

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF ADMINISTRATIVE LAW JUDGES

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In the matter of: *
*
PUBLIC HEARING IN THE MATTER OF *
THE ISSUES ON EMERGENCY MEDICAL * Docket No.: SA-530
SERVICES HELICOPTER OPERATIONAL *
SAFETY *
*
* * * * *

NTSB Board Room and Conference Center
490 L'Enfant Plaza
Washington, D.C. 20024

Tuesday,
February 3, 2009

The above-entitled matter came on for hearing,
Pursuant to Notice at 9:00 a.m.

BEFORE: ROBERT L. SUMWALT, Chairman
LORENDA WARD, Hearing Officer
TOM HAUETER
VERN ELLINGSTAD
DAVID MAYER

APPEARANCES:

Technical Panel:

DR. BOB DODD
DR. EVAN BYRNE
DR. BRUCE COURY

KEITH HOLLOWAY, Public Affairs Specialist

Parties to the Hearing:

CRAIG YALE, Air Methods
SANDY KINKADE, Association of Air Medical Services
RAYMOND DAUPHINAIS, CareFlite
HOOPER HARRIS, Federal Aviation Administration
MATT ZUCCARO, Helicopter Association International
GARY SIZEMORE, National EMS Pilots Association
AL DUQUETTE, Professional Helicopter Pilots
Association(PHPA)/Office of Professional
Employees International Union(OPEIU), AFL-CIO

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P R O C E E D I N G S

(9:00 a.m.)

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3 CHAIRMAN SUMWALT: This hearing will please come to
4 order. Good morning, ladies and gentlemen, and welcome. My name
5 is Robert Sumwalt and I'm a member of the National Transportation
6 Safety Board and it is my sincere pleasure and honor to be
7 designated as the Chairman of the Board of Inquiry for this
8 hearing on Helicopter Emergency Medical Services. Today we're
9 opening a public hearing concerning the issue of helicopter
10 emergency medical services or HEMS operational safety.

11 I'd like to take a moment to acknowledge the family
12 members of those who have lost their lives and those who have
13 survived HEMS accidents who are with us today, either in our
14 audience or watching via telecast. On behalf of the National
15 Transportation Safety Board and all of those assembled here today
16 for this very important hearing, I'd like to offer our sincere
17 condolences for your loss and for the difficulties your family has
18 endured.

19 We have a saying at the Safety Board, "From tragedy we
20 draw knowledge to improve the safety of us all," and that is why
21 we are here. We are to take those tragedies and draw knowledge to
22 improve the safety of us all so that these accidents don't happen
23 again. And as we continue our work to improve safety within HEMS
24 operations, I would like to ask everyone to keep these tragedies
25 in mind and to move forward with a collective commitment to

1 improve safety and prevent these types of accidents from ever
2 happening again.

3 This hearing is being held for the purpose of gathering
4 facts, data and perspectives that will give us a better
5 understanding of the current state of the HEMS industry. This
6 process will assist the Safety Board in creating products to help
7 prevent HEMS accidents in the future. The purpose of this inquiry
8 is not to determine the rights or liability of private parties and
9 those matters will be excluded from these proceedings.

10 Now, I want to emphasize that this hearing is a
11 non-adversarial hearing; it is a fact finding examination. Our
12 sole purpose is to discuss issues that can impact the HEMS
13 industry and discuss what can be done to prevent HEMS accidents.
14 Witnesses will not be asked or permitted to speculate as to the
15 cause or furnish an analysis of accidents currently under
16 investigation.

17 (Pause.)

18 COURT REPORTER: We're back on.

19 CHAIRMAN SUMWALT: Okay, we're back on. And how does
20 this volume sound? It sounds a little loud to me, but is the
21 volume okay, too loud? A little loud? And my voice is not that
22 great, so if you could turn it down just a little for us, please?
23 Thank you. We'll start over.

24 Mr. Tom Haueter, the Director of the NTSB's Office of
25 Aviation Safety; to my left, Dr. Vern Ellingstad, Director of the

1 NTSB's Office of Research and Engineering; to my far right,
2 Dr. David Mayer, Deputy Managing Director of the NTSB; to my far
3 left, Ms. Lorenda Ward, the Hearing Officer for this hearing. The
4 Board of Inquiry will be assisted by a technical panel consisting
5 of 13 members. Their biographies, along with those of the Board
6 of Inquiry, can be found on the NTSB's website, www.nts.gov.
7 Members of the Technical Panel will be introduced individually at
8 the beginning of each panel.

9 By way of background, HEMS operations provide an
10 important service to the public, transporting seriously ill
11 patients or donor organs to emergency care facilities. This vital
12 service is credited with saving countless lives each year. That
13 said, the recent accident record is alarming and it is
14 unacceptable.

15 In the last six years, we have seen 85 HEMS accidents,
16 claiming 77 lives. In calendar year 2003, there were 19 accidents
17 and seven fatalities. In 2004, there were 13 accidents with 18
18 fatalities. 2005 had 15 accidents and 11 fatalities. 2006, 13
19 HEMS accidents occurred with a total of five fatalities. 2007,
20 there were 11 accidents with a total of seven fatalities. And
21 last year, 2008, was the most deadly year on record for HEMS
22 operations with 13 HEMS EMS helicopter accidents and 29
23 fatalities.

24 Shall I wait for the slides to come up? How are we
25 doing?

1 (Pause.)

2 CHAIRMAN SUMWALT: Recent HEMS accidents have received
3 the attention of the Congress, the GAO, the FAA, industry, media,
4 the public, as well as the NTSB. Congress has granted the NTSB
5 the statutory authority to be the official census keeper of all
6 civil aviation accidents, including HEMS accidents.

7 In that regard, and in preparation for this hearing, the
8 Safety Board recently established a firm standard to classify an
9 EMS accident in an attempt to harmonize its EMS accident census
10 data with the air medical industry and the FAA. Under these
11 revised standards, the Safety Board now classifies an EMS accident
12 is one where the accident flight involved an aircraft dedicated to
13 air medical operations, configured for such operations, and
14 piloted by a dedicated EMS flight crew.

15 All three of those criteria must be met in order to
16 classify an accident as an EMS accident. As a result of this
17 standard, the Safety Board EMS accident statistics have recently
18 been revised accordingly. Congress has also granted the NTSB with
19 the authority to hold hearings and is the leading federal agency
20 that determines cause of accidents. The NTSB is exercising this
21 authority by holding this hearing to better understand safety
22 issues surrounding the HEMS industry. The Safety Board has had a
23 longstanding interest in EMS aviation.

24 For example, in 1988, the Board conducted a safety study
25 of commercial EMS helicopter operations. That study evaluated 59

1 HEMS accidents and resulted in the Safety Board issuing 19 safety
2 recommendations. And in January of 2006, the Safety Board adopted
3 the Special Investigation Report of EMS Operations. This study,
4 which examined both airplane and helicopter accidents, resulted in
5 the Safety Board issuing four recommendations to the FAA to
6 improve the safety of these operations and of significance, the
7 Board determined that 29 of the 55 reviewed accidents could have
8 been prevented if corrective actions in the report had been
9 implemented.

10 Those safety recommendations called on the FAA to
11 conduct all flights with medical personnel on board in accordance
12 with charter aircraft regulations, to develop and implement flight
13 risk evaluation programs, to require formalized dispatch and
14 flight following procedures including up-to-date weather
15 information, and finally, for the installation of Terrain
16 Awareness and Warning Systems or TAWS on aircraft.

17 These recommendations were added to the Safety Board's
18 Most Wanted List of Transportation Safety Improvements in
19 October 2008. At that time, three of the four recommendations
20 were reclassified by the Board as open, unacceptable response.
21 The Safety Board is concerned that these types of accidents will
22 continue if a concerted effort is not made to improve the safety
23 of emergency medical flights. This hearing will take a
24 comprehensive look at the HEMS industry.

25 We intend to get a better understanding of why the HEMS

1 industry has grown significantly in recent years and explore if
2 this may be increasing competitive pressure to complete flights.
3 We will examine flight operations procedures, including flight
4 planning, weather minimums and preflight risk assessment. We will
5 discuss safety-enhancing technologies, such as TAWS and Night
6 Vision Imaging Systems. We will explore flight recorders and
7 associated flight operations' quality assurance programs.
8 Training, including the use of flight simulators will be discussed
9 and also probed will be corporate and government oversight and
10 safety management systems. Possible courses of action resulting
11 from this hearing are numerous, including the possibility of an
12 updated safety study on EMS operations, additional safety
13 recommendations and possibly even a white paper for use when
14 advocating or testifying on EMS safety issues. An executive
15 summary of this hearing will be posted on our website in several
16 weeks.

17 Whatever we do, our motivation is simple: to find
18 innovative ways to improve HEMS safety. Federal regulations
19 provide for the designation of parties to an NTSB public hearing
20 and in accordance with these regulations, those parties, those
21 persons, governmental agencies, companies and associations whose
22 participation in the hearing is deemed necessary in the public
23 interest, are designated as parties.

24 These parties, assisting the Safety Board in this
25 hearing, have been designated in accordance with these regulations

1 and they have been designated for their technical expertise in
2 their respective fields.

3 I will now call, in alphabetical order, the names of the
4 parties to the hearing and, as I call each name, I will ask the
5 designated party spokesperson to please give his or her name,
6 title and affiliation for the record. Air Methods?

7 MR. YALE: Air Methods. Craig Yale, Vice President,
8 Corporate Development.

9 CHAIRMAN SUMWALT: Thank you, Mr. Yale.
10 Association of Air Medical Services or AAMS?

11 MS. KINKADE: Good morning. Sandy Kinkade, President of
12 AAMS.

13 CHAIRMAN SUMWALT: Good morning, thank you.
14 CareFlite?

15 MR. DAUPHINAIS: Ray Dauphinais, Vice President/Director
16 of Operations, CareFlite.

17 CHAIRMAN SUMWALT: Thank you.
18 Federal Aviation Administration?

19 MR. HARRIS: Good morning, Mr. Chairman. My name is
20 Hooper Harris. I'm the Acting Director of the Office of Accident
21 Investigation at the FAA.

22 CHAIRMAN SUMWALT: Good morning and welcome.
23 Helicopter Association International?

24 MR. ZUCCARO: Good morning, Member Sumwalt.
25 Matt Zuccaro, President, Helicopter Association International.

1 CHAIRMAN SUMWALT: Thank you, good morning.
2 National EMS Pilots Association?

3 MR. SIZEMORE: Good morning, Mr. Chairman.
4 Gary Sizemore, Board Member, National Association of EMS Pilots.

5 CHAIRMAN SUMWALT: Thank you. And the last one is a
6 long one, the Professional Helicopter Pilots Association/Office of
7 Professional Employees International Union, AFL-CIO.

8 MR. DUQUETTE: Good morning, Mr. Chairman. My name is
9 Al Duquette. I'm the Safety Chairman for Professional Helicopter
10 Pilots Association.

11 CHAIRMAN SUMWALT: Thank you, Mr. Duquette. We'll
12 abbreviate it as PHPA/OPEIU and I think we have just about every
13 vowel in the alphabet there. Thank you.

14 In addition to these seven parties, this hearing is
15 planned to feature 41 witnesses representing eight HEMS operators,
16 12 associations, six manufacturers and four hospitals. These
17 witnesses and the parties include 21 helicopter pilots, eight
18 medical doctors, a host of regulators, policy makers, first
19 responders, flight dispatchers, flight nurses, flight paramedics,
20 administrators, rule makers, and inspectors.

21 Our goal is to obtain the perspective of every facet of
22 the HEMS industry, including large and small companies, VFR and
23 IFR operations, hospital programs and those that oversee these
24 programs. Last week, the Board of Inquiry held a pre-hearing
25 conference in this board room. It was attended by the Safety

1 Board's technical panel and representatives of the parties to this
2 hearing.

3 During that conference, the areas of inquiry and the
4 scope of the issues to be explored were delineated and the
5 selection of witnesses to testify on these issues was finalized.
6 The issue areas, as agreed upon by the parties, are as follows:

7 HEMS safety overview and current initiatives; current
8 EMS models and reimbursement structures; state oversight and
9 competition; patient transport request process; flight dispatch
10 procedures; safety equipment and flight recorders; flight
11 operations procedures and training; corporate oversight; safety
12 management systems; and Federal Aviation Administration oversight.

13 Now, in order to conclude the hearings within four days,
14 testimony and exhibits must remain within the confines of these
15 issue areas. The witnesses testifying at this hearing have been
16 selected because of their ability to provide the best available
17 information regarding HEMS safety. Their biographies are located
18 on the NTSB website.

19 Each witness will testify under oath and will serve on
20 panels devoted to specific topic areas. The Technical Panel will
21 question the witnesses first, followed by each party spokesperson.
22 And due to time constraints, each party will have between five and
23 ten minutes to question each panel. It's important to note that
24 the time periods include both your question and the answer.

25 A second round of questions may be allowed, if

1 necessary, but I would expect those questions, those follow-up
2 questions, to be brief. And please, no repetition of previous
3 questions. And the Board of Inquiry will be the last to question
4 the witness. I want to remind the Technical Panel, the parties,
5 and the Board of Inquiry that questions dealing with ongoing NTSB
6 investigations will not be permitted and this is because the Board
7 does not speculate on ongoing investigations and we only release
8 information that is factual in nature and likewise, we do not
9 permit those associated with us, like those associated with an
10 NTSB hearing, to speculate or to provide analysis.

11 We do have other venues to gather factual information
12 about open investigations and this is an issues hearing, this is
13 not a specific accident hearing. As Chairman of the Board of
14 Inquiry, I will be responsible for the conduct of the hearing. I
15 will make all rulings on the admissibility of exhibits and
16 pertinence of proffered testimony, with the assistance of the NTSB
17 General Counsel, Mr. Gary Halbert, seated behind me. All such
18 rulings will be final.

19 Also with us today, we have Mr. Keith Holloway and his
20 colleagues from the Safety Board's Office of Public Affairs.
21 Keith will be here to assist those with the news media. Keith,
22 where are you? Back there in the newsroom, thank you. Also here
23 with us today is Mr. Paul Sledzik and others from the NTSB's
24 Office of Transportation Disaster Assistance. They are here to
25 assist the family members in the audience.

1 I want to tell you that a lot of work has gone into
2 preparing for this hearing, a lot of work by the NTSB staff, a lot
3 of work by the parties, a lot of work by the witnesses, and I want
4 to thank all of you for all of that hard work. There are a lot of
5 people on the NTSB staff that are not here today, will not get
6 recognition, but I do want to acknowledge that there are a lot of
7 people behind the scenes and one, in particular, who is literally
8 behind the scenes, not with us present but is behind the scenes
9 working our website as our Webmaster, and that's Christine Fortin,
10 and she will be responsible for uploading documents onto the web
11 as we -- the exhibits and information like that. She's been good
12 with updating the website with the latest information. And
13 speaking of the website, the record of the investigation,
14 including the transcript of the hearing and all exhibits entered
15 into the record, will become part of the Safety Board's public
16 docket and will be available on the NTSB's website.

17 Additionally, all of the presentations will be available
18 on our website after the hearing, which is also being web cast at
19 www.nts.gov. Following the completion of the public hearing, the
20 parties in the EMS community will have the opportunity to make
21 recommendations to the Safety Board regarding what conclusions
22 should be drawn from the presented testimony and what safety
23 enhancements should be taken. The NTSB will carefully review
24 these submissions, as well as additional information already
25 received through correspondence.

1 HEARING OFFICER WARD: Thank you. You can sit now.
2 Dr. Blumen, could you please state your name, your title and
3 organization?

4 DR. BLUMEN: My name is Ira Blumen. I'm a Professor of
5 Emergency Medicine at the University of Chicago Medical Center and
6 Service Program and Medical Director of UCAN, which is the
7 hospital-based helicopter program there.

8 HEARING OFFICER WARD: Thank you. Mr. Zuccaro.

9 MR. ZUCCARO: Matt Zuccaro, President of the Helicopter
10 Association International.

11 HEARING OFFICER WARD: Thank you. And Mr. Sequin.

12 MR. SEQUIN: Sylvain Sequin, Vice President of Safety
13 and Quality for Canadian Helicopters, and we operate two EMS
14 contracts in Canada.

15 HEARING OFFICER WARD: Thank you. Mr. Chairman, these
16 witnesses are now qualified.

17 CHAIRMAN SUMWALT: Thank you. I believe on this first
18 panel, Dr. Dodd, are you --

19 DR. DODD: Thank you, Mr. Chairman.

20 CHAIRMAN SUMWALT: Thank you.

21 WITNESS PRESENTATIONS

22 DR. DODD: If I could, I would like to ask Dr. Blumen to
23 begin. I should mention that each of our witnesses in this panel
24 will be providing short presentations on various topics and then
25 there will be a follow-up session for questions and answers from

1 the Technical Panel and the parties. So if I could ask you,
2 Dr. Blumen, you can proceed.

3 PRESENTATION BY DR. BLUMEN

4 DR. BLUMEN: Thank you very much. I'd like to thank
5 Mr. Dodd and Chairman Sumwalt for the invitation to speak to this
6 group. What I hope to do in the next few minutes is provide an
7 overview of an analysis of EMS accidents and accident rates that
8 our research group has been doing for a number of years.

9 And as Chairman Sumwalt had made reference to earlier,
10 in 1988 the National Transportation Safety Board published a very
11 important document looking at helicopter EMS accidents. They
12 looked at 59 accidents and some of the alarming data that they
13 found was that comparing helicopter EMS with other 135 operations,
14 the accident rate for our industry was nearly double that of other
15 135 operations. The fatal accident rate was even more alarming,
16 with nearly three and a half times that of other 135 operations.

17 Going ahead -- looks like my slides are now
18 transitioning properly.

19 (Slide.)

20 DR. BLUMEN: Taking a look at how that would translate
21 into a graph, the NTSB data, in 1998, there is the red line, and
22 it's important to realize from 1998 through 2000, 2001, 2002,
23 there was no updated information looking at accident rates or
24 fatal accident rates in helicopter EMS. It was a black hole.
25 That information did not exist because of the lack of important

1 exposure data. And that's one of things that we chose to try to
2 identify through our research group.

3 Being a big advocate that you can't manage what you
4 can't measure, we wanted to set out, through our 2002 research
5 project, to take a look and try to identify the magnitude of the
6 risk, the accident rates, fatal accident rates and death rates.
7 Our initial study, published in 2002 by the Air Medical --
8 Association and then, subsequent to that, 2005 and every year
9 through 2008, we have provided updates for our information and
10 presented it at the Air Medical Transport Conference.

11 This graph basically shows you the total number of
12 accidents and the total number of fatal accidents since 1972, when
13 helicopter EMS started in the civilian population of the United
14 States. You can see where the NTSB report came out in 1988.
15 There was a slight decrease in the number of accidents. And then
16 starting in, roughly, 1998, we start to see an increase in the
17 number of accidents that are our industry was suffering. And as
18 Chairman Sumwalt point out, over the last couple of years, the
19 total number of accidents and the alarming number of fatal
20 accidents in 2008.

21 Taking a look at our total database from 1972 through
22 2008, our industry has seen a total of 264 accidents involving 256
23 dedicated medical helicopters, eight dual-purpose aircraft. Of
24 these 264 accidents, 98 of them have suffered at least one
25 fatality. Seven hundred and 97 individuals were involved in these

1 accidents and there were a total of 264 fatalities. Again, this
2 is our entire database going back to 1972.

3 One of the things that we decided to do in our follow-
4 ups from 2005 through the present is take a look at a focus period
5 from 1998 through the present, which is the timeframe that we saw
6 an increase in the number of accidents.

7 During this now 11-year period, we have suffered a total
8 of 146 helicopter EMS accidents. Fifty-five percent of all of the
9 accidents that our industry has seen since 1972 have occurred in
10 our focus period. This involved 141 dedicated medical
11 helicopters, five dual-purpose aircraft. Fifty of these accidents
12 involved fatalities; 47 of them, dedicated medical aircraft; three
13 of them being dual-purpose aircraft.

14 Taking a look at the number of individuals involved in
15 these accidents, a total of 430 individuals, resulting in 131
16 fatalities. Of these fatalities in our focus period, 105 were
17 dedicated helicopter EMS crew members; 16 dual-purpose crew
18 members lost their lives; 16 patients; and four other individuals
19 who were aboard the aircraft.

20 (Slide.)

21 DR. BLUMEN: I apologize that the transitions aren't
22 working. For some reason, it's showing everything on the slide
23 all at once. Basically, what this slide shows is -- taking a look
24 at our focus period and with the transition not being there,
25 there's a little overlap. If you take a look at the initial

1 timeframe, from 1988 through 1997, we averaged five accidents per
2 year. Our focus period, from 1998 to the present, we've seen an
3 increase of two and a half times, on the average of 12.4 accidents
4 every year.

5 During that focus period, we see 4.5 fatal accidents
6 every year. Now, questions that were being asked in the early
7 year, 2000-2001, before our initial study was presented was why
8 are we having all these increases in accidents; are we flying more
9 or are we flying less safe? And that yellow bar there seems to
10 show a gradual increase in the number of accidents that we saw
11 over our initial timeframe.

12 (Slide.)

13 DR. BLUMEN: This slide here shows the percentage of
14 fatal accidents in our focus time period, from 1998. Thirty-four
15 percent of all the accidents resulted in at least one fatality.
16 That's actually an improvement from the timeframe before that,
17 from 1990 through 1997, when 46 percent of the accidents resulted
18 in fatality and the timeframe before that, from 1980 through 1989,
19 where there are 39 percent of the accidents.

20 Now, keeping in mind, while there's an improvement in
21 the percentage of fatal accidents, the total number of accidents
22 had increased in our focus timeframe.

23 (Slide.)

24 DR. BLUMEN: This slide here shows, in red, the total
25 number of fatalities in each fiscal year. That's in red. The

1 yellow shows the number of serious injuries and in green, the
2 minor injuries and blue, those people on board the helicopters who
3 suffered no injuries whatsoever. You can see that in 2008, the
4 total of 29 helicopter fatalities far exceeds any year in the
5 history of helicopter EMS in the United States. Switching gears a
6 little bit from the number of accidents, taking a look at the when
7 and the why.

8 Forty-nine percent of our accidents occur on night
9 missions and in comparison, 36 percent of our missions are at
10 night. Scene responses, 49 percent of the accidents of the
11 patient-related missions are on-scene missions. When you take a
12 look at the NTSB reports and the probable causes, our analysis
13 shows that 77 percent of them can be related to some form of human
14 error.

15 Now, the NTSB reports do not say human error. They'll
16 typically say an individual did something or failed to do
17 something else, but the interpretation of that is human error,
18 human factors were involved in that accident. Most common,
19 collisions with objects and then after that, weather related
20 factors. Mechanical failures resulted in 17 percent of the
21 accidents; other, 3 percent; and undetermined is a total of 2
22 percent of the accidents. One of the things that was alarming is
23 taking a look at the number of times that helicopters are hitting
24 things that we just shouldn't be hitting.

25 In-flight collision with objects, in our focus period,

1 taking a look at only those accidents that had final NTSB reports,
2 and this does not include the most recent number of accidents that
3 have been finalized by the Board, 33 accidents or an average
4 of 3.3 accidents per year, have been times where the helicopters
5 have hit something such as wires, branches, trees, signposts,
6 things like that. Three of those accidents resulted in
7 fatalities. Controlled flight into terrain, 21 accidents or an
8 average of 2.1 accidents per year.

9 However, 19 of these 21 accidents resulted in
10 fatalities. Forty-two percent of all accidents in our focus
11 period, 54 of the 128 with final NTSB reports were suffered due to
12 something where the aircraft hit something that we shouldn't have
13 been coming into contact with. And this is an alarming increase
14 compared to a report by Rick Frazier in the year 2000 where he
15 took a look at accidents from 1990 through 1998 where there was
16 less than one event per year that would fall into this category;
17 only 18 percent of the accidents in his study.

18 Again, looking at the when and the why, 90 percent of
19 all accidents, the NTSB indicated that weather was a factor
20 involved in those accidents. However, when you take a look at the
21 weather related accidents, 56 percent of the accidents resulted in
22 fatal injuries compared again to 34 percent total within our focus
23 timeframe. Now, so far what we've been looking at is raw numbers
24 of accidents.

25 Anyone here could go through the NTSB reports and come

1 up with the information that we've presented so far. But in order
2 to do a meaningful comparison, you have to compare like groups;
3 you have to normalize the data, and the most common way for
4 aviation is to do the number of accidents per 100,000 flight hours
5 and that's what we sought to do. And the problem that it hadn't
6 been done since 1998 is, in general, our industry, our operators,
7 don't share that data with other people. Fortunately, in our
8 research models, we were able to come up with the exposure data
9 that exists and do our analysis.

10 Our original study from 2000 to 2002, which is when we
11 doing the original research project, we had to determine the
12 exposure data for 16 of the 22 years in our focus period of that
13 time, which was 1980 through 2001. We looked at everything that
14 we could find that was published data, surveys, we did our own web
15 survey. We did an operator survey of the five largest operators
16 at that time and we also did a manufacturers survey.

17 In our updates, since 2005 through 2008, we had now
18 available to us two databases that our online, the ADAMS database
19 and the Air Medical Transport Registry, which is on FlightWeb, and
20 also, we significantly expanded our operator database and operator
21 survey so that we could include as many helicopter programs and
22 aircraft in our analysis. What we found, and the first thing we
23 had to come up with, was the number of helicopters doing medical
24 missions.

25 If you take a look, in 2008, we can account for 668

1 dedicated aircraft doing medical missions. You can see that there
2 was a steady increase. You can actually see, also, that's -- the
3 red line is the number of helicopters and the gray line is the
4 number of programs. There has actually been a slight decrease in
5 the number of programs in the industry and that's through some
6 programs being purchased and merging with some programs, and some
7 programs closing. When we did our first analysis, our first
8 updated analysis in 2005, we also saw that roughly every 10 years
9 -- and those are the two brackets down below -- roughly every 10
10 years the number of dedicated medical helicopters in the United
11 States had doubled.

12 But this isn't the true number of aircraft doing medical
13 missions. In the United States, there are also dual-purpose
14 aircraft throughout the United States. They could be operated by
15 the state, by the county, by the cities and in Alaska and Hawaii.
16 There are military aircraft to support -- that also provide
17 civilian transportation. And that brings our total to well
18 over 830 aircraft doing medical missions in the United States.
19 The exposure data was critical and our operators helped provide
20 this information.

21 In 2002, we contacted the five largest operators. In
22 2005 and 2006, we increased that to any operator that we could
23 identify that operated 10 or more dedicated medical helicopters.
24 2007, we increased that to 15 operators and last year, we expanded
25 it to 20 operators in our survey. There are indeed limitations to

1 our survey, depending on when each operator considered their
2 fiscal year.

3 Also, many of the operators, because we asked for data
4 going back to 1998, some of them, unfortunately, said that they
5 did not have all of their data computerized back then, some of it
6 was relying upon paper trails, so the information from the early
7 years was not as complete as the information from the latter
8 years. Our data sampling, however, was somewhat remarkable. Our
9 data collection can account for roughly 80 percent of all the
10 dedicated programs in the United States and 90 percent of all the
11 helicopters in the United States, dedicated helicopters.

12 (Slide.)

13 DR. BLUMEN: This slide here, taking the exposure data
14 that we got from our operators, shows you the average flight hours
15 per helicopter. Now, early on, when we started seeing the
16 increased number of helicopters in the industry, it was thought
17 that with the increased number of aircraft, that the average
18 number of flight hours per helicopter had to be decreasing and
19 that is not the fact.

20 As you can see, for about the last 12 years, the average
21 number of helicopter, hours per helicopter, has been pretty
22 consistent, averaging about 575 hours per aircraft. Those couple
23 of years that are significantly elevated, well, personally, I'm
24 not 100 percent confident that those are accurate, although it's
25 published data from the Air Medical Journal, and if you can see,

1 their data sampling ranged from 33 percent response to 96 percent
2 and I have to think that that was influenced by who responded in
3 those given years.

4 However, during our timeframe in our helicopter survey
5 through our operators, we're very confident that these numbers are
6 accurate. Taking a look at the total number of flight hours,
7 since 1972 to 2007 we've average -- we've totaled about 4.7
8 million flight hours and you can see that we're approaching
9 about 400,000 flight hours per year, a steady increase in the
10 total flight hours every year except for the last year, 2007,
11 which dropped just a little bit.

12 Now, I'm sure many of you have seen the GAO document
13 that came out a little over a year ago and one of the things that
14 they pointed out, in fact, was part of -- it was the title, is
15 that there was the need for improved data collection.

16 What I'd like to point out, since we're discussing the
17 number of flight hours per helicopter, is comparing what is
18 documented in the GAO report compared to what we came up with.
19 The GAO referenced an FAA estimate for 1999 through 2003 where the
20 FAA said that there was approximately 900,000 flight hours
21 annually.

22 In 2004, the FAA said this increased to 1.6 million
23 flight hours. Compare this with the data that we came up with.
24 For the total number of aircraft we had each year, the FAA data
25 would correspond to over 2,000 flight hours per helicopter,

1 whereas our data comes out to 587 hours per aircraft, just a
2 slight difference. For 2004, it's even more remarkable.

3 The average flight hours per helicopter, over 3,000
4 hours, whereas our data, for a total of the number of aircraft
5 that we could account for, 571 hours per aircraft, significant
6 difference in the total of flight hours and the average flight
7 hours per aircraft. That's why it was so important to come up
8 with accurate estimates on the flight hours because in order to do
9 exposure data, in order to do calculations for accident rates, we
10 needed to have accurate information.

11 Next thing we did -- and this was recently added to our
12 database for operators surveyed -- was trying to find the number
13 of patients being transported per helicopter and annually in air
14 medical transport.

