality (SRTR Analysis)

The Committee discussed additional analyses regarding the development of a heart donor profile index. Per the Committee's request in March, 2008, the SRTR provided data on the statistical significance of ischemia time and donor inotropic support. Donor inotropic support was not statistically significant. Ischemia time was statistically significant at 2 hours. Analysis indicated that significant transplant risk was observed with increases in ischemia time beginning at 2 hours.

17. Impact of Donor Profile Index on Lung Recipient Mortality (SRTR Analysis)

The Committee discussed analyses regarding the development of a lung donor profile index. The Committee had not yet seen analytical results for the lung donor profile index. The preliminary analysis indicated that only donor pre-recovery T3/T4 interactions were statistically significant. The Committee found this result puzzling clinically. The Committee requested the following additional analysis for review:

- Interaction of ischemia time and donor age
- Interaction of donor age and recipient age
- Donor/recipient size ratio (BMI or BSA)

Also, the Committee requested separate analytical models for short-term and longer-term transplant outcomes, as the impact of risk factors may differ substantially. The specific time point for delineating short-term from longer-term was not specified but it was suggested that an inflection point could be determined using methods similar to those of the CTRD (e.g., parametric non-proportional hazards framework). Additionally, separate analytical models should be developed for adult recipients and pediatric recipients.

18. DonorNet[®] (OPTN Analysis)

The Committee again discussed the overall impact of DonorNet. UNOS reported the following:

- Net thoracic organ exports are similar in the time before and after DonorNet.
- Thoracic organs offered but not accepted for transplant typically seem to come from donors who are at a higher risk medically.

Reasons for refusing organ offers also included the category of age and quality. The Committee requested if separating this category into two separate categories was feasible. The Committee requested the following data analysis for review at its next meeting:

- Identify donor clinical characteristics or combinations of characteristics for which no organs or very few organs are accepted. This analysis should be performed separately for heart and for lung, as well as stratified by donor age (pediatric and adult).

The Committee continues to be interested in developing a better understanding of organ offer practices. Several Committee members expressed continued discontent at OPO practices with respect to organ offers. The Committee decided to partner with the OPO Committee, via a joint subcommittee, to identify donor management goals that will reduce the number of offers of organs considered medically unsuitable for transplant.

*Thoracic Organ Transplantation Committee Meeting – Summary
[July 18, 2008]*

Thoracic Organ Transplantation Committee	October 2, 2007 Chicago, Illinois	
Name	Position	Attendance
Maryl R. Johnson, MD	Chair	X
Mark L. Barr, MD	Vice-Chair	X
J. David Vega, MD	Ex Officio	X
David DeNofrio, MD	Regional Rep. (1)	X
Kenneth R. McCurry, MD	Regional Rep. (2)	X
Mark Rolfe, MD	Regional Rep. (3)	By phone
Luis Angel, MD	Regional Rep. (4)	
John Chin, MD	Regional Rep. (5)	By phone
Howard Song, MD	Regional Rep. (6)	X
Robert Love, MD	Regional Rep. (7)	X
A. Michael Borkon, MD	Regional Rep. (8)	X
Sean P. Pinney, MD	Regional Rep. (9)	By phone
Kevin M. Chan, MD	Regional Rep. (10)	X
Isabel P. Neuringer, MD	Regional Rep. (11)	
Bruce W. Brooks	At Large	
Gregory S. Couper, MD	At Large	X
R. Duane Davis, MD	At Large	By phone
William Fiser, Jr., MD	At Large	X
Edward Garrity, Jr., MD, MBA	At Large	X
Herbert Heili	At Large	X
Diane Kasper, RN, CCTC	At Large	X
Denise Kinder, RN, CPTC	At Large	X
David P. Nelson, MD	At Large	X
Genevieve Reilly, NP	At Large	X
Stuart Sweet, MD, PhD	At Large	X
Steven A. Webber, MD	At Large	X
Amy Shorin-Silverstein, JD	BOD - Liaison	
Raymond Benza, MD	Guest	X
Dave Miller, PhD	Guest	X
Monica Lin, PhD	Ex Officio – HRSA	
Bernie Kozlovsky, MD	Ex Officio - HRSA	X
Brad Dyke, MD	SRTR Liaison	X
Susan Murray, ScD	SRTR Liaison	X
Tempie Shearon	SRTR Liaison	X
Leah Edwards PhD	Support Staff	X
Vipra Ghimire, MPH, CHES	Committee Liaison	X
Catherine Monstello	Support Staff	By phone
Donna Whelan	Support Staff	X
Karl McCleary, MPH, PhD	Support Staff	X
Aaron Powell	Support Staff	X