BEFORE THE ARIZONA MEDICAL BOARD

In the Matter of **DWIGHT C. LUNDELL, M.D.,** Holder of License No. **6960** For the Practice of Allopathic Medicine In the State of Arizona.	Board Case No. MD-07A-6960-MDX **FINDINGS OF FACT,** **CONCLUSIONS OF LAW AND ORDER** (License Revocation)

On October 8th and 9th, 2008, this matter came before the Arizona Medical Board ("Board") for oral argument and consideration of the Administrative Law Judge (ALJ) Diane Mihalsky's proposed Findings of Fact and Conclusions of Law and Recommended Order. Dwight Lundell M.D., ("Respondent") was notified but did not appear before the Board; Special Counsel Marki Stewart appeared on behalf of the State. Chris Munns, Assistant Attorney General with the Solicitor General's Section of the Attorney General's Office was present and available to provide independent legal advice to the Board.

The Board, having considered the ALJ's decision and the entire record in this matter, hereby issues the following Findings of Fact, Conclusions of Law and Order.

FINDINGS OF FACT

1. The Arizona Medical Board ("the Board") is the duly constituted authority for licensing and regulating the practice of allopathic medicine in the State of Arizona.

2. The Board first issued License No. 6960 for the Practice of Allopathic Medicine in the State of Arizona to Respondent Dwight C. Lundell, M.D. on June 10, 1972.

3. In April 2003, the Board initiated Investigation MD-02-0676A concerning Dr. Lundell's care and treatment of A.P. after receiving notification of a medical malpractice settlement made on behalf of Dr. Lundell.

4. In October 2003, the Board initiated Investigation MD-03-1040C concerning Dr. Lundell's care and treatment of E.B. after receiving a complaint from the patient regarding the quality of care provided to her.

5. In May 2004, the Board initiated investigation MD-04-0601A concerning Dr. Lundell's care and treatment of seven patients, including C.S. and N.O., following notification from Banner Desert Medical Center ("Banner") that Banner had suspended Dr. Lundell's privileges.

6. On November 15, 2007, the Board issued a Complaint and Notice of Hearing in this matter, which alleged that Dr. Lundell's care of patients C.S., N.O., A.P., and E.B. had constituted unprofessional conduct under A.R.S. § 32-1401(27)(e), (q), and (ll).

7. On December 5, 2007, Dr. Lundell filed a written answer to the Complaint and Notice of Hearing, denying that he had committed unprofessional conduct in his care of any of the four patients.

8. On January 9, 2008, the Board moved to vacate the hearing because the parties had agreed to enter into a consent agreement that would resolve all matters in dispute. On that same date, the Administrative Law Judge vacated the hearing and remanded the matter back to the Board for further action under A.A.C. R2-19-111(3).

9. On April 30, 2008, the Board moved to reinstate the hearing because the parties had been unable to agree to the terms of a possible consent decree. On May 6, 2008, the Administrative Law Judge reinstated the Board's Complaint and Notice of Hearing and Dr. Lundell's answer and scheduled a hearing for July 22, 2008.

10. A hearing was held on July 22, 2008 and, after the parties did not complete presentation of their cases, on August 19, 2008. The Board presented the testimony of Outside Medical Consultant ("OMC") James Raymond Pluth, M.D. and Chief Medical Consultant William Wolf, M.D. and had admitted into evidence 30 exhibits. Dr. Lundell testified on his own behalf and had admitted into evidence eight exhibits.

THE EXPERTS

Dr. Lundell

11. Dr. Lundell graduated from the University of Arizona Medical School in Tucson, Arizona in May 1971.[1] He subsequently completed a one-year internship and

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[1] Dr. Lundell's biography is based on the printout from the website of the Board, which was attached as Ex. 1 to the Board's prehearing memorandum.

two one-year residencies in general surgery at the University Medical Center in Tucson, Arizona.

12. Between July 1977 and June 1979, Dr. Lundell completed a residency in thoracic surgery at the Yale University Medical Center in New Haven, Connecticut.

13. Dr. Lundell has been board certified in cardiothoracic surgery. He has performed these surgeries for over 32 years, including surgeries performed during his residency.

14. At the time of the hearing in this matter, Dr. Lundell was retired from the practice of medicine and was no longer performing cardiothoracic surgeries.

15. Dr. Lundell testified that, although he did not anticipate practicing medicine or performing surgery, he had insisted on a hearing on the current charges because he felt that the Board's investigation and charges were unfair and unsupported.[2] Dr. Lundell did not believe that the Board performed its statutory mission of protecting the public by unfairly targeting upstanding licensees, based on poor results that were not the licensee's fault. All four cases in this matter had involved high-risk surgeries which had a high complication rate, even when the surgery was flawlessly performed.

Dr. Pluth

16. Dr. Pluth is the OMC who provided expert opinions to the Board in its investigation of the cases involving C.S., N.O., and A.P.[3]

17. Dr. Pluth graduated from medical school at the University of Minnesota in June 1956.[4] He completed an internship at the Cleveland City (Metropolitan Hospital). Between 1960 and 1964, Dr. Pluth was a fellow in surgery and, between 1964 and 1969, was a fellow in thoracic surgery at the Mayo Graduate School. He was also a research fellow at Harvard Medical School in 1966.

18. In 1956, Dr. Pluth was licensed as an allopathic physician in Minnesota and, in 1987, he was licensed as an allopathic physician in Arizona. Dr. Pluth is certified by the American Board of Surgery and by the American Board of Thoracic Surgery.

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[2] T. vol. 1 at 193, ll. 7-25.
[3] Dr. Pluth's reports were the Board's Ex. 2 and Ex. 3.
[4] Dr. Pluth's curriculum vitae was the Board's Ex. 1.

19. In 1997, Dr. Pluth retired from the practice of medicine. He currently lives in Iowa and testified telephonically at the hearing.

Dr. Wolf

20. Dr. Wolf is currently the Board's Chief Medical Consultant. The original OMC who provided an expert opinion in the Board's investigation of E.B.'s complaint, Ahmet T. Gurbuz, M.D., was serving in the Turkish military and not available to testify at the hearing. Dr. Wolf therefore reviewed E.B.'s medical records, Dr. Gurbuz' report, Dr. Lundell's responses to the complaint, and various published articles and opined on Dr. Lundell's care of E.B.

21. Dr. Wolf graduated from Albert Einstein College of Medicine in Bronx, New York in 1980. He completed an internship and residency at the Department of Surgery at the University of Minnesota between 1981 and 1987.[5]

22. Dr. Wolf has been licensed as an allopathic physician in Arizona since 1987. In 1994, he became a registered vascular technologist.

CASES AT ISSUE

C.S.

23. C.S. was a 59-year-old woman who was admitted to Desert Samaritan Medical Center ("Samaritan") on or around September 21, 2000 upon experiencing chest pain and angina.

24. On September 22, 2000, Dr. Lundell performed coronary artery grafting surgery, which was begun off cardiopulmonary bypass. Dr. Pluth explained that cardiopulmonary bypass means that a machine is used to pump blood into the patient's aorta, collecting it back from the right atrium of the heart, so that the heart is bypassed and will be arrested for the surgery, which allows a more accurate operation in some respects.[6]

25. Dr. Lundell testified at the hearing to the advantages of off-bypass coronary surgery, in relevant part as follows:

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[5] Dr. Wolf's curriculum vitae is the Board's Ex. 11.
[6] T. vol. 1, at 29, ll. 7-13.

Since the beginning coronary surgery was done with the use of the cardiac pulmonary bypass machine as Doctor Pluth described this morning where[by] the blood is taken out of the right atrium, directed to the machine where it's oxygenated and pressurized and then placed back into the patient in the root of the aorta. Many of us felt that although this is obviously a wonderful device there was a lot of complications associated with it, particularly stroke and mental disorders, and there were those who felt if we could do this operation with the same results without the cardiopulmonary bypass machine this would be a leap forward in the care of patients with coronary diseases.

Q. If, indeed, you were performing this surgery off pump that means – are you in essence operating on a beating heart; is that correct?

A. That's correct. The heart is beating.[7]

26. Dr. Lundell removed both internal mammary arteries from C.S.'s mediastinum, which were small but according to his dictated report had adequate pulses.[8] There was some adhesion of the pleural airways to the mediastinal tissues. On opening the vessels, the left internal mammary had no flow and Dr. Lundell passed a Foley catheter, which Dr. Pluth described as "a balloon catheter down the internal

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[7] T. vol. 1 at 182-83, ll. 23-14.

mammary to remove a clot."[9] After the clot was removed, Dr. Lundell described the flow as "very good."

27. Dr. Lundell then opened and retracted the pericardium. The right internal mammary was anastomosed to the left anterior descending, after which the left internal mammary was anastomosed to the obtuse marginal branch of the circumflex.

28. The Doppler signal in the anterior descending graft was unsatisfactory and the graft was taken down and re-anastomosed to the left anterior descending. Although the Doppler signal temporarily appeared to be good, as Dr. Lundell closed C.S.'s chest, she fibrillated and Dr. Lundell reopened her chest.

29. According to Dr. Lundell's operative report,

> The Doppler signal in the anterior descending graft was unsatisfactory. The anastomosis was taken down and the arternotomy extended. It was then reconstructed using 7-0 Prolene sutures. Following this, there was a good Doppler signal. The heparin was reversed and the chest tube was inserted through separate stab wound incisions and the chest was then closed with interrupted sternal wires. ***However, ventricular fibrillation ensued.*** The chest was rapidly reopened and cardiac massage and electric conversion were done with resuscitation. It was noted that the anterior wall was not working satisfactorily. The mammary artery, while appearing patent without kink or torsion, was detached from its origin and attached end-to side to the ascending aorta using a side-biting clamp and 6-0 Prolene sutures. It had a

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[8] Dr. Lundell's dictated report was in the Board's Ex. 3, CS-0090 to CS0092.
[9] T. vol. 1, at 25, ll. 6-7.