15 This is one of the areas the operators did not have
16 accurate information going back to 1998, but as you can see, there
17 has been a decrease in the average number of patients flown per
18 helicopter, but over the past, roughly, six years, that's been
19 fairly consistent at about 425 patients transported per year in a
20 typical dedicated medical EMS helicopter. This corresponds to a
21 total of, through 2007, 4.3 million people; through 2008, it's
22 about 4.6. to 4.7 million patients that have been transported by
23 dedicated medical aircraft. So now we had all the pieces to our
24 puzzle. We could calculate our accident rates and do a meaningful
25 comparison for our industry.

1 (Slide.)

2 DR. BLUMEN: This slide here begins through 1998 with
3 the NTSB data. Everything from -- I'm sorry, 1988. Average from
4 1988 is based upon our exposure and our calculations. You can see
5 that, shortly after the NTSB report came out, the accident rate
6 significantly had decreased below five accidents per 100,000 total
7 flight hours. It stayed consistently below that. And then,
8 in 1996, it started to climb. It climbed through the year 2000
9 and in 2000, with the exception of the year 2003, where we had a
10 significant number of accidents, there has been a slow but gradual
11 decrease in the accident rate for dedicated medical aircraft.

12 I'd also like to point out that the last three
13 years, 2006, 2007, 2008, has been basically flat with the total
14 number of accidents at roughly three accidents per 100,000 flight
15 hours. Looking at the fatal accident rates, again, through 1998,
16 there's the information from the NTSB report. From 1988 on is our
17 calculated data. You can see that the accident, the fatal
18 accident, rate dropped below two accidents per 100,000 flight
19 hours. It stayed fairly flat for a number of years.

20 Then in 2004, 5, 6 and 7, we saw a gradual decrease in
21 the fatal accident rate for our industry, but even though we don't
22 have the final exposure data for 2008, assuming that there hasn't
23 been a significant decrease in the flight hours due to the number
24 of fatal accidents for dedicated aircraft last year, we're right
25 back up to where we were a few years ago at a rate of two fatal

1 accidents per 100,000 flight hours.

2 It's important to know what the accident rate is for our
3 industry, but also for comparative purposes, to take a look at how
4 our industry compares with other types of aviation in the United
5 States and that's what this graph tries to show.

6 Again, dedicated medical helicopters is in the red. You
7 can see that prior to the NTSB report, our accident rate far
8 exceeded any other type of aviation, but after the NTSB report,
9 our accident rate came down below general aviation, which is the
10 green line there. It came below all helicopter transport, which
11 is information from the HAI. And we consistently stayed below
12 those two forms of aviation throughout our study period, with the
13 exception of one year where we bounced up a little bit.

14 Of note, our accident rate was below 135 non-scheduled
15 operations for a short time, but then came above that rate again
16 and has consistently stayed above other 135 operations. Taking a
17 look at our fatal accident rate, again, prior to the NTSB report,
18 helicopter EMS was literally off the charts compared to other
19 types of aviation operations.

20 In the 1990s, our accident rate, our fatal accident
21 rate, dipped below all helicopter transport. It dipped below
22 general aviation for a short time, below 135 operations, but
23 unfortunately, in 1998, as we started seeing an increase in the
24 number of accidents, in the fatal accidents, the fatal accident
25 rate for dedicated medical helicopters has exceeded all types of

1 other aviation operations, including all helicopters and general
2 aviation. As we started to see a decrease in medical helicopter
3 fatal accident rate in 2006, 2007, we did dip below general
4 aviation. We are on a par or even with all helicopter transport,
5 but all indications are for 2008, we will again exceed all other
6 type of aviation operations for fatal accident rate.

7 The next thing that we did in our analysis was a
8 comparison of the individual risk to the crew members and also to
9 the patients. Again, it's important to try to normalize the data
10 to do a meaningful comparison and the most common way to normalize
11 the data is the way that the Bureau of Labor Statistics does it
12 and that's the fatality rate per 100,000 individuals or employees
13 involved in a particular occupation.

14 (Slide.)

15 DR. BLUMEN: This slide here shows the Bureau of Labor
16 Statistics Analysis for 2007 the high risk occupations. You can
17 see that the Number 3 there is aircraft pilots and flight
18 engineers. In order to do a similar analysis, we would have to
19 come up with exposure data and normalize our data per 100,000
20 employees or people doing medical missions.

21 In order to do that, our analysis team, our research
22 group, first came up with an average number of people, crew
23 members, which include the pilots and the medical crew per -- and
24 that was a number of 18. That would correspond based on the
25 number of helicopters we have in our industry for 2008 a total of

1 approximately 12,000 people performing medical missions. Now, one
2 of the problems with this analysis is it assumes that every one
3 has equal risk, so while each aircraft may have four dedicated
4 pilots, perhaps four -- eight dedicated nurses in the first crew
5 member position and perhaps more people, part-time and full-time,
6 for the second crew member position, we assumed that every one had
7 equal risk.

8 It also assumes that this is the average flight program,
9 meaning that while some programs may fly only 300 hours, another
10 may fly 800 hours; it assumes that the risk is equal for all.
11 This graph here shows the number of crew fatalities that our
12 industry has suffered each and every year. And you can see
13 in 2008, a total of 20 fatalities, 20 crew members lost their
14 lives; in addition, three dual-purpose crew members.

15 For the purpose of our analysis, this is only looking at
16 dedicated crew members because it's the only group that we could
17 come up with an analysis for the exposure data, the number of
18 people doing the occupation. We didn't even try to determine the
19 number of people doing dual-purpose missions. Taking the total
20 number of fatalities, deducting from that the number of patients,
21 dual-purpose crew members and others that had died -- and this is
22 going back through 1980 -- we come up with a total of 213
23 dedicated crew members that have lost their lives during this
24 timeframe. Keep in mind that for the 29-year period, our range
25 goes from a low of 700 to a high, 2008, of 12,000.

1 Now, this is a very small sampling, especially when you
2 consider that, for comparative purposes, the Bureau of Labor
3 Statistics does it per 100,000 individuals. This graph here
4 shows, on an annual basis, what the crew fatality rate would be
5 per 100,000 individuals, keeping in mind that the first year,
6 1980, while it was a very high rate, it was a total of five people
7 who lost their lives.

8 As you can see, over the 29-year average, if we
9 had 100,000 individuals, we would average 212 lives lost each
10 year. The 10-year average during our focus period, the rate
11 is 113. For 2008, which it was higher, the number of fatalities,
12 the number is 164 fatalities per 100,000 individuals. Taking that
13 and putting these figures into the graph from the Bureau of Labor
14 Statistics, for 2008 we far exceed any of the high-risk
15 occupations.

16 For 2007, we have fewer fatalities, we're right below
17 the ranking there for aircraft pilots and engineers. Taking a
18 look at our 10-year average, we're up there as the highest risk
19 occupation if we compared it with the Bureau of Labor Statistics
20 analysis.

21 The last thing we wanted to do is take a look at the
22 risk to the patient. In our 29-year period, we've transported
23 roughly 4.5 million patients. Thirty-four patients have lost
24 their lives, which corresponds to a death rate of .76 patients
25 per 100,000 patients flown.

1 Now, it would be ideal if my next slide could show you
2 what the fatality rate, what the death rate, would be for ground
3 ambulance transport, but there is no data, no comparative data
4 whatsoever, exposure data, total number of patients transported,
5 fatalities for ground ambulance transport. Some of the closest
6 things that you compare it with, the National Safety Council does
7 take a look at motor vehicle accidents.

8 The death rate for motor vehicle accidents is 15
9 per 100,000 persons who transport by motor vehicle per population.
10 So that's a pretty significant difference there. In addition, if
11 you try to compare it to something in healthcare, the Institute of
12 Medicine, in 1998, reported on two studies where they showed that
13 due to adverse events in hospitals, an average of 44,000 to 98,000
14 deaths each year due to adverse events for patients in hospitals.
15 This death rate corresponds to 131 to as high as 292 deaths
16 per 100,000 patients per year. Of note, this is higher; this is a
17 higher rate than the highest risk occupations that I just
18 presented.

19 In conclusion, we've crunched a lot of numbers to try to
20 present some important data here. We certainly have validated the
21 magnitude of the risk, the risk of accidents, the risks to our
22 personnel, to our crew members, to our family members, the risk to
23 the patients and the rest of the community. I truly believe that
24 we have the ability to save lives, but unfortunately, as we have
25 seen, we also have the ability to take lives.

1 I also think that we have the ability to make a
2 difference, each and every one of us here. My thanks to the Board
3 of Inquiry for inviting me to present. I'd also like to thank all
4 the operators and the associations who provided the data to make
5 this analysis and exposure data possible. My thanks to the
6 research group, the team members who continue with the accident
7 analysis that we're doing, to the Foundation of Air Medical
8 Research and Education for the grant support that we continue to
9 get for our research, and I thank all of you for your time.

10 DR. DODD: Thank you, Dr. Blumen. In the interest of
11 time, I think what we'll do is move forward with Mr. Zuccaro's
12 presentation and then finish with Mr. Sequin's and we will then
13 ask questions from the Technical Panel and move forward with the
14 parties.

15 So if I could ask you, Mr. Zuccaro, to begin with your
16 presentation?

17 PRESENTATION BY MR. ZUCCARO

18 MR. ZUCCARO: Thank you. Is this -- okay, great.

19 Good morning and thank you, Chairman Sumwalt and the
20 NTSB for providing us this opportunity to make our comments. And
21 we'll see if we have -- no, I'm going one past.

22 DR. DODD: You might want to speak a little closer to
23 the mic.

24 MR. ZUCCARO: I'm just checking -- there we go. I just
25 wanted to put up a brief slide to introduce -- how's that?

1 (Slide.)

2 MR. ZUCCARO: There we go and we'll just make it right
3 up here close. To introduce HAI in terms of our organization,
4 we're in our 61st year, professional trade association for the
5 international helicopter community and we have 1575 member
6 organizations, 1200 individual members comprised of pilots,
7 maintenance technicians and individuals interested in the
8 industry, and 78 countries. And we have HAI members
9 operating 5,000 helicopters and flying nearly 2.3 million hours a
10 year.

11 HAI safety policy is very simple and stated here.
12 "Safety is the first priority, safety is above all else and is
13 flying to a higher standard." The concept behind this, on the
14 initial consideration, flight to a higher standard really is the
15 base of the concept. In terms of regulations, they're just the
16 foundation and that's a starting point and that's how we view it.
17 We want to fly to a higher standard and the good news is most of
18 the industry is currently doing that.

19 They do have self-imposed higher restrictions and they
20 do use the most advanced technologies that are available to them
21 in several cases. The other one, in terms of safety above all
22 else, is when you have a multitude of considerations before you,
23 what we promote is that safety be put above all of those. And
24 certainly, the safety as the first priority is when you start your
25 process, be it risk assessment, be it decision making, be it

1 anything that relates to operations, the first priority, when
2 you're doing that, should be safety.

3 Now, saying all of that, I want to point out that this
4 is not a political statement. This is not a feel-good statement.
5 We do not believe that safety is a poster. We don't believe it's
6 a basic phrase to say let's all fly safe today. These phrases up
7 here, in order to comply with them and really believe in them,
8 take full commitment on a day-to-day basis and that's what we're
9 trying to promote and that's where our policies really operate to.

10 The other thing, I think, that's important is that I
11 would be remiss in not pointing out that these philosophies put up
12 here certainly are HAI mandates that we put forth to the
13 membership. I think it's important to realize that the other
14 interested parties that are here also have the same philosophy and
15 we've worked with the individuals that are sitting at these
16 tables. And as an industry, in a collective group, I think all of
17 us get up and look at this and say we're going to make our best
18 effort to make this happen.

19 We're certainly not perfect, but I think the philosophy
20 is there, I think the commitment is there by all the parties. The
21 other thing I think is important is that we're not focused,
22 certainly I'm not, on the aspect of accident rate or statistics
23 which are critical, which Dr. Blumen just presented. I think
24 they're absolutely essential in order for all of us to do our job.

25 But I think a motivator has to be that even if one

1 accident is preventable, that's not acceptable and we are in that
2 situation now. We have accidents that are not preventable and
3 it's not acceptable and we need to strive to move forward to make
4 the change. Part of that change in initiative is the
5 International Helicopter Safety Team. I happen to be fortunate
6 enough to co-chair the IHST. The basic mission of IHST, as
7 indicated there, is to reduce the international helicopter
8 accident rate by over 80 percent over the next 10 years.

9 I think what's of interest is on many occasions, I get
10 challenged on the number, to say that 80 percent is a high target,
11 a high number. Is it realistic, can you really do this? I kind
12 of change and turn the number around and my point of view is, if
13 we challenge 80 percent as a goal, then what are we really saying,
14 that 20 percent accident rate is acceptable? It's not. The
15 number really should be zero. And we're target to focus on the
16 accidents on a trend basis over the 10-year period and make that
17 occurrence happen of 80 percent and that's a target that we
18 created.

19 The IHST is comprised of an executive committee, as
20 outlined on the chart. Of note is that there are international
21 JHSIT and JHSAT. The JHSAT stands for the Joint Helicopter Safety
22 Analysis Team. The JHSIT is the Joint Helicopter Safety
23 Implementation Team. There are regional JHSATs and JHSITs in the
24 countries that are participating in this process.

25 The analysis team analyzes the accidents and takes each

1 individual accident and reviews it with protocols that they have
2 created in order to come up with factors that are contributory and
3 remedial actions. The implementation team is responsible to take
4 that information and then apply it and implement it through
5 whatever venue and methodology they deem appropriate within the
6 industry so that it has a tangible effect. The regional team
7 developments that have occurred with the program, we've had the
8 first regional conference, which was in 2006. The program,
9 itself, has been in existence since 2005.

10 You can see the various countries where we have traveled
11 to and participated in, and the IHST conferences that have been
12 sponsored on the bottom part of this slide and our plans for
13 moving forward in 2009 to the countries indicated. The worldwide
14 accident helicopter trend has been stable pretty much over the
15 period that we're studying. It has a plateau to it. What we're
16 trying to do is to get the remedial actions and the protocols that
17 will allow us to break through that plateau and start heading
18 towards zero. That is the basic mission when we look at that
19 chart.

20 The worldwide fleet distribution, I don't think there
21 are any surprises here. The U.S. comprises approximately 50
22 percent of the helicopter activity in the world with the
23 distribution as indicated, then the rest of the countries.
24 Factors that led to breakthroughs in major airlines, this is a
25 chart that we commonly use from the FAA and it marks the progress

1 of the safety initiatives that were put in place over an extended
2 period of time within the airline industry and the effect that
3 they had in driving down the accident rate down to the levels that
4 we now have experienced in the airline industry.

5 And you can see, there are technological and operational
6 implementations that were put in place and caused these reductions
7 in the accident rate. On a draft projection, we just gave an
8 example of what the potential could be if the helicopter industry
9 continues to follow the model that IHST has set up.

10 In terms of various protocols, in the beginning, you can
11 see introduction of a scaleable safety management system tool,
12 ensuring safety initiatives, night vision goggle utilization and
13 HTOS, ADSB implementation, all the way to the end of the period
14 where we're conducting all IFR operations. If, in fact, we're
15 successful in achieving our progress towards the 80 percent goal,
16 it would have an effect of reducing the accidents by 760 over the
17 period and reducing the fatalities by 372 on the U.S. fleet.

18 If you apply that internationally, those numbers are
19 driven up to 1694 and 1132, respectively. The IHST is a three-
20 stage process of data analysis and I think that's important in the
21 fact that the entire project is based on in-depth analysis of the
22 data that's available for each accident. It sets the safety
23 priorities after it agrees on the problems and interventions and
24 then the job is to implement those safety enhancements, certainly
25 within the U.S. domestic, and in the case of IHST influence,

1 safety enhancements worldwide and integrated into the existing
2 work and distributed throughout the community. Percentage of
3 accidents in which problem categories were identified at least
4 once, obviously I think you'll see the commonality with the first
5 one, pilot judgment and actions, human factors, basically, in the
6 area of the high 70s, 80 percent range as pretty much the same as
7 Dr. Blumen had indicated.

8 International Helicopter Safety Symposium 2007 was the
9 second one that we held and again, the original was in 2005. The
10 next meeting is scheduled this year for September 2009 in
11 Montreal. We anticipate 300 international attendees from the
12 safety community. And the program will certainly give updates on
13 the JHSAT, on the JHSIT work, manufacturer and operator
14 presentations relative to safety and the concurrent papers that
15 will be delivered.

16 One product that we have produced to date is the safety
17 management system toolkit, which -- I believe one of the panels
18 has documents on, that were submitted. It's a scaleable safety
19 management system toolkit that's available free on the various web
20 pages of IHST at HIA. It is targeted for the smaller operators,
21 which create the larger percentage of the operating community, but
22 it can be used by anybody, and it's a simple toolkit to start a
23 safety management system within your own organization.

24 The pathways to the operating community are critical.
25 We need to get the message out and the information distributed.

1 Here, what we've done is indicated the various parties that we
2 think are critical to do that in terms of the insurance industry,
3 the associations, the maintainers, the trainers, the FAA, the NTSB
4 and certainly, the financial institutions. The safety culture has
5 to involve all the interested parties; otherwise, it will not be
6 successful, obviously. Everyone has to be aware of the situation
7 and what the issue is and what the potential solutions might be.

8 I like to point out that one of the critical ones at
9 times that seems to get overlooked is the end user, the clients.
10 I think it's critical that end user clients be part of the process
11 and be educated and we have initiatives to do that. The IHST, in
12 summary, it's a worldwide effort structured approach to manage the
13 analytical and implementational work sponsored by IHST. All
14 recommendations are data driven. Each country owns the data, does
15 the analysis and implements the protocols by teams that are most
16 familiar with their local needs.

17 The JHSAT and JHSIT lead teams are responsible for
18 training and advising the regional teams in other countries.
19 European representatives have now been added to the executive
20 committee. The JHSIT SMS toolkit, as I indicated, is free and
21 being used. The European teams are building on the North American
22 model and groups in Australia, Brazil and India have committed
23 support to the program.

24 In terms of the helicopter operating environment, I
25 think it's important to take a quick overlook in terms of single

1 multi-engine operations, VFR/IFR, urban versus rural and offshore,
2 one aircraft to 300 aircraft fleets, commercial, private and
3 public. That is something that the IHST is very focused on and
4 realizes that the variety of operations and environments that are
5 being conducted certainly make the mission that we have embarked
6 on certainly more difficult than what the airlines CASS program
7 was facing. But we believe that we can be and will be successful
8 as we move forward.

9 Multi-mission profiles, again, I'd point out that these
10 are just a listing of what helicopters can and currently do and
11 this is just a partial list. Certainly, the focus today is on
12 HEMS operations. HEMS specific considerations, off-airport
13 operations, low altitude environments, remote locations; HEMS
14 operations, in many cases, are operated outside the normal
15 aviation infrastructure in terms of communications, real time
16 weather availability, surveillance and the ability to be tracked
17 and access to the IFR infrastructure. They're in challenging
18 operating environments. No previous operations have been
19 conducted many times at the sites that the aircraft operate to.

20 There's minimal notice of flight requirement and they're
21 daily 24 hour, seven day a week VFR/IFR, which, in my mind,
22 creates one of the most demanding operating environments you can
23 have in the helicopter business. Technology, it's an important
24 part of the solution, absolutely, and it's critical. Helicopter
25 terrain avoidance warning systems and the others that are listed

1 there are critical and will be beneficial to the industry, but
2 it's not the total solution. I think that's an important point
3 that should be made.

4 I think, at times, when we're discussing technology, it
5 has a tendency to create an excess anticipation of the results.
6 Also, I think, it potentially could distract from the actual
7 problem that we're trying to address.

8 What I mean by that is if you have an operating
9 environment, I'll use marginal weather as an example. When the
10 accident occurs and it involves inadvertent -- marginal weather,
11 technology certainly is an issue that rises as to how we could
12 have prevented that aircraft from impacting on obstacle, the
13 ground, or losing control of the aircraft. And you want to solve
14 that problem with technology and give that flight crew something
15 that would've made that situation preventable. And that is a good
16 target, but I tend to like to back up the chain and what I mean by
17 that is to go back, as to how did that aircraft get to that point
18 that it required this technology that was necessary to remove it
19 from a critical situation.

20 Let's go back and let's look over here and find out
21 should the aircraft have been there to begin with and how did it
22 get there. There is no magic bullet. I think that's fairly
23 obvious and I think we all understand that. Again, I'll point out
24 I'm probably one of the biggest supporters of technological
25 advancement and implementation, but there is not going to be a

1 magical bullet. Certainly, we're all familiar with the fact that
2 there's been previous fatal accidents that have involved the
3 aircraft described there, twin engine IFR auto pilot to pilot IFT
4 qualified crew, VFR operation with an advanced cockpit and they
5 were familiar with the operating area.

6 So I would submit for consideration that when we talk
7 about these things, let us not forget that there's something
8 driving this certainly beyond the technology that's causing it.
9 Human factors are a critical area to focus.

10 I think all the stats that we've just seen and certainly
11 will discuss keep pointing us back towards human factors as a
12 critical area in the focus. Risk assessment and decision making
13 are absolutely critical. Also, the acknowledgement perceived the
14 real pressures on the operations, on the companies, themselves,
15 and on the field personnel such as the pilots and the maintenance
16 technicians. It's absolutely essential to create the safety
17 culture and put it in place. We have to, in essence, change the
18 way we do business. I think we all realize that in order to have
19 a beneficial effect here.

20 HAI initiatives, what we've done is progressive outreach
21 for several years and we've broken it down into mission specific
22 HAI safety forums and workshops and what I mean by that is I
23 believe, as a safety initiative, this has worked extremely well
24 for us. We conduct one to two-day safety initiative workshops and
25 forums. On the first day, it's usually educational.

1 On the second day, it's a workshop to identify action
2 items which are followed up. We target specific mission profiles
3 that are listed there; aerial firefighting, air tours, EMS, ENG
4 and then a focus on EMS for obvious reasons. The participants are
5 important. We have the operators, the pilots, the technicians,
6 the FAA, the NTSB, the clients and the insurance industry are
7 active participants in these forums and I would like to take this
8 opportunity to take the NTSB for its staff and their active
9 participation in these forums in support of them, it's been
10 critical. And as well as the FAA that's in the room, it's been
11 extremely beneficial in us reaching our efforts.

12 What this forum does and the way this model works for us
13 is that we have all the interested parties in there and with the
14 same goal, how do we enhance and improve the safety. And by doing
15 the action items with the end user operators, the regulatory
16 people and those other interested parties, we can form working
17 groups that actually are able to produce tangible results that are
18 applied to the industry. You'll have to excuse me for my cough.

19 Revised HEMS operations specifications was an initiative
20 that we were able to coordinate within the industry and develop
21 the comments and response to the FAA Notice of Proposed Rule
22 Making for A021 and A050, which respectively affected HEMS
23 operations and night vision goggles. There was a result in the
24 fact of increasing the weather minimum, enhance the preflight
25 planning, the promotion of IFR flight and the promotion of night

1 vision goggle -- use. What I think is important to point out,
2 that in this initiative, the operators that were involved in this
3 process and the organizations that represented the pilots in other
4 segments represented approximately 85 percent AMS operators -- and
5 the good point here is that the initiative to raise these
6 standards and to promote this was recommended by those operating
7 communities in recognition of the fact that they wanted to raise
8 the level in the playing field.

9 We intend to sponsor, with the FAA, regional HEMS safety
10 seminars that will be scheduled within the next three months that
11 will be conducted throughout the United States to provide
12 orientation and briefings on the application of AO21. HAI, AAMS
13 and AMOA, those three associations, submitted comments, obviously,
14 for initiatives to the NTSB. They relate to the use of night
15 vision goggles and enhanced vision systems for night VFR HEMS
16 operations which we certainly support. Congressional funding via
17 AIP program for infrastructure improvement dedicated to HEMS
18 operating environment.

19 This is really a simple statement of extending the
20 national air space system into the helicopter operating area,
21 application of HEMS criteria. The government operators commonly
22 known as, also as public use aircraft, in an effort to ensure that
23 the end user, in this case, the patients, are receiving a standard
24 of service on a level playing field. Develop dedicated low level
25 helicopter IFR infrastructure, utilization of the flight data

1 records, CVRs, video capture devices are for use in accident
2 investigation and also for quality control programs, elimination
3 of launch and response time requirements.

4 FAA prioritized implementation of ADSB for the HEMS
5 environment, the formalized multiple flight request protocol
6 program to eliminate the practice of helicopter shopping. Review
7 of fatigue factors within the HEMS model, industry/agency
8 coordination with the International Helicopter Safety Team
9 relative to data driven accident analysis and a focus on the role
10 of human factors in helicopter accident causation.

11 The following initiatives are predicated on HAI and its
12 members and what we're trying to keep in the conversation and make
13 part of the considerations. I think it's critical, without a
14 doubt, to at all times to provide a non-punitive safety reporting
15 environment within the operating companies and the HEMS community
16 and the helicopter industry, for that matter. People that conduct
17 these operations and the business have to have a feeling and a
18 sense that they, in fact, can bring forth their concerns on safety
19 without having any punitive action taken or retribution, and
20 implementation of safety management systems, which is in progress
21 as we speak.

22 Management oversight or risk assessment activities,
23 acknowledgement of risk aversion and not risk exposure; what I
24 mean by that is that when we review operations or people generally
25 talk about decision making, we seem to focus on, in the common

1 everyday occurrences, as to why somebody didn't take a flight.
2 What we should also do, I think, in a greater extent, is say why
3 did someone take a flight and was that flight properly reviewed
4 and was it justified in being taken. And what you want to do is,
5 in essence, look at what the risk aversion practices are as well
6 as the risk, you know, taking risk exposure activities are because
7 we tend to focus, I think, in just the one direction and we need
8 to go in the other direction.

9 Client education programs and forums, I think it's
10 critical that the client base in all segments of the helicopter
11 community need to be educated as to what safety really is, why
12 operators make the decisions that they make and why they do what
13 they do and why pilots make the decisions that they do. If they
14 had a better understanding of what was going on, they would be
15 better prepared to make educated decisions on their own in terms
16 of how they would conduct their requests for operations and I
17 certainly, I know from my personal experience, I can cite
18 instances where had the client actually know some of the in-depth
19 protocols and details of safety decision making, why people do
20 what they do and why the rules are what they are, they very well
21 could've been contributory to preventing an accident.

22 Sales and marketing of safety to the operators and the
23 clients, I view it as a product. It does have to be sold and
24 marketed for acceptance within all communities. Safety
25 initiatives that are appropriate to specific operating

1 environments and missions, simple statement, one shoe does not fit
2 everything. You have to apply the proper technology safety
3 initiatives in the particular mission profile in the operating
4 environment that you're having the issue with. Consideration has
5 to be given to the retrofit capability of anything we do to the
6 existing fleet. It will, in fact, be the majority of aircraft
7 that are out there operating right now. It will not be all new
8 aircraft.

9 The development of end user claim educational DVD, which
10 is an initiative that we've taken on and are developing now that
11 can be used by operators to share with their client customer base
12 to educate them towards the things that we're talking about. HEMS
13 specific mission training and the use of simulators and flight
14 training devices, inaccurate flight hour data to facilitate actual
15 helicopter accident rates, right now we do not have accurate data
16 in the overall helicopter community that indicates how many actual
17 hours are being flown by helicopters and I think everybody is in
18 general agreement that the numbers are being under-reported and in
19 fact, we do fly more hours than what we commonly use now as
20 examples.

21 The other thing is a dedicated helicopter low level IFR
22 route structure, point in space and instrument approaches to
23 heliports -- to provide a seamless transition in and out of the
24 IFR system for helicopters. I think that's a target that we view,
25 as we move forward towards the future, as being the ultimate

1 operating environment down the road. That certainly provides a
2 higher level of safety protocols and protections within that
3 system and if, in fact, you were able to seamlessly transition
4 from VFR to IFR, I think you could make an educated estimate that
5 the instances that we now see of a flight crew struggling in
6 marginal weather and inadvertent IMC, it could theoretically be
7 eliminated if we went to an all IFR operation for specific mission
8 profiles. Change in the cultural mindset of relevant parties so
9 that the daily decision making places safety as the primary
10 consideration above everything else.

11 I think that is a simple statement, yet a broad
12 statement, yet a difficult one to achieve. The actual
13 implementation of the culture that facilitates that every decision
14 will, in fact, be driven and made at all times with safety as
15 Priority One is certainly the operating environment that is going
16 to give us the best protection and the best environment and we're
17 certainly moving towards that as an industry. HEMS risk
18 assessment decision making, the same as other mission protocols.

19 This is an issue that I've certainly heard a lot about,
20 discussed a lot with people. I view this as the decision to take
21 the HEMS flight as the -- should have the risk assessment and the
22 same decision making as any other mission profile and the simplest
23 statement I could make is that what you're trying to determine is
24 if I can move this aircraft from A to B safely and that's an
25 aeronautical decision making and that should be the focus of what

1 is there, that you're doing. And along with that there should be
2 a separation of pilots from medical patient information prior to
3 the departure.

4 Local pre-established HEMS heli-stops, is there a
5 potential for the establishment of HEMS heli-stops in local areas
6 where there's a high degree of responses to a particular area and
7 might that be a mechanism to allow a better transition from the
8 flight regime to an established heli-stop to make the pickups.

9 Formalized operation and control agreements with the
10 clients, that's an actual concept of having a formal agreement
11 with the client base and establish the definition of operational
12 control and who is the person or the organization that is
13 responsible for the decision making aeronautically for the
14 aircraft and why that is so. And one of the other ones, I think,
15 that was critical that I wanted to back up a little, I think we
16 were talking about the field personnel.

17 I think it's essential that the operating environment
18 that's created for the field personnel -- in my terms, the pilots
19 and the maintenancetechnicians -- has to be an environment that
20 is sterile to a degree of certainty that as best as we can that
21 allows them only to be concerned with aeronautical decision making
22 and not any other influence, other issues that really aren't
23 relevant to the particular flight that they're dealing with at
24 that point, and I know that's a hard thing to do, having flown
25 for, you know, 40-some odd years. But it is something I think we

1 ought to target and drive towards in an effort to ensure that
2 those decisions are being focused on that particular issue.