> good pulse. The anterior wall improved. Shortly thereafter the anterior wall began, once again, to deteriorate.
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> The patient deteriorated enough that a balloon pump was inserted. This brought about some improvement. ***However, she continued to deteriorate and the decision was made to place her on cardiopulmonary bypass.*** This was accomplished. A segment of the saphenous vein was harvested from the left thigh. The heart was arrested with cold cardioplegic solution after the patient had been placed on cardiopulmonary bypass with a cannula in the ascending aorta and the right atrium.[10]

30. Dr. Lundell then opened up the anterior descending with a 3 centimeter opening to clear up the debris that was in the vessel and to allow somewhat normal arteries to exist on either side of the anastomosis.

31. Dr. Pluth described what happened next, in his opinion:

> A vein was then obtained from the groin and attached to a long, long arteriotomy. The graft was then anastomosed to the aortic. It should be noted that probably while this is not in his dictation but this is my comment, it should be noted that probably no flow to the left anterior descending existed at the time the vessel was looped during the off-bypass procedure until the vein graft was inserted into the aorta. The exact time

[10] The Board's Ex. 4 at CS-0091 [emphases added].

of the myocardial ischemia to that segment of the heart is difficult to reconstruct from the chart. The entire operative procedure was 6 hours and 45 minutes and my estimate of the ischemic time is two to two and a half hours. . . .

32. Over the next several days, C.S. developed multi-system deterioration with renal, pulmonary, hepatic and cerebral failure despite what Dr. Pluth called "adequate, if not heroic support."[11] C.S. eventually died.

33. Dr. Lundell did not dictate the report of his September 21, 2000 surgery on C.S. until September 22, 2000, which was a Friday. The dictation was not transcribed until the following Monday, September 25, 2000.

34. Dr. Pluth's report criticized Dr. Lundell's care of C.S. in three respects: (1) Undue delay in going on bypass; (2) Failure to cool C.S.'s anterior wall during the procedure; and (3) Inadequacy of Dr. Lundell's operative report.

Alleged Delay In Going to Bypass

35. At the hearing, Dr. Pluth testified that he thought that Dr. Lundell "went on bypass at an appropriate time when he found out the off-bypass method had failed and he needed to take more time to get a vein out and protect the heart. The only problem is he didn't protect the heart by the method that he used of cardioplegia."[12]

Alleged Failure to Cool Anterior Wall

36. Dr. Pluth admitted that he had never performed cardiothoracic surgery off-bypass.

37. Dr. Pluth testified at the hearing that Dr. Lundell needed to protect the part of C.S.'s heart that had the blockage in it because "that vessel that is profusing needs to be protected."[13]

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[11] The Board's Ex. 3.
[12] T. vol. 1 at 29, ll. 13-18.
[13] T. vol. 1 at 29, ll. 17-23.

38. Dr. Pluth testified that, after the vessel failed twice, there was no flow coming into that vessel from the aorta." Although Dr. Lundell had done the right thing by putting C.S. on bypass and giving her cardioplegia, there was no flow coming in from the aortic side into that vessel. Although Dr. Lundell had tried to cool the heart by putting blood in the same area that was not being profused, "what he needed to do was find a different route in cooling that segment of the heart" by "using some solution on the outside or by retrograde profusing it through the venous system through the coronary side."[14]

39. Because Dr. Lundell had failed to cool C.S.'s heart, Dr. Pluth testified that her heart had been damaged. The enzymes that were drawn from C.S. showed a post-surgery creatinine kinase of 5,785 with a myocardial fraction of 476, far larger than the five that is considered myocardial damage.[15] C.S. had been seen by cardiology the day after Dr. Lundell's surgery and, based on an electrocardiogram, diagnosed with a perioperative anteriomyocardial infarction.

40. Dr. Pluth testified that the standard of care required the anterior lateral wall of C.S.'s heart to be adequately profused. He did not believe that Dr. Lundell had adequately profused C.S.'s anterior lateral wall because the graft at that location had failed twice. From the time that Dr. Lundell had looped the graft during the first procedure of the off bypass with a suture, to prevent fluid from coming down the vessel and to see what he was doing, until the vein graft was inserted into the aorta, the patient was not getting any blood through the vessel.[16] A surgeon could protect the heart by putting blood into the part of the heart, by putting ice or other cooling solution on the outside or by retrograde profusing the heart through the venous system through the coronary side.[17]

41. Dr. Lundell admitted that C.S. had manifested cardiac injury after the surgery. However, he opined that injury was a result of the inherent risk of the surgery and C.S.'s vascular disease, not from any failure by him to protect the heart.

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[14] T. vol. 1 at 30, ll. 1-14.
[15] T. vol. 1 at 31, ll. 2-6.
[16] T. vol. 1 at 38, ll. 13-19.
[17] T. vol. 1 at 30, ll. 1-14.

42. Dr. Lundell testified that Dr. Pluth's understanding of the use of a loop for two and one-half hours during his off-bypass cardiac surgery on C.S. was erroneous and betrayed a lack of understanding about the off-bypass procedure.[18]

43. Dr. Lundell testified that, contrary to Dr. Pluth's understanding and testimony, he had used ice slush to protect C.S.'s heart during the procedure, which was routine whenever he gave "cardioplegia to cool with ice slush on the heart." This protective measure was not included in his operative report because "[t]he routine things we don't put in otherwise the operative note would be 50 pages."[19]

44. Dr. Lundell admitted that he had written several letters in response to the Board's complaint that he had failed to protect C.S.'s heart. He could not point to any response in which he claimed he had used an ice slush to protect C.S.'s heart.[20]

45. Dr. Pluth testified on redirect that there were six different bases to believe that Dr. Lundell had not used ice slush to cool and protect C.S.'s heart during surgery:

45.1 It was not mentioned in any of the reports prepared by Dr. Lundell, the anesthesiologist, the bypass technician, or nurses. Usually nurses will note the quantities of liquid used in the surgery and deduct such quantities to calculate blood loss. There was no such evidence for C.S.'s surgery.

45.2 Ice slush can produce paralysis of the splanchnic nerve. To prevent such paralysis, most surgeons place an insulating pad against the pericardium before the ice slush is placed on the heart. Because the company that makes the pad will pay for litigation if such a pad is used in the proper manner, surgeons like to include use of the pad in their operative reports. There is no mention of a pad in Dr. Lundell's operative report.

45.3 Ice slush is most important if there is no other way to protect the heart. Although Dr. Lundell was critical of Dr. Pluth's statement that a segment of C.S.'s heart was ischemic from the time the left anterior descending was looped with the Silastic retention suture until the saphenous vein graft was inserted into the aorta. Dr. Lundell's operative note never mentioned that he had removed the suture after the anastomosis,

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[18] T. vol. 1 at 185, ll. 1-9.
[19] T. vol. 1 at 185-86, ll. 25-13.

which Dr. Pluth presumed he had, or whether Dr. Lundell had replaced the suture during the second time he performed the distal anastomosis off bypass. In addition, Dr. Pluth testified:

> My interpretation on the length of ischemia was based on a subsequent course of events as described in his dictation. We know that the segment was ischemic when the Silastic loop was in place. So we must presume that ischemia was also present when the Doppler signal was unsatisfactory, and when he felt that he needed to re-graft that vessel. After this procedure the patient fibrillated providing further evidence that the ischemia was the cause. And if there was any fluid going down the distal graph, it was again interrupted by dividing the internal mammary artery and attaching the proximal end to the aorta. Still the anterior segment of the heart was poorly contracting and at this point he inserted the balloon to assist the pump while he made arrangements for the bypass. He now denies that he inserted the balloon pump at that time. But that is what he dictated on the day of the surgery. In confirmation it was also found by the bypass technician data sheet that a balloon pump was in place prior to bypass. Later in the procedure when on bypass he noted that the vessel was full of debris in the area in which he had used to apply the graft. He removed this debris by an endarterectomy and until that debris was removed and the incision in the artery was

[20] T. vol. 1 at 205-07.

closed in the graft and that graft was attached to the blood supply, that segment of the heart was still ischemic. My estimate of the time from the initial placement of the Silastic loop until the completion of the final graft, is 2 hours and 20 minutes. But even when he was on bypass he still did not protect the heart. He placed a cross clamp on the aorta and inserted cardioplegia solution in lieu of the cross clamp to protect the heart by profusing the coronary vessels and that arise in the lower portion of the aorta. I think that everyone there probably understands that cardioplegia solution is a very cold solution with a relatively high potassium that arrests the heart and at the same time cools the heart. However, at that point in the operation he had already changed the pattern of blood flow to the heart. The circumflex vessel now arose from the internal mammary which was far above his cross clamp so we see no cooling from the cardioplegia. Thus the posterior wall of the heart remained warm unless he clamped the IMA to the circumflex which he did not include in his dictation. He subsequently found that the LAD vessel was obstructed by debris. So that the only vessel that was cooled was the right coronary which got the bulk of the protection since it was a normal vessel. The area that was poorly contracting

remained ischemic and unprotected until the ice slush had been employed.[21]

45.4 Most surgeons, even if they are using ice slush, try to prevent that section of the heart from being warmed by the surrounding tissues until blood flow is established. Instead of cooling C.S., Dr. Lundell had called for normal thermic blood flows in the pump oxygenator. By the end of the bypass, C.S.'s body temperature actually rose by one degree. In addition, because most surgeons want to protect the entire wall thickness, they do not allow warm blood to enter the left heart when the heart is ischemic. Preventing warm blood from entering the right heart, circulating through the warm lungs, and passing into the left side of the heart usually requires two venous cannulas: one in the superior vena cava and one in the anterior vena cava. Dr. Lundell did not do this. Dr. Pluth believes that warm blood entered C.S.'s heart because, about 20 minutes after the bypass was started, the pump technician noted reduced venous return, which indicated that the single cannula employed in the atrium was not capturing all the blood returning to the heart. Dr. Pluth testified that this condition existed until the end of bypass, or about 38 minutes.[22]

45.5 If Dr. Lundell had employed ice slush, why did he remove the cross clamp before performing the vein graft attachment to the aorta? The best protection of the heart would have been to lay the heart down in the cold ice slush, if there was any, and to avoid the additional 20 minutes ischemic time it appeared was required for an anastomosis.[23]

45.6 The moment that the aorta clamp was removed, C.S.'s heart rhythm returned. Usually this does not occur with a cooled heart.

Allegedly Inadequate Post-Operative Report

46. Dr. Pluth's report stated that, "[w]ith this complicated and difficult operative procedure, I am amazed by the simplicity and lack of detail in Dr. Lundell's post operative

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[21] T. vol. 2 at 265-267.
[22] T. vol. 2 at 266-67.
[23] T. vol. 2 at 267-68.

written note. . . . Perhaps some verbal communication did occur but for someone to assume post operative care with the information provided seems unreasonable."[24]

47. During the hearing, Dr. Pluth testified that "[t]he operative report was adequate. My concern at the time was that his operation took place on a Friday and his written note in the chart was totally inadequate considering all that he had done. On the following day he called in a bunch of consultants to help him manage the patient, and it was my impression from the basis of what they could see on the chart they would not have enough to go on as to what the problem would have been in that regard."[25]

48. Dr. Lundell testified that a surgeon has no control over when his dictated operative report will be transcribed.

49. Dr. Lundell's initial response to C.S.'s complaint did not allege that he had placed her on coronary bypass immediately after she had fibrillated and after an intra-aortic balloon had been inserted.[26]

50. At hearing, Dr. Lundell testified that the complaint allegation was incorrect. Dr. Lundell testified that, "[a]s soon as [C.S.] fibrillated the chest was re-opened and [C.S.] was emergently placed on cardio bypass."[27] On cross-examination, Dr. Lundell admitted that the chronology of his operative report was "a little off" when it stated that he did not make the decision to place C.S. on cardiopulmonary bypass until after her condition continued to deteriorate, some time after she had fibrillated.[28]

N.O.

51. N.O. was an 83-year-old woman who suffered from atherosclerotic heart disease and hypertension. She presented to Banner on or about March 16, 2000 upon suffering from progressive angina.

52. The only operative report in the records that the Board obtained pursuant to subpoena from Banner or from Dr. Lundell was Dr. Lundell's handwritten note.

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[24] The Board's Ex. 3.
[25] T. vol. 1 at 33-34, ll. 20-2.
[26] *See* the Board's Ex. 28 (3rd & 4th pages).
[27] T. vol. 1 at 184, ll. 3-5.
[28] T. vol. 1 at 203-04, ll. 12-11.

53. Dr. Pluth testified that N.O. later died after a vein graft leaked. N.O.'s autopsy report showed two incisions in her leg; Dr. Pluth testified that the first harvested artery must have been insufficient.

54. Dr. Pluth testified that the standard of care required a complete operative dictation that described all procedures and complications. Frequently, patients require subsequent surgeries. In N.O.'s case, she suffered atrial fibrillation and a Dr. Sandu attempted to defibrillate her. N.O. died of pericardial tamponade and significant hematoma.

55. Dr. Pluth questioned whether Dr. Sandu would have defibrillated N.O. if he had a detailed operative report and had known that the valve was a very thin portion of graft.[29]

56. Dr. Pluth admitted on cross-examination that, if the absence of a dictated operative report for N.O. was due to a photocopying problem rather than Dr. Lundell's failure to dictate the report, no standard of care would have been violated.[30]

57. Dr. Lundell testified that he had dictated an operative report of his surgery on N.O. If he had not dictated a report, the hospital would have suspended and refused to pay him. That did not happen; there was no record of the hospital suspending him.

58. Dr. Lundell testified that, in the past, the hospital has asked to redictate notes because it lost his original dictation. The hospital, not the doctor, controls dictated operative reports. Banner's records at one time must have contained an operative report for N.O.

A.P.

59. A.P. was a 61-year-old woman who had been diagnosed with atypical tuberculosis 11 years earlier. She also had a history of cigarette smoking. She presented to Samaritan in May 1999 with chronic, recurrent pneumothorax.

60. Five days before Dr. Lundell's surgery, A.P. had been diagnosed with apical pneumothorax, which means air in the chest between the chest and lung which keeps the

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[29] T. vol. 1 at 45-46.
[30] T. vol. 1 at 77.

lung from totally expanding.[31] A CT of the chest demonstrated pleural thickening and scattered areas of calcification in the pleura that appeared to be post-inflammatory. The radiologist noted not only air in the apex but at the base of the chest at the level of the diaphragm and that A.P.'s lung appeared to be attached to the lateral wall.[32]

61. A.P. was referred to Dr. Lundell for consideration of an apical thorax resection. On May 18, 1999, Dr. Lundell performed a right thoracotomy and resection of apical areas of A.P.'s lung.[33] The purpose was to go in and reach the apex of the lung and staple off the portion that was leaking.[34]

62. A.P. required blood transfusions during the surgery. Dr. Lundell had not ordered and cross-matched A.P.'s blood type preoperatively.

63. Despite A.P.'s blood loss, Dr. Lundell continued with the surgery.

64. During the surgery, Dr. Lundell inserted a chest tube through a separate stab wound incision to allow drainage from and air into A.P.'s lung. His operative report noted multiple rents in the lung tissue and that, during the process of freeing up the lung, the azygos vein was torn and was oversewn. There were multiple bleeding areas that he sutured and several air leaks were oversewn.

65. After the surgery A.P. was transported to the PACU. The anesthesiologist accompanied her. Dr. Lundell did not check on A.P. again. His operative report did not reflect that he had ordered a post-operative x-ray.

66. Two and one-half hours after Dr. Lundell's surgery, A.P. died from a tension hemo-pneumothorax and exsanguinations secondary to a clamped chest tube.

67. A.P.'s survivors later sued for malpractice. The named defendants included Dr. Lundell and the anesthesiologist. Several depositions were taken in the litigation, including depositions of Dr. Lundell[35] and his medical expert, Robbin Cohen, M.D.[36]

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[31] T. vol. 1 at 48.
[32] T. vol. 1 at 48.
[33] Dr. Lundell's operative report was the Board's Ex. 8, App-0017.
[34] T. vol. 1 at 49.
[35] *See* the Board's Ex. 9.

[36] *See* the Board's Ex. 24.

Because Dr. Lundell's insurance policy did not include a consent clause, his malpractice insurer was able to settle the claim over his objection.

68. Dr. Pluth opined that Dr. Lundell fell below the standard in his care of A.P. in the following respects: (1) By failing to order pre-operative blood type and cross match in a patient with demonstrated pleural thickening and pleural calcification; (2) By failing to temporarily tamponade the bleeding when he encountered significant bleeding and to obtain O-negative blood and cross type A.P.'s blood and put in additional lines before proceeding; and (3) By failing to observe A.P. in PACU, which would have allowed him an opportunity to observe the absence of an air leak and blood drainage from the clamped chest tube.[37]

Failure Preoperatively to Order Blood Type and Cross-Match

69. Dr. Pluth testified that Dr. Lundell should have ordered blood and to have done a cross-match preoperatively because he knew before the surgery that A.P. had been diagnosed with tuberculosis, which would have caused her lung to be "extremely adherent to the pleura," as indicated on the CT scan. In the event that Dr. Lundell encountered severe bleeding during his surgery, it would have been "much quicker to get units of blood up and then if you have them cross-matched you could have the blood in the room when you start the procedure."[38]

70. Dr. Pluth testified that, if Dr. Lundell had ordered A.P.'s blood type preoperatively, he could have had blood available 20 to 30 minutes quicker. As it was, it took an hour and five minutes for the blood to arrive after Dr. Lundell had ordered it.[39]

71. Dr. Lundell's expert in the malpractice action, Dr. Cohen, agreed that it took one hour and five minutes for the blood to arrive after Dr. Lundell had ordered it for A.P., which was "unacceptable."[40]

72. Dr. Lundell testified that, when he started the procedure on A.P., he anticipated a blood loss of 100 to 200 cc. He admitted that, after he had started the surgery, he had encountered more bleeding than he had anticipated.

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[37] Dr. Pluth's initial report on Dr. Lundell's care of A.P. was the Board's Ex. 7.
[38] T. vol. 1 at 50-51.
[39] T. vol. 1 at 51.
[40] The Board's Ex. 24 at 46-47.

73. Dr. Lundell testified that, when he had operated on A.P., the blood bank had asked physicians not to request or cross-match blood in advance because that would tie up blood. The blood bank promised that it would provide blood within fifteen minutes of its request. The blood bank broke that promise in this case.