3 Finally, I will also mention that in our effort to try
4 to improve the situation to the best of our ability, as an
5 association, we're in the final stages, developmental stages, of
6 creating an accreditation program for helicopter operators with
7 the target basically being the promotion of flying to a higher
8 standard. And with that, I would note that I do want to convey
9 that we do not believe that, again, that safety is not a slogan.
10 It requires passion and commitment and that has to be practiced on
11 a day-to-day basis in order to get the desired effects.

12 And I certainly, again, believe that HAI, its members,
13 the other associations and the operators and the overall community
14 are committed to that and it is a driver for us, as a collective
15 group. And we certainly are committed to do whatever we have to
16 do to make that happen and we certainly express an open
17 willingness to work with all the various groups and agencies to
18 achieve, in this case, as we sit here today, certainly a safer
19 operating environment in the HEMS community.

20 DR. DODD: Okay. Thank you, Mr. Zuccaro.

21 MR. ZUCCARO: That's just contact information and any
22 questions.

23 DR. DODD: Okay, fine. I think we'll move right on to
24 Mr. Sequin. One of the things I should point out is he's a
25 representative of a Canadian EMS helicopter operation and we asked

1 him to come and speak to share with us how our neighbors north of
2 the border operate their EMS helicopters. They do it slightly
3 differently and so this is an opportunity for us to learn a little
4 bit more about the Canadian approach to EMS helicopter operations.

5 PRESENTATION BY MR. SEQUIN

6 MR. SEQUIN: Thank you. Thank you for the members of
7 the National Transportation Safety Board and members of the
8 public. Thank you for this opportunity. As was discussed by
9 Mr. Dodd, the presentation is in relation to the operations in
10 Canada, so the next slide gives you a bit of an outlook of what
11 we're going to go over, okay.

12 (Slide.)

13 MR. SEQUIN: So basically, just a brief introduction of
14 the Canadian program, the framework of the HEMS in Canada. Also,
15 a little bit of the historical review of when it started. We'll
16 touch a little bit on the regulatory framework, also the training
17 and experience levels required, the standards provided by the
18 clients, the regulatory body by Transport Canada. Also, role of
19 SMS and that'll conclude that presentation.

20 So basically, in Canada, the first dedicated EMS
21 operation was started in 1977 and this was, at that time, with a
22 Bell 212, a twin engine helicopter. From the start, it was a twin
23 engine operation with two pilots IFR rated.

24 Today we have a total of 20 helicopters across Canada
25 for main operators that are currently engaged in these 20

1 aircrafts, and typical EMS operation very similar to in the U.S.
2 Basically, hospital transfers, seeing calls which can be on the
3 highway or in various areas, it could be a cottage in the woods,
4 so depending on where the call specifically is, and night
5 operation -- because the aircrafts are all capable of instrument
6 flight so there is that capability and one operator has started
7 with night vision goggles operation, which is STARS. So at this
8 point, we estimate that the Canadian operation is around 30,000
9 hours and that's for the whole industry without any fatal
10 accidents.

11 Just a little bit on the framework on the EMS in Canada,
12 so basically, these are government funded programs, no cost
13 recovery paradigm. Contracts are awarded by public request for
14 proposal, so RFB process. And all the contracts are managed
15 through Provincial Health Department, so the various provinces
16 will manage their own EMS helicopter, EMS operation.

17 Historically, as discussed earlier, the first aircraft
18 started in 1977. It was expanded in 1980 with a second Bell 212
19 and then a third aircraft, which was a 76. Then in '85, STARS
20 started operation in Calgary with one aircraft, expanded in '92
21 with a second aircraft and in 1996, in Nova Scotia, so on the East
22 Coast of Canada, they started the operation with a 76 and in 1998,
23 in British Columbia, there was two aircrafts, two S-76 plus one
24 Bell 222.

25 And obviously, these are just to give you a bit of a

1 perspective of where and when these different programs started and
2 all these programs are still in operation. So we have programs in
3 four provinces, serving -- and this is just approximately --
4 serving approximately 21 million people and four service
5 providers. Ontario, which is the largest province as far as
6 population, obviously centrally located in Canada, as you can see,
7 these are just to give you an approximate idea of where the
8 aircrafts are located and these helicopters serve roughly these
9 areas, but I didn't put the circles up to scale, just to give you
10 an idea. So we have seven dedicated bases, locations, 11
11 aircrafts and serving over 400,000 square miles. The program in
12 Ontario has accumulated about 170,000 fatality-free hours
13 since 1977.

14 In the mix of flying, as you can see, is primarily days,
15 so you got 65 percent which is daytime; 35 percent which is
16 nighttime and in the mix, in both of that, you're looking about 25
17 percent IMC, so instrument flight being -- either it's filed on an
18 IFR flight plan or there's just no reference because of the
19 northern latitudes, so it would be more to the IMC. Ornge runs a
20 program in Ontario and they have a fleet replacement program right
21 now and it's supposed to start in 2010 with 10 new aircrafts.

22 In Alberta there's three dedicated locations for STARS
23 with five aircrafts and that's the approximate population in the
24 area of coverage. They've accumulated about 25,000 fatality-free
25 hours since '85 and their mix is approximately 60 percent day, 40

1 percent nighttime and a very small percentage of IFR, but probably
2 more of their calls are scene and just the way the program is set
3 up. But they have a fleet renewal or augmentation, I should say,
4 with three new helicopters that are starting or will start being
5 delivered this year to augment the existing fleet of the 117.

6 So we go to West Coast in British Columbia. Two
7 dedicated locations with two S-76 and one 222. Dedicated service
8 since 1996 and over 25,000 fatality-free hours accumulated and
9 their mix is a little different as far as type of daytime,
10 nighttime. You can see a little bit more night and a slightly
11 higher percentage of IFR flying primarily because of the coastal
12 weather, so they certainly have that increase, a lot more IFR
13 flight plans being filed.

14 Nova Scotia, now we go to the other spectrum of -- the
15 other side of Canada, so the East Coast. One single aircraft
16 serving approximately one million people, over 25,000 square feet,
17 and the program has been ongoing since 1996 and they've
18 accumulated about 9,000 hours. And their mix is 65 percent
19 daytime, 35 percent night, 35 percent IFR and again, coastal
20 weather, so the IFR is used quite a bit for that program. And
21 that gives you a bit of an idea of the scope of the various
22 helicopter EMS programs.

23 Now, amongst that, there's a number of fixed wing
24 operation within those operating areas and the remote areas which
25 are also run by provinces, but slightly sometimes, a lot of time,

1 different models. And there's a number of paddock VFR charter
2 helicopters, but these are not EMS operators, they're just when a
3 service provider needs an aircraft to retrieve somebody and it's
4 strictly daytime, so we don't hear too much about that in the
5 remote areas. Regulatory framework, well-defined weather limits,
6 night routes for -- night VFR routes are basically a thousand feet
7 above obstacles within the three mile of each side of a route and
8 with three miles' visibility.

9 Instrument IFR routes, you're looking at 2,000 feet
10 above obstacles within the 10-mile -- from the center line of the
11 track. And VFR minimum in uncontrolled air space, below a
12 thousand feet, you're looking at not less than one mile, but in
13 our operation, specifically, if the pilot encounters in daytime
14 visibilities less than one mile, then he has to file an occurrence
15 report so we can track and see if we can remedy the situation.

16 Also, for the crew requirements -- and we'll see that in
17 the next couple slides -- that's also well-defined, but the single
18 pilot IFR, although it's permitted and it's an exemption, there's
19 no operators right now in Canada that have used that exemption, so
20 it's all two-pilot operations. And as far as IVG, one operator,
21 as discussed earlier, and they continue using the same night
22 minimums that exist for normal VFR operations, so you're looking
23 at a thousand feet above the highest obstacles within three miles
24 off the center line track with three miles visibility.

25 However, as they progress with the advance NVG

1 operations, they do have an exemption that permits them to do away
2 with the lateral limit and I believe, talking to people at STARS,
3 a lot of that is to allow them to go in the mountains, certainly
4 Banff is one area that they serve from Calgary, so that certainly
5 allows them to go along the highway or the roads and it works out
6 quite well for them.

7 And for advance NVG flight in mountainous area, it's
8 minimum of five miles visibility, so they've actually upped the
9 visibility for nighttime or for the NVG operation in mountainous
10 areas. Their basic program for training is the NVG course plus
11 three hours of flight training, but as the program progresses, the
12 pilots do get advance training and for the advance NVG for the
13 pilots who have the ability to fly in the mountains to develop
14 lateral separation.

15 NVG, the pilots must have 35 takeoffs and landing on NVG
16 and must complete NVG ground school which is an advance ground
17 school, plus training with a training captain, training in the
18 mountains. Now, training and experience level for EMS operators
19 in Canada, pretty much we abide by the Canadian Air Regulations
20 Standards and the client standards which basically, most of the
21 client standards have adopted as minimum the Transport Canada
22 standards plus stricter requirements.

23 Client oversight for training programs, a lot of
24 programs require simulator training, for example -- that may be in
25 the RFP -- and regulatory oversight for operation, obviously. The

1 standard for a first officer is 500 hours flight time, that's a
2 minimum standard, with commercial license, current night and
3 instrument rating and also current PPC, Pilot Proficiency Check,
4 which is done annually with the instrument ride. And the first
5 officer has to have -- the airline transport exam. And for the
6 captain, the standard ranges from two to three thousand hours
7 total flight time with an airline transport pilot license,
8 helicopter. A thousand hours multi, one hundred hours on type and
9 also, obviously, current night and instrument reading and current
10 PPC.

11 In addition to that, obviously there's operation
12 specific training such as PDMS -- AMRAM (ph.), hover exit,
13 survival training, underwater -- training. And the operational
14 framework, as you've seen, all the operators, all the aircrafts
15 are twin engine, IFR certified, they're all two-pilot cockpits.

16 Captains are airline transport rated with instrument
17 rating, very strong culture of SOPs. We can basically take pilots
18 from a different base, throw in the simulator and do a ride, so it
19 does help. And centralized dispatch centers, which is another
20 critical area. And obviously, maintenance department, strong
21 maintenance department. A lot of the aircrafts are in hangars
22 with full-time maintainers. Now, this operational framework is
23 not strictly Canadian paradigm.

24 As you can see, very similar to the New Jersey State
25 Police Aviation Department and they operate twin engine

1 helicopters, two-pilot crews, instrument rated, centralized
2 dispatch and they've been in operation, from what I understand,
3 since 1988 with over 35,000 hours medevac hours, along with 30,000
4 accident-free flight hours. And just coming up towards the end,
5 just a little bit of the SMS, that was one of the areas that was
6 asked and certainly, for operation, obviously, strong proactive
7 process for completing risk assessment.

8 Obviously, safety starts at the top, especially when it
9 comes to selecting a combination of crew, aircraft accommodation,
10 training and it moves down to your middle management or even upper
11 management, deciding the standards, the criteria, the go/no go
12 decision because a lot of these decisions can be made on the
13 ground and if you can capture that and do them on the ground it
14 just makes it a lot easier for the crews.

15 Obviously, as was discussed earlier, too, non-punitive
16 reporting policies which are just one additional element or in an
17 SMS process and a strong reactive process for managing hazards and
18 incidents, and there's other elements to an SMS, but those were, I
19 thought, were important to point out. And obviously, as you build
20 your SMS, what's important is what the pilot or the crews have to
21 make the decision and it comes down to clear SOPs, clear
22 procedures, so the crew, when it's three o'clock in the morning,
23 can make a go/no go decision much easier because it's all the
24 process or the potential scenarios have been discussed before.

25 And to conclude, I just put up a couple of websites,

1 IHSD.org. Mr. Zuccaro has mentioned a great -- SMS toolkit for
2 operators. Also, HAI has an event database which is a critical
3 element for an SMS program and also the OGP. The OGP has an
4 incredible amount of documents and they have very clear standards
5 for their operations, so those are really good documents to have,
6 as an operator, or anyone. And that's it.

7 DR. DODD: Okay. Well, thank you very much. I want to
8 thank all three members of this panel for very informative and
9 excellent presentations. But in the interest of comfort of the
10 audience, perhaps, Mr. Chairman, maybe we could take a break right
11 now and then come back with this panel and begin with some
12 questions?

13 CHAIRMAN SUMWALT: I think that's an excellent idea.
14 I'd like to direct your attention to the digital clock in the back
15 of the room. It says 10:39. Let's do take a brief break. Let's
16 come back at 10:55. We will reconvene. Thank you.

17 (Off the record.)

18 (On the record.)

19 CHAIRMAN SUMWALT: I will ask everyone to please take
20 your seats. Thank you.

21 Yes, we did the simple math and the number of people in
22 here divided by the number of toilets -- but I am informed that
23 there are additional restrooms up in the promenade area. Go
24 upstairs to the -- where it -- where the pyramid is and
25 apparently, if you go to either side down by McDonalds or down by

1 the -- whatever's on that end, there are restrooms up there, so
2 there are additional restrooms up there.

3 Dr. Dodd, we will turn the hearing back over to you for
4 the questioning of the witnesses. Thank you.

5 DR. DODD: Thank you, Mr. Chairman. What I'm going to
6 do now is ask a few questions of each of the panel members who
7 made presentations and when I'm done, I'll turn the questioning
8 over to the parties and I'll ask Ms. Ward to determine what the
9 cycle will be, who will start off with that questioning. Is that
10 appropriate?

11 HEARING OFFICER WARD: Actually, the chairman will.

12 TECHNICAL PANEL QUESTIONS

13 DR. DODD: Okay. That will work too. So let me start
14 with Dr. Blumen. If I could get Slide 21 from Dr. Blumen's
15 presentation displayed. Dr. Blumen, you referenced the doubling
16 of the total number of EMS helicopters every 10 years. Well,
17 actually the slide that preceded this. Over the last couple
18 years, though, there seems to be an increase or if you will, the
19 rate of the total number of helicopters which is exceeding that
20 doubling every 10 years. My question to you is do you have any
21 explanation for that increase in the total number of helicopters?

22 DR. BLUMEN: I can't say that I have specific
23 information that would answer that definitively. I think the most
24 rapid growth that we saw, according to my slide, was in the early
25 2000s. I think much more of a rapid increase than we had the last

1 couple of years. One of the things that I might consider is the
2 change in the reimbursement for helicopter EMS, that that may have
3 been a factor in the expansion of the growth, but other than that,
4 I can't say specifically that I have a definitive answer.

5 DR. DODD: Okay. Could you mention, just briefly, what
6 the change in reimbursement references? I'm not sure that all of
7 us understand.

8 DR. BLUMEN: Actually, I'd probably be better off
9 deferring that to someone who's got a financial background, so --

10 DR. DODD: Okay. Another point that you made in your
11 presentation, you stated that the overall EMS helicopter crash
12 rate for the last five years has been lower than that of other
13 helicopters, but the fatal crash rate has been higher. Why do you
14 believe the fatal crash rate has been higher over that time
15 period?

16 DR. BLUMEN: I think it has to do with the type of
17 accidents that we had. The one slide that I showed that indicated
18 the number of CFIT, controlled flight in training accidents, where
19 we had 19 fatal accidents out of 21. Those types of accidents, I
20 think, are inherent more to our industry, to helicopter EMS, than
21 to other forms of helicopter transport, and I think that has a lot
22 to do with the increase in our fatal accident rate.

23 DR. DODD: And does that relationship -- does that
24 remain fairly constant over the years? I didn't look far enough
25 back in the slide to see if the fatal rate has remained

1 consistently higher.

2 DR. BLUMEN: The fatal rate has been higher. If you
3 take a look at the 10-year period, while the percentage of fatal
4 accidents was 35 percent of all the accidents, it definitely has
5 been higher than other types of helicopter transport throughout
6 the historical perspective, looking at the NTSB data for other
7 types of aviation.

8 DR. DODD: Okay. You had one slide, I believe, about
9 mechanical failure crashes in your presentation. My experience
10 has been that historically about 15 to 20 percent of air medical
11 crashes are associated with some type of mechanical failure. Do
12 we know how often mechanical failure crashes result in fatalities?

13 DR. BLUMEN: That's one fact that we haven't taken out.
14 The slide that I showed did show 17 percent of the accidents that
15 we analyzed, those that had final NTSB reports, were due to
16 mechanical failures cited as a probable cause or contributing
17 factor. But I have not teased out just the fatal accidents; those
18 are all accidents that had a final report were 17 percent.

19 DR. DODD: Okay.

20 DR. BLUMEN: It's something that I could do, but I just
21 haven't done that up to this point.

22 DR. DODD: Okay. If I could get Slide 45 from
23 Dr. Blumen's presentation?

24 This slide, of course, is referencing your calculation
25 for the occupational fatality rates and as you pointed out, in

1 this past year the occupational fatality rate was 164 for 100,000,
2 a rate higher than we see typically in other high-risk
3 occupations, such as logging and commercial fishing. Why do you
4 think the occupational death rate for the medical crew is so much
5 higher than other high-risk occupations?

6 DR. BLUMEN: I think a lot has to do with the
7 denominator. We have a total of, by our estimate, 12,000 people
8 doing this. When you normalize the data up to 100,000, each
9 fatality is going to be compounded. If you take a look at the
10 Bureau of Labor Statistics data for the others, also the high-risk
11 occupations, those are some of the ones that also had under
12 100,000 employees for those occupations, as well.

13 So I think, because of the normalization of the data, it
14 -- I'm not going to say it's artificial, they're very real
15 numbers, but since every individual death is going to be magnified
16 by a significant factor, it makes it a much higher rate.

17 DR. DODD: Well, you controlled for that to a certain
18 extent by averaging the values over a 10-year period with, I
19 think, it was 113 per 100,000. And I guess the question I have,
20 the ultimate question, really, is what do we make of that
21 statistic? I mean, what does that mean?

22 DR. BLUMEN: Well, that's actually the next slide, that
23 normalizes it for the 10 years and I think that that was probably
24 a more accurate way of doing it rather than individual year and I
25 think that gives it a truer comparison, even though for our

1 purposes it's over a 10-year period, comparing it to the Bureau of
2 Labor Statistics one-year period. The total number of people,
3 then, for helicopter EMS comes up close to a hundred thousand
4 souls, 100,000 individuals, and I think it's a much more accurate
5 assessment, but I think it then does give clarity of the fact that
6 it's a high-risk occupation and comparing it with the other types
7 of occupations that the Bureau of Labor Statistics has analyzed,
8 it's higher than all of the other occupations.

9 DR. DODD: Okay. All right, one last question and I,
10 of course, am familiar with the work that you've been doing with
11 your data analysis team. When do you anticipate being completed
12 with that research and generating a final report?

13 DR. BLUMEN: That's Research Project Number 2.

14 DR. DODD: Okay.

15 DR. BLUMEN: Basically, that's an ongoing project where
16 we are analyzing all of the accidents that have final NTSB reports
17 from 1998 through the present. Currently, we'll be up to, I
18 believe, 129 accidents to review. We've completed about 80 of the
19 accident reviews. We hope to have them completed by sometime
20 during the summer, so the accidents, themselves, will be completed
21 and then we set the analysis of our probable causes and the
22 interventions that we think would make a difference. And our goal
23 is to present our initial findings at the Air Medical Transport
24 conference this fall.

25 DR. DODD: Okay. Thank you very much. I'd like now to

1 move on and ask Mr. Zuccaro a couple questions, if I could?

2 The first addresses the International Helicopter Safety
3 Team and as you pointed out in your presentation, that's an effort
4 designed to improve helicopter safety worldwide and I guess my
5 concern is or -- my question is how much of the IHST's efforts
6 focus on the HEMS community?

7 MR. ZUCCARO: Right now, the HEMS operations are, in
8 fact, part of the overall process. They have not been segregated
9 out. What we have done is we've provided supporting personnel
10 and, I believe, the methodology to Dr. Blumen's group that is
11 focusing on HEMS, so we have a number of IHST people that are, in
12 fact, working on that effort.

13 DR. DODD: And that was actually a nice -- to my next
14 question concerning the coordination between the IHST and what
15 Dr. Blumen is doing because in many ways, those two efforts are
16 very similar as far as the methodology and the ultimate goals. So
17 could you speak a little bit about that coordination between the
18 two projects?

19 MR. ZUCCARO: Yeah, we have people who are actually on
20 the team from the executive committee and people who actually are
21 the people who created the protocols to do the action and analysis
22 that are assisting Dr. Blumen on his efforts and actually
23 participate in the meetings on a regular basis, so we're very
24 conscious of the fact that it's an industry segment that is high
25 profile right now, has an accident rate that we are concentrating

1 on but not to distract the actual effort of IHST from continuing
2 its overall analysis of the complete database, so we thought this
3 was the best way to go, to dedicate personnel and resources to
4 Dr. Blumen's efforts.

5 DR. DODD: Okay, thank you. I have one last question
6 for you and I look at the effort something like IHST and am
7 encouraged, but I worry sometimes about unintended barriers to
8 success and I was curious, what do you anticipate the difficulties
9 in trying to accomplish completion of the project?

10 MR. ZUCCARO: Well, I think that one of the things we
11 certainly have found out and experienced is we're dealing in
12 multiple languages and cultures, for starters, on an international
13 effort and a varying array of regulatory environments that we have
14 to operate in. And in some locations, the data is not readily
15 available nor are the resources, so that has been an issue that
16 we've had to provide assistance to the best of our ability from
17 the U.S. domestic effort and we're using the U.S. domestic effort
18 as the core in order to help and assist the other countries to
19 foster this initiative.

20 The other thing, I think, ultimately, certainly that I
21 think a lot about is the actual products, when they're produced,
22 is to deliver them to the industry and achieve the acceptance by
23 the industry. And we have, in fact, specifically focused on the
24 smaller operators, one to five ships. They make up 80 to 85
25 percent of the industry. Good news is that certainly, the larger

1 operators, the more advanced operators, have the infrastructure
2 and the resources and have, in fact, embraced the safety culture,
3 have safety management systems, have safety departments and
4 dedicated personnel.

5 But when you get into the smaller operators, they don't
6 have those kind of resources and it becomes a major financial
7 consideration to accept the implementation to safety and what the
8 ultimate effect it'll have on that company's business profile and
9 that's the reality that we have to deal with and we're conscious,
10 also, of the fact that we just can't make a recommendation or
11 protocol.

12 We have to have a rationale so that it gets accepted and
13 what we mean by that is that there is a tangible benefit to
14 implementing a safety initiative that will, in fact, produce its
15 primary function to enhance the safety of that particular
16 operation and also contribute to the wellbeing and health of the
17 overall organization on the long terms, so I guess I would call
18 the -- acceptance is of concern to us and we're aggressively
19 trying to make sure we do it the right way.

20 DR. DODD: Okay. Thank you very much. I would like to
21 finish with a few questions for Mr. Sequin and the first question
22 I have is, in Canada, who makes the decision to call a ground
23 ambulance or an EMS helicopter?

24 MR. SEQUIN: Well, the centralized dispatch does a
25 triage and the dispatchers have established protocols that they

1 will follow. When there is a conflict, there's usually a
2 physician on call that the dispatcher can refer to, to make that
3 final decision. But that's through a centralized dispatch.

4 DR. DODD: And does that dispatcher have a standard set
5 of protocols for that decision making or are they trained for that
6 or --

7 MR. SEQUIN: Yes, they are. They have policies and
8 procedures. They have protocols and, again, if it's something
9 that's outside the realm of the protocols, then they refer to the
10 physician to make that assessment.

11 DR. DODD: Okay. According to your presentation, 21
12 million Canadians are served by 20 EMS helicopters. Do you find
13 that there are times that you cannot respond to transport requests
14 because helicopters are not available?

15 MR. SEQUIN: Well, we, as operators or as pilots, we
16 just see the call, itself, so that behind the scene, again, it's
17 all decided through these protocols that have been established and
18 the decision is often made whether it's going to be a helicopter,
19 a fixed wing, land, so the options are all weighed and I'm sure,
20 looking at the available resources, response time, level of
21 medical care, so that's all taken into factor when the decision is
22 made and that's why having the physician on call can take a lot of
23 that pressure off of the dispatcher when that decision is not
24 easily made.

25 DR. DODD: I understand the fact that you are somewhat

1 isolated from that process, but do you have an estimate, perhaps,
2 of how often that occurs?

3 MR. SEQUIN: Unfortunately, no. I know -- the VP of
4 Operation asked to attend, so I can ask him to see if he has the
5 number. So, I apologize.

6 DR. DODD: Okay, that's fine. It might be helpful if,
7 at some point, we might get that information. If we could do some
8 follow up, perhaps, after we're done with the hearing.

9 MR. SEQUIN: Okay.

10 DR. DODD: All right. What type of medical crew members
11 typically fly on your EMS helicopters? What's your crew make-up?

12 MR. SEQUIN: Ontario and British Columbia, it's two
13 flight paramedics; and Alberta and Nova Scotia have the paramedic,
14 flight nurse model. And at times, depending on the call itself
15 -- and that can change, the format can change. Obviously, it
16 could be a -- team, but the basic programs are established that
17 way and it seems to be more provincially decided on a provincial
18 level.

19 DR. DODD: And could you speak to the safety training
20 that the medical crew members receive?

21 MR. SEQUIN: Yes. It's probably similar for most;
22 however, I can speak for our programs. The flight paramedics do
23 receive crew-specific training, so crew duties -- in the aircraft
24 and obviously, in case of an emergency, so just the day-to-day
25 briefings and we also expand that on hover exit training because

1 there's a number of scene calls that we do where sometimes the
2 paramedics have to disembark the aircraft while the aircraft is
3 still in the hover, so that training is specifically done.

4 But we try to mitigate that as much as possible because
5 of obviously inherent risks. But that is part of the training
6 that is done annually. We also expand to air medical resource
7 management so we combine our flight paramedics and pilots and
8 maintenance engineers in our AMRAM, so it's basically an extension
9 from the crew resource management, but utilizing everybody in the
10 process and we also do survival and underwater escape training, in
11 addition.

12 DR. DODD: Okay. And your pilot training, do you use
13 simulators for that training? I know you fly a 76 aircraft.

14 MR. SEQUIN: Yes, yes. We use full motion flight
15 simulators and we have a policy that we basically take pilots from
16 a different base. We never train pilots from the same base.
17 We're trying to ensure that the standards are across board, so
18 there's no norms being developed at a specific base.

19 DR. DODD: Okay. And the last question I have. In the
20 last 10 years, have any of the EMS helicopter operators in Canada
21 had an accident?

22 MR. SEQUIN: Yes. There's been one accident last year.
23 It wasn't a fatal accident, but it was one accident. It's still
24 under investigation by the Transport Safety Board and the aircraft
25 was landing at a remote reflective cone site. It was on final,

1 but that's as much as we have at this point, that's all. And
2 we're waiting for the report from the Transport Safety Board.

3 DR. DODD: Okay. Well, thank you very much. That
4 completes my questions, Mr. Chairman.

5 CHAIRMAN SUMWALT: Thank you. No other questions from
6 the Technical Panel, Dr. Dodd?

7 DR. DODD: No.

8 CHAIRMAN SUMWALT: Thank you. What I'd like to do for
9 the round of questioning from the parties would be we will rotate.
10 We'll start with Air Methods. You will be first on this round and
11 the next round CareFlite will be first and then the FAA, so if you
12 go first this time, then you're last in the next. So we will
13 begin the round of questionings with Air Methods.

14 PARTY QUESTIONS

15 MR. YALE: Thank you, Mr. Chairman. My first question
16 would be for Mr. Sequin. It appears, from the data that you
17 presented, that you've had a similar doubling of the number of
18 aircraft in Canada each of the 10 years -- that it would appear
19 that you had very few in the '70s, growth through the '80s and
20 '90s and continued expansion in this last decade, is that correct?

21 MR. SEQUIN: Yes, but it's been fairly stable as far as
22 number of aircraft. I think with the number of aircraft, it
23 hasn't changed -- no, in five years, the last five years, it's
24 been fairly stable.

25 MR. YALE: And yet the new 139s are being -- have been

1 brought in are in addition to the fleet, correct, they're in the
2 STARS program in particular?

3 MR. SEQUIN: Yes, for the STARS program.

4 MR. YALE: But does that expansion represent an
5 expansion into more rural areas and greater areas served as
6 opposed to just major urban areas?

7 MR. SEQUIN: You would have to -- I couldn't really
8 speak for STARS because I'm -- I believe it's to augment the
9 program, but I'm not sure to what -- exactly where and the extent
10 of that.

11 MR. YALE: Okay.

12 MR. SEQUIN: Yeah. In Ontario, the 139s are to replace
13 the 76s --

14 MR. SEQUIN: Um-hum.

15 MR. SEQUIN: -- but in Alberta, it's to augment the
16 service.

17 MR. YALE: And you actually have a great number of
18 patients in your country that are transported by Air Medical but
19 fixed wing as a deferred -- from -- is that correct?

20 MR. SEQUIN: That's correct, yes.

21 MR. YALE: And there have been fatal accidents in that
22 side of the industry, correct?

23 MR. SEQUIN: I know there's been -- I personally know a
24 couple, but I'm not familiar with the statistics, themselves.

25 MR. YALE: And you represented that in the period of

1 time that Canada has had a HEMS situation, they've had about
2 250,000 hours? Is that correct --

3 MR. SEQUIN: Yes, we estimate. Talking to the different
4 services, we basically came up with an estimation of the complete
5 program.

6 MR. YALE: Okay.

7 MR. SEQUIN: Yes.

8 MR. YALE: Dr. Blumen, if I could ask a couple questions
9 of you. Prior to 1972 there were not air medical programs in the
10 civilian sector within the United States on the rotorcraft side,
11 is that correct?