74. Dr. Lundell testified that he considered using autotransfusion, which filters and transfuses the patient's own blood, on A.P. when he encountered more bleeding than he had anticipated. But it takes time to set up the equipment and he believed it would be faster to wait for the blood bank to provide the requested blood.

Failure to Terminate or Delay Surgery, despite A.P.'s Blood Loss

75. Dr. Pluth testified that there appeared to be a lack of communication between Dr. Lundell and the anesthesiologist. When the anesthesiologist documented a 500 cc blood loss, which Dr. Pluth testified was significant, Dr. Pluth opined that Dr. Lundell should have told the anesthesiologist that they were having difficulty and, if no blood were available, should have tamponaded the area of bleeding until anesthesia could respond. This would have involved sending a sample of blood to be typed and cross-matched. In the meantime, A.P. would not have continued to bleed unchecked.[41]

76. Dr. Lundell testified that he did not consider abandoning surgery on A.P. when he encountered scarring and more bleeding than he had expected because abandonment would accomplish nothing and would expose A.P. to another surgery. He needed to stop the air leak in her lung.[42]

Failure to Observe A.P. Post-Operatively

77. Dr. Pluth testified that, ultimately, A.P.'s estimated blood loss was between 2500 and 3500 cc, which was about 50% of her total blood volume.[43] A.P.'s preoperative hemoglobin and been 12 and her hemacrit had been 35. Post-operatively, her hemoglobin was 3 and her hemacrit was "a good 8, which would have suggested that her blood loss would have been about three-fourths or 75 percent."[44] A.P.'s blood pressure

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[41] T. vol. 1 at 51-52.
[42] T. vol. 2 at _____.
[43] T. vol. 1 at 52-53 (citing the Board's Ex. 8 at AP0174).
[44] T. vol. 1 at 53-54.

in the recovery room was between 79 and 99, compared to her normal blood pressure of 130.[45]

78. Dr. Pluth testified that a hemoglobin of 3 and hemacrit of 8 showed that A.P. needed blood in a hurry and that she was "very critical at that point and she's been probably not profusing the brain or the heart very well with very low hemoglobin of that degree."[46]

79. Dr. Lundell's post-operative orders for A.P. was that her blood pressure be monitored every four hours, that she be put on a regular diet, and that she be hooked up to suction. Dr. Pluth testified that these post-operative orders were utterly inadequate, especially in light of A.P.'s post-operative course. The recovery room recorded no drainage from A.P.'s chest tube at 1826 hours, when she was brought in and at 1900. At 1928, A.P. complained of chest pain and, at 1930, the nurses noted drainage from her incision. They then inspected the tube and found it to be clamped.

80. Dr. Pluth testified that the clamped chest tube meant that it did not allow the chest to be drained of fluid or air.[47]

81. A.P. subsequently went into cardiac arrest and the emergency room physician re-intubated A.P. and found subcutaneous emphysema in her upper right chest. The physician inserted a chest tube into that area and 500 cc's of bloody fluid was immediately returned. A.P. then developed bradycardia, was given atropine and, eventually, coded and died.

82. Dr. Pluth testified that, because Dr. Lundell had been the last one to see A.P.'s chest open and the last one to see how much blood had been coming from her lungs and how much air leak there was, "he should have gone to the PACU and not only looked at the chest tube drainage and the air leak to see if it was compatible with what he had left in the operating room." If Dr. Lundell had looked at A.P., it would have been evident to him that something had gone wrong.[48]

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[45] T. vol. 1 at 56.
[46] T. vol. 1 at 58.
[47] T. vol. 1 at 58.
[48] T. vol. 1 at 59.

83. Dr. Pluth testified that Dr. Lundell should have but did not order a post-operative x-ray of A.P. The first x-ray after A.P. was taken from the operating room at 1835 was taken at 1945 and showed "complete opacification of the right chest and an unexpanded right lung."[49]

84. Dr. Lundell testified that a post-operative x-ray is routine and, therefore, he did not include an order for a post-operative x-ray in his operative report. An x-ray would not have shown the clamped chest tube on A.P. in any event.

85. Dr. Lundell testified that one of the operating room staff had clamped the chest tube he placed in A.P., contrary to his and the anesthesiologist's orders. He could not have foreseen the clamped chest tube because "[w]e've given instructions over the years never to clamp a chest tube, especially when there's an air leak."[50]

86. Dr. Lundell testified that the anesthesiologist has primary control of patients post-operatively. The anesthesiologist was bedside in the PACU in A.P.'s case. In addition, the nurses in the PACU are highly trained professionals. Neither the PACU nurses nor the anesthesiologist caught A.P.'s clamped chest tube. Surgeons are not generally expected to sit bedside at the PACU.[51]

87. Dr. Lundell testified that A.P.'s blood pressure readings were trending upward when he left the hospital. The anesthesiologist had told him that A.P. was improving and was becoming more stable.

88. Dr. Pluth testified that both Dr. Lundell's and the anesthesiologist's treatment of A.P. was "marginally below the standard of care."[52]

89. Dr. Lundell's expert in the malpractice action Dr. Cohen testified in his deposition that it was below the standard of care for Dr. Lundell to have left when he did, without observing A.P. in the PACU.[53]

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[49] T. vol. 1 at 59.
[50] T. vol. 1 at 163.
[51] T. vol. 1 at 163-65.
[52] T. vol. 1 at 60.
[53] The Board's Ex. 24 at 61.

E.B.

90. E.B. was a 62-year-old woman who was an insulin-dependent diabetic, suffered from hypertension, and was morbidly obese, weighing more than 250 pounds. On October 23, 2001, E.B. was admitted to Lutheran Heart Hospital in Mesa for cardiac catheterization after she experienced significant chest pain and received abnormal results from a stress test.

91. On October 24, 2001 at approximately 0730 hours, Dr. Lundell initiated a three-vessel coronary artery bypass on E.B., including an internal mammary artery graft to two of the coronary arteries and a vein graft to one other. Surgery was completed at 0942 hours.

92. E.B.'s blood sugar or glucose levels were measured after the October 24, 2001 surgery: at 2000 hours, at 326; at 2100 hours, at 334; and at 2245, at 351.[54]

93. At 2350 hours on October 24, 2001, Dr. Lundell ordered an insulin drip for E.B.[55]

94. After the insulin drip was started, C.B.'s glucose level still continued to rise to 685 at 0600 hours on October 25, 2001.[56]

95. Nurses at Lutheran Heart Hospital noted that, on November 2, 2001, E.B.'s sternal incision was "oozing blood."[57] E.B. was discharged from Lutheran Heart Hospital on November 2, 2001.

96. According to the nurse's note, Dr. Lundell's office was called and his staff was informed that E.B. had been discharged and that her sternal wound incision was still draining serosanguineous, which Dr. Wolf testified meant blood-like.[58]

97. Six days after being discharged from Lutheran Heart Hospital, E.B. developed a fever at home and was admitted to Valley Lutheran Hospital on November 8, 2001. E.B. was treated for a wound infection on her leg.

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[54] The Board's Ex. 17 at EB-0436.
[55] The Board's Ex. 17 at EB-0540.
[56] The Board's Ex. 17 at EB-0434.
[57] The Board's Ex. 17 at EB-0359.
[58] T. vol. 1 at 113, ll. 5-10; the Board's Ex. 17 at EV-0358.

98. Dr. Lundell saw E.B. at Valley Lutheran Hospital on November 9, 12, and 13, 2001. His progress note for November 12, 2001 stated that E.B.'s leg wound was better but that her lower chest wound was now open with purulent material. Dr. Lundell recommended a CT scan to evaluate the rest of her sternum and mediastinum.[59]

99. Dr. Lundell's note of November 13, 2001 stated that E.B.'s "sternum still seems stable" and "needs close observation." Dr. Lundell stated that the wound "may need muscle flap" and recommended dressing changes three times a day with hydrogen peroxide irrigation.[60]

100. On November 15, 2001, E.B. was transferred from Valley Lutheran Hospital to Select Specialty Hospital. She remained at Select Specialty Hospital until November 28, 2001, when she was discharged.

101. Dr. Lundell saw E.B. at his office on November 28, 2001. He observed that she had a deep sternal wound infection and referred her to a physician at St. Joseph's Hospital.

102. On November 28, 2001, E.B. was admitted to St. Joseph's Hospital. On December 1, 2001, E.B. underwent a flap closure, bilateral pectoral flap closure and rectus muscle flap closure of the infected sternal wound. Dr. Pluth testified that this meant that the pectoralis muscles, which are the major chest muscles, were used to close the sternal wound. The wound had been opened, dehisced and the rectus muscles from the abdomen also were brought up and used to facilitate the closure.[61]

103. Dr. Wolf opined that Dr. Lundell's treatment of E.B. deviated from the standard of care in two respects: (1) By failing to initiate an insulin infusion at the beginning of surgery or upon the administration of anesthesia, which exposed her to an increased risk of infection; and (2) By failing to see her for fifteen days, between November 13, 2001 and November 28, 2001, even though there were signs of a developing infection in her sternum. As a result, E.B. had to undergo a second major surgery to treat the infection.

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[59] The Board's Ex. 15 at EB-0067.
[60] The treatment note is at the Board's ex. 15 at EB-0063. Dr. Wolf's interpretation of the note is at T. vol. 1 at 114.
[61] T. vol. 1 at 105.

Alleged Delay in Initiating Insulin Infusion

104. Dr. Wolf testified that the standard of care required Dr. Lundell to initiate insulin infusion for E.B. at the beginning of the surgery for three reasons: "She was an insulin dependent diabetic, she was obese, and also the operation required mobilization of the internal mammary artery which can partially de-vascularize the sternum and increase the risk perhaps of a sternal wound infection."[62] Dr. Wolf testified that the two most important factors were that E.B. was an insulin dependent diabetic, which Dr. Lundell must have known because the admitting physician had written insulin orders on her admission, and was obese, weighing nearly 250 pounds.

105. Dr. Wolf testified that insulin can be administered in several ways. It can be administered subcutaneously. An insulin infusion is a constant administration of insulin intravenously with the goal of maintaining the glucose levels within strict control. The standard infusion protocol was to keep the patient's glucose level below 200.[63]

106. Dr. Wolf testified that elevated blood sugars increase the risk of infection in several ways. Physiologically, elevated blood glucoses can result in diminished immune function so the immune system is more poorly responsive to an infective agent. Elevated glucose can also result in diminished healing because some of the proteins that are involved with healing are chemically changed in the face of elevated glucose.[64]

107. Dr. Wolf therefore opined that starting the insulin infusion at the time of surgery or the time of anesthesia, as opposed to more than 12 hours after surgery was completed, would have had a significant impact on E.B.'s blood sugar levels and subsequent course.

108. Dr. Gurbuz, the original OMC who reviewed E.B.'s complaint and records, and Dr. Wolf relied upon the peer-reviewed article, "Continuous Intravenous Insulin Infusion Reduces the Incidence of Deep Sternal Wound Infection in Diabetic Patients After Cardiac Surgical Procedures," by several doctors including Anthony P. Furnary, M.D., which had been published by the Society of Thoracic Surgeons in 1999 ("the 1999 Furnary article"). The study concluded that "[u]se of perioperative continuous intravenous

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[62] T. vol. 1 at 106, lt. 20-24.
[63] T. vol. 1 at 110 ll. 2-4.

insulin infusion in diabetic patients undergoing open heart surgical procedures significantly reduces major infectious morbidity and its associated socioeconomic costs."[65]

109. The 1999 Furnary article was a follow-up to "Glucose Control Lowers the Risk of Wound Infection in Diabetics after Open Heart Operations," by Dr. Furnary and most of the same authors, which was published in 1997 ("the 1997 Furnary article").[66] A protocol to control blood glucose had been instituted at the Providence St. Vincent Hospital & Medical Center in Portland, Oregon in 1993. The study concluded that "[t]he incidence of deep wound infection in diabetic patients was reduced after implementation of a protocol to maintain mean blood glucose level less than 200 mg/dL in the immediate post-operative period."

110. Dr. Lundell testified that an insulin infusion was not the standard of care in 2001 and was still controversial in 2008.[67] Although he admitted that E.B. was at high risk for infection because she was diabetic and obese, he testified that controlling blood sugar, not necessarily through insulin infusion, was the key to reducing the risk of infection in diabetic, obese patients.

111. In support of his position, Dr. Lundell presented three articles:

111.1 "Intensive Insulin Therapy in Critical Care," which was published in DIABETES CARE in April 2007 by Mark Wilson, MD and others ("the Wilson article"), and concluded that "[t]he lack of consensus in the delivery of intravenous insulin infusions is reflected in the wide variability of practice noted in this survey. This mandates close attention to the choice of a protocol. One protocol may not suffice for all patients."[68]

111.2 "Intensive Insulin Therapy and Mortality in Critically Ill Patients," by Miriam M. Treggiari and others, published in *Critical Care 2008* ("the Treggiari article"), which concluded that "[a] policy of IIT in a group of ICU's from a single institution was not

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[64] T. vol. 1 at 111-12.
[65] The Board's ex. 35.
[66] The Board's ex. 32.
[67] T. vol. 1 at 170-71.
[68] Dr. Lundell's Ex. D.

associated with a decrease in hospital mortality [which suggested that] further study is needed prior to widespread implementation of IIT in critically ill patients."[69]

111.3 "Intensive Intraoperative Insulin Therapy Versus Conventional Glucose Management during Cardiac Surgery," from the Annals of Internal Medicine by Gunjan Y. Gandhi, M.D. and others, published in 2007 by the American College of Physicians ("the Gandhi article"), which concluded that "[i]ntensive insulin therapy during cardiac surgery does not reduce perioperative death or morbidity. The increased incidence of death and stroke in the intensive treatment group raises concern about routine implementation of this intervention."[70]

112. Dr. Lundell testified that the reported infection rate in the 1999 Furnary article was 0.8 percent, which was "way above the expected STS standards."[71] Dr. Lundell described the 1999 Furnary article as "a good paper and it actually stimulated our interest in including the insulin infusion orders in our hospital. But it, indeed, is still a non-randomized, non-placebo controlled single-institution study and, therefore, it could be quoted all day but it is n-o-t, not the standard of care based on one article from one institution with suspiciously high infection rates to begin with."[72]

113. After Dr. Wolf had an opportunity to review Dr. Lundell's articles, he testified that they were not relevant to the issues in this case because none had been published in 2001. More importantly, all of the articles involved much tighter controls than the 1999 Furnary article: The Wilson article discussed the effect of reducing the glucose level target to 100-150 or 80-120; the Treggiari article discussed a target level of 80 to 110 or 130; the Gandhi article discussed a target level of 80 to 100. None of the articles reported a significantly lower infection rate compared to the acknowledged conventional treatment, which used insulin infusion to keep the glucose levels below a target of 200.[73]

114. In addition, Dr. Wolf pointed out that the Wilson article had not found that insulin infusion to keep patients' glucose levels below 200 was not the standard, only that

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[69] Dr. Lundell's Ex. E.
[70] Dr. Lundell's Ex. F.
[71] T. vol. 1 at 171, ll. 17-22.
[72] T. vol. 1 at 172, ll. 2-9,
[73] T. vol. 2 at 276-77.

additional protocols might be valuable. The Treggiari article had not included any cardiac surgery patients and only 13% of its subjects were diabetic. The Gandhi article involved only 36 or 37 patients, which required researchers to use a composite endpoint, which was a limitation. All of the patients in all three studies received insulin infusion, either intra-operatively or post-operatively. None of Dr. Lundell's articles said that infusion therapy should not be used. Dr. Wolf did not know of any published articles that said insulin infusion need not be implemented for insulin-dependent, obese patients who were undergoing cardiac surgery.

115. Dr. Wolf testified that all of the patients in the 1999 Furnary study had been diabetic, and would therefore be expected to have a higher infection rate. Moreover, the last 494 cases in the 1999 study had a zero infection rate. The 1999 Furnary study did not use a placebo or blind/double blind approach because the patients' caregivers were ethically required to make adjustments to their insulin based on the glucose levels measured.

116. Dr. Lundell testified that, on the morning before the surgery, E.B.'s blood sugar had been 103.[74] On October 23, 2001, the day before the surgery, E.B.'s blood sugar had been 242.[75] Based on E.B.'s reduced blood sugar, Dr. Lundell testified that he believed that the hospital was doing a good job of controlling her blood glucose through the sliding scale method.

117. Dr. Lundell testified that he had followed hospital protocol, with which he was familiar because he was the chief of surgery at Lutheran Heart Hospital.[76] Protocol allowed a choice between a sliding scale and insulin infusion. In E.B.'s case, he had implemented a sliding scale, which required E.B.'s blood glucose to be monitored and for a certain number of units of insulin to be administered at certain specified glucose levels.[77] In E.B.'s case, he instituted insulin infusion when it became apparent that the sliding scale was not controlling her glucose.[78]

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[74] T. vol. 1 at 175. Dr. Lundell cited the Board's Ex. 17 at EB-0464 to support this recollection..
[75] T. vol. 1 at 176. Dr. Lundell cited the Board's Ex. 17 at EB-0510 to support his recollection. The Administrative Law Judge cannot find this information on this exhibit.
[76] T. vol. 1 at 170, ll. 22.
[77] T. vol. 1 at 170; the Board's Ex. 17 at EB-0626.

118. With respect to Dr. Lundell's testimony about how E.B.'s blood glucose had been monitored on a sliding scale, Dr. Wolf testified that it was not until many hours after surgery that E.B.'s blood glucose had been measured. At that time, it was more than 300. An insulin drip was still not ordered until 16 hours after Dr. Lundell had started his surgery on E.B. and 14 hours after surgery had ended. There was no evidence of any other insulin orders being implemented after surgery. Dr. Wolf testified that the insulin infusion order should have been implemented sooner. If E.B. had received insulin infusion earlier, the sternal wound infection likely would have been avoided.

119. Dr. Lundell testified that, under the MRSA incubation rate, "[i]f it doesn't grow in a petri dish in 24 hours it's negative." An infection like E.B.'s that was not reported until 20 days post-surgery was "completely impossible" to have begun during surgery.[79] E.B.'s infection had started at home or at Valley Lutheran Hospital.

120. Dr. Lundell therefore took issue with the statement in Dr. Gurbuz' report that a post-operative sternal wound infection by definition is any infection that is evidenced in the first 30 days after sternotomy and is considered to be acquired at the time of surgery."[80]

121. With respect to Dr. Lundell's testimony that it was impossible for E.B.'s sternal wound infection to have resulted from his surgery, Dr. Wolf testified that it was possible to do one or two swabs and still miss the infection. Dr. Wolf pointed to two peer-reviewed articles to support his conclusion that E.B.'s sternal infection had resulted from Dr. Lundell's surgery:

121.1 "Superficial and deep sternal wound complications: incidence, risk factors and mortality," by Lisa Ridderstolpe and others from the March 2001 *European Journal of Cardio-thoracic Surgery*,[81] which stated that "[s]ince the onset of a sternal wound infection is often late (weeks to months) and starts after the patient has left the hospital, a long-term follow-up is necessary."