12 DR. BLUMEN: The hospital-based air medical transport
13 started in 1972. Prior to that, I know of two dual purpose
14 programs that were in place; Maryland and Illinois DOT had
15 programs, but for the purposes of our studies, we started with the
16 origin of the hospital-based air medical programs.

17 MR. YALE: And your estimate now is to how many aircraft
18 are serving the HEMS environment?

19 DR. BLUMEN: If you consider the dedicated and the dual
20 purpose, it's a little over 830 total aircraft and that includes
21 the military, as well.

22 MR. YALE: Okay. I noticed that -- on your one chart --
23 that the number of hours per aircraft had dropped off in the last
24 decade, roughly. Do you attribute that to the fact that there's
25 been an expansion in the rural areas where there's less

1 population?

2 DR. BLUMEN: Actually, if I remember my slides
3 correctly, the flight hours for the helicopters has been very
4 stable. There were a number of years where we used the data that
5 was published in the Air Medical Journal that were significantly
6 higher and I think that that data was skewed based upon the low
7 volume of responses in those given years. The number of hours has
8 been fairly stable. The number of patients transported appears to
9 have decreased from the early '90s and, especially looking at the
10 more accurate data that we've been able to get from the operators
11 since the year 2000, show lower numbers per aircraft compared to
12 the published data in the Air Medical Journal when they did their
13 annual analyses from the 1990s.

14 MR. YALE: One might conclude, then, from that data that
15 if the hours have remained stable yet the number of transports per
16 aircraft have gone down, that the distances being transported by
17 the helicopters has gone up which again would somewhat work with
18 my question about an expansion into rural America as being the
19 cause of that number change.

20 DR. BLUMEN: I think that's an accurate assessment.
21 Taking a look at where the expansion has been, a lot of the
22 programs are being based in the rural areas. The typical
23 helicopter program of the 1970s, 1980s, which were all hospital-
24 based programs, were started with one helicopter, then two
25 helicopters, sometimes three, based at the tertiary care center.

1 Those days it shifted to where even the hospital-based programs
2 are putting their bases out in the rural areas to better serve
3 that community and have the aircraft to the patient quicker and
4 overall get the patient to the tertiary care center quicker.

5 MR. YALE: Understand. So the expansion has been, in
6 many ways, based on a pent-up need and the ability to get out to
7 those areas?

8 DR. BLUMEN: Well, I can't specifically answer that. I
9 mean, taking a look at the fact that there are more patients being
10 flown, some could come to that conclusion. It brings up another
11 set of questions which another panel will be discussing, and
12 that's the appropriate use of the aircraft.

13 MR. YALE: Agreed. But certainly, the availability of
14 the technology has also increased during the period of time.

15 DR. BLUMEN: Yes, definitely.

16 MR. YALE: Okay. Did your data, in any way, show a
17 difference between the accident rates as they related to the
18 nature of either the sponsor, the type of aircraft, whether it was
19 single or twin, or the area of the country served?

20 DR. BLUMEN: We haven't looked at the area of the
21 country, specifically, sir. In our 2008 -- presentation -- we did
22 have a map which showed all of the accidents where they occurred
23 by zip code and I can't say that we overlapped with that, but the
24 ADAMS database map which showed where the programs were because
25 there had been some assumption that in the areas that had the most

1 number of helicopters and some would say the most competition,
2 that that's where all the accidents were occurring and by taking
3 the accident database and mapping it out, we saw that the
4 accidents were occurring in all parts of the country.

5 MR. YALE: Okay, thank you. Your data also would
6 suggest, in the growth in the last three years that there seems to
7 be a plateau in the growth? Is that a fair representation of your
8 data?

9 DR. BLUMEN: Yes.

10 MR. YALE: Okay. One last question for Mr. Sequin, if I
11 can? That would be -- what do you see as the impediment in Canada
12 to being able to operate IFR in that area for your medical
13 operations?

14 MR. SEQUIN: Well, we do operate IFR. All the
15 operations are IFR. The growth would be with GPS approaches --

16 MR. YALE: I understand that. Are there limitations to
17 your IFRD? We've talked, for example, about infrastructure and en
18 route capabilities and that. Do you have those similar issues in
19 Canada?

20 MR. SEQUIN: Yes. Yeah, our biggest impediment is icing
21 and certainly for the area of operation. The area that we
22 obviously operate when we do fly is primarily to airports, so the
23 pilots have the ability to set up their own MEAs, but weather
24 information, everything is -- obviously, there could be some
25 improvements.

1 MR. YALE: Okay, thank you.

2 CHAIRMAN SUMWALT: Mr. Yale, thank you for your
3 questions and thank you for keeping them succinct. We now turn to
4 CareFlite.

5 MR. DAUPHINAIS: Good morning. I enjoyed the
6 presentations. Thank you.

7 Mr. Sequin, you gave us the total number of hours
8 flown --

9 MR. SEQUIN: Yes.

10 MR. DAUPHINAIS: -- but you didn't give us the number of
11 patient transports. Do you know that number?

12 MR. SEQUIN: No, unfortunately, I did not look into that
13 number.

14 MR. DAUPHINAIS: Okay, thank you.

15 MR. SEQUIN: I apologize.

16 MR. DAUPHINAIS: Mr. Zuccaro, you didn't go a lot into
17 the use of NVGs. Do you consider those to be a mitigating
18 intervention for the -- accidents?

19 MR. ZUCCARO: Yes. We certainly support the use of NVG
20 vision enhancement type technology for night flight operations.

21 MR. DAUPHINAIS: And Dr. Blumen, we talked around a
22 little bit about the increase in aircraft in the rural markets.
23 I'm just trying to get a little bit more information on that. You
24 said the reimbursement was part of that which drove them out to
25 the rural areas. Is that due to the reduced services provided

1 with the closure of rural hospitals and healthcare facilities? Is
2 that a contributing factor to that growth?

3 DR. BLUMEN: I think it is a contributing factor that
4 people in the rural areas don't have access in a timely fashion,
5 especially when it's a trauma victim or acute cardiac event or a
6 stroke patient. I think that's part of it.

7 MR. DAUPHINAIS: Has there not been a decrease in the
8 number of those facilities in the rural markets?

9 DR. BLUMEN: I don't know the numbers of facilities. I
10 know that in many areas trauma centers, the number of trauma
11 centers have gone down, the trauma centers generally being in the
12 urban areas. I don't know statistics for trauma centers in rural
13 areas. Certainly, the number of hospitals that provide cath labs
14 for cardiac cath procedures is expanding from the urban to the
15 suburban areas and potentially to some of the rural areas, as
16 well, but as far as data specifics, that I don't have.

17 MR. DAUPHINAIS: Okay. And in your numbers for the
18 number of HEMS helicopters, did you include backup aircraft in
19 that?

20 DR. BLUMEN: In our survey to the operators I asked for
21 the total number of backup aircraft that they have to support
22 their fleet in addition to the total number of dedicated aircraft.
23 The slides that I showed do not include the backup aircraft.

24 MR. DAUPHINAIS: Do you know what that number might be,
25 any idea?

1 DR. BLUMEN: It's basically about a seven to one ratio
2 for those operators that were able to give me that number. So for
3 each of the seven dedicated aircraft across the board, there
4 averaged about one backup aircraft.

5 MR. DAUPHINAIS: And have you looked at the number of
6 accidents in backup aircraft?

7 DR. BLUMEN: No, we hadn't looked at the number of
8 accidents in the backup aircraft. Our current research project,
9 the analysis -- it's one of the things that has come up. We have
10 analyzed a number of accidents that have been in backup aircraft
11 and it's raised additional questions that we have. But for the
12 purposes of our accident rates, we have not in any way looked at
13 that. That information sometimes isn't in the reports as to
14 whether or not the aircraft was a backup aircraft or was not.
15 Sometimes that information may be there, but there's times that
16 that information is not. Members of the analysis team may know
17 that it was a backup aircraft that was in service, so add that to
18 the mix, but quite often that information's not part of the
19 report.

20 MR. DAUPHINAIS: Okay, sir. In your accident numbers,
21 did you include accidents that happened during maintenance and
22 training flights?

23 DR. BLUMEN: Yes and no. We do include training
24 missions. We think that's a very important part of our accident
25 analysis. Maintenance missions, if it's an aircraft that's in

1 service, it's coming out of maintenance but it's in service to the
2 team, the answer would be yes. There are a couple of accidents
3 that we did not include when an aircraft had been in extensive
4 maintenance for a period of two or three months at a facility and
5 it's out for a test flight and the aircraft was involved in an
6 accident.

7 And our justification for that was that typically, when
8 an aircraft that's out of service for extended periods of time,
9 the program has a backup aircraft in service to them, so we
10 purposely chose not to include those accidents even though it was
11 a dedicate aircraft because it's almost like double jeopardy.
12 There would be two aircraft at risk of an accident while a program
13 only had one aircraft typically in service.

14 MR. DAUPHINAIS: And have you looked at the overall
15 numbers? And removing those accidents, would it change the data
16 at all?

17 DR. BLUMEN: I don't believe so. There's only, I
18 believe, two accidents that fall into that maintenance category
19 that we chose not to include.

20 MR. DAUPHINAIS: Okay, thank you. And that concludes --

21 CHAIRMAN SUMWALT: Thank you. FAA?

22 MR. HARRIS: Thank you, Mr. Chairman, and thank you to
23 each of the witnesses for their testimony. I'd like to start with
24 Mr. Sylvain Sequin. Could you please clarify the relationship
25 between the Transport Canada -- Canadian Air or Aviation

1 Regulations and the provincial requests for proposal or contract
2 requirements specifically having to do with things such as multi-
3 engine aircraft, two IFR qualified pilots and an IFR qualified
4 program?

5 MR. SEQUIN: Well, certainly the Transport Canada
6 requirements for night and IFR operation are for twin engine in
7 helicopters. There is a possibility of operators applying for --
8 where they could operate a single pilot, however, the provincial
9 standards have maintained the two pilot operation and continued
10 with the twin engine, obviously because in addition to this,
11 they've added the minimum standards as far as experience level, so
12 that's the -- in addition to the Canadian air regulations.

13 MR. HARRIS: Thank you. You mentioned that dispatchers
14 were used in the process of patient requests being transmitted
15 ultimately to the crew for response. Do those dispatchers conduct
16 any aeronautical function or are they part of the medical
17 dispatching of the aircraft?

18 MR. SEQUIN: They're full-time dispatchers. Some of
19 them are trained pilots, some of them are trained flight
20 paramedics or paramedics, so they do either have a medical
21 background or an aviation background in most cases and they have
22 specific training into the dispatch protocols, so that's -- but
23 they are full-time dispatch centers.

24 MR. HARRIS: So those individuals do participate, then,
25 in some of the aeronautical decision making or do they not?

1 MR. SEQUIN: No, they do not. They simply provide
2 requests to the pilot. But they do not so the answer is no.

3 MR. HARRIS: Thank you very much. Mr. Zuccaro, you made
4 reference in your testimony to customer outreach and education. I
5 may use the word outreach, maybe you did not, but certainly, I
6 think you spoke to education. Could you speak to that in the
7 matter of helicopter emergency medical services?

8 MR. ZUCCARO: Yes. I think the application would be the
9 same as other mission profiles. One initiative I can compare it
10 to is we work closely with the segment that does aerial
11 firefighting and we work with the customer base that uses those
12 operators for that service in joint efforts to educate them as to
13 what some of the issues concerns of the operators were in
14 responding to their request, you know, to obviously fight the
15 fires and do the related missions.

16 And it proved very beneficial in the sense that there
17 was a better understanding on both sides of the equation as to
18 what the needs and desires of each other were in the establishment
19 of a common goal, certainly that a safe operating environment in
20 HEMS, I would submit that I don't think that model changes in the
21 sense that the medical establishment or people that are making the
22 requests of the operators to conduct the flights.

23 I think it would be beneficial if there was a complete
24 and full understanding of the operational considerations that the
25 operators have to go through in order to answer that request and

1 also to come to an agreement as to what the established playing
2 field or standards that you want to operate to are so that the end
3 result is the client is now better educated and understands what a
4 proper methodology would be to apply when the request is made and
5 whether the response from the operator, that that particular
6 request was, in fact, sound and justified.

7 If they said well, we can't do this flight for the
8 following reasons, you know, we certainly would like to but in
9 consideration of safety, we can't do this, if the client or the
10 end user actually understands why those statements are being made
11 and has a knowledge that that's a good decision and that operator
12 is, in fact, acting on our best behalf and respect that decision,
13 that goes a long way to really cementing the relationship.

14 I think that's really where it comes from, is just to
15 develop that understanding and respect for why the operators are
16 doing what they're doing. And a lot of times, you don't have, I
17 guess what I would call an even, you know, playing field in terms
18 of services that might be provided. I think that's true in any
19 business, so I think it's just to the benefit, if you have an
20 educated consumer quota and known retailer, that educated consumer
21 tends to work much better with the provider.

22 MR. HARRIS: And there's some historical precedent for
23 that in such things like the oil and gas industry, for example?

24 MR. ZUCCARO: Oh, absolutely. They're probably the
25 classic example of that. The oil and gas industry works extremely

1 close with the operators that provide that service and they come
2 to joint consensus in terms of what the standards are and what
3 their common goals are. I think that's an example that does work
4 very well, actually.

5 MR. HARRIS: Thank you very much. Dr. Blumen, in one of
6 your later slides you showed a track of the fatal accident rate in
7 the years 2004, 2005, 2006 and 2007, showing, as you titled it, a
8 gradual decrease in the number of fatal accidents and as untrained
9 statistician, I might even argue that that might point toward the
10 beginning of a trend, but we were all shocked by the 2008 marked
11 increase and do you have any comments as to why that increase
12 occurred?

13 DR. BLUMEN: If I had the answer to that, we wouldn't be
14 sitting here today. I don't think there's any explanation that
15 anyone could offer up as to why we saw such an increase in the
16 number of fatal accidents in 2008. I don't think that anything
17 dramatically changed in the industry from what was going on
18 operationally from 2006, 2007. I don't think there's any logic
19 behind the increase in the fatal accidents that we saw.

20 MR. HARRIS: Thank you. That concludes our questions,
21 sir.

22 CHAIRMAN SUMWALT: Thank you. HAI, you're present as
23 one of the witnesses. Would you like to ask your questions now or
24 would you prefer to go last in this particular round? Your
25 choice.

1 MR. ZUCCARO: We just have one question for Dr. Blumen
2 and we could do it right now.

3 CHAIRMAN SUMWALT: Go right ahead.

4 MR. ZUCCARO: Dr. Blumen, you know, in an industry where
5 flight time and component time is measured to the tenth of an
6 hour, it seems like you've had to struggle to cobble together the
7 numbers of hours to make an analysis of the accident rates. Would
8 you care to comment on any improvements that you think might be
9 made to the system, you know, either in the industry, in federal
10 or state, to improve that?

11 DR. BLUMEN: I think having some sort of centralized
12 database where the information for total flight hours is inputted
13 on a routine basis, whether it's annually, quarterly, so that that
14 information is readily available for analysis would be very
15 helpful. I don't know if the answer is that it needs to be
16 regulated or if it could be on a voluntary basis.

17 There is another group, Roy Fox from Bell Helicopter is
18 doing an analysis coming with similar but different information,
19 looking at the total flight hours and they're looking at the
20 manufacturers, the hours they actually come in from maintenance to
21 maintenance and the big difference between the data that he and
22 his team is doing compared to ours is they are including any
23 aircraft that flies medical missions, so all the dual purpose
24 aircraft, all the backup aircraft, all the dedicated aircraft, so
25 that their bottom line is significantly higher for the total

1 number of aircraft and therefore the average hours per aircraft is
2 less.

3 But they're looking at it from a different perspective
4 and I believe that they have the cooperation of all of the
5 manufacturers to collect that data and that's another way of doing
6 it. But it would be nice if we had an easier way to collect that
7 information, to have the exposure data.

8 MR. ZUCCARO: Thank you, Mr. Chairman.

9 CHAIRMAN SUMWALT: Thank you. PHPA?

10 MR. DUQUETTE: Thank you, Mr. Chairman. Again, I'd like
11 to thank all three of you gentlemen for your presentations, but I
12 would like to focus my question to Mr. Sequin, primarily. You
13 mentioned on your presentation that you obviously do scene work,
14 scene calls.

15 MR. SEQUIN: Yes.

16 MR. DUQUETTE: And I think you also related that you
17 also do prepared and non-prepared -- locations. So my question
18 would be is do you do both day and night operations on both
19 prepared and non-prepared or do you have a restriction at night
20 with regards to unprepared locations?

21 MR. SEQUIN: Both our operations, it's day and night.
22 The night VFR is to prepared site, which we use retro-reflective
23 cones, so they're basically helipads so they're not certified, but
24 they're set up to company standards that we inspect on an annual
25 basis in conjunction with our client, so in this case, in Ontario,

1 for example, Ornge is involved heavily with the inspection and
2 ensuring that these helipads or these remote sites are maintained
3 to an acceptable standard.

4 In Ontario, we're looking at over 200 sites that we have
5 remotely, so instead of doing an actual scene call at night where
6 we don't do night scene calls in unprepared areas; we go to
7 predetermined locations, so heliports, airports are company
8 approved landing sites. And the preferred format, if we can, we
9 have lights, but we've used extensively retro-reflective cones.

10 Now, there is one operator that I am aware -- I know in
11 Alberta they do actual night scene calls, but I believe all other
12 three operations -- I'm not a hundred percent sure -- but I
13 believe they operate in the similar format as we do.

14 MR. DUQUETTE: Okay, thank you. And we've heard already
15 several times and we probably will for the next few days is SMS.
16 So my next question has to do with what kind of self-reporting
17 program do you have and do you use FOQA or -- those kinds of
18 programs?

19 MR. SEQUIN: Yes, we do have hazard reporting process
20 within the organization, hazard incidents, near misses, which are
21 managed through the safety department and we are, as the new
22 technology becomes available, we are looking at developing a more
23 in-depth flight data management program with FOQA, but that is in
24 the future. That's the next step for us.

25 MR. DUQUETTE: Thank you. And Mr. Chairman, that

1 concludes my questions.

2 CHAIRMAN SUMWALT: Thank you. AAMS?

3 MS. KINKADE: Good morning and thank you all for your
4 great presentations, as has been said.

5 First question is to Dr. Blumen. You've worked always
6 very hard at normalizing the data and have done a phenomenal job
7 in working on that and on your slide that talked about the risk of
8 duty time high-risk occupations, I was wondering how you
9 normalized considering the pilots are maybe only flying two or
10 three hours a shift versus the other occupations that are probably
11 at high risk through the majority of their duty time. How did you
12 normalize that?

13 DR. BLUMEN: We made no effort to do that. When you say
14 the other occupations throughout their shift, are you talking
15 about the data from the Bureau of Labor Statistics or are you
16 talking about the other crew members?

17 MS. KINKADE: No, the other occupations.

18 DR. BLUMEN: Made no attempt to do that. We took the
19 data that's available from the Bureau of Labor Statistics at face
20 value the way they present it and then we took our analysis for
21 helicopter crew members and by default, we had to say that
22 everyone was equal as far as their exposure time or the exposure,
23 knowing that you've got four pilots, their exposure time is going
24 to be greater than the crew members, the primary medical crew
25 member, the secondary crew member, because there's usually more

1 medical crew members that fill those roles than there are pilots
2 for each dedicated helicopter, so we had to make a decision and
3 said for our purposes, everyone is equal.

4 An individual may try to look at it and say well, I'm a
5 full-time person, my risk is going to be greater than someone
6 who's a part-timer working perhaps only 20 hours per week versus
7 somebody who works 40 hours per week. At the same time, it
8 assumes that all programs or all helicopters are at equal risk, so
9 if the average number of flight hours for a helicopter is 575
10 flight hours, if a program or if a particular helicopter only
11 flies 350, 400 hours in a given year, their risk is going to be
12 less.

13 The flip side of that, if there's a helicopter that
14 flies 700 hours, their risk is going to be higher, but for the
15 purpose of our analysis, we said everyone's on a level playing
16 field, everyone's the same. That's the only way that we could
17 come up with it and try to normalize the data as best we could.

18 MS. KINKADE: Thank you. During this research project
19 that's going on right now, is there any information that you're
20 finding that would not be typically found in an NTSB accident
21 investigation report that might be helpful in terms of risk
22 mitigation?

23 DR. BLUMEN: Well, one of the things that we're finding
24 -- keep in mind that the group that we put together to analyze
25 accidents represents every aspect of the air medical community.

1 It's not just the operators, the manufacturers. It includes all
2 of the associations, the professional associations, the trade
3 associations, HAI is there, the FAA is there, the NTSB is there.

4 Everyone comes to the table to analyze accidents. What
5 I think is unique and different in our analysis compared to what
6 our JHSAT colleagues are doing when they take a look at the
7 analysis -- bases for all of their helicopter accidents is we're
8 bringing real life experience from the medical crew perspective to
9 the accident analysis saying sitting here, I'd like to know this
10 piece of information that's not in the NTSB report.

11 Now, there are many different types of NTSB reports,
12 some that are incredibly comprehensive and some that are less
13 comprehensive, but even for those that are hundreds and hundreds
14 of pages long, there are often specific questions that we have
15 that the investigators didn't think of or didn't have access to,
16 things that we think would've been helpful to us in analyzing this
17 accident, coming up with a standard problem statement and then an
18 intervention that may have either prevented that accident from
19 occurring or prevent future accidents. And we're coming up with
20 data points with specific things that we think could be helpful
21 for future investigations that our plan is to share that with the
22 NTSB representatives who are at the table and say in the future,
23 we think this would be helpful if we had this information so we
24 can try to prevent the accidents from happening or know a little
25 bit better what's going on.

1 MS. KINKADE: Great, thank you. My next question is for
2 Mr. Zuccaro. On Slide 33, it's one of the slides where you talk
3 about the HAI industry initiatives --

4 MR. ZUCCARO: Yes.

5 MS. KINKADE: -- that are listed, the third one is
6 talking about dedicated helicopter low level IFR routes, point in
7 space and precision instrument approaches, et cetera.

8 MR. ZUCCARO: Yes.

9 MS. KINKADE: And I guess I just need a little
10 clarification and the answer the next part of this question is
11 this a recommendation by IHST or HIA?

12 MR. ZUCCARO: HAI.

13 MS. KINKADE: HAI.

14 MR. ZUCCARO: IHST hasn't established that level of
15 recommendation yet.

16 MS. KINKADE: Okay. Thank you for --

17 MR. ZUCCARO: Sure.

18 MS. KINKADE: -- that clarification.

19 MR. ZUCCARO: No problem.

20 MS. KINKADE: And based on the -- let me put my glasses
21 on. Based on the large percentage of flights conducted under VFR,
22 do you feel all IFR operations are possible?

23 MR. ZUCCARO: Well, let's start with the hypothesis
24 that's anything's possible. If you create the infrastructure and
25 the equipment develops to that stage and certainly, the

1 proficiency is there with the pilots, you can, in fact, accomplish
2 that. And we're not talking tomorrow, obviously. This is a
3 future vision down the road as to where the industry might develop
4 to. You know, that kind of a view, I have to look at even from a
5 personal standpoint, you know, a lot of people like me have been
6 in the business 40, 50, 60 years and what I did 40 years ago I
7 probably wouldn't do today and I do different things today.

8 And to start out way back when, even the concept of IFR
9 flight was a dream in helicopters. When people talked about it
10 even when I started in the business it was you're crazy, you know,
11 it's not going to happen on a routine basis. The latter part of
12 my career, I spent a good portion of my flight time in the class,
13 IFR, in the New York City metropolitan area. And I don't see it
14 as an impossibility. I understand completely your statement's
15 accurate.

16 The majority of the operations today are conducted VFR
17 and that transition period would be extensive and over a long
18 period of time. But I think the ability is there to do it on a
19 phased-in basis, you know, with the fleet and with the conditions
20 of the operation as to where you're operating, so I think it's a
21 legitimate, you know, view of what the future might and should
22 look like for the industry.

23 MS. KINKADE: Okay, thank you. No further questions.

24 CHAIRMAN SUMWALT: Thank you. NEMSPA?

25 MR. SIZEMORE: Thank you, Mr. Chairman. Thank you,

1 panel, for your presentations. Couple of questions, Mr. Sequin
2 first, if you will? Just a couple of things.

3 You mentioned your communication center and their role.
4 They function, basically, as I understand it and just for
5 clarification, almost as a call center, call comes in and they
6 pass the call forward after they maybe scrutinize it for medical
7 only?

8 MR. SEQUIN: Yes, it is a triage, but they also look at
9 the best way to transport the patient because the whole focus is,
10 with the available resources, whether it's a fixed wing
11 helicopter, how best is it to get, you know, the patient from
12 Point A to Point B, so that assessment is done. And obviously,
13 that's set up by the customer and so each client establishes their
14 own protocols, but the standards appear to be very similar from
15 our perspective, so as a pilot, you don't see that aspect, but
16 that is done behind the scene and even to the point that at times
17 the pilot may say that yes, we can accept a call to go to Point A
18 to Point B, but if there's doubts about whether the call can be
19 completed, that can be shared to the dispatcher and that
20 information is digested and they make a decision whether the
21 aircraft should go or not or the pilot still has the final
22 decision but the pilot can share with the dispatcher if there's a
23 chance that they may stay at the hospital, for example.

24 MR. SIZEMORE: Okay. And my next question will follow
25 on to that. Who do they actually work for?

1 MR. SEQUIN: The dispatch center?

2 MR. SIZEMORE: Yes, yes.

3 MR. SEQUIN: In Ontario, they work for Ornge, but again,
4 usually it's the provincial dispatch centers. Sometimes it's -- I
5 believe, STARS has their own dispatch center, which -- so they
6 work for STARS.

7 MR. SIZEMORE: Okay. And another question, you
8 mentioned STARS and you mentioned that STARS as the only program
9 using NVG technology right now.

10 MR. SEQUIN: That's correct.

11 MR. SIZEMORE: Are they the ones who do the unimproved
12 scene flights and if so, is there a role that NVG has played in
13 that?

14 MR. SEQUIN: They were doing scene calls, night scene
15 calls, prior to NVG and they had a network established with first
16 responders and people that would set up the landing zone, so they
17 had that aspect, you know, fairly well organized and I believe NVG
18 is just an extension from that. From what I understand in some
19 discussion is that the area for them is also the night MOCA or IFR
20 MEAs in the mountains where they just couldn't fly on instrument
21 rating, on instruments in the mountains, so the night -- the NVG
22 allows them to take some of these routes, so there's an increased
23 capability with the NVG. But I'm not all that familiar because
24 the program is still reasonably new in Canada and I haven't
25 operated NVG myself, but this is from the information I've been

1 getting from STARS.

2 MR. SIZEMORE: Okay. You mentioned, too, that one of
3 the restrictions to IFR flight is icing conditions.

4 MR. SEQUIN: Yes.

5 MR. SIZEMORE: As far as the regulations and so forth,
6 are there specific parts of the regulations that deal with icing,
7 is there a reference for that or --

8 MR. SEQUIN: Yeah, we go by the flight manual and as an
9 organization, as a company, since the areas that we operate are so
10 often they're so remote and the distances are fairly long, that
11 we've decided not to -- actually fly in clouds in the wintertime.

12 Now, that may be different for the West Coast or the
13 East Coast because your temperatures are quite different, but in
14 Ontario it becomes, you know, the winter months are -- you know,
15 we don't usually go that far at that time, so we look at the
16 freezing level and that will be the determining factor if we go in
17 clouds or not.

18 MR. SIZEMORE: Okay, thank you. Mr. Zuccaro, a simple
19 question from our aspect, probably difficult for you. Do you
20 foresee or do you feel that EMS pilots, the EMS industry, are
21 accepting a greater risk level or putting themselves at a greater
22 risk than other operations in the helicopter industry?

23 MR. ZUCCARO: I don't think I can answer that to a
24 certainty. I'm not with every pilot or every decision being made.
25 I can tell you, from just a perception point and things that I've

1 had discussions with and people, if you noted, one of the things I
2 said we should think about and discuss is to make sure that we
3 create as sterile an operating environment as possible for the
4 pilots so that it's absent of any undue influence other than
5 aeronautical decision making.

6 And having done some EMS missions, myself, we're human
7 beings. It's a simple fact of life. And when you have a medical
8 situation and you have a mental perception that you actually have
9 someone's life potentially in your hands, that's going to affect
10 your decision making. You wouldn't be human if it didn't. And I
11 think the system has to be smart enough to preclude you from
12 having that information when you're making your aeronautical
13 decisions and that's really what we're driving to.

14 And I think that does it make a difference that you're
15 doing EMS versus -- I guess you can compare it to a corporate
16 executive or doing a tour or anything else that people do with
17 helicopters and I think you have to say that there's a potential
18 for that undue influence because we are human beings and because
19 of the mission profile and I think it's a safe statement that we
20 -- as again, I can't stress enough, I really feel that we have to
21 be smart enough to create that sterile environment and insulate
22 the pilots from any undue influence so that they're basic down to
23 the concept of can I get the aircraft from A to B safely, as I
24 said before. And we just have to be sensitive enough to make sure
25 that happens.

1 MR. SIZEMORE: Okay. And specifically, one of the
2 things that you mentioned was a risk assessment.

3 MR. ZUCCARO: Um-hum.

4 MR. SIZEMORE: Do you feel that's a pre-flight risk
5 assessment or pre-flight assessment followed on by an in-flight
6 risk assessment? What kind of --

7 MR. ZUCCARO: Sure. Risk assessment, I mean, if you
8 have a local operating area and to the best of my knowledge, you
9 know, most of the operators do this. You know, certainly the
10 management and the operators themselves are focused on creating
11 the safest environment they can and if you have a local area, you
12 do your homework ahead of time, I think all of you know that, that
13 you're aware of your topography, your obstacles in the area and
14 you've assessed that risk and what the difference is flying day
15 versus night in that area.