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[78] T. vol. 1 at 174, ll. 22-24.
[79] T. vol. 1 at 172, ll. 13-20. Dr. Lundell considered the infection to have been first reported on November 13, 2001, which was 20 days after the October 24, 2001 surgery.
[80] The Board's Ex. 13 at EB-0005.
[81] The Board's Ex. 33.

121.2 "Factors Predisposing to Median Sternotomy Complications * Deep vs. Superficial Infection," from the November 1996 issue of *Chest*,[82] which stated that average time from surgery to diagnosis of infection was 15±5 days for a superficial infection and 19±9 days for a deep infection. In either event, the average time was within the 20 days that Dr. Lundell had called impossible.

121.3 Dr. Wolf pointed out that Table 4 of Dr. Lundell's Gandhi article, which compared the rate of a deep sternal infection in the hospital and post-discharge (defined as "up to 30 days after surgery").

122. Dr. Wolf testified that it is impossible to predict the effect of surgery on an insulin dependent diabetic. The stress of surgery tends to increase glucose levels. The purpose of insulin infusion is to get ahead of the curve.

Alleged Failure to Monitor Incipient Infection

123. Dr. Gurbuz' report had criticized Dr. Lundell for failing to see E.B. for more than a month. Dr. Wolf testified that this duration was in error; in fact, Dr. Lundell had not seen E.B. for fifteen days.

124. Dr. Wolf opined that Dr. Lundell's delay in seeing E.B. between November 13, 2001, when he last saw her at Valley Lutheran Hospital, and November 28, 2001, when she next presented at his office, was below the standard of care. E.B. was a patient whose sternal wound, according to Dr. Lundell's own records, had worsened over the course of her hospitalization at Valley Lutheran Hospital and who needed close observation and, possibly, a muscle flap.[83]

125. Dr. Wolf also testified that a nurse's note from Select Specialty Hospital dated November 16, 2001, stated "consult Doctor Lundell – debridement of surgical site."[84] Dr. Wolf testified that, whoever had written the order was requesting Dr. Lundell to come and see the patient to evaluate the wound and determine whether E.B. needed debridement. There was no evidence in the records that Dr. Lundell had ever responded to the request or evaluated E.B. at Specialty Select Hospital.

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[82] The Board's Ex. 34.
[83] T. vol. 1 at 115, ll. 10-17.
[84] T. vol. 1 at 116, ll. 8-14 (reading the Board's Ex. 18 at EB-0817).

126. Dr. Lundell testified that it would not have been possible for him to consult at Specialty Select Hospital because he did not have privileges there.[85]

127. Dr. Wolf testified on rebuttal Dr. Lundell knew his patient E.B. was in trouble and required close observation. He could have sought emergency privileges at Specialty Select Hospital. Although Specialty Select Hospital was closed at the time of the hearing, Dr. Wolf testified that he had spoken to a former administrator, who told him that, under the circumstances, emergency privileges would have been granted immediately or, at the latest, in a half hour. Dr. Wolf testified that, in any event, Dr. Lundell could have had E.B. taken to his office, where he could have examined her and, if necessary, have arranged treatment of her sternal infection.

ADDITIONAL EVIDENCE OF THE BOARD'S INVESTIGATION AND NOTICE OF CHARGES

128. On October 5, 2005, the Board's Staff Investigational Review Committee ("SIRC") met to consider the allegations of unprofessional conduct against Dr. Lundell based on the OMC's review of charts selected after Banner had informed the Board that it had suspended Dr. Lundell's privileges.[86]

129. Dr. Pluth admitted that the SIRC's summary misstated his conclusions with respect to patient C.S. Although the SIRC's summary stated that he had criticized Dr. Lundell for having "[n]egligently performed off pump surgical myocardial revascularization for high grade left main coronary artery stenosis, and negligently elected to use a failed RIMA graft to the LAD, resulting in cardiac arrest, anoxic brain injury and death," Dr. Pluth had not in fact made these criticisms.[87]

130. The SIRC summary also stated that Dr. Pluth had criticized Dr. Lundell's care of N.O. because he had "[f]ailed to diagnose and treat pericardial tamponade following CABG x 2, failed to perform echocardiogram to investigate cause of protracted hypotension, and negligently treated post-operative atrial fibrillation, including the use of anticoagulants, resulting in death." In fact, Dr. Pluth's OMC report regarding N.O. had

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[85] T. vol. 1 at 179, ll. 7-14.
[86] Dr. Lundell's Ex. A.
[87] T. vol. 1 at 74, ll. 2-11.

stated that, "[o]n review of this chart I feel that the decision to operate, conduct of the surgery, and the postoperative care to the time of arrest [was] appropriate."[88]

131. The SIRC summary also stated that Dr. Pluth had opined that Dr. Lundell's care of patients R.G., L.S., C.C., Q.B., and J.N. fell below the standard of care when, in fact, he had not rendered these opinions in his OMC report.[89]

132. Dr. Wolf admitted on cross examination that the last sentence of paragraph 22, which stated that Dr. Lundell had failed to order insulin infusion for E.B. for at least 48 hours post-surgery, in the Board's November 15, 2007 Complaint and Notice of Hearing was incorrect. This error was based on an error in Dr. Gurbuz' initial report.[90]

DR. LUNDELL'S PRIOR DISCIPLINARY HISTORY

Investigation No. 11509

133. The Board initiated investigation No. 11569 in December 1997, after it had received notification from the Credentialing Peer Review Committee of Intergroup Insurance Company that Dr. Lundell had been suspended from performing any bilateral carotid endarterectomies pending completion of the peer review process.[91]

134. On February 27, 1998, the Credentialing Peer Review Committee of Intergroup Insurance Company reinstated Dr. Lundell's privileges to perform carotid endarterectomies.

135. The Board issued a subpoena for the records of R.T.

136. The Board's chief medical consultant at the time and an OMC reviewed R.T.'s records and reported their opinions. On December 2, 1998, Dr. Lundell submitted to an investigational interview by the Board.

137. On June 27, 2000, the Board issued Findings of Fact, Conclusions of Law, and an Order for Censure and Probation in Investigation No. 11569.

138. The Board made the following Findings of Fact in Investigation No. 11569 regarding R.T.:

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[88] The Board's Ex. 5; T. vol. 1 at 77-78, ll. 21-6.
[89] T. vol. 1 at 80-87.
[90] T. vol. 1 at 123; the Board's Ex. 12 at EB-0001.
[91] *See* the Board's Ex. 20.

138.1 Dr. Lundell had performed a left carotid endarterectomy on R.T. at Chandler Regional Hospital on October 23, 1997.

138.2 R.T. had severe vascular disease, which warranted carotid surgery. But, after R.T. left the recovery room at approximately 11:43 a.m. and arrived in ICU, he was difficult to arouse, had no verbal response, and had a flaccid right arm.

138.3 Dr. Lundell was paged and updated on R.T.'s condition at 1:05 p.m. His response was to administer Narcan to R.T. Although Dr. Lundell was again notified of R.T.'s condition, he did not see R.T. again until 5:00 p.m. Dr. Lundell stated in his report that a Doppler ultrasound was performed on R.T., which detected an "ICA flow." But there was no documentation of any Doppler ultrasound report being performed. Dr. Lundell later claimed that he had used a hand-held Doppler, which is not as accurate as a Doppler ultrasound.

138.4 Dr. Lundell next evaluated R.T. on the morning of October 24, 2007, when he requested a neurological consult and ordered a CT scan. The CT scan demonstrated that R.T. had massive left hemispheric infarction. R.T. was transferred to hospice care and later died.

139. The Board found in Investigation No. 11569 that Dr. Lundell had committed unprofessional conduct by failing to evaluate R.T. for at least four hours following surgery, failing to furnish information to the Board in a timely manner, and failing to keep adequate medical records.

140. As a result of the Board's conclusions, it issued a Decree of Censure to Dr. Lundell, assessed a $2,500 civil penalty, and placed his license on probation for two years. The terms of probation included that he complete additional continuing medical education ("CME") in treatment of carotid surgery patients in the peri-operative period and in maintaining patient records and, after completing the additional CME, that he submit to patient record review by Board staff.

141. Dr. Lundell did not appeal the Board's order in Investigation No. 11569 and it became final.

Case No. MD-02-0478A

142. Board staff subsequently conducted a chart review of 20 of Dr. Lundell's patients under the terms of the probation it had imposed in Investigation No. 11569. Board staff forwarded the 20 charts to an OMC for review. The OMC concluded that 13 of the 20 charts fell below the acceptable standards for medical chart maintenance.[92]

143. The Board conducted an investigational interview of Dr. Lundell on October 8, 2003. The OMC criticized Dr. Lundell for consistently failing to document any initial history or physical examination for each patient. Dr. Lundell explained that he does not document his preoperative history and physical examination; he only "remembers" the history and the physical examination of the patient; if he forgets something, he asks the question again.

144. In an order dated November 13, 2003, the Board concluded in Case No. MD-02-0478A that Dr. Lundell had committed unprofessional conduct by failing to keep adequate records on the 13 patients.

145. As a result of the Board's conclusions in Case No. MD-02-0478A, it issued another Decree of Censure against Dr. Lundell's license and placed his license on probation for another two years. The probation required that Board staff would conduct quarterly chart reviews during the term of Dr. Lundell's probation, at his expense.

146. Dr. Lundell did not appeal the Board's order in Case No. MD-02-0478A and it became final.

Case Nos. MD-98-0844, MD-99-0349, and MD-00-0030

147. The Board received complaints from Dr. Lundell's patients A, B, and C on, respectively, November 9, 1998, April 26, 1999, and January 2, 2000 regarding the quality of the medical care that Dr. Lundell rendered to them.[93] The Board opened investigations into these complaints.

148. On March 16, 2004, Dr. Lundell entered into a Consent Agreement with the Board for a letter of censure and two years' probation on Case Nos. MD-98-0844, MD-99-0349, and MD-00-0030.

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[92] *See* the Board's Ex. 21.
[93] *See* the Board's Ex. 22.

149. In the Consent Agreement, Dr. Lundell admitted the following facts regarding his care of A:

149.1 On November 25, 1997, A was admitted to Desert Samaritan Hospital with recurrent coronary artery disease. A was a 73-year-old woman who was markedly obese and who had undergone previous bypass grafts.

149.2 On November 28, 1997, Dr. Lundell performed a quadruple coronary bypass graft on A, using the saphenous vein from A's right leg. Dr. Lundell performed follow-up examinations on A on November 29 and 30, 1997, but his reports of his examinations do not mention the status of the incision on A's right leg.

149.3 Nursing notes dated December 2, 1997 stated that A's right groin and thigh incision was "discolored, tight, tender to touch," and would be reported to the doctors in the morning. Nursing notes dated December 3, 1997 stated that the incision on A's right groin and thigh was swollen, ecchymotic (bruised), with blisters along the incision line, and oozing from the blisters.

149.4 On December 4, 1997, Dr. Lundell removed the wire from A's chest. He did not examine A's leg incision, even though she expressed concerns about it.

149.5 On December 5, 1997, A was discharged from the hospital with home health care and orders to see Dr. Lundell in two weeks.

149.6 On December 6, 1997 and on December 8, 1997, the home health nurse reported the appearance of A's leg incision to Dr. Lundell's office. A was scheduled for an appointment with Dr. Lundell on December 8, 1997.

149.7 On December 8, 1997, Dr. Lundell examined A's leg incision and noted that the wound was open and infected. A was immediately hospitalized with a plastic surgery consultation.

149.8 Although vein donor leg wounds, especially in groin area of obese elderly people, are commonly complicated by infection after coronary bypass surgery, Dr. Lundell admitted that he had discharged A from the hospital with an infection without any documented examination of A's leg incision. Dr. Lundell also admitted that he had failed to meet the standard of care when he failed to recognize and treat A's early signs of infection.

150. In the Consent Agreement, Dr. Lundell admitted to the following facts regarding his care of B:

150.1 B had been diagnosed in November 1995 with renal cell carcinoma of the left kidney. Another physician had performed a radical nephrectomy and followed B with a thorough six-month office evaluation.

150.2 In November 1996, Dr. Lundell saw B for a mass in the sternum on referral from B's primary care internist. Dr. Lundell's dictated note stated only that B had a sternal mass and was about a year post-resection of a renal carcinoma, which would be resected soon.

150.3 On December 2, 1996, Dr. Lundell performed a resection of a tumor on B's sternum. During the procedure, massive bleeding occurred and became life threatening. Ultimately, the bleeding was controlled but B lost at least 3500 cc's of blood. Dr. Lundell abandoned the resection of the tumor due to the unexpected bleeding.

150.4 Dr. Lundell did remove a piece of the tumor for a pathology analysis. The pathology report indicated that the mass was consistent with metastatic renal cell carcinoma.

150.5 On December 3, 1996, Dr. Lundell reported that B was "stable today — probably home in the a.m." On December 4, 1997, Dr. Lundell reported that B was "home today." No further blood sampling was carried out and Dr. Lundell made no references to home care instructions or follow-up.

150.6 On December 13, 1996, B's family called Dr. Lundell and reported that B was experiencing pain, redness, and swelling of the sterna wound; however, Dr. Lundell did not return the call. When B's family called again the following Monday, they were told that Dr. Lundell was out of town, but that his staff had been instructed to inform them that pain and swelling were normal due the packing used during surgery.

150.7 On December 24, 1996, B's daughter again called Dr. Lundell, who told her swelling was normal. Dr. Lundell did telephone in a prescription for an antibiotic and gave B an appointment for the following Monday, December 30, 1996.

150.8 On December 26, 1996, Dr. Lundell's associate examined B and advised hospitalization because he felt that infection had penetrated the bone. Intensive

intravenous antibiotic therapy was used; however, because of the infection, standard radiation therapy of the tumor could not be administered.

150.9 Additional sites of metastatic disease became evident and, despite chemotherapy and radiation attempts, B died in May 1997.

150.10 Dr. Lundell admitted that he had failed to perform an adequate preoperative evaluation of B, which led to an ill-advised open surgery, had failed to specify and document post-operative care, had failed to supervise office personnel, which resulted in delays of post-operative care, and inappropriately had billed B for a full tumor resection.

151. In the Consent Agreement, Dr. Lundell admitted to the following facts regarding his care of C:

151.1 C was a 75-year-old man who had been followed by his primary care physician for mild hypertension, recent onset of hematuria (blood in the urine), and memory loss. Laboratory data for C dated September 22, 1999, indicated an abnormally high serum potassium at 6.6, carbon dioxide low at 16, BUN elevated at 52, and creatinine level 3.4 (which equals 60-70% renal damage), also elevated. A urology consultation was obtained.

151.2 On October 5, 1999, a CT scan of C's abdomen demonstrated a 6.7 cm abdominal aortic aneurysm. There was no evidence of extravasation of dye and no signs of inflammation around the aneurysm, which would indicate any immediate risk of rupture. C's primary care physician referred him to Dr. Lundell for evaluation.

151.3 On October 6, 1999, Dr. Lundell first saw C. Dr. Lundell's record of the consultation does not evidence a thorough preoperative evaluation, history, or discussion with C. No pre-operative chest x-ray was taken.

151.4 On October 11, 1999, C was admitted to Chandler Regional Hospital for surgery by Dr. Lundell. Dr. Lundell's history merely noted C's diagnosed abdominal aortic aneurysm, hypertension, a myocardial infarction, and one other term, which was indecipherable. The remaining history was checked off as non-contributory.

151.5 Dr. Lundell's dictated operative note for C described a straightforward resection of an abdominal aortic aneurysm. Dr. Lundell's post-operative note was brief and indicated no problems except mild nausea.

151.6 Laboratory data from the date of the surgery and the following day indicated that C had continued mild renal dysfunction that was improving. After surgery, C's laboratory tests shows that his creatinine had gone from 1.8 (borderline high) to 2.0, that he had a mild post-operative anemia of hematocrit of 29%, and that blood gases showed a PO2 of 72 on two liters nasal cannula. None of these levels were checked again prior to C's discharge.

151.7 Following C's discharge from the hospital, he exhibited marked shortness of breath, weakness, and anorexia. C called Dr. Lundell's office for an appointment, but was only examined by an office nurse, who noted that he was short of breath. A chest x-ray indicated right lower lobe infiltrate and/or effusion. Oxygen therapy was ordered. However, C's home healthcare provider refused to deliver oxygen until a pulse oximeter report was performed on October 26, 1999 at Dr. Lundell's office.

151.8 When C failed to improve, on November 3, 1999, his family took him to the emergency room. Further medical problems were discovered and C died sometime later from metastatic carcinoma to the brain.

151.9 Dr. Lundell admitted that he had failed to document an adequate evaluation of C prior to surgery, had failed to appreciate C's recent medical history, which showed significant renal disease, chronic anemia, and failing health, before subjecting C to major elective surgery, had failed to obtain a pre-operative chest x-ray, and had failed to either document or conduct an examination of C post-operatively. Dr. Lundell admitted that, if he had evaluated C more thoroughly, he might have discovered the cancer.

152. As terms of his two-year probation in these three cases, Dr. Lundell agreed to enroll in the Physician Assessment and Clinical Education Program ("PACE") for a comprehensive assessment and to undertake whatever clinical training that was recommended and to undergo any recommended treatment of any medical or psychological condition that was identified.

153. On October 16, 2006, the Board issued an advisory letter to Dr. Lundell for his failure to maintain adequate medical records and for a technical surgical error.[94]

APPLICABLE LAW

1. A.R.S. § 32-1451(M) provides in relevant part:

> Any doctor of medicine who after a formal hearing is found by the board to be guilty of unprofessional conduct . . . is subject to censure, probation as provided in this section, suspension of license or revocation of license or any combination of these, including a stay of action, and for a period of time or permanently and under conditions as the board deems appropriate for the protection of the public health and safety and just in the circumstance. The board may charge the costs of formal hearings to the licensee who it finds in violation of this chapter.

2. A.R.S. § 32-1401(27) defines "unprofessional conduct" to include:

> (e) Failing or refusing to maintain adequate records on a patient.
>
> . . . .
>
> (q) Any conduct or practice that is or might be harmful or dangerous to the health of the patient or the public.
>
> . . . .

[94] *See* the Board's Ex. 23.

(II) Conduct that the board determines is gross negligence, repeated negligence or negligence resulting in the death of a patient.