16 But then you get down to the flight request and the
17 flight request comes in and the pilot now has the final preflight,
18 you know, am I going to take the flight or not risk assessment and
19 that risk assessment, as far as I'm concerned, continues
20 throughout the entire flight until the flight's completed and at
21 given point, you theoretically would do the normal risk assessment
22 throughout the flight and if you find that the conditions or the
23 infrastructure or the topography are something that you don't
24 think are a safe environment, then you have to make that decision
25 as to whether you continue this flight or you cancel the flight,

1 turn around or land where you are for that matter, if the
2 situation warrants.

3 It's an ongoing process and I think that that's really
4 what we're saying is that the pilots -- I guess, you know, it's an
5 interesting question and I don't mean to belabor it, but you
6 brought up an interesting point that if, in fact, you start the
7 risk assessment prior to the flight or prior to the operation,
8 what's interesting to me is that no matter what the industry takes
9 and puts at this problem, be it technology, be it operating
10 practices and procedures, be it equipment, we're going to get to a
11 point in every flight and that point is when that pilot makes that
12 decision to launch that aircraft and pushes that start button.

13 The pilot is the final determining factor as to whether
14 that flight actually occurs or not and whether the flight
15 continues or not, and that's why I'm a big advocate of focusing on
16 the pilot's environment, the support and the pilot's decision
17 making process and risk assessment because that's what it all
18 comes down to, no matter what we throw at this problem.

19 And I think the companies -- and I say this with a sound
20 sense of accuracy and my true belief that the companies and the
21 management are committed to make that happen and that is the good
22 news, the fact that we're all sitting in this room right now,
23 working towards this problem, I think that's really what's going
24 to make the difference this time, I really do, so I hope that
25 answered your question.

1 MR. SIZEMORE: Thank you. Yes, thank you.

2 Dr. Blumen, obviously there's an immense amount of data
3 or information that we would like to have, things like single
4 versus twin, the percentages and the statistics on that, single
5 pilot versus dual pilot, IFR versus VFR, all those things. Is
6 that information available?

7 DR. BLUMEN: The answer is yes, that information's
8 available, but to make it meaningful would be difficult if not
9 impossible. For example, we can look at our accident database and
10 tell you each year how many of the accidents were single engine
11 versus twin engine. What we can't tell you is look back
12 historically.

13 Even though our data shows a number of helicopters in
14 service each year, what you would need to know is the number of
15 helicopters that were single engine and twin engine each year;
16 that would make it a meaningful comparison. The same thing would
17 be true for two helicopter-pilot or IFR missions, knowing how many
18 IFR missions were taken each individual year.

19 It's one of the considerations that I have for the next
20 round of questions to the operators, is trying to get a little bit
21 more information about IFR missions or the number of hours flown
22 IFR to see if we can come up with any type of comparison there,
23 but while the reports, while the data would give you the original
24 set point, what you really need to know is the information to
25 normalize the data and that is probably not going to be available

1 for a number of those areas.

2 MR. SIZEMORE: Okay. The next question --

3 CHAIRMAN SUMWALT: Mr. Sizemore, excuse me. We've been
4 10 minutes into this round of questioning. I'm going to ask you
5 to wrap it up, please.

6 MR. SIZEMORE: Okay, thank you. We've looked at a lot
7 of information here and basically, what we're trying to come up
8 with is a solution to the accident rate. By doing that, we need
9 to come up with root causes. Do you have the information
10 available that will get you to a root cause?

11 DR. BLUMEN: That's the research project that we're
12 currently looking at, where we have all of the accidents with
13 final NTSB reports that our research group, which now includes
14 about 40 different people looking at them, and we're coming up
15 with standard problem statements and proposed interventions that
16 would've prevented that and it's using the tools that were
17 provided by U.S. JHSAT and modifying them, making them more
18 specific for helicopter EMS from the standard problem statements
19 and interventions that they had which numbered in the hundreds.

20 We've already added about another hundred problems and
21 interventions to our list that we think are unique to our
22 industry. So through that analysis, we do hope to come up with
23 specific, identify specific problems, the causes, and then come up
24 with the interventions and at the same time, we're using a scoring
25 system that we'll be able to try to analyze that and say which of

1 these interventions do we truly think -- does the research group
2 truly think would've been effective, would've been feasible had
3 they been -- if they're possible to be implemented.

4 MR. SIZEMORE: Okay, thank you.

5 Thank you, Mr. Chairman.

6 CHAIRMAN SUMWALT: You're welcome. Thank you.

7 Are there any follow-up questions, not additional
8 questions but follow-up or clarification points that need to be
9 raised before we move to the Board of Inquiry?

10 (No audible response.)

11 CHAIRMAN SUMWALT: Seeing none, I will now turn to the
12 Board of Inquiry. Mr. Haueter.

13 BOARD OF INQUIRY QUESTIONS

14 MR. HAUETER: Dr. Blumen, a quick question. We've seen
15 many reports of HEMS patients that were released from the hospital
16 within about, oh, four or five hours. Have you taken a look at
17 the data about how many of these flights were really necessary?

18 DR. BLUMEN: No, that's beyond the analysis that we've
19 done and I know there's another panel that will look at that. But
20 the one thing that I would like to mention and draw a comparison
21 might be you also need to take a look at, for example, the number
22 of patients that are transported to a trauma center, whether it's
23 by helicopter or by ground ambulance, because the EMS system, the
24 -- says if they meet this criteria, they go to a trauma center;
25 many of those patients are also discharged from the emergency

1 room, never get admitted and some people would say that in the end
2 run, many of those patients never need to go to the trauma center,
3 but the protocols dictate that they go to the trauma center. I
4 think having triage tools for helicopter EMS is important, but
5 there's going to be times that some of those patients will want to
6 be discharged from the emergency room. The question is what's
7 acceptable over triage and that's something that I can't answer.

8 MR. HAUETER: Okay. And for Mr. Sequin, I'm curious
9 about the level of the Transport Canada oversight of the
10 operators. Do they do en route inspections or do they do -- how
11 often they do physical examinations of the facilities and
12 helicopters?

13 MR. SEQUIN: Well, there are regular random audits and
14 there used to be national audits where larger carriers would get,
15 probably every three to five years, much more in-depth examination
16 of the operation. But now with the -- there's a lot of changes
17 with the safety management systems coming on line and we expect
18 that potentially, as this comes in, we're going to see some
19 significant changes that the regulator will look more at the
20 systems than actually doing specific audits, looking at the
21 system, how it works, how effective it is, versus looking at
22 specific equipment, files, pilot training, things like that, so
23 it's evolving at this time. But all I can say is certainly there
24 are a number of random audits with still some more in-depth audits
25 as it's decided per region --

1 MR. HAUETER: Do they ever do en route inspections,
2 actually fly on the helicopter during a mission?

3 MR. SEQUIN: I'm not familiar with that. No, we've
4 never experienced that specifically with transport.

5 MR. HAUETER: Okay. Thank you very much.

6 CHAIRMAN SUMWALT: Dr. Ellingstad.

7 DR. ELLINGSTAD: Thank you. I just have a couple of
8 questions to try to focus in on this exposure data and the
9 normalization a little bit. First of all, Mr. Sequin, you did
10 mention some rates. You did mention some flight hour estimates.
11 Where did they come from?

12 MR. SEQUIN: These were just in discussing with the
13 different operations approximately the hours that they had flown
14 since inception. So, for example -- we spoke to their program
15 coordinator. We spoke to some of their personnel at STARS. We've
16 used some of our own data with -- since we've been flying, we fly
17 for Ornge and we used to fly for the Ministry of Health in Ontario
18 and Nova Scotia, so it's a compilation, definitely not scientific.
19 We just take -- just to give an approximation of --

20 DR. ELLINGSTAD: And there is no Transport Canada
21 regulation for reporting per departure kinds of information?

22 MR. SEQUIN: The requirements are per hours. Annual
23 hours are reported to Transport Canada and it actually goes to
24 Statistics Canada then it goes to Transport Canada, so there is
25 data but again, I'm not sure if it's broken down to EMS. And I

1 got a clarification; there's no breakdown with EMS. And
2 especially, if you go on the Transport Safety Board's website,
3 there's no specific breakdown on the hours.

4 DR. ELLINGSTAD: Okay, thank you. Dr. Blumen, in regard
5 to this, what exactly did you do to find your denominators? I
6 gathered from what you said that you did not -- you were not able
7 to rely on the FAA's general aviation air taxi data.

8 DR. BLUMEN: Are you referring to the flight hours?

9 DR. ELLINGSTAD: Yeah.

10 DR. BLUMEN: The source for our flight hours is the
11 operators, the 135 certificate holders. In 2002, we surveyed the
12 five largest and from 2005 through 2008 we expanded the number of
13 operators. And we asked, in our survey to each operator, we asked
14 a series of questions which included the total number of programs
15 that they operated, the total number of helicopters, dedicated
16 aircraft they had, backup helicopters, total flight hours which
17 include the flight hours for anything, whether it's repositioning,
18 whether it's maintenance, total flight hours for their operation,
19 the percentage of night flight, the percentage of scene flight.

20 And then, in 2007, we added if they could provide us
21 with the number of patients transported and across the board,
22 we've gotten exceptional cooperation from the operators in
23 gathering that data.

24 DR. ELLINGSTAD: But effectively, it's an ad hoc data
25 collection system?

1 DR. BLUMEN: Correct.

2 DR. ELLINGSTAD: Mr. Zuccaro, let me just ask you about
3 the feasibility within this segment of on-demand industry of
4 obtaining more precise measures of exposure. Is it impossible --
5 is it infeasible to do a per departure kind of reporting?

6 MR. ZUCCARO: We've actually been dealing with that for
7 years and I have the belief, and I think it's supported by most
8 other people, that the actual hours that are reported are under-
9 reported, as I indicated. And if you follow that logic, if the
10 actual hours were found out and actually determined and they
11 turned out to be what we believe to be, much higher, it would
12 actually have a positive effect on the accident rate per hundred
13 thousand. And just by no other simple action, we'd have a better
14 record and it would reflect better as to what the industry's
15 actually doing out there. I think this has been wrestled around
16 quite a bit and I'd be honest that I don't so much that there's
17 any other methodology unless somebody's going to require it, you
18 know, to be done because we do --

19 DR. ELLINGSTAD: Do I sense sympathy to such a
20 requirement?

21 MR. ZUCCARO: Yeah, we are sympathetic because we really
22 think the data would be an overall benefit to the actual industry,
23 you know, there's no doubt in our minds about it. It would be in
24 our favor to have the information.

25 DR. ELLINGSTAD: Thank you.

1 CHAIRMAN SUMWALT: Dr. Mayer?

2 DR. MAYER: Thank you. Just a few brief questions.
3 Thank you, Mr. Sequin, earlier for explaining to us the model for
4 helicopter EMS that's in use in Canada.

5 If I recall correctly from your presentation, you said
6 that that model came into being in 1977. Does that mean that 1977
7 marks the advent of helicopter EMS in Canada or was there a prior
8 model before that?

9 MR. SEQUIN: Dedicated, yes; for the dedicated programs,
10 yes.

11 DR. MAYER: Thank you. Mr. Zuccaro, you mentioned in
12 your presentation, among many other things, the importance of non-
13 punitive reporting structures and I wonder if you're able to make
14 any brief general comments on the evolution of non-punitive
15 reporting, the current state of that in the U.S. industry?

16 MR. ZUCCARO: It is being accepted more readily and it
17 is being applied by various companies in various formats in terms
18 of things like FOQA and just internal policy and procedures that
19 have been set up where they have provided the opportunity for
20 people to comment about their concerns or report safety risk
21 issues and the company works with those individuals.

22 Actually, we've done a little education process on that
23 ourselves in trying to sell the concept and we feel -- and a lot
24 of the management has embraced the thought process that in order
25 for the management to actually have a full understanding and

1 knowledge of what is going on out in the field and understand any
2 exposures that have occurred, it's to their benefit to encourage
3 people to report them in a non-punitive manner.

4 And what I mean by that, if you end up creating a
5 culture where the employees feel that they cannot reveal mistakes
6 or errors that they made or concerns that they have because
7 they're not accepted or there will be a punitive reaction to it,
8 either perceived or implied, from a management standpoint,
9 theoretically, you do not have full knowledge of what has occurred
10 in your operating environment.

11 And I guess an example of that would be if, in fact,
12 somebody has made a mistake or an error or had transient exceed-
13 ence on some type of an aircraft limit or what have you and if the
14 culture was such or the person or the employee perceived, again,
15 whether it's real or not, it's just what their perception is that,
16 you know, gee, this could be a lot of trouble for me and I don't
17 have an environment to deal with it, you potentially have an
18 aircraft that you would have concern about and you wouldn't know
19 it.

20 As I said, the good news is that the companies and
21 management are absolutely going in that direction and understand
22 that philosophy and logic and are trying to promote that to the
23 best of their ability, you know, to have people tell them and
24 explain and work with them what's gone on. I will put one caveat
25 to this. This really is not intended to cover an intentional act

1 by someone who knowingly does something wrong or violates
2 something, you know, so I think that's a caveat people need to
3 understand, too.

4 DR. MAYER: Thank you very much. I appreciate it.
5 Final question, during your presentation, Professor Blumen, I was
6 struck by a comment you made. I realize, of course, we're all
7 here this week to talk about helicopters, but you mentioned that
8 the data are not available to make a comparison between patient
9 fatalities in air ambulance operations versus ground ambulance
10 operations and I'm wondering if you're aware of any research or
11 safety projects underway to remedy that data deficiency?

12 DR. BLUMEN: I have heard that there are some attempts
13 to try to address that and we'll see how successful it is. One of
14 the problems, I think, has to start with the state reporting. In
15 some states, ambulances are considered fire apparatus; in other
16 states, it could be part of the police department. In some
17 states, it's considered a light duty truck.

18 So until you have some type of common definition, common
19 reporting mechanism, it's going to be very difficult if not
20 impossible to collate all of that data so you can do a comparison.

21 DR. MAYER: Thank you very much. I appreciate that.

22 CHAIRMAN SUMWALT: Ms. Ward, any questions?

23 HEARING OFFICER WARD: Mr. Chairman, due to the time, I
24 defer.

25 CHAIRMAN SUMWALT: Thank you. I just have one question

1 and that would be for Mr. Zuccaro.

2 In one of your slides you had a national chart -- I
3 don't think we need to pull it up. It was a chart, national in
4 nature, example of potential breakthroughs in helicopter accident
5 rates and one of the hypothetical things that you had written down
6 was insurance safety incentives.

7 MR. ZUCCARO: Yes.

8 CHAIRMAN SUMWALT: And are there incentives from an
9 insurance perspective, if an underwriter goes out and sees that an
10 operator has an SMS program, they're using simulator training,
11 they're equipped with TAWS, they're doing all of the best
12 practices, are they going to get a better insurance rate than one
13 that ostensibly doesn't have those?

14 MR. ZUCCARO: Well, the underwriting community,
15 basically, has not really had that direct relationship. What
16 they've done is -- it's not so much related to your actual
17 insurance premium, per se, as it is to programs where they foster
18 additional training.

19 One of them that comes to mind is -- I believe it's
20 called Safety Bucks, and if you have a good record and you have
21 these protocols put in place and they recognize that, they give
22 you a credit at a flight training facility and you're able to send
23 people to that flight training facility and that'll be covered by
24 the Safety Bucks or you can spend the Safety Bucks as you deem
25 appropriate, sending your safety officer to a safety management

1 system program, those are the programs that are there right now,
2 that kind of a credit.

3 CHAIRMAN SUMWALT: Thank you very much. I really have
4 no further questions. I would like to thank the witnesses for
5 your preparation, for being here, and your preparation to be here
6 and then for your time today. I'd like to thank the parties for
7 good, pertinent questions and keeping them timely in nature and I
8 applaud you for that and so let's keep that up. Dr. Dodd, I thank
9 you and the Technical Panel. What we'd like to do now is we'd
10 like to take a lunch break. It's now 12:17. Let's be back
11 at 1:20. This hearing is in recess.

12 (Whereupon, at 12:17 p.m., a lunch recess was taken.)

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A F T E R N O O N S E S S I O N

(Time Noted: 1:20 p.m.)

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3 CHAIRMAN SUMWALT: This hearing will reconvene. Our
4 next panel will be on Current EMS Models and Reimbursement
5 Structures and some of the issues discussed during this will be
6 the impact of current EMS operational models on safety, the
7 relationship between EMS models, cost and reimbursement, policy
8 procedures, policy and procedures for reimbursement, and policy
9 and procedures for conducting post-flight quality assurance.

10 Are you ready, Ms. Ward, to swear in the witnesses and
11 introduce them?

12 HEARING OFFICER WARD: Yes, Mr. Chairman, but I'm
13 waiting for Thomas Judge. You can go ahead and stand up. I need
14 to have all the witnesses to stand up, please, to be sworn in.
15 Please raise your right hand.

16 (Witnesses sworn.)

17 HEARING OFFICER WARD: Thank you.

18 CHAIRMAN SUMWALT: Thank you. Dr. Bob Dodd, I'd like to
19 turn it over to you and if you would, please --

20 HEARING OFFICER WARD: Mr. Chairman, I need to qualify
21 them still.

22 CHAIRMAN SUMWALT: Absolutely. Thank you.

23 HEARING OFFICER WARD: Thank you. I'd like to start
24 with -- the first witness -- to qualify her -- is
25 Ms. Christine Zalar. Could you please give me your name, your

1 title and your organization, please?

2 MS. ZALAR: Yes, my name is Christine Zalar. I'm a
3 partner with Fitch and Associates, which is a medical
4 transportation consulting firm.

5 HEARING OFFICER WARD: And then Mr. Thomas Judge?

6 MR. JUDGE: Yes. My name is Thomas Judge. I'm the
7 Executive Director of LifeFlight of Maine.

8 HEARING OFFICER WARD: Mr. Robert Bass?

9 DR. BASS: Dr. Robert Bass. I'm the Executive Director
10 of the Maryland Institute for EMS Systems.

11 HEARING OFFICER WARD: Okay. And Dr. Susan Wedel?

12 DR. WEDEL: Suzanne Wedel. I am the Chief Executive
13 Officer and Medical Director of Boston MedFlight.

14 HEARING OFFICER WARD: And Dr. Kevin Hutton?

15 DR. HUTTON: I'm Dr. Kevin Hutton. I'm the CEO and
16 Chairman of Golden Hour Data Systems, a company that provides
17 information and business process management, including billing
18 services to about 200 aircraft across the United States.

19 HEARING OFFICER WARD: And Mr. Marc Hartstein?

20 MR. HARTSTEIN: My name is Marc Hartstein. I'm the
21 Deputy Director of the Hospital and Ambulatory Policy Group in the
22 Center for Medicare Management at the Centers for Medicare and
23 Medicaid Services.

24 HEARING OFFICER WARD: Thank you.

25 Mr. Chairman, these witnesses are now qualified.

1 CHAIRMAN SUMWALT: Thank you very much, Ms. Ward.

2 I would like to ask the witnesses to get very familiar
3 with the microphone there. You will need to get very close and
4 one thing that we've noticed, sometimes the witnesses, after
5 they're speaking, do not un-key the mic and that tends to get
6 recorded in our webcast there, so some of the comments that you
7 make may be recorded unintentionally.

8 So, Dr. Dodd, thank you. I'd like to turn it over to
9 you and if you would, please, introduce the Technical Panel that
10 will be assisting you on this panel.

11 TECHNICAL PANEL QUESTIONS

12 DR. DODD: Okay. Thank you, Mr. Chairman. To my
13 immediate right is Dr. Bruce Coury and to his right is
14 Dr. Evan Byrne and they comprise the Technical Panel for this
15 particular panel. I should also point out we have six witnesses
16 on this panel. We ended up combining two panels because they were
17 so closely affiliated.

18 The issue of operating models and reimbursement, I will
19 deal with the first three witnesses discussing operating models
20 and then Dr. Coury will take over for me and speak to the last
21 three witnesses about reimbursement. We will then finish asking
22 our questions and then turn it over to the parties for their
23 questions at that point.

24 So having said that, let me start with
25 Ms. Christine Zalar and ask some questions about the whole concept

1 of operating models or how EMS services are organized. Could you
2 briefly describe the different types of operating models in use
3 today by EMS helicopter operators, including hospital based and
4 community based operating models?

5 MS. ZALAR: There are three primary structures that air
6 medical services are provided under. There is public sector, if
7 you will, public use, government. Second type is traditional
8 hospital programs and the third type is community based. The
9 government or public sector, if you will, is the least common or
10 the least number of programs that are organized under a
11 governmental entity, perhaps underneath law enforcement or
12 underneath fire services and typically, they do not operate as a
13 Part 135 certificate holder.

14 Typically, they own their own aircraft, they provide the
15 aviation services; the pilots, the mechanics -- they provide the
16 medical services. And in those particular models the expense and
17 responsibility for the operating model, itself, falls to generally
18 the taxpayers and/or that governmental entity via the taxpayer
19 base.

20 As we look at that particular model, it also tends to be
21 somewhat multi-mission in focus, so you may have a law enforcement
22 aircraft that also does medical missions. There are some that are
23 strictly medical missions, but it tends to be more of a multi-
24 mission in focus. The traditional model is a model that really
25 was the initiation of air medical services in the United States

1 and that was a hospital based model, a model whereby a hospital
2 would take the financial risk, the program operations, the medical
3 crew, clinical oversight, would provide those services and
4 contract for Part 135 services from an aviation company or
5 sometimes it's called a vendor.

6 The aviation company, itself, would then provide the
7 pilots, the mechanics and all the flight operations and the
8 maintenance of the aircraft. That particular model has gone
9 through an evolution over time. I think it was already noted that
10 in 1972 was really the initiation of that model and over time,
11 that's gone through some different growth and refinements in terms
12 of how it delivers services.

13 So perhaps you've seen now where the hospital may
14 purchase the aircraft and own the aircraft, still contracting for
15 those Part 135 services. You see where some hospitals have gone
16 and gotten their own Part 135 certificate to operate. But in
17 concept, generally, it is a hospital based program.

18 Now, as we go down the continuum to the third model,
19 which is the community based model, keeping in mind that those two
20 models are well connected to each other, the community based model
21 really has had the most growth in the last several years and in
22 part, it has been a means of taking medical helicopter services
23 out to the rural communities and as a result of that, there have
24 been more helicopters, as it's already been noted on the record,
25 but the community based services truly became much more

1 independent and stand-alone.

2 Most of those community based services are owned by
3 aviation companies who may also be contracted for the traditional
4 programs to provide aviation services, but in the community based
5 model, they then bring on the medical side, themselves, and employ
6 the nurses, take full responsibility for the clinical, the medical
7 and the fiscal oversight and responsibility and risk of the
8 program. Between those two points lies a number of different
9 variants and those variants truly make it very difficult to say
10 I'm a traditional program or a community based program.

11 Those variants are a reflection of a hospital
12 relationship with an air operator; it's a reflection of the local
13 community, of healthcare policy in that region or that state, of
14 healthcare planning in that state, but there truly is movement all
15 the way between those two points. The other thing that's
16 important to potentially bring to light is tax status is a
17 characteristic; it's a financial characteristic of a program. So
18 whether it's a for-profit or not-for-profit, it really is not
19 defining of the model, it's a financial characteristic.

20 So you can have a community based program that is for-
21 profit and you can have a community based program that's not-for-
22 profit, same as you can a traditional program.

23 DR. DODD: Thank you for the excellent explanation.
24 Could you expand just a little bit on the concept of fees or
25 membership fees that some of the community based models employ?

1 MS. ZALAR: I'm not clear on your question in regards to
2 membership fees.

3 DR. DODD: Well, it's my understanding that certain
4 community based operators will actually offer memberships to
5 people in the local community and this is usually a yearly fee for
6 either individuals or families, so I'd be interested in learning a
7 little bit more about that.

8 MS. ZALAR: Some states view membership as a product
9 that a provider, whether it's ground ambulance, which is truly
10 where membership programs really got their initiation, if you
11 will, as a means of allowing offset, if you will, of fees. So in
12 those states whereby it's not characterized at all as insurance,
13 but it's characterized as being a means of offsetting fees to the
14 person who purchases it.

15 In concept, what it does is it allows a family or an
16 individual to pay a flat rate and under that structure, then they
17 would not be responsible for anything that's not covered by
18 insurance and/or any other third party payer with the exception of
19 Medicaid.

20 DR. DODD: Okay, thank you. It's clear, from your
21 comments, that there are multiple approaches to providing EMS
22 helicopter services. Obviously, there's a lot of changes that
23 have occurred recently. What changes do you foresee in the
24 future, as far as operating models for the EMS community?

25 MS. ZALAR: That's a very difficult question to answer

1 and I hesitate only because I don't think we've ever been in the
2 economic environment, overall, that we are in today and that
3 really leads towards a lot of uncertainty. We are going to have
4 some unforeseen changes in reimbursement. Unemployment is going
5 to have an impact on our payer mix, if you will, so there will be
6 some challenge to our revenue base.

7 There have been expenses that have been associated with
8 air medical programs and subsequently, as we've all committed
9 towards increasing some of those expenses with different types of
10 safety, significant improvements in changes in training, and the
11 amount of effort we've put towards safe operations, that plus the
12 cost of fuel are things that are affecting our expense base.

13 So as much as we -- when we look at any air medical
14 service, the fixed cost of being ready for a response is extremely
15 high and because of that fixed cost and because of this
16 uncertainty in the environment in terms of the economic forecast,
17 I think it's hard to know what the future is really going to
18 dictate. Have we seen a slowing in growth? We have. Have we
19 seen new programs that are not starting up? We've seen less of
20 that than we have previously. But I really believe we're in
21 uncharted waters as far as what the future brings.

22 DR. DODD: Okay, thank you. Could we pull up the
23 Exhibit 4(d), Aaron?

24 (Slide.)

25 DR. DODD: This slide presents the geographic

1 distribution of EMS helicopter programs nationwide and it's
2 obviously a graphic that many of us are familiar with as the ADAMS
3 database that's publicly available. There appears to be a
4 significant part of the country that does not have EMS helicopter
5 coverage. In this graphic the red area is representing them as
6 helicopter programs. Do you have an estimate of how much of the
7 country does not have access to EMS services at this point, EMS
8 helicopter services?

9 MS. ZALAR: I do not have an estimate of the geographic
10 coverage, nor the population coverage, but the areas that you see
11 that are uncovered are the less populated areas. And again, I'll
12 go back to the high cost of providing these services and the need
13 to spread those costs over a certain amount of volume.

14 DR. DODD: Do you think it's possible that the
15 contractor who generated that particular graphic might be able to
16 give us some insight or some information on that question, both
17 geographic and population based distribution of EMS helicopter
18 services after the hearing, perhaps?

19 MS. ZALAR: I would agree and I would defer to them.
20 They know that database better than anyone.

21 DR. DODD: Okay, good. Finally, can you provide some
22 insight on how a decision might be made on where EMS helicopter
23 services should be located?

24 MS. ZALAR: Typically, they are located in areas where
25 there is sufficient call volume to support the fixed cost of

1 readiness and the fixed cost of response that I referred to
2 earlier. That may be not just population based, but it may be a
3 result of several other factors such as changes in the way rural
4 healthcare services are being delivered, the availability of
5 services and the more rural environments and overall migration
6 towards -- of the population into those areas.

7 We have an elderly population, again, that typically
8 resides in a rural area, so there's a number of different formulas
9 and methodologies whereby a forecast or a prediction of the amount
10 of volume based on population, based on population density, based
11 upon services that are available there, as well based upon just
12 morbidity and mortality statistics in terms of where that best
13 location may be.

14 DR. DODD: Okay. Thank you very much. I'd like to move
15 on now and ask Mr. Thomas Judge a few questions. Could you
16 briefly describe the EMS helicopter operating model that exists at
17 your organization?

18 MR. JUDGE: Certainly. We, LifeFlight of Maine -- and I
19 guess when you say a HEMS model, I think we look at it as much
20 more of an integrated critical care delivery system, just to get
21 to that attribute. We're an independent, non-profit limited
22 liability company. We are owned by a consortium of healthcare
23 systems and we operate independent and in turn help supported by
24 another independent charitable foundation that's comprised of
25 community and medical and business leaders across the state. We

1 are hospital based. We share our medical teams with our hospital,
2 the base hospitals, for doing things and we provide both
3 helicopter medical services and ground medical services for doing
4 things.

5 We're very much physician-lead. There's 18 physicians
6 from across the state of Maine that oversee the clinical aspects
7 of the operation. There's a medical director at each of the three
8 big trauma centers in the state that are hands-on for the crew and
9 then 15 specialist emergency physicians from around the state that
10 do that. We contract with a certificated operator. In our case,
11 that's the EraMED, a division of Era Helicopters. They provide
12 our Part 135 helicopter operation and we contract with two ground
13 ambulance companies to provide ground EMS coverage.

14 I think that's important because we look at this and say
15 this is really physician prescriptive, that the choice of a
16 vehicle is the choice of vehicle and we are more interested in
17 what is the service that's needed by the patient at any given
18 time. So the model is really based on kind of a wide variety of
19 medicine, so that may be a consultation from one of our
20 physicians; that may be a hookup to a tele-medicine with one of
21 our physicians.

22 We have, you know, tele-medicine units actually in all
23 our trauma surgeons' and pediatrician specialists' houses. We
24 provide, sort of, full pediatric to adult coverage. That may be a
25 ground transport and that may be a flight transport, so when we

1 say it's a HEMS model, our job is not to fly patients, our job is
2 to provide very high-grade clinical services to the people of
3 Maine. It may take a variety of ways that we deliver that.

4 DR. DODD: That raises two questions in my mind and that
5 is your geographic area is quite large and yet, you are using
6 ground ambulances. Are those critical care units that have the
7 advanced interiors or are those more traditional types of ground
8 ambulances that you're using in your service?