CONCLUSIONS OF LAW

1. This matter lies with the Board's jurisdiction and was properly referred to the Office of Administrative Hearings to conduct the hearing.[95]

2. The Board bears the burden of proof and must establish Dr. Lundell's commission of acts of unprofessional conduct by a preponderance of the evidence.[96] Dr. Lundell bears the burden to establish affirmative defenses by the same evidentiary standard.[97]

3. "A preponderance of the evidence is such proof as convinces the trier of fact that the contention is more probably true than not."[98] A preponderance of the evidence is "[t]he greater weight of the evidence, not necessarily established by the greater number of witnesses testifying to a fact but by evidence that has the most convincing force; superior evidentiary weight that, though not sufficient to free the mind wholly from all reasonable doubt, is still sufficient to incline a fair and impartial mind to one side of the issue rather than the other."[99]

4. "Procedural due process requires notice and an opportunity to be heard in a meaningful manner and at a meaningful time."[100] The Board was required to include in its notice "[a] reference to the particular sections of the statutes and rules involved."[101] In

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[95] A.R.S. §§ 32-1451, 41-1092 *et seq.*

[96] *See* A.R.S. § 41-1092.07(G)(2); A.A.C. R2-19-119(A) and (B)(1); *see also Vazanno v. Superior Court*, 74 Ariz. 369, 372, 249 P.2d 837 (1952).

[97] *See* A.A.C. R2-19-119(B)(2).

[98] Morris K. Udall, ARIZONA LAW OF EVIDENCE § 5 (1960).

[99] BLACK'S LAW DICTIONARY at page 1220 (8th ed. 1999).

[100] *Webb v. Arizona Board of Medical Examiners*, 202 Ariz. 555, 558 ¶ 9, 48 P.3d 505, 508 (App. 2002) (citing *Comeau v. Arizona State Board of Dental Examiners*, 196 Ariz. 102, 106, ¶ 18, 993 P.2d 1066, 1070 (App. 1999)).

[101] A.R.S. §§ 41-1092.03(A); 41-1061(B)(3).

addition, due process requires notice to the regulated party of the factual bases of the charged violations and some explanation of the evidence against him.[102]

5. But the only notice requirements for an administrative hearing concern the Board's Complaint. Dr. Lundell had notice of the factual bases of the Board's complaints against him and presented a thorough and detailed defense. Although Dr. Lundell may have been justifiably angry at the inaccuracies in the SIRC summary of the OMC's report and a relatively minor error in the Board's complaint, his right to due process was not infringed.

6. The Board has established that Dr. Lundell failed to maintain adequate medical records in his operative report of C.S. Dr. Lundell admitted that his operative report misstated the chronology. His testimony that he did not need to include his use of ice slush or order for a post-operative x-ray because such measures were routine is not credible in light of the substantial evidence that no ice slush was used intra-operatively or x-ray performed immediately post-surgery.

7. The Board therefore has borne its burden to establish that Dr. Lundell committed unprofessional conduct as defined by A.R.S. § 32-1401(27)(e). Dr. Lundell's disciplinary history of inadequate record-keeping is considered a factor in aggravation of the recommended penalty. In addition, Dr. Lundell's admitted omissions from his operative report for C.S. complicated the Board's investigation and led to Dr. Pluth's criticism that he had unduly delayed putting C.S. on bypass, which criticism Dr. Pluth withdrew at the hearing.

8. The Board has not borne its burden to establish that Dr. Lundell committed unprofessional misconduct as defined by A.R.S. § 32-1401(27)(e) by failing to dictate an operative report on N.O. or that his failure contributed to N.O.'s death.

9. The Board has borne its burden establish that the standard of care required Dr. Lundell to cool C.S.'s anterior wall and that he failed to meet this standard.

10. The Board has also established that Dr. Lundell's failure to cool C.S.'s anterior wall was harmful to her health and actually resulted in her death. The Board has therefore

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[102] *See Carlson v. Arizona State Personnel Bd.*, 214 Ariz. 426, 430 ¶ 15, 153 P.3d 1055, 1059 (App. 2007).

borne its burden to establish that Dr. Lundell committed unprofessional conduct as defined by A.R.S. § 32-1401(27)(q) and (ll) in his care of C.S.

11. The Board also has established that the standard of care required Dr. Lundell to order blood type and cross match for A.P., to temporarily tamponade her bleeding when it became significant and to obtain O-negative blood and cross type before proceeding with surgery, and to observe A.P. in PACU when he knew her condition was critical to observe the functioning of the chest tube. The Board has established that Dr. Lundell failed to meet these standards in his care of A.P. and that she was harmed thereby. The Board has therefore established that Dr. Lundell committed unprofessional conduct as defined by A.R.S. § 32-1401(27)(q) in his care of A.P.

12. Dr. Lundell had committed similar unprofessional conduct in his failure to monitor patient A in Case No. MD-98-0844. His failure to monitor A.P. is repeated negligence and unprofessional conduct as defined by A.R.S. § 32-1401(27)(ll).

13. The Board has established that A.P. died as a result of Dr. Lundell's failure to order blood type and cross match for A.P. and temporarily to tamponade her bleeding when it became significant and to obtain O-negative blood and cross type before proceeding with surgery. The Board therefore has established that these failures constituted unprofessional conduct as defined by A.R.S. § 32-1401(27)(ll).

14. The Board finally has established that the standard of care required Dr. Lundell to initiate insulin infusion during E.B.'s surgery and to monitor her sternal wound closely after he saw evidence of infection. The Board has established that Dr. Lundell deviated from these standards and, as a result, E.B. was harmed. The Board therefore has established that Dr. Lundell committed unprofessional conduct as defined by A.R.S. § 32-1401(27)(q).

15. With respect to the penalty, Dr. Lundell has a 10-year disciplinary history with the Board. Prior PACE evaluations, additional CME on record-keeping, and probation have not helped him avoid the similar acts of professional misconduct that were found in this case. He is currently retired from practice and cannot be monitored in any event.

ORDER

Based on the foregoing, the Board hereby revokes License # 6960 previously issued to Dwight C. Lundell, M.D.for the practice of allopathic medicine in Arizona.

Further, Respondent shall reimburse the Board for the administrative costs of the hearing in this matter, pursuant to A.R.S. § 32-1451(M) and 41-1007.

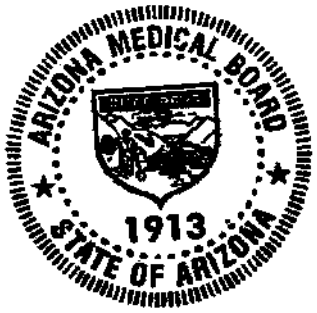
RIGHT TO PETITION FOR REHEARING OR REVIEW

Respondent is hereby notified that he has the right to petition for a rehearing or review. The petition for rehearing or review must be filed with the Board's Executive Director within thirty (30) days after service of this Order. A.R.S. § 41-1092.09(B). The petition for rehearing or review must set forth legally sufficient reasons for granting a rehearing or review. A.A.C. R4-16-103. Service of this order is effective five (5) days after date of mailing. A.R.S. § 41-1092.09(C). If a petition for rehearing or review is not filed, the Board's Order becomes effective thirty-five (35) days after it is mailed to Respondent.

Respondent is further notified that the filing of a motion for rehearing or review is required to preserve any rights of appeal to the Superior Court.

DATED this 9th day of October, 2008.

THE ARIZONA MEDICAL BOARD



By _____
LISA WYNN
Executive Director

ORIGINAL of the foregoing filed this
20 day of October, 2008 with:

Arizona Medical Board
9545 East Doubletree Ranch Road
Scottsdale, Arizona 85258

Executed copy of the foregoing
mailed by U.S. Mail this
20 day of October, 2008, to:

Dwight C. Lundell, M.D.
Respondent
Address of Record

Marki Stewart, Esq.
Mariscal, Weeks, McIntyre & Friedlanger, P.A.
Suite 200
2901 N. Central Ave.
Phoenix, AZ 85012
Special Counsel for the State of Arizona

BEFORE THE ARIZONA MEDICAL BOARD

In the Matter of **DWIGHT C. LUNDELL, M.D.** Holder of License No. **6960** for the Practice of Allopathic Medicine In the State of Arizona.	**CASE NO. MD-02-0676A** **MD-03-1040C** **MD-04-0601A** **ORDER DENYING REHEARING OR REVIEW**

At its public meeting on December 3-4, 2008, the Arizona Medical Board ("Board") considered a Petition for Rehearing or Review filed by Dwight C. Lundell, M.D. ("Respondent"). Respondent requested the Board rehear or review its October 9, 2008, Findings of Fact, Conclusions of Law and Order for Revocation in Case nos. MD-02-0676A, MD-03-1040C, and MD-04-0601A. The Board voted to deny the Respondent's Petition for Rehearing or Review upon due consideration of the facts and law applicable to this matter.

ORDER

IT IS HEREBY ORDERED that:

Respondent's Petition for Rehearing or Review is denied. The Board's October 9, 2008 Findings of Fact, Conclusions of Law and Order for Revocation in Case nos. MD-02-0676A, MD-03-1040C, and MD-04-0601A is effective and constitutes the Board's final administrative order.

RIGHT TO APPEAL TO SUPERIOR COURT

Respondent is hereby notified that he has exhausted his administrative remedies. Respondent is advised that an appeal to Superior Court in Maricopa County may be taken from this decision pursuant to title 12, chapter 7, article 6.

DATED this 15th day of December, 2008.

ARIZONA MEDICAL BOARD

By _____
LISA S. WYNN
Executive Director

ORIGINAL of the foregoing filed this 15th day of December, 2008 with:

The Arizona Medical Board
9545 East Doubletree Ranch Road
Scottsdale, Arizona 85258

Executed copy of the foregoing mailed by U.S. Mail this 15th day of December, 2008, to:

Heather Hendrix
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