9 MR. JUDGE: It's hybrid because of cost, so one of our
10 medical teams will go in those ground units and we've upgraded
11 those ground units so they have, in addition to, you know, more
12 oxygen, they'd have more air. They've upgraded electrical systems
13 to be able to support equipment. High acuity care is not all time
14 dependent, so we have patients who need very time-dependent care
15 and we have patients who need high acuity care, very sick,
16 intensive care unit transfer.

17 They don't need -- you know, time's not an issue. We
18 can put them in the road. The other piece is that for all of our
19 people involved, there's always an option other than flight, so
20 there's never -- for a pilot that's looking at a decision for a
21 medical crew, there is always a decision other than flight. Our
22 job is to solve a clinical problem.

23 DR. DODD: Okay. How do you coordinate with local
24 ground EMS providers outside of your own system and other EMS
25 helicopter providers in the New England region? I'm particularly

1 interested in your medical oversight system in this coordination
2 process.

3 MR. JUDGE: Just to go back to the -- we do cover a vast
4 area, so we cover the entire state of Maine; we cover the eastern
5 half of New Hampshire under Mutual Aid, with the program in New
6 Hampshire. We would cover into Vermont on Mutual Aid and we cover
7 into the provinces of Quebec and New Brunswick, so we have about
8 a 50,000 square mile operating area. We have one of the most
9 hostile weather climates in the country. We have about 30 islands
10 with population year round, 200 islands with population
11 seasonally. We have the Labrador Current, we have mountains and
12 we're probably, other than Alaska, the most densely forested state
13 in the country, so we have 200 -- there's a lot of small
14 hospitals, mostly critical access in the rural areas.

15 We have 208 EMS agencies in the state of Maine, 70
16 percent of those are volunteer agencies. We would also have to
17 coordinate with all the law enforcement and fire rescue that you
18 get into the very rural areas, you know, there isn't really EMS
19 agency coverage. There is, but from a time standpoint, it can be
20 challenging, so the Department of Inland Fishery wardens, the
21 state police, you know, those are the coverage there.

22 We have a very integrated system. There's one set of
23 protocols for all EMS providers in the state of Maine and there's
24 a singular protocol for the use of an aircraft or actually, the
25 protocol actually isn't the use of the aircraft, the protocol is

1 to go to a hospital other than the closest hospital, so it's a
2 destination decision which would drive, sometimes, the need for an
3 aircraft. So with that, then, we have an organized system of
4 linking up with all the 911 public safety answering centers so
5 there's a specific training course that they go through. There's
6 a training course for the ground rescue personnel, the fire rescue
7 people, who are setting up landing zones and that's now been
8 broadened, you know, to working with all the snowmobiles.

9 We have almost as many snowmobile miles of roads in
10 Maine as we have public roads in Maine to put into the very rural
11 areas, a set of things for all the public safety people in EMS,
12 obviously a structured program with the hospitals for doing stuff.
13 So that program's integrated into the way the Maine EMS -- the
14 state EMS agency has that set of protocols and then we are
15 required to report all of our activity into their medical
16 direction and practice board on an annual basis, so they look at
17 our discharge in less than 24 hours numbers, they look at our
18 clinical quality because from the state EMS perspective, they want
19 to make sure that this part is integrated and decision making is
20 integrated into the healthcare system.

21 DR. DODD: Okay. What steps have you taken to improve
22 safety for your flight program?

23 MR. JUDGE: You asked me about NEA.

24 DR. DODD: Okay.

25 MR. JUDGE: The northeast. So the other part is because

1 we do operate in the other states. New England has an informal --
2 called the Northeast Area Ambulance Alliance. All the programs in
3 the Northeast participate in that and that program does a lot of
4 things, Mutual Aid contracts, education. We just did a huge
5 dispatch compliance, you know, compliance to dispatch criteria;
6 weather sharing, the lead pilots get together, the communications
7 centers get together with regular courses, there's face-to-face
8 meetings monthly and quarterly.

9 And I'll give you an example of the integration in New
10 England is that currently, you know, we've looked at what's going
11 on and while every communications center, every receiving hospital
12 has a primary communications center that coordinates traffic in
13 and out of that helipad. So for any helicopter, including the
14 Coast Guard, coming in to one of our hospitals, they would have to
15 coordinate through our communications center so that we know
16 there's aircraft coming in and out.

17 Similarly, if we're going into Boston or the University
18 of Massachusetts or Hartford or Dartmouth or Fletcher Island, so
19 there's a primary -- we now, in New England, taken that to every
20 single hospital helipad in all of New England, so now there's a
21 primary communications center that coordinates traffic in and out
22 of there and because of this cooperative -- cooperation is
23 probably the word in the vernacular now -- that every program in
24 the Northeast has agreed to put a new software system in overtop
25 of their flight following systems so that this software system

1 called Fleet Eyes -- so that every agency, we can turn it on --
2 every agency can see our aircraft 24 hours a day in real time. We
3 can see their aircraft 24 hours a day in real time and we make
4 sure that way that there's good coordination across everybody.

5 DR. DODD: Could you briefly address some of the issues
6 you've taken with your aircraft to address safety?

7 MR. JUDGE: When we started there was almost nothing in
8 Maine, so we had no helipads, we had very little weather
9 reporting, we had a very complex environment, so we stated out and
10 said we needed to build infrastructure and we stated out and said
11 in this environment, we'll operate visual flight rules with IFR
12 aircraft so that the pilots always have a margin of doing things
13 and then we told the pilots up front that it's our expectation if
14 you run into a problem, you will declare the emergency and if the
15 FAA violates you, which we don't think they will but if they did,
16 we will guarantee your job.

17 We will guarantee your salary, declare the emergency,
18 we'll pay it as long as it takes. You know, we want to make sure
19 that people feel protected in that system. Having done that we
20 then -- we worked with the state and created a chapter in the
21 state aviation master plan for emergency services. That gave us
22 the policy level to go to the legislature and put a component of a
23 transportation bond in and with that bond we've then, over the
24 last seven or eight years -- in June, we'll have finished building
25 a helipad at virtually every hospital in the state of Maine; we'll

1 have put in 30 GPS instrument approaches; put in fuel in the rural
2 areas; put in eight new automated weather observation stations so
3 the pilots said where do we need weather and we built that out.
4 We fly full IFR helicopters. We fly full NVG for doing things.
5 We're part of that, obviously, Northeast Air Alliance.

6 We've put in a complete -- with our operator, put in a
7 complete SMS so there's a linked safety and quality management
8 system with our clinical QAPI system. We're obviously big
9 believers in IFR. And then, we work with AAMS, we're members of
10 HAI, we're an active member of the IHST and we're an active member
11 of one of the founding members of a project called the Aviation
12 Safety Network in North America that really deals in the idea, the
13 concepts of risk management for doing things. And the state has
14 liked this and so we're actually in the legislature this week with
15 a second bond to finish the aviation system.

16 DR. DODD: Okay. Thank you, Mr. Judge. I appreciate
17 your comments. My next question is for Dr. Bass.

18 Could you please provide a short description of the EMS
19 helicopter operating model used by the state of Maryland?

20 DR. BASS: Sure. Our system in Maryland actually was
21 the vision of Dr. R. Adams Cowley. In the 1960s, he ran a shock
22 trauma facility in Baltimore, had a lot of patients who came in
23 that died. He and his staff believed that if they had seen a
24 number of these patients earlier, they would've had a better
25 chance of surviving. He knew what was happening in Viet Nam at

1 the time, the use of medevacs. He went to the Maryland State
2 Police and in 1970 they began their first medevac operation. They
3 had one helicopter that was based northeast of Baltimore and
4 gradually, over time, over the next few decades, by 1989, they had
5 eight bases that are distributed around the state.

6 The helicopters the state police operate have a single
7 pilot. They have a single trooper in the back that is trained as
8 a paramedic. The aircraft are configured for a multi-mission
9 capability and that includes helicopter EMS, they do rescue
10 including hoist capability, law enforcement and Homeland Security.
11 About 80 percent of what they do is EMS. Since 1970 they have
12 flown over 120,000 patients.

13 Dr. Cowley also knew that he needed good statewide EMS
14 pre-hospital care before the helicopter got there, so he set about
15 also creating a statewide system of EMS care and the central tenet
16 of that system, basically, for years has been the right patient to
17 the right hospital in the right time and our aircraft really help
18 us to achieve that mission.

19 DR. DODD: Can you speak a little bit about the concept
20 of integration and how the Maryland EMS system was designed?

21 DR. BASS: Well, we have one lead EMS agency, that's the
22 agency I head, the Maryland Institute for EMS Systems. We oversee
23 air and ground. All providers in the state operate under one set
24 of protocols. We have a statewide communication system. The
25 dispatch for the helicopters is at SYSCOM, the system

1 communication in Baltimore. It's co-located with our
2 statewide 24/7 communications center, so we have the ability to
3 communicate between hospitals and ambulances and medevacs and
4 coordinate major incidents and track hospital capacity and
5 capability, do notifications of hospitals and again, because all
6 the providers operate under the same protocols there's significant
7 integration. Those protocols include standards statewide for
8 field triage to a trauma center as well as helicopter utilization.

9 DR. DODD: Are there any areas on the state of Maryland
10 not covered by the Maryland state EMS helicopter network?

11 DR. BASS: We have eight bases distributed around the
12 state. Our response time statewide, 95 percent of the time we're
13 there within 25 minutes and typically, 95 percent of the time, we
14 have the patient to the hospital within 60 minutes of our
15 notification.

16 DR. DODD: The state operating system, the state EMS
17 helicopter system in Maryland seems to be very different than that
18 was described by Mr. Judge and Ms. Zalar. Who pays for the
19 Maryland state EMS helicopters?

20 DR. BASS: It's a public program. It's paid for by a
21 surcharge in vehicle registrations each year. People pay about
22 \$11 surcharge on their vehicle registration. That goes into an
23 EMS fund that funds a number of aspects of the EMS system,
24 including the medevac program, so when the state police fly a
25 patient, they do not bill.

1 DR. DODD: Are patients ever -- do they ever get
2 supplemental fees or any type of charges?

3 DR. BASS: Not from the state police.

4 DR. DODD: Okay. How do you coordinate with other EMS
5 helicopter providers in the Mid-Atlantic or the Maryland, the tri-
6 state area?

7 DR. BASS: Well, we have statewide in Maryland, we have
8 what we call Helicopter Quick Quality Improvement Committee and we
9 have representatives from the public programs, as well as the
10 private programs. They meet at least quarterly, if not more
11 often. They review cases; they talk about safety issues. In
12 particular, we coordinate things, for instance, such as what to do
13 when multiple aircraft are approaching a helipad at the same time,
14 safety issues that come up, the use of private aircraft.

15 We have an MOU with all three private firms that are in
16 -- which, by the way, are all hospital affiliated, that are in
17 Maryland. We have an MOU with them and we use them as a backup
18 when the state police and other public safety providers are not
19 available, so we all try to meet on a regular basis and stay
20 coordinated on safety and operational issues.

21 DR. DODD: Okay, thank you. I have one last question
22 and that is there's been some discussion within Maryland state
23 legislature to do away with the publicly funded Maryland EMS
24 helicopter model and replace it with commercial EMS helicopter
25 providers. Could you provide any comments on that particular

1 proposal?

2 DR. BASS: Sure. We have an aging helicopter fleet. In
3 fact, we got aircraft, a cluster of aircraft, we bought in the
4 late 1980s and we're in the process of replacing them and that has
5 led to a discussion about whether privatization would be a more
6 cost effective way to go for the state. I will tell you, at the
7 present time, that we have prepared and put out now an RFP to
8 replace the aircraft and there is public debt set aside in the
9 budget to purchase the first few aircraft and we're proceeding
10 with that RFP.

11 DR. DODD: Okay. Thank you, Dr. Bass. Now I'll turn it
12 over to Dr. Coury.

13 DR. COURY: Thank you. What I'd like to do now is turn
14 to talking about the EMS models and how they relate to
15 reimbursement and specifically with respect to cost and how those
16 costs are generated and the business model associated with that
17 and the reimbursement practices. I would like to begin with
18 Dr. Wedel and I would like you to describe for us Boston MedFlight
19 and how it's organized. And I believe you have a slide associated
20 with this, is that correct?

21 DR. WEDEL: I do.

22 DR. COURY: Yes. Mr. Deats (ph.), if you could bring up
23 Slide Number 1?

24 (Slide.)

25 DR. WEDEL: Thank you. Am I on? Okay. Like Tom said,

1 our program is designed to link the sickest patients in our
2 service area with the resources that they need. We are CAAMS
3 (ph.) accredited, licensed in the Commonwealth as an ambulance
4 service, set up as a not-for-profit consortium program. We were
5 founded in 1985 and I've listed on this image the founding
6 institutions, the six teaching institutions in Boston. I might
7 add that this has been a cooperative venture of these institutions
8 since 1985 and it is the only successful cooperative venture
9 between these teaching institutions.

10 We currently operate two bases, three helicopters. One
11 of our aircraft is staffed only 12 hours a day, so we actually
12 have two and a half helicopters, a jet and a ground vehicle, and
13 our communications center is responsible for taking the request
14 and then assigning an appropriate vehicle based on guidelines that
15 have been developed with the communications personnel.

16 Finally, our service area, as I've noted on this image,
17 includes primarily eastern Massachusetts, Rhode Island, southern
18 New Hampshire. We have two well-known islands, Martha's Vineyard
19 and Nantucket, of which we provide approximately 400 missions per
20 year for those facilities and we also have another island that we
21 service that isn't on that image, which is primarily our fixed
22 wing service, and that's Bermuda.

23 DR. COURY: Thank you. Now, could you give us a
24 breakdown of the type of services that are provided by Boston
25 MedFlight?

1 DR. WEDEL: Could I have the next image, please?

2 DR. COURY: Mr. Dietz, if we could have Slide Number 2.
3 (Slide.)

4 DR. WEDEL: Thank you. Approximately 70 percent of our
5 services are helicopter, approximately 5 percent are fixed wing
6 and the other are ground services. As you can see, from this
7 image, our breakdown of scene and inner-facility calls is
8 approximately 18 percent and 82 percent. We do about 60 percent
9 of our rotor wing missions during the day and approximately 40
10 percent of them at nighttime hours.

11 You can notice our rotor wing patient age group, about
12 11 percent is pediatrics, 1 percent is neonates, and the rest is
13 adults and then also the bottom image highlights the diagnostic
14 categories and this includes all of our vehicles. Approximately
15 42 percent of the patients carry a trauma diagnosis and cardiac is
16 the next biggest diagnostic category with 18 percent.

17 DR. COURY: Your consortium requires interacting with
18 multiple hospitals and do those hospitals have different
19 requirements for medical flights and if so, how do you handle
20 those different requirements?

21 DR. WEDEL: I think one of the pieces that the
22 consortium has fostered is that over the years we've had to work
23 hard together to have medical care protocols that are consensus
24 documents.

25 And I give, as an example, several years ago there was a

1 movement to take patients who needed PCI, percutaneous
2 intervention for STEMI to cath labs directly. We worked with our
3 six teaching institutions -- we have five adult centers in the
4 group of six consortiums -- to develop one best practice which
5 highlighted the way these patients should be managed. It meant
6 that everybody had to compromise a little bit, but in the end we
7 ended up with one product for best practices for STEMI care and
8 then that was circulated to our user base, including all of our
9 sending facilities.

10 DR. COURY: And how common is this model in the EMS
11 community?

12 DR. WEDEL: I am aware of several other consortium
13 programs in the country. I think that the way that we have
14 managed the governance and the oversight from a financial
15 perspective is probably unique, although I couldn't speak for
16 other programs.

17 DR. COURY: Thank you. Now, let's turn now to the
18 breakdown of cost that you incur to provide these services. Yes,
19 if you could bring up --

20 DR. WEDEL: I think I have another image.

21 DR. COURY: Yes. Slide Number 3.

22 (Slide.)

23 DR. COURY: And can you explain to us what this
24 breakdown of costs might be?

25 DR. WEDEL: Absolutely. I think this next image talks

1 about the fixed costs and the variable costs. Eighty percent of
2 our costs are fixed, meaning we incur them whether we do a mission
3 or not. So those would be things such as salaries, aircraft,
4 capital costs of aircraft, insurance, facilities, depreciation,
5 interest, office supplies, professional fees, et cetera, and
6 then 20 percent of the costs are the variable costs which include
7 those associated with flight time.

8 I've also highlighted on this particular image the
9 safety expenses that we've incurred since 1988. You'll see a blip
10 in that in the years 2006 and 2007, which was when we added night
11 vision goggles to our three aircraft. I believe the total
12 expenditure for that program over that time was in excess
13 of \$330,000. Running a program that puts safety and quality
14 patient care first, we can all -- I mean, many of the members of
15 this audience will tell you is a very expensive proposition.

16 I think we're spending a lot of time talking about
17 safety. I would like to just highlight that to maintain quality
18 trained medical crew is also very expensive and I've highlighted
19 the costs for us over the last decade and medical education, which
20 includes just like our pilots go through simulation training, our
21 medical crew, for example, go through simulation training and do
22 clinical rotations in all of our consortium hospitals. Those
23 costs, as you can see, approach at excess of \$250,000 on an annual
24 basis.

25 DR. COURY: And could you also tell us a little bit

1 about the cost associated with acquiring new equipment?

2 DR. WEDEL: In Massachusetts there is an organization
3 called the Massachusetts Education, Health, Resources Authority --
4 Financial Authority, excuse me -- Massachusetts HEFA. And it
5 serves as a conduit for not-for-profit healthcare organizations to
6 incur capital expenditures. You put together a requisition
7 through them; they vet it and then they put it out to bid and work
8 with you to select an agency that will allow you to borrow money
9 in a not-for-profit rate.

10 We've recently just purchased a Sikorsky S-76 C++ model.
11 As I noted on this slide, the total cost of that, with the
12 configuration, is in excess of \$11 million. It took us two years
13 to put that process together, but we were able to secure the
14 funding through Massachusetts HEFA and we are the proud recipients
15 of that aircraft two days ago.

16 DR. COURY: Just to clarify on those safety expenses,
17 are these strictly safety, the expenses associated with the
18 equipment?

19 DR. WEDEL: I believe that is the case. If you look at
20 the slide, the image that was just up, I highlighted what they
21 are, but it would be night vision training, night vision
22 equipment. We also send our pilots to flight simulation on a
23 biannual basis; each pilot would go twice a year. And that would
24 also include in-house pilot training in terms of flight hour
25 times, et cetera.

1 DR. COURY: Now, let's talk about the proportion of cost
2 covered by reimbursements from the federal, state and third-party
3 sources and if you could explain that for us.

4 DR. WEDEL: I'm going to need another image, please.

5 DR. COURY: Yes. Slide Number 4, please.

6 (Slide.)

7 DR. WEDEL: In the lower left-hand corner you can see
8 what -- our current payer mix of all of our vehicles. This is
9 2008 data. You'll note that 41 percent of our patients carry
10 commercial insurance; 28 percent carry Medicare, that has
11 increased over the last years; 20 percent carry Medicaid.

12 On our ground vehicles, we do a significant number of
13 pediatric patients that are Medicaid reimbursed. Auto, 7 percent;
14 self-pay 3 percent; and then other is 1 percent. However, our
15 sources of revenue are very different. While 28 percent of our
16 payer mix is through Medicare, you'll note that approximately, I
17 think, 15 percent of our reimbursement is through Medicare, so
18 Medicare right now is paying us approximately 60 percent of our
19 cost. Do you want me to walk through the rest of this?

20 DR. COURY: Yes.

21 DR. WEDEL: Okay.

22 DR. COURY: If you could kind of explain, because you've
23 got a couple of things here, like where commercial is 48 percent
24 of your --

25 DR. WEDEL: Absolutely.

1 DR. COURY: -- revenue, but it -- if we could just leave
2 the image up, that would be fine.

3 DR. WEDEL: If we can get the image to stay up, then
4 we'll be in business.

5 So the payer mix, once again, shows that there's 41
6 percent of our patients that actually have commercial insurance,
7 however, when we look at our sources of revenue, 48 percent of our
8 sources of revenue come from commercial payers. They pay
9 approximately 123 percent of our cost, whereas Medicare, 28
10 percent of our patients have Medicare. Medicare covers 15 percent
11 of our reimbursement, or of our revenue, and they pay
12 approximately 60 percent of our cost. Medicaid covers 20 percent
13 of our patients but pays approximately 9 percent of our revenue.
14 They cover approximately 50 percent of our cost. Auto insurance,
15 7 percent of our patients are covered through auto insurance and
16 our sources of revenue there is approximately 7 percent.

17 Self-pay, 3 percent is our payer mix and approximately 4
18 percent of our revenue. And then the consortium hospitals make up
19 the operating deficit on a cash basis on an annual basis. This
20 year, this is 2008 data, it was approximately 14 percent. This
21 has been a little bit higher this year due to the purchase of the
22 new aircraft I just spoke about and some of the capital equipment
23 that was associated with that. Normally, the consortium
24 institutions have covered 9 to 10 percent of the operating deficit
25 on a cash basis on an annual basis.

1 DR. COURY: So just to clarify on the consortium, the
2 consortium essentially covers whatever shortfalls there are in
3 revenues from these other sources?

4 DR. WEDEL: Yes. We budget for a zero cash balance on
5 an annual basis and the consortium institutions bottom-line the
6 operating deficit.

7 DR. COURY: So has this kind of cost breakdown in
8 sources of revenue, has this stayed fairly constant over time or
9 has this changed?

10 DR. WEDEL: The Medicare percentage has increased and
11 the Medicaid percentage has increased for us, so since 1985 the
12 consortium institutions have paid into the organization about \$25
13 million totally.

14 DR. COURY: So are there any specific regulatory policy
15 or procedures that you must follow in order to obtain these
16 reimbursements?

17 DR. WEDEL: I'm not exactly sure what you're asking, but
18 I think the answers would be that we abide by Medicare
19 regulations, obviously, as we bill Medicare and Medicaid patients,
20 but there are no regulations from the state that requires us to
21 have certain types of billing or reimbursement strategies.

22 DR. COURY: Great, thank you very much. Appreciate your
23 presentation and comments. Thank you. I'd like to turn to
24 discussing a little bit more about the historical development of
25 these EMS financial models and I'd like to direct my questions to

1 Dr. Hutton. Dr. Hutton, if you could please explain to us how the
2 financial models underlying EMS operations have evolved over time?

3 DR. HUTTON: I'd be glad to. I probably first should
4 qualify, why does a doctor learn about reimbursement? A doctor
5 learns about reimbursement because I've had the opportunity to be
6 the sending emergency technician, the sending rural physician, the
7 receiving tertiary care physician and also the medical director of
8 a helicopter program that financially failed and converted to a
9 different model. So --

10 DR. COURY: Excuse me, Dr. Hutton. You're going to
11 actually have to get very personal with the microphone.

12 DR. HUTTON: Oh, okay. Yes. I'm sorry. So if I could
13 maybe have the first slide, I can start from there.

14 (Slide.)

15 DR. HUTTON: This is roughly the timeline of the
16 development of air medical transport starting in the early '70s.
17 The experience from Viet Nam and also the personnel that came
18 back, the trauma surgeons, the medevac pilots and many of whom are
19 still involved in this industry and here today, they came back and
20 were astonished because there wasn't such a system developed in
21 the United States. In fact, there had been a white paper that the
22 government had put out that basically said that you were more
23 likely to survive if you were injured in Viet Nam than you would
24 on a highway in the United States and if you'd go ahead and
25 advance one.

1 (Slide.)

2 DR. HUTTON: And out of that white paper and a lot of
3 the experience from Viet Nam came a lot of trauma system funding.
4 This was administered by the federal government and spurred both
5 hospital based and public based development. The early public
6 based development I would classify as part of the mast program
7 with a few exceptions, Maryland State Police being one of them.
8 Could you go ahead and advance?

9 (Slide.)

10 DR. HUTTON: Hospitals, starting in 1972, became very
11 involved in these services and because they were involved and
12 there was also a transition from federal administered funding to
13 state administered funding, there wasn't as much money available
14 for public development in many states, so if you didn't get on the
15 bandwagon early you probably weren't going to be a publicly based
16 air medical program in that state.

17 Hospitals, though, had significant financial drivers to
18 become part of these -- to develop helicopter emergency medical
19 services. The financial drivers were, number one, marketing.
20 There was the flying billboard with the name of the hospital
21 prominently on the side of the helicopter, also the idea that this
22 was a cutting-edge technology and hospitals could benefit from it
23 and these were trauma centers that came and were developed with
24 trauma system funding. In San Diego, for example, the helicopter
25 system developed very rapidly. There were three helicopters

1 present. Some of the initial research showing that there was a 53
2 percent improvement in mortality was done in San Diego by
3 Bill Bast (ph.). Hospitals' financial drivers were as follows:
4 number one was the marketing piece. Number two was the
5 incremental revenue from inpatients that were brought to those
6 hospitals for long distances away that they wouldn't have
7 otherwise gotten.

8 And sometimes in the studies that I've done in my client
9 pool, that incremental revenue in terms of charges is about 10
10 to 12 times the cost of the helicopter. These hospitals also were
11 using a methodology that's no longer in existence called cost
12 based reimbursement. Cost based reimbursement was a Medicare
13 prescribed methodology that hospitals are still paid by wherein
14 they have the ability to charge and have costs and develop a ratio
15 called the cost-to-charge ratio and the incentive was to have low
16 charges and high costs.

17 And when you did that, the financial reconciliation made
18 it very positive for a helicopter transport program. And this
19 wasn't necessarily true for a community based program and so in
20 the mid-90's these community based programs were receiving
21 extremely variable reimbursement from Medicare and usually were
22 developing only in parts of the country, very regionalized parts
23 of the country, where there was beneficial reimbursement
24 circumstances. In California this was the Medicaid system,
25 Medi-Cal. Medi-Cal was paying a hundred percent of the charges up

1 until 1993 and so several regional providers developed during that
2 timeframe and also learned to be paid by commercial payers.
3 Medicare paid well below cost and it was extremely variable region
4 to region. So in 1995 the Balanced Budget Act came out and --
5 in 1997, actually. But the hospitals knew it was coming. And
6 in 1997 this gave the hospitals a choice.

7 They either had to become very committed to running
8 these programs and either subsidize them, turn them into
9 businesses or they were given the opportunity to outsource them by
10 community based providers who would offer them a circumstance
11 where they could keep the name on the helicopter, they could still
12 get the patients and they had no cost and no risk. And so that
13 timeframe, 1997, resulted in a lot of transitions. So can we go
14 ahead with the next slide?

15 (Slide.)

16 DR. HUTTON: So in that timeframe there was a process
17 called negotiating rule making which came and allotted a pot of
18 money which had to be budget neutral to all of emergency medical
19 transportation. And so air ended up with a portion of that pie,
20 so to speak, and the fee structure, as a result, came up with a
21 very consistent payment from Medicare for medical transportation
22 and that payment was given a methodology where rural providers
23 were given a little bit more money and that was because they had
24 less volume and also because they had longer distances. And so
25 that methodology is still in place today, it hasn't really changed

1 very much and it really doesn't completely cover the cost. And so
2 in that timeframe, you saw hospitals who got serious form hospital
3 based systems, oftentimes consortium systems, where you had
4 multiple helicopters working together and supplying a service to a
5 region. And whether it be administered by a hospital or whether
6 it be a regional business, they were both doing approximately the
7 same thing and that is to bring patients to whatever closest
8 appropriate facility that was required for the patient's care. So
9 the regional businesses continued to develop and if you can hit it
10 one more time.

11 (Slide.)

12 DR. HUTTON: And out of those regional businesses, there
13 were some very quick consolidation by larger businesses and so
14 you've seen aviation operators who have learned and have also
15 acquired talent and staff from hospital based systems that closed
16 and regional businesses that they acquired, and they have now
17 formed the national consolidation of air medical transport in
18 large parts of the country. Those consolidators typically do not
19 put those helicopters on top of hospitals, they put them out in
20 rural areas or they took over a hospital's service area, but they
21 grew and they expanded the coverage across the United States, so
22 that ADAMS slide that you showed shows some of that expansion into
23 rural areas and I can tell you that a lot of that expansion
24 occurred where reimbursement mix was reasonable and they could pay
25 for those services. So one more hit.

1 (Slide.)

2 DR. HUTTON: So my goal, my bottom line on this is that
3 the model of development has really followed the funding or lack
4 thereof all the way through and as to Christine's prognostication,
5 I would say that if the money changes, the model's going to change
6 and it depends on how fast it changes and how fast the model will
7 have to change. But you have definitely pushed it to a for-profit
8 business model.

9 DR. COURY: Thank you. Well, could we go on and now and
10 talk about some of the market drivers --

11 DR. HUTTON: Sure.

12 DR. COURY: -- behind these types of models? And if we
13 could have the next slide, please.

14 (Slide.)

15 DR. HUTTON: So many people ask why growth is occurring
16 now and I think mostly it's because there's a need and the rural
17 standard of care is the same as the urban standard of care and
18 people who live in rural areas want the capability of time
19 dependent care. There's been a general increase in the types of
20 time dependent care with, you know, cardiac in the early '80s
21 resulting in a lot of transports and then now moving into
22 protocols for S-T elevation, mild infarctions, heart attacks, of
23 getting people to intervention quickly, and strokes, it's even
24 faster. There's also been a regionalization of pediatric care and
25 also of high-level neonatal care and this has resulted in long

1 transports of patients in some cases. There's also been a fairly
2 significant increase in patient destination legislation. In other
3 words, the states have said you will transport patients to this
4 facility with this entity and so there's already a lot of
5 coordination in most of the states that I'm familiar with, with
6 patients being moved to trauma centers, STEMI centers, burn
7 centers, et cetera.

8 The other problem is, is that there's limited or no
9 ground capability and as an emergency physician who worked in all
10 central California, you were given a choice when you had a sick
11 cardiac patient. You either could call the helicopter or you
12 could have the volunteer ambulance service who could give oxygen
13 transport to patient two hours. You had no choice. You had to
14 call the helicopter. And being that doctor with one hand on the
15 phone, the other hand on the patient, it's oftentimes a tough
16 choice and you know, there's this entity where you're calling
17 multiple helicopter providers.

18 Well, put yourself in that position where you're trying
19 to do the right thing for a patient who's sometimes very sick and
20 getting sicker in front of you. Malpractice, as well, has caused
21 problems, especially in states like Florida. Physicians who don't
22 want to pay large premiums sometimes reduce the type of patients
23 they take care of. They won't take care of pediatric patients, so
24 an orthopedist that takes care of kids, there may be only those
25 capabilities at a pediatric hospital and so again, transports that

1 normally may not occur by helicopter get done because there's no
2 ground capability to move those patients. And then when you
3 regionalize care, there's a side effect to that and that side
4 effect is that you lose the care in rural areas. You don't have a
5 doctor who's doing 20 or 30 catheterizations a month in a rural
6 area anymore or even in a suburban area.

7 They get moved to centralized centers that do hundreds
8 of catheterizations a month. And then the growth and
9 consolidation of providers in the economy to scale has really
10 allowed big operators to bring things in like integrated training
11 simulation and things like that. But overall, I think the biggest
12 reason for growth is consistent reimbursement and that businesses
13 can predict that they will make money.

14 DR. COURY: So if you could tell us now a little bit
15 more about how these various costs are reimbursed and the various
16 sources of those.

17 DR. HUTTON: Sure. Can I get the next slide?
18 (Slide.)

19 DR. HUTTON: I think a little primer on the U.S.
20 insurance system -- and I use this slide a lot when I've consulted
21 in Japan and I am very aware of the European systems and they look
22 at our system and they know exactly what they don't want to do --
23 we're paid, in air ambulance -- the best metaphor would be we're
24 paid like a taxicab. There's a base rate that's supposed to cover
25 fixed rates or the fixed cost, the readiness cost, and that again,

1 you've heard is 85 percent of our cost. And then the loaded
2 mileage charge, it's a variable cost per loaded mile and that's a
3 statute mile. And so I can tell you that this industry learned
4 very quickly to accurately measure loaded miles and the reason we
5 have GPS transponders in helicopters today is because we can get
6 paid for it.

7 So the issue is, is that we're not paid for the response
8 and we're not paid for readiness, really. We really have to
9 transport the patient, so when we get called, we're not in the
10 business of second guessing a physician. We're not in the
11 business of second guessing an EMS provider. You have to
12 understand that they may be calling to get that one patient out,
13 but there be nine other patients that they're dealing with.

14 So the different insurance types, Medicare, Medicaid,
15 tri-care, commercial -- and commercial, I've combined it, which is
16 a little different than what Suzanne's model was -- and then
17 self-pay which is sometimes no pay. And there's a tremendous
18 amount of charity care that these services provide. There's also
19 special funds in some states and counties, but those are pretty
20 much only accessible by hospitals and hospitals get paid directly
21 for those in those funds. And then, also, legal settlements.
22 Some states are what's called tort states and so you don't get
23 paid until there's a settlement and so that can take up to two
24 years delaying your payments.

25 DR. COURY: Could you just expand on this issue about

1 not paid for response? Is it the case that once you launch the
2 helicopter, are you reimbursed for that?

3 DR. HUTTON: There's only one circumstance in which you
4 can get paid for response and that's when a patient dies after
5 you've been dispatched. In virtually all cases you're not going
6 to know who that patient is and due to ethical reasons, many
7 transport programs don't bill for those. If you land on the
8 scene, take care of the patient and don't fly with that patient,
9 you're not going to get paid. Now, that's much different than the
10 rest of world. In Germany they're paid by the minute of flight,
11 both for response and for return, and they do onsite triage and
12 determine whether somebody needs to go by air or ground and that's
13 a model which is much more common in Europe.

14 DR. COURY: Dr. Wedel talked a little bit about the
15 patient payer mix and things and that kind of financial structure
16 that's associated with these kinds of operations. Could you
17 expand on that a little bit, please?

18 DR. HUTTON: Yes. Can I have the next image?
19 (Slide.)

20 DR. HUTTON: This is a patient and payer mix comparison
21 and this is for a northern Virginia experience. And I do this
22 because I'm going to compare it to ground in a second. And what
23 you can see is, is that we're heavily dependent on commercial
24 insurance and that self-pay is a fairly significant portion, even
25 here in northern Virginia, but it pays very little. So 20 percent

1 of your patients are going to pay you 2 percent of their net
2 revenue. And Medicare and Medicaid are a smaller portion because
3 commercial is so important here in northern Virginia. And if you
4 go to the next slide, I'm going to compare the graph on the left
5 -- or the graph on the right to ground transports and this came
6 out of the EMS at the Crossroads document.

7 (Slide.)

8 DR. HUTTON: And what you can see is, is that ground EMS
9 is much more heavily dependent on Medicare and Medicaid payments
10 and that a very slight -- and so what this conclusion is, is that
11 a very slight change in commercial payer mix could have a very
12 significant change on air medical transport and so if you want to
13 see another evolutionary change, commercial insurance has the
14 ability to do that.

15 DR. COURY: Can you comment on how complex this billing
16 system is?

17 DR. HUTTON: Final image.

18 (Slide.)

19 DR. HUTTON: We've done a significant amount of air
20 medical billing in 38 states and it is very complex and in most
21 cases, it's pretty adversarial. In other words, you're having to
22 multiply bill a same provider. You may get paid a partial payment
23 and then you argue for full payment; sometimes you have to
24 involved the patient in a process that's called balanced billing
25 to get the insurance company to pay more. Some insurance

1 companies have a capped benefit of a hundred dollars for air
2 medical transport and so it is a lot of work. In fact, it's about
3 -- takes about three times the amount of labor for air medical
4 transport billing than it does for ground transport billing.
5 Also, there's a lot of chance for errors. It's a very complex,
6 tedious process and it's risk filled.

7 We've had a number of OIG audits and sometimes we're
8 getting denials and things and problems for one loaded mile
9 difference between not going to the closest appropriate facility
10 and these regulations are really -- were designed for ground
11 transport. It's not specifically designed for transport that
12 takes a patient 90 miles away and their identification's back with
13 the police officer 90 miles away and you're now trying to get
14 their signature when you're not based at the hospital and it's a
15 very complex process to get to that point where you can actually
16 bill the patient and verify that you've had assignment.

17 And so these nonspecific regs definitely increase the
18 cost on the billing side. And so it's a fairly costly and it's a
19 very inefficient system. Electronic billing is something that the
20 Balanced Budget Act also required. Very difficult when you're
21 billing hundreds of automobile insurance payers, as well. So 45
22 percent collections in 105 days is deemed to be good and I don't
23 know how many businesses could really survive with those kind of
24 numbers, but air medical transport's done a pretty good job
25 primarily because you've got a lot of dedicated individuals.

1 DR. COURY: Thank you, Dr. Hutton, for some very good
2 insights there on the financial side. What I'd like to do now is
3 turn to Medicare and discuss Medicare coverage of helicopter
4 ambulance services and these questions go to Mr. Hartstein. And
5 Mr. Hartstein, could you please describe for us how Medicare
6 determines if the use of an EMS helicopter's appropriate?

7 MR. HARTSTEIN: Yes, absolutely. First slide, please.
8 (Slide.)

9 MR. HARTSTEIN: First I'd like just to reiterate a point
10 that Dr. Hutton made and that is what Medicare is. Medicare is a
11 health insurance program. It's a federal health insurance program
12 for the aged, disabled, people who have been disabled for more
13 than two years. It has about 40 million beneficiaries, so we pay
14 for a large part of the health insurance market irrespective of
15 what sector you're talking about whether it be ambulance,
16 physician, hospital, larger than our population part of the market
17 certainly in some circumstances.

18 So I think it's certainly fair to say that Medicare has
19 a substantial influence on the health insurance market. A
20 fundamental principle of Medicare payment for any kind of health
21 insurance service is that it be reasonable and necessary for the
22 treatment of illness or injury. So in the case of Medicare
23 coverage of helicopter ambulance services, we'll pay for transport
24 to the nearest hospital with appropriate facilities if the
25 facility is inaccessible by ground vehicle, transport is over

1 great distances and complicated by other obstacles such as heavy
2 traffic and the patient's condition is not appropriate for ground
3 ambulance transport, so these are the types of circumstances that
4 we would use to evaluate what I just described, which is
5 reasonable and necessary for the treatment of illness and injury,
6 so the patient needs to -- if they need to have ambulance
7 transport, it would mean that -- particularly air ambulance
8 transport, their condition would be contraindicated by other forms of
9 transport.

10 DR. COURY: And what qualifications must a helicopter
11 EMS operator need to be reimbursed by Medicare?

12 MR. HARTSTEIN: Next slide, please.

13 (Slide.)

14 MR. HARTSTEIN: So to get paid by the Medicare program,
15 any type of practitioner, provider or supplier would need to be
16 enrolled in the Medicare program, which means that they need to
17 meet certain enrollment requirements. In the case of helicopter
18 ambulance services, we would have essentially two types of
19 providers. We would have -- or suppliers of ambulance services.
20 Providers and suppliers are terms of art in the Medicare world. A
21 provider is typically going to refer to a hospital or a hospital-
22 owned type of ambulance company. They would be one type of
23 supplier. An enrolled supplier would be a non-hospital owned
24 ambulance company. We have very detailed regulations and manual
25 provisions. These are manuals that tell our contractors --

1 insurance companies who are under contract with us to process and
2 pay medical claims what types of requirements they have to meet in
3 order to enroll a particular supplier or provider. In the case of
4 air ambulance suppliers, they have to be equipped to respond to
5 medical emergencies. They have to comply with state and local
6 licensing and certification of the emergency vehicle. Air
7 ambulances, specifically, have to have a valid charter flight
8 license, I think what you have been referring to as a Part 135
9 certificate.

10 DR. COURY: And could you describe the Medicare
11 ambulance fee schedule and how it is to be used by EMS operators?

12 MR. HARTSTEIN: Yes, absolutely. Next slide, please.

13 (Slide.)

14 MR. HARTSTEIN: So this is really just a very basic
15 slide of how the fee schedule works and as my colleagues, I think,
16 to my right had indicated, there is a fixed rate, a per trip rate,
17 that is if the vehicle is dispatched to a site and then there's a
18 separate rate for mileage. So on the top line you can see what
19 the fixed rate is for in an urban area, \$3,308, so that's what we
20 would pay before we pay any mileage. Then in addition to that, we
21 would pay \$21.53 per mile. In rural areas, we pay 50 percent
22 more, \$4,962 per trip and \$32.30 per mile. Very simply, you just
23 take the product to the mileage rate and the number of miles, then
24 you add that to the per trip rate and that becomes what we've
25 referred to as the ambulance fee schedule amount. Just also, I

1 think, what was referenced is historically, Medicare paid for a
2 variety of different services using what we called reasonable
3 charge systems or reasonable cost systems historically for
4 provider types, so hospitals, we paid based on reasonable cost.

5 Hospitals would submit these very sophisticated
6 documents called cost reports. They would accumulate their costs
7 in those cost reports and then we would figure out exactly what
8 Medicare's share of those costs are and we would pay them. And
9 then reasonable charge is a similar concept except instead of
10 submitting these sophisticated accounting documents called cost
11 reports, physicians and other types of providers would charge us
12 and we would have a methodology to limit how much we would pay
13 based on three different types of calculations.

14 And over time, what Medicare has done is moved away from
15 those types of reasonable charge and reasonable cost systems and
16 has gone to fee schedules. So under a fee schedule system, we
17 will determine for the different types of services that we pay,
18 essentially a fee schedule. In the case of ambulance, there are
19 going to be a number of different rates. There's going to be
20 payments for basic life support, advance life support, fixed wing,
21 rotary wing, craft and that is going to determine the amount that
22 we're going to pay. As Dr. Hutton said, it's a system that is
23 adopted through negotiated rule making in response to the Balanced
24 Budget Act of 1997. It was first adopted in 2002 over a four-year
25 transition or five-year transition period. And as is common, when

1 we move to a new payment system, typically there's a statutory
2 mandate that we adopted as budget neutral, which means that we're
3 not allowed to pay more or less than what we paid under our
4 previous payment system, but payments could be redistributed as a
5 result of its adoption.

6 DR. COURY: Thank you, Mr. Hartstein. Mr. Chairman, at
7 this time my questioning is complete.

8 CHAIRMAN SUMWALT: Thank you. Any further questions
9 from the Technical Panel?

10 DR. COURY: None.

11 CHAIRMAN SUMWALT: Hearing none, we will now turn to the
12 parties and what I would propose is that we will start with, as we
13 started the last one with Air Methods, this time we will start
14 with CareFlite and I will say that since we have two witnesses
15 representing AAMS, we'll give you the option, Ms. Kinkade, of
16 deciding if you want to go in order if you want to be last in the
17 order, but you can make that decision when we come to you. Okay,
18 so we'll begin with CareFlite.

19 PARTY QUESTIONS

20 MR. DAUPHINAIS: Thank you for your testimony. It was
21 very interesting. Mr. Hartstein, fixed wing allows --
22 Mr. Hartstein?

23 MR. HARTSTEIN: Yes, I'm here.

24 MR. DAUPHINAIS: I saw you looking around. Medicare
25 reimbursement allows for a differential for fixed wing type turbo

1 prop jet. Can you discuss rotor wing vehicle, IFR, twin engine,
2 single engine?

3 MR. HARTSTEIN: I'm not sure. Are you asking what the
4 different rates for the different types of aircraft?

5 MR. DAUPHINAIS: Can you comment on a vehicle type
6 differential? Is there one, should there be one?

7 MR. HARTSTEIN: The rates that I was quoting are
8 specific rates for rotary wing. There's different rates for fixed
9 wing aircraft. The rates that we adopted were set through the
10 negotiated rule making process, so by a committee that represented
11 government officials, as well as people from the ambulance
12 industry and other folks who had expertise and interest in this
13 area would've made a determination as to how that distribution of
14 payments would've occurred. Based on that distribution, we
15 would've set the rates for the different types of ambulance fee
16 schedule services to hit that target. So for instance, we would
17 have a different rate to hit essentially the distribution of
18 payments for rotary wing aircraft or fixed wing aircraft, for
19 ground ambulance transportation.

20 MR. DAUPHINAIS: Okay, but no size, jet versus turbo
21 prop, any of that differential for the helicopter? The industry
22 didn't ask for it, therefore it wasn't included?

23 MR. HARTSTEIN: I can't say whether or not the industry
24 asked for it or not. I can say that the different types of rates
25 that we have are for fixed wing and rotary wing and not beyond

1 that.

2 MR. DAUPHINAIS: Okay, thank you. I have a list of
3 questions here and they may be out of order here. Mr. Bass, you
4 stated that the state does not charge the patient when they're
5 transported. If a citizen of Maryland is transported by another
6 operator, does the state pick up any of that cost?

7 DR. BASS: If the patient is flown by anyone other than
8 the state police, that normally bills -- they'd have to be billed,
9 they'll have to bill the patient. If it's U.S. Park Police or
10 Delaware State Police, they do not bill, but a private carrier
11 would bill.

12 MR. DAUPHINAIS: Okay, thank you. And this is for
13 Mr. Judge and Dr. Wedel. How many of the patients are brought
14 back to your consortium hospitals?

15 DR. WEDEL: Ours this last year was 90 percent.

16 MR. DAUPHINAIS: Ninety percent?

17 DR. WEDEL: Ninety percent.

18 MR. JUDGE: Ours is probably about 62 percent.

19 MR. DAUPHINAIS: Sixty-two percent. Okay, thank you.
20 And Mr. Judge, on the issue of the profit and nonprofit,
21 considering the industry's close interaction between the trauma
22 centers and the transport, how many Level 1 trauma centers are
23 there in the country, if you know, or in your state, and how many
24 of those are not-for-profit?

25 MR. JUDGE: Every hospital in the state of Maine is

1 not-for-profit. There's 36 hospitals of which there's three
2 trauma centers in the state of Maine.

3 MR. DAUPHINAIS: Do you happen to know the data
4 nationally?

5 MR. JUDGE: I believe there's about 800 Level 1 trauma
6 centers in the country and I believe all of those, the vast
7 majority of those are nonprofit.

8 MR. DAUPHINAIS: Okay, thank you. I have no further
9 questions.

10 CHAIRMAN SUMWALT: Thank you, Mr. Dauphinais. FAA.

11 MR. HARRIS: Thank you, Mr. Chairman. Dr. Wedel -- I'm
12 sorry, did I pronounce your name correctly?

13 DR. WEDEL: As long as you don't say it Waddle, I'm
14 happy. It's Way-del (ph.).

15 MR. HARRIS: I promise you that won't happen. If I
16 missed it in your testimony, do you actually -- does Boston
17 MedFlight actually own and operate its own aircraft under its
18 own 135 operating certificate?

19 DR. WEDEL: We own all three of our aircraft and we have
20 a Part 135 vendor air med that operates them on our behalf.

21 MR. HARRIS: Okay.

22 DR. WEDEL: On our fixed wing side, we lease our
23 aircraft and we also have a Part 135 vendor that operators that on
24 our behalf.

25 MR. HARRIS: So the next question actually I'd like to

1 ask to both you and to Mr. Judge. Since you're dealing with a
2 circumstance in which a vendor is providing the aeronautical
3 services for your medical system which includes the transportation
4 component, how do you manage or first off, do, and if so, how do
5 you manage the relationship between the medical necessities or
6 needs or the medical concerns and the aviation safety operational
7 requirements?

8 MR. JUDGE: We share the same operator. We draw an
9 extremely bright line between the clinical and the aviation
10 operation or even the ground operation, as well. So in our case,
11 we will make a flight request to our operator and like Boston
12 MedFlight, we own our aircraft. We will make a flight request to
13 the operator, they have an operational control system that they
14 put in place and the pilots then, you know, working within their
15 system, accept a request for doing things.

16 They've developed their risk assessment tools for doing
17 that. We have gone back with them and made adjustments to the way
18 -- so if there's a flight request that's been accepted and an
19 aircraft is en route to a destination and something changes in the
20 world so now there's a request to switch that aircraft to another
21 destination, we've backed up with them of -- you know, that that
22 has to go in through a separate sort of risk analysis, then, to do
23 that and we've really moved to try and not have pilots into that
24 decision of trying to do that, but in every case it's a very
25 bright line that it's a flight request and you know, as I noted in

1 my earlier testimony, we always have an option of not doing
2 something with a flight. You know, our job is to solve a clinical
3 problem, our job is not to fly patients.

4 DR. WEDEL: I would echo what Tom said. Our systems
5 are, I think, very similar in how we handle requests because we're
6 a multi-modal service and the goal is to provide the linkage.
7 It's always a decision at that point in time based on the
8 patient's status what's the best way to get the patient from A
9 to B. Today it's snowing in New England and I'm sure that there's
10 many patients that are going by ground critical care that
11 yesterday, when it was clear blue and 22, flew aboard a
12 helicopter. In answer to your utilization question, you know, our
13 goal is to transport those patients, that we deliver critical care
14 services.

15 So our goal is to transport those patients that need
16 critical care or time sensitive services. My bias is that over-
17 triage is usually an educational issue and under-triage is usually
18 a political issue and we certainly have seen in our systems where
19 there are places that we're not called maybe as quickly as we
20 should be to provide helicopter services and we've tended to deal
21 with that through education and sitting down and working with our
22 partners in the community and the cities and towns. We track our
23 utilization appropriateness very closely. We do report that to
24 the Department of Public Health and the Commonwealth of
25 Massachusetts and we look at 24 hour discharge for our scene and

1 our inner-facility calls as the end point of tracking, although I
2 would say that from a methodological perspective there are a lot
3 of pitfalls with that.

4 MR. HARRIS: Thank you. Dr. Bass, your description of
5 your service indicates that the aviation provider and the medical
6 system are, in fact, closely linked and not separate vendor
7 contractor relationships, if I understand that correctly, in your
8 system. Could you describe how those, again, medical and aviation
9 safety decisions are made and are they made in concert or
10 independently or sequentially or any other arrangement?

11 DR. BASS: I would say they're done in a coordinated way
12 and let me briefly describe the governance of the system. The
13 overall authority for governing the system is held by the state
14 EMS board, it's 11 members appointed by the governor, it's multi-
15 disciplinary. They're advised by a 29-member advisory council.

16 My agency, MIEMSS, really, we support the board. We are
17 a regulatory agency, as well. We get involved in coordinating
18 operations and statewide system, et cetera. The state police are
19 the primary responders for scene medevacs. They're a separate
20 state agency, but the EMS board approves their budget that comes
21 out of the EMS operating fund and that's the percentage of their
22 mission that's medical, so we approve about 80 percent of their
23 budget, to make a long story short. So in that sense, we have a
24 coordinated relationship, obviously, we have to talk about
25 budgetary issues and expenditures and for instance, recently the

1 board approved certain safety equipment and enhancements and other
2 issues that the state police want to be addressing. The protocols
3 that are written by a protocol committee that we have which is,
4 again, multi-disciplinary with physicians and EMS providers is
5 approved by the board and the protocols, all EMS services public
6 and private in the state operate under those protocols, so that
7 ties the systems together, as well. In terms of specific aviation
8 safety issues, those tend to be addressed individually by the
9 state police or the private carriers, in their case.

10 MR. HARRIS: Thank you very much. Mr. Hartstein, you
11 mentioned that in order for -- and I believe I got this correct --
12 in order for Medicare to make payment, several conditions had to
13 be met, one of which was that the ambulance service had to be
14 conducted by a Part 135 air carrier certificate holder. Is the
15 payment made to that certificate holder or to the provider or --
16 can't remember the other term, sir.

17 MR. HARTSTEIN: Supplier.

18 MR. HARRIS: Supplier. And is that supplier or vendor
19 necessarily a 135 certificate holder, themselves?

20 MR. HARTSTEIN: I want to be careful about how I answer
21 this because some of the questions -- I'm actually the Deputy
22 Director of the Hospital and Ambulatory Group which addresses
23 ambulance fee schedule issues and the issues that you're asking
24 about are really questions that are for our Office of Financial
25 Management that deals with enrollment, so I'll answer to the best

1 of my ability. I just wanted to qualify that I don't directly
2 manage those issues. The Medicare payment will go to the enrolled
3 provider or the enrolled supplier, so it is the entity that has
4 formally enrolled in the Medicare program in order to receive
5 payments. In order to formally enroll, you have to meet the
6 requirements that were up on my slide, the crew and vehicle
7 requirements and have the license and so forth.

8 So the supplier needs to show the contractor that is
9 enrolling them that they meet all of the enrollment requirements,
10 which mean that they would have to have a vehicle, they would have
11 to show that they have a crew that meets these types of
12 requirements that they have for air ambulance transport, that they
13 have a pilot who has the Part 135 certificate. So that person who
14 has the pilot's license would not necessarily get paid, but they
15 could be employed by a supplier or a provider who would receive
16 Medicare's payment.

17 MR. HARRIS: All right. Thank you very much. That
18 concludes our questions, sir.

19 CHAIRMAN SUMWALT: HAI.

20 MR. ZUCCARO: Yes. Thank the witnesses for information.
21 Just one quick question. The others were answered already.
22 Dr. Wedel, I'm just curious, the aircraft you have now, do you
23 operate that IFR?

24 DR. WEDEL: We became a single pilot -- we became an IFR
25 program in 1991, I believe, and train all of our pilots who are

1 ATP to the SPIFR level and they're all SPIFR capable aircraft.

2 MR. ZUCCARO: You're operating a single pilot or you're
3 not?

4 DR. WEDEL: Yes, we operate single pilot IFR.

5 MR. ZUCCARO: Oh, you're single pilot IFR?

6 DR. WEDEL: Correct.

7 MR. ZUCCARO: Oh, okay. Thank you. Thank you,
8 Mr. Chair.

9 CHAIRMAN SUMWALT: You're welcome. PHPA.

10 MR. DUQUETTE: Thank you. Most of my questions have
11 also been asked. However, has to do with these different models.
12 I'm curious because it wasn't mentioned except for Dr. Wedel
13 there. Mr. Judge, what kind of aircraft are you using in the
14 state of Maine as well as whether it's a one-pilot or a two-pilot
15 crew?

16 MR. JUDGE: It's a single pilot full IFR system. We fly
17 Agusta helicopters.

18 MR. DUQUETTE: Agusta. And my next question for
19 Mr. Bass, also.

20 DR. BASS: We fly the EuroCopter Dauphin and it's a
21 single pilot IFR.

22 MR. DUQUETTE: Okay. And Dr. Wedel, do you have any
23 additional you want to add to that? Because you say you also have
24 aircraft provided by a provider, another operator's providing you
25 additional aircraft?

1 DR. WEDEL: No. We own all three of our aircraft, but
2 they're operated by our vendor air med.

3 MR. DUQUETTE: Okay, all right.

4 DR. WEDEL: And we have two BK 117 C models that are
5 SPIFR, full SPIFR platform, and we have currently a 365 N2 that's
6 a full SPIFR platform that we're retiring, hopefully, in the next
7 month and we have a new aircraft that just arrived, which is an
8 S76 C++, SPIFR. All of our aircraft are NVG capable, also. The
9 S76 is TAWS capable and the two BK 117s will be equipped with TAWS
10 shortly and I think it costs about \$35,000 each for that.

11 MR. DUQUETTE: And Dr. Hutton, the type aircraft that
12 you're using, whether it's single pilot or two pilots?

13 DR. HUTTON: My clients operate aircraft. We are not --
14 our company doesn't operate any aircraft. To my knowledge, there
15 is no two-pilot IFR programs that are in our client pool.

16 MR. DUQUETTE: Thank you. And that's all my questions.

17 MS. KINKADE: And we'll go ahead and go last, as you've
18 offered.

19 CHAIRMAN SUMWALT: I'm sorry, say that again?

20 MS. KINKADE: We'll go last. We'll wait until after the
21 next one.

22 CHAIRMAN SUMWALT: Great. NEMSPA.

23 MR. SIZEMORE: Yes. Thank you, Mr. Chairman. Thank
24 you, panel. I'm just going to throw a couple of questions out and
25 whoever feels relevant to answer that question, please do so.

1 When you talk about your budgets and specifically, you talk about
2 training budgets and safety budgets, is that money fenced or is
3 that just as it comes along, you take the money from your general
4 budget to make those payments?

5 MR. JUDGE: We budget annually for the variety of things
6 that are going to be in that safety enhancement, so putting night
7 vision in, we budgeted that this year. We ring fence a certain
8 amount of money that's going to be dedicated to safety. We
9 certainly ring fence the money that's dedicated to pilot training
10 so that we don't -- you know, you're not in the middle of a budget
11 and say oh, we're out of money so we can't do the kinds of things
12 that we believe should be done.

13 DR. WEDEL: We also budget for them up front and I will
14 say that in the 20 years that I've been in my position at
15 MedFlight that I have never had to lobby for safety related costs.
16 I've had to lobby sometimes to get somebody to help me empty the
17 trash, but when it comes down to spending money on safety, our
18 consortium institutions have always made that a priority and that
19 includes things like dunker training for our medical crew, so it's
20 not just on the pilot and aviation side.

21 DR. HUTTON: And I've seen a variation in that in that
22 some air medical providers have formed nonprofit foundations which
23 are typically hospitals. Our consolidators aren't able to do
24 that. And they're able to fund a lot of their education and also
25 their aircraft acquisition costs through charitable donations.

1 That's different in the different models, how you can fund that.

2 DR. BASS: We budget for training, but also if there are
3 safety enhancements that are necessary, like NVG or TAWS, that we
4 generally -- they will be laid out separately and for instance,
5 recently we did approve NVG for several aircraft and as well as
6 TAWS.

7 MR. SIZEMORE: Okay. Can you give me an idea of your
8 total operating budget, how much of that is spent on pilot
9 specific training or aviation specific training? Rough idea.

10 MR. JUDGE: We're completely non-subsidized. Our annual
11 operating budget's in excess of \$8 million and we're probably
12 budgeting about \$350,000 into training time.

13 DR. BASS: I don't have that information, but can we get
14 it? Is it possible? We can get it to you, if you'd like it.

15 MR. SIZEMORE: Okay, thank you.

16 DR. WEDEL: My budget next year for all three of my
17 helicopters, my fixed wing and my two ground vehicles is going to
18 be close to \$23 million and I will spend \$80,000 for rotor wing
19 pilot training, \$100,000 for rotor wing pilot flight time. I'll
20 spend about \$25,000 for fixed wing pilot training. There's some
21 night vision goggle expenses that will be probably about \$30,000
22 to \$40,000 annually and then the dunker training will be an
23 additional \$6,000 or so annually, so I think that that's a rough
24 idea of the annual operating cost. Then there's CRM lectures,
25 safety days, et cetera, but those are much cheaper than the things

1 that I've just outlined.

2 MR. SIZEMORE: Okay. Thank you. That's all the
3 questions I have.

4 CHAIRMAN SUMWALT: Thank you. Air Methods.

5 MR. YALE: Thank you, Mr. Chairman. Couple of quick
6 questions, if I may. Ms. Zalar, discussion has been brought up
7 about who makes the decision as to whether or not to use ground or
8 air. Who makes the request to be able to utilize an air ambulance
9 service or makes the decision whether it's going to go by ground
10 or air in the generally accepted models throughout the country?

11 MS. ZALAR: Generally, those requests comes from a
12 sending facility, i.e., a nurse, physician at a hospital wants to
13 send a patient out and/or any EMS crew at the scene. That request
14 generally goes to the communications center that the program
15 operates or, if you will, staffs, and goes through that system
16 there. The triage of that call is generally to the air because
17 they've called specifically to the air dispatch center
18 specifically for a helicopter to be requested.

19 MR. YALE: So the air services don't self-dispatch, they
20 don't make the choice to go on a call by virtue of understanding
21 an accident just happened and send themselves?

22 MS. ZALAR: That is not the practice.

23 MR. YALE: Okay. You talked about the expansion that
24 happened or the change that happened as a result of changes
25 incentives for the various programs. Part of what seems to have

1 changed also in the late '90s was that the operators who were
2 there became sort of, if you will, willing and capable partners to
3 be able to deal with that. Is that a fair characterization?

4 MS. ZALAR: I think that is a fair characterization. I
5 think, again, when you think about the continuum between a
6 traditional model and the community based model, as different
7 variables changed in the operating environment and the financial
8 environment, opportunities arose and air operators and hospitals
9 that might've been in traditional situations became better
10 partners at trying to work together and understand each one of
11 their competencies and resources and how they might jointly -- I
12 use that term not in a legal sense but in collaborative sense --
13 address market issues, safety issues, training. It's remarkable
14 to think about the amount of training that is shared in many
15 traditional models and along that continuum, shared between the
16 air operator and the costs that are shared by the program. So I
17 think that's a fair characterization.

18 MR. YALE: It would seem that adaptive, then, would be
19 one of the characteristics of this business?

20 MS. ZALAR: I think mutually adaptive is good way to
21 coin it.

22 MR. YALE: Dr. Hutton, it was characterized by one of
23 the programs up here that they had physician involvement in the
24 program and in the decisions that were being made. Is that a
25 characteristic of most programs and specifically, when we start

1 looking at the traditional hospital based and the community based
2 programs?

3 DR. HUTTON: Yes. Having a physician medical director
4 is universal. There's extensive training for medical directors
5 and a core curriculum that the Air Medical Physicians Association
6 has developed.

7 MR. YALE: Would a medical director for a flight program
8 generally be involved in determining both destination protocols
9 and utilization protocols?

10 DR. HUTTON: Yes, they would.

11 MR. YALE: Okay.

12 DR. HUTTON: They would also be involved with online
13 review of charts and reeducation of requesting authorized
14 requests.

15 MR. YALE: Can you explain a little bit about a
16 physician's responsibility under EMTALA to choose the right type
17 of piece of equipment to be able to transport a patient?

18 DR. HUTTON: EMTALA requires you to, in very simplistic
19 terms, to have an equal or greater level of care during transport
20 from where the patient's coming from. So if the patient's in the
21 care of an emergency physician, you really optimally want the care
22 to be at that level or through either a designated practice or
23 having a flight physician, which is not very common now. So you
24 want to have a parallel or a higher level of care in transport for
25 the patient.

1 MR. YALE: Under EMTALA, whose responsibility and in
2 fact, under penalty of law, is it to determine whether or not the
3 patient goes by ground or by air and what type of services are
4 available?

5 DR. HUTTON: The sending physician.

6 MR. YALE: So the sending physician makes that dispatch
7 determinations?

8 DR. HUTTON: That's correct.

9 MR. YALE: You characterized some of the growth that was
10 happening as being facilitated by certain changes that happened in
11 reimbursement and ability to be able to get paid for the services
12 that were there. Do you see that expansion as being related to a
13 need and to access or to an opportunity for profit? I'm just
14 curious.

15 DR. HUTTON: It's actually responded based on need.
16 Rural areas, as was previously stated, have a higher percentage of
17 older people. We're looking at a 30-year sustained bulge of older
18 people. We're seeing the same thing on television that we were
19 all high level emergency care and they had those expectations
20 developed over the last 15 years, so there was definitely a need
21 in rural areas and there was also -- the regionalization was
22 removing the subspecialty care resulting in even more need.

23 MR. YALE: Mr. Hartstein, Dr. Wedel characterized the
24 Medicare reimbursement as approaching about 60 percent of the cost
25 of providing a service. The basis for the negotiated rule making

1 and the budget neutral -- you're talking about was based on 1997
2 dollars, is that correct?

3 MR. HARTSTEIN: Yes, I believe so. I know it was budget
4 neutral. I don't recall what year it was budget neutral to.

5 MR. YALE: Okay. I think we'll find it was 1997. With
6 it being 1997, since then the inflator that's been used by
7 Medicare to be able to do that has been the Consumer Price Index
8 as of July of each year, is that correct?

9 MR. HARTSTEIN: Yes, it has.

10 MR. YALE: So basically, what's being paid by Medicare
11 right now is 1997 budget neutral dollars with inflation factor
12 based on the CPI?

13 MR. HARTSTEIN: Correct.

14 MR. YALE: And yet, during that period of time, I guess
15 I would come to Dr. Wedel, if I could, you talked about the fact
16 that you've had huge expense increases in that time in safety and
17 in training and in equipment that have been beyond the normal
18 inflation factors, is that not correct?

19 DR. WEDEL: I'm not sure what the normal inflation
20 factors would be, but I would absolutely say that the costs of our
21 safety and our training has outpaced reimbursement.

22 MR. YALE: In fact, CPI is generally averaged around 3
23 percent for that period of time. You're showing training costs
24 that are 300 percent of what they were during a period of time
25 before that, training that was about 250 percent of what it was

1 before.

2 DR. WEDEL: Yeah, I actually have our training costs,
3 safety related training costs of 1998 were around \$138,000 and in
4 2008 total with crew and aviation training around \$600,000, so
5 it's more than that. That includes, you know, NVG --

6 MR. YALE: Right.

7 DR. WEDEL: -- and everything else. And if we look at
8 our Medicare percentage of cost in 1998, it was about 94 percent
9 and now in 2008, for us, it's about 60 percent. Now, I would note
10 that this year it's significantly lower because we have this new
11 aircraft.

12 MR. YALE: Right.

13 DR. WEDEL: And if I look at last year, it was a little
14 bit higher. It was about 75 percent.

15 MR. YALE: But it would suggest that Medicare's not a
16 cash cow as far as the programs are concerned?

17 DR. WEDEL: That is correct.

18 MR. YALE: Okay. The other piece I would like to
19 clarify, if I could, with Mr. Hartstein is that Medicare only pays
20 for the loaded miles, correct, not any other portion of the
21 transport? Patients -- with a patient on board.

22 MR. HARTSTEIN: Yes, that would be correct with the one
23 exception that Dr. Hutton mentioned, if the ambulance is
24 dispatched before the patient expires and then the patient
25 expires.

1 MR. YALE: Correct.

2 MR. HARTSTEIN: I just want to make a clarification. I
3 also -- again, I just want to qualify your remarks. The update to
4 the ambulance fee schedule amount is based on something called the
5 ambulance inflation factor which is based on an inflation index.
6 I don't know exactly if it's specifically the Consumer Price Index
7 for urban areas or it has any, you know, a special subset of that
8 index. The other thing I would like to mention is, this was not
9 in my presentation when I was being asked questions by the
10 Technical Panel, but the implication here is that Medicare is
11 paying a percentage of cost which I can't evaluate that point, but
12 I would say that there was a redistribution in payments under the
13 ambulance fee schedule in many different ways, from urban areas to
14 rural areas, from ground to air, those are the two predominant and
15 from providers to suppliers, so -- and then we had an increase in
16 enrollment of suppliers and I think this has already been stated,
17 ambulance air trips reimbursed by Medicare have certainly gone up,
18 so there has been increased enrollment of suppliers and there has
19 been increased utilization by Medicare.

20 MR. YALE: Dr. Bass, with your system, which is sort of
21 a government model type of one, where does your third party
22 oversight come from as far as safety and operations?

23 DR. BASS: Through the state police, they provide their
24 own safety and oversight.

25 MR. YALE: So there's no oversight from, like, the FAA

1 or that in the way --

2 DR. BASS: They are -- have a Part 1 -- excuse me, they
3 have a Part 91 certificate and they are a Part 145 maintenance
4 facility.

5 MR. YALE: So would you characterize it then as they
6 operate under the same regulation and oversight as a normal either
7 traditional or community based program?

8 DR. BASS: No, they're under Part 135. And so that's,
9 as you know, a different section of the regulations.

10 MR. YALE: Dr. Bass, within your system, some of the
11 recent notoriety dealt with issues of over-utilization. We've
12 seen a drop of significant number in the last several months.
13 Would you agree that there has been significant over-utilization
14 within the Maryland system?

15 DR. BASS: I think this gets into -- I know you're going
16 to have a panel, I believe, later that talks about field trauma
17 triage. We use the national guidelines that are published by the
18 American College of Surgeons Committee on Trauma and it's a
19 four-stage process. It looks at the patient's physiology, it
20 looks for anatomic injuries, looks for mechanisms of injuries as
21 well as other factors. And the decision to transport a patient to
22 a trauma center, it's a field decision, it's made under difficult
23 circumstances. We track the triage accuracy. One of the factors
24 we look at is 24-hour discharge, we look at ISS, that's the Injury
25 Severity Score, and other factors, as well. We saw a growth in

1 the number of patients going to trauma centers starting in the
2 late 1990s through about 2004. At that point, we started an
3 education process. We made some modifications in the protocols
4 after the CDC had a two-year study that modified the ACS national
5 guidelines.

6 We made some changes which gave us an opportunity to
7 retrain all the EMS providers in the state. We also began to work
8 with the providers in terms of looking at their transports and we
9 can do GIS location of all the transports. We began to share that
10 with the jurisdictions and then eventually established a 30 minute
11 rule which basically says except for extenuating circumstances, if
12 they're within 30 minute drive time of a trauma center, it's
13 quicker to go by air. There are exceptions. And we noted that
14 from about 2004, 2005 until this past year we had about a 23
15 percent decline in utilization.

16 It did not appear to have a significant impact on the
17 24-hour discharge, but the number of patients going by air
18 declined at the same time that the number of patients going by
19 ground increased. After the crash of Trooper 2, we did note a
20 precipitous decline in the number of requests that went down, so
21 it hit a low around the holidays, it's coming back up a little
22 bit. We don't know, on a long-term basis, whether this trend will
23 continue or not. It's something we're concerned about. We're
24 going to be looking very carefully at hospital data, transfer
25 data, outcome data to make sure that we're not overshooting with

1 respect to helicopter utilization.

2 CHAIRMAN SUMWALT: Mr. Yale, excuse me. You're out of
3 time.

4 MR. YALE: Thank you.

5 CHAIRMAN SUMWALT: We'll now go to AAMS.

6 MS. KINKADE: Thank you, Chairman. Mr. Hartstein, just
7 for clarification, we've been hearing a lot of -- well, it's a
8 question, actually -- a lot of investment by Mr. Judge and
9 Dr. Wedel about the investment in their safety training equipment,
10 aircraft, and that's obviously been a significant investment for
11 both the programs. Is there any different reimbursement factor
12 for Medicare to acknowledge this kind of investment that these
13 programs are making in safety?

14 MR. HARTSTEIN: Not explicitly. That would be accounted
15 for through the update to the ambulance fee schedule rate. Just
16 as it would with all of our other payment systems, there's going
17 to be an annual update to either the fee schedule or the
18 prospectively determined rate and that is supposed to account for,
19 essentially -- frequently, those updates are updated under a
20 statutory provision and it's intended -- and sometimes under a
21 regulatory provision but it's intended -- annual update is to take
22 into account essentially inflation in a fixed basket of services
23 and the assumption was that the base rate, the budge neutral rate
24 that we incorporate it to, that there were going to be changes.
25 Things that they will no longer be doing, these types of companies

1 are doing, the things that they are additionally doing and at some
2 point, if there's a feeling that the rate doesn't account for
3 these types of activities, then it would have to be explicitly
4 addressed.

5 MS. KINKADE: Thank you. Dr. Wedel, acknowledging that
6 kind of investment and then this graph you showed in terms of
7 where your reimbursement is coming from, would you be able to
8 acknowledge or to clarify whether it would be possible for your
9 system to operate without the subsidy from your consortium
10 hospitals?

11 DR. WEDEL: If we didn't have a subsidy from the
12 consortium hospitals, we would either have to really look at
13 development, alternative revenue streams, or we'd have to consider
14 increasing our charges. I think that that's one of the strengths
15 of the model that we have, which is that the operating deficit is
16 spread between six institutions and it is not significant for any
17 one institution.

18 MS. KINKADE: Okay. One more question for you. Do you
19 know what percentage of your flights are actually flown under
20 instrument flight rules?

21 DR. WEDEL: It's less than 5 percent.

22 MS. KINKADE: Thank you. And Mr. Judge?

23 MR. JUDGE: Currently, we're at about 18 percent IFR.

24 MS. KINKADE: Okay, thank you. Dr. Hutton, I've got a
25 few questions for you and this first one you may not know, but I

1 think of the panel probably would be the best possibility. Do you
2 know what accounts for the wide disparity in Medicaid payment
3 rates between the various states?

4 DR. HUTTON: I could tell you the differences are zero
5 dollars in some states, with other states paying around \$4500.
6 Most of the states are paying well below cost. I believe part of
7 that is that there's a variable subsidy by the federal government.
8 Some states, Medicaid programs are more taxed than others.
9 There's more indigent or Medicaid eligible beneficiaries. And so
10 it's very difficult in some states to get those rates increased.
11 And the states that seem to have better Medicaid rates seem to
12 have better air medical coverage. I don't know if I really
13 answered your question, but that's what I know about it.

14 MS. KINKADE: Thank you. One of your slides you
15 mentioned the adversarial conditions in terms of getting a
16 helicopter transport processed through the system and I think you
17 mentioned 105 days to get a 45 percent return. Do you know how
18 this compares for a hospital accounts receivable in terms of
19 processing?

20 DR. HUTTON: Well, I've had hospital CFOs tell me that
21 their days in accounts receivable are 60 or 70 days. I don't know
22 about their percentage of reimbursement, but the parallel would
23 probably be the reimbursement for trauma and I think hospitals
24 also tend to write off their claims to charity a little quicker
25 than an air medical program, especially one that's a business. So

1 I don't know that they're a one-to-one comparison, but I think the
2 reimbursement for air medical transport is probably less.

3 MS. KINKADE: Thank you. Ms. Zalar, it was brought up
4 in a question earlier that helicopters are not self-dispatched,
5 that somebody actually has to request for them and that would be
6 similar in your ground 911 kind of system as well and again, you
7 may not know this, I just want to see if we can get sort of a
8 comparison of some data, if possible. Do you know what percentage
9 of overall emergency calls are transported by air versus by ground
10 in this country?

11 MS. ZALAR: No, I do not.

12 MS. KINKADE: Okay. I was just trying to get -- oh,
13 Mr. Judge knows.

14 MR. JUDGE: 2006 there were 16 million ground ambulance
15 trips in the United States according to the IOM report and there's
16 estimated about 400,000 flight transports.

17 MS. KINKADE: Very good, thank you. So maybe 5 percent
18 or so overall, 3 to 5 -- not very good at math, but -- okay. And
19 then just, probably for Chris again, about not being self-
20 dispatched. When a call comes in is there any question about
21 their ability to pay that you know of?

22 MS. ZALAR: There is not.

23 MS. KINKADE: There is not.

24 MS. ZALAR: That's not part of the flight request
25 process --

1 MS. KINKADE: Okay.

2 MS. ZALAR: -- for rotor wing.

3 MS. KINKADE: Would that be fair to say for Dr. Wedel
4 and Mr. Judge, as well? Okay. I have no further questions,
5 Chairman.

6 CHAIRMAN SUMWALT: Thank you very much. I will now turn
7 to the Board of Inquiry. Mr. Haueter.

8 BOARD OF INQUIRY QUESTIONS

9 MR. HAUETER: Mr. Hartstein, just one question. In your
10 Medicare specifications do you require off specs or special
11 equipment for the operators?

12 MR. HARTSTEIN: Not to my knowledge. They have to meet
13 the vehicle and crew requirements that I indicated earlier in
14 order to enroll in the Medicare program.

15 MR. HAUETER: This is 135?

16 MR. HARTSTEIN: That specifically applies to air
17 ambulances and there are other specific requirements that are
18 outlined in the manual just generally about what an ambulance must
19 be equipped with.

20 MR. HAUETER: If you have a public use operator, does
21 that correspond or how do you handle that situation?

22 MR. HARTSTEIN: I'm not sure I'm following the question,
23 but if you're enrolled as, let's say, a government entity that's
24 enrolled in the program, they would have to meet the same
25 enrollment requirements that a private entity or a private

1 hospital would have to meet.

2 MR. HAUETER: Okay. And Mr. Judge, you mentioned that
3 you did look at discharge after 24 hours. Have you seen similar
4 experiences with changes in how triage is performed and whether
5 people are overly sent on helicopters or under-ly?

6 MR. JUDGE: In the state of Maine, because we were the
7 last state in the country to actually get an air medical system,
8 we learned from everybody. We have extremely conservative flight
9 criteria. We have not seen, really, over time any major changes
10 in discharge in less than 24 hours. That rate over 10 years has
11 been in the vicinity of two and a half to 3.6 percent.

12 MR. HAUETER: Thank you.

13 CHAIRMAN SUMWALT: Dr. Ellingstad.

14 DR. ELLINGSTAD: Just a couple of questions. Mr. Judge
15 talked about high acuity care not always being time dependent,
16 Dr. Wedel talked about over-triage and under-triage, and
17 Dr. Hutton talked about helicopters being used because of no
18 ground capability. I want to try to tease out between the lines
19 here. Is there a differential expectation of the level of
20 critical care that will be delivered to the scene between ground
21 and air?

22 MR. JUDGE: I think that for us, the ground primarily is
23 inter-hospital, 73 percent of what we do is inter-hospital, so the
24 ground high acuity, virtually every one of those patients is on a
25 ventilator and it's an intensive care unit transfer. There are

1 some occasions where we can respond on the ground; obviously,
2 you've got proximity issues in that case, so --

3 DR. ELLINGSTAD: I guess one of the things I'm trying to
4 get at, is there, entering into the decision of how to transport
5 or which resource to send, is there an expectation that there are
6 going to be more trained or better equipped facilities coming by
7 air than by ground?

8 MR. JUDGE: In our case, our ground and air is the exact
9 same flight teams equipped the same way.

10 DR. WEDEL: And ours is, also, and all of our vehicles,
11 same equipment, same training, same protocols and the only
12 difference is it's a different piece of metal. It's the same care
13 and the focus will be on the patient.

14 DR. HUTTON: And from an economic perspective, a very
15 large study was done in New England looking at what it would take
16 to have that same ground capability that an air ambulance would
17 give to a region and it's vastly more expensive to have a ground
18 equivalent to cover the same regional area an air ambulance can.

19 DR. ELLINGSTAD: Okay, thank you. And just to follow up
20 on the whole data availability, I'd like to ask Mr. Judge,
21 Dr. Bass and Dr. Wedel, what system-wide data do you collect?
22 Could you give Dr. Blumen, you know, flight-by-flight data on all
23 of your operations for a particular period of time?

24 MR. JUDGE: Yes.

25 DR. BASS: We have data, I'm not sure exactly all the

1 data that Dr. Blumen needs, but we collect a fair amount of data,
2 not just from the air medical services, but we also combine it
3 with hospital data, trauma center data, specialty center data, et
4 cetera.

5 DR. WEDEL: Yes. And I think we probably already do
6 give it.

7 DR. ELLINGSTAD: Thank you.

8 DR. HUTTON: Dr. Ellingstad, if I could also answer that
9 question. In my client pool, we have about a half a million
10 patients and we have that in an integrated information system.

11 DR. ELLINGSTAD: None of you would be disappointed,
12 then, if the FAA required that report?

13 DR. HUTTON: No.

14 DR. WEDEL: No.

15 DR. ELLINGSTAD: Thank you.

16 CHAIRMAN SUMWALT: Dr. Mayer.

17 DR. MAYER: Just a handful of questions. Dr. Hutton,
18 you mentioned patient destination legislation. Could you comment
19 on that just a little bit, maybe briefly describe that legislation
20 and how it affects your industry?

21 DR. HUTTON: Yes. I'll give you an example. In the
22 state of Florida there is destination legislation related to the
23 care of burns and the care of trauma. And if a paramedic in the
24 field sees a burn of a certain magnitude, they're going to make a
25 choice to send the patient to a burn center. If that burn center

1 is a short ground transport, it will go by ground. If it's a long
2 transport or if it's a transport that's going to take that one
3 ambulance for a rural area out of commission for four hours,
4 they're likely to choose an air ambulance. Those legislations are
5 modified from time to time as more knowledge comes about.

6 For instance, we've learned that mechanism of injury is
7 one of these characteristics that's not all that sensitive and
8 that cars now are kind of made to absorb energy and they look
9 worse than the actual patient does. But in days gone by, it was
10 not uncommon to have a foot intrusion on a car result in
11 significant force and injury transmission to the patient and/or
12 steering wheels and I remember in my experience in Maryland as a
13 medical student seeing Ford spelled backwards from an old Mustang
14 steering wheel. And so those kind of mechanism of injuries in the
15 past were very important and now they're a little less and so
16 those criteria are being slowly evolved.

17 DR. MAYER: Thank you. That's helpful. You also,
18 during your initial questioning, spoke -- or you made a comment
19 that commercial insurance has quite a lot of leverage to effect
20 change in the industry and of course, I guess that makes intuitive
21 sense to me if they are -- to the extent that they're a major
22 reimbursing entity, but I'm wondering if there's anything you'd
23 care to comment on, if you had any particular change or type of
24 leverage in mind other than simplistic profit.

25 DR. HUTTON: I think the commercial insurance is not

1 really leveraging any force on the industry right now. They're
2 generally paying the cost of the transport and the charges. It's
3 undergoing cost shifting as is the rest of medicine and so we're
4 pretty heavily dependent on commercial insurance to make up the
5 difference for the unfunded and under-funded.

6 DR. MAYER: Thank you. Dr. Bass and Mr. Judge, as Dr.
7 Ellingstad mentioned, I think you both mentioned measuring or
8 attempting to assess the accuracy of field triage against this 24-
9 hour discharge. Not being a medical guy, can you tell me exactly
10 what you're measuring and what shows you that your field triage is
11 working versus not? Are you looking for patients to be discharged
12 in 24 hours or discharged in a particular manner in 24 hours or
13 what shows you an indicator of success of field triage?

14 DR. BASS: Well, let me say, by the way of background, I
15 was a member of the expert panel that the CDC held to look at the
16 previous triage guidelines that were just revised, and as was
17 mentioned, they made a number of changes. Most of the changes
18 they made were in the area of mechanisms and those changes were
19 made based on studies which included things such as crash
20 reconstruction where you actually go in, you look at a crash, you
21 measure what happened, you pull the hospital data, you pull the
22 police data and it's a very complex and expensive process, but
23 over the years builds a fair amount of information. And also,
24 there were other studies published from systems where they looked
25 at specific things that happened and how that translated to what

1 happened to the patient in the hospital and so, for instance,
2 there five mechanisms that were removed because maybe 15, 20 years
3 ago they were useful, but they were over-triaging significantly
4 now and in fact, we had a rule which was that if had less than 10
5 percent positive predictive value, it was dropped.

6 So I'll give you a couple examples. External crush of
7 the vehicle was basically abandoned and replaced with passenger
8 compartment intrusion, so 12 inches on the passenger side, 18
9 inches anywhere, has a high likelihood of a serious injury and
10 those patients go to a trauma center. So there have been some
11 changes. One of the challenges we have is that if you look at 20
12 different studies of the accuracy of triage, you'll find 20
13 different ways of measuring the accuracy of triage and we really
14 do need to develop national consensus on what that measure is and
15 it's going to be much more, as was alluded to also than simply 24
16 hour discharge.

17 For instance, it can be injury severity score, whether
18 they had to go to the OR for any kind of significant surgery
19 within 24 hours or into a critical area environment or if they
20 died within 24 hours or whether they were discharged within 24
21 hours. And if you look at those various studies, they all kind of
22 use combinations of that. And so, again, one of our issues is
23 that we really do need to develop a national consensus on what's
24 appropriate triage. And the only piece of the decision that you
25 make to take a patient to a trauma center doesn't necessarily mean

1 that it's appropriate to take them by air and that's another area
2 where there is very scattered, sort of, criteria right now. There
3 is no national consensus. In fact, there was a paper published
4 just this week in Pre-Hospital Emergency Care that sort of walks
5 through this and really candidly, it's an area that we really do
6 need to focus on and try to see if we can develop some national
7 consensus on.

8 DR. MAYER: Thank you very much.

9 MR. JUDGE: I would concur. Discharge is a blunt way of
10 looking at things. It's one tool that we use, I think, similar to
11 the state of Maryland. We're looking at, you know, where they end
12 up in the units, in the hospitals. We're looking at what
13 interventions were needed during the field to stabilize them, how
14 stable they were when they arrived at the hospital, did they need
15 further intervention, so -- you know, but it is one piece and I
16 think that, in our case, it was required of us early on, because
17 the state was extremely concerned that with the inputting of a
18 helicopter into the system, if it wasn't done in a careful,
19 integrated way that there would be this automatic movement of
20 patients into the aircraft that were perfectly appropriate
21 transported by ground, so we were under tremendous amount of
22 scrutiny up front and we welcomed that scrutiny. We think it is
23 important that these -- there's risk and benefits and cost to all
24 medical services and we need to make sure that we're balancing
25 those for the public. If I might add just briefly to that. As I

1 mentioned previously, it is a very difficult decision making
2 process in the field to decide who needs to go to a trauma center.
3 It can be noisy, dark, snowy and it's a complicated, dangerous
4 environment and these decisions have to be made very quickly.

5 The providers, they don't have a CAT scanner out there,
6 so we have these multiple stages of the triage decision process,
7 including mechanisms which do produce over-triage and we've
8 learned over the years that if you don't over-triage, that you end
9 up with under-triage and under-triage is a real problem and the
10 current guideline that's offered right now is you need about a 25
11 to 50 percent over-triage to get a 5 percent or less under-triage
12 and so generally speaking, those are indicators that you can
13 follow, as well.

14 DR. MAYER: Thank you. That's very helpful.

15 DR. HUTTON: If I can add, too, just from my physician
16 standpoint. What we're really trying to get at is preventing
17 death and getting the preventable death rate down as much as
18 possible. In the San Diego trauma system, we have a very low
19 preventable death rate, but we have a very high over-triage rate
20 and that over-triage rate cannot be managed prospectively. It has
21 to be reviewed retrospectively and then the knowledge from that
22 applied in our educational processes because you don't want to
23 second guess a medic's decision. Sometimes they're dealing
24 with 10 patients and they need to just get one of those patients
25 moved because they have more patients to figure out what to do

1 with. So we can't second guess them in the field. All we can do
2 is provide education on how to better make that decision.

3 DR. MAYER: Thank you very much. I appreciate all of
4 your comments. I've got a couple of very quick questions for
5 Mr. Hartstein just about Medicare reimbursement. When Medicare
6 pays for air ambulance transportation, as you described, they pay
7 a flat rate plus a mileage rate. Is that the totality of what
8 Medicare is reimbursing for that or are they also paying for
9 medical care rendered during or before the flight?

10 MR. HARTSTEIN: That would be included in the rate.

11 DR. MAYER: So essentially -- in other words, it occurs
12 to me that some of the care that might be rendered prior to flight
13 or during flight is care that if it were rendered in a hospital it
14 would be itemized very, very -- in a very lengthy hospital bill,
15 conceivable, but that's not the way Medicare reimburses for air
16 ambulance transportation, is that correct?

17 MR. HARTSTEIN: That would be correct, but I do want to
18 clarify a remark that you just made. It may be itemized by a
19 hospital, but they would not necessarily get paid item by item
20 because we pay using prospective payment systems for inpatient
21 services, so one bundled payment, and for outpatient services, as
22 well. So we don't pay item by item, typically, in any setting.
23 It's usually incorporated into the rates that we set for whatever
24 service provider we're paying.

25 DR. MAYER: Thank you very much. Needless to say, I'm a

1 little outside my area of expertise here in talking about this
2 topic. When Medicare is reimbursing for anything, as I
3 understand, it is determining or there needs to be a determination
4 that what was rendered was reasonable and necessary and so in the
5 case of air ambulance transportation there is a determination
6 apparently being made that the transportation was reasonable and
7 necessary?

8 MR. HARTSTEIN: Correct.

9 DR. MAYER: And who's making that determination?

10 MR. HARTSTEIN: Again, I want to be very careful about
11 how I respond here again because I'm a little bit outside the area
12 of my expertise. Typically, as I think my colleagues know, these
13 determinations are going to be made in the field as to whether or
14 not a particular type of transport is necessary. One of the
15 things that we'll look at to see if that transport was necessary
16 is if that was -- it was ordered by a qualified practitioner. I
17 don't know if you're familiar with medical review, but what
18 medical review refers to, essentially, is it could be prospective
19 medical review where we set up criteria under which we'll pay, but
20 it could also be retrospective medical review where we'll look
21 after the fact to determine whether or not a particular item or
22 service was reasonable and necessary.

23 In the case of ambulance services, we don't do any
24 random medical review. We will only do medical review where we
25 see aberrant patterns in a practitioner's billing. So if they're

1 aberrant for the types of services that they're billing for
2 relative to what we typically would see, then we might do
3 retrospective medical review and look into the medical record to
4 evaluate the circumstances of that particular transport to make a
5 determination as to whether it was reasonable and necessary under
6 the Medicare statutory criteria.

7 DR. MAYER: Thank you very much. I really do appreciate
8 your willingness to help us understand that.

9 MR. HARTSTEIN: My pleasure.

10 CHAIRMAN SUMWALT: Actually, we've been in here two
11 hours and six minutes and actually the good news is I only have
12 about 20 minutes of questioning. No, the truth is I have no
13 questions in the interest of time. I do want to thank the panel,
14 very interesting panel. Couple of things I'd like to say to the
15 parties and to everyone else questioning the witnesses, I know we
16 have great witnesses that we could ask a lot of questions to.

17 I would encourage the questions to remain within the
18 scope of what the subject area is for the particular panel and we
19 could ask a lot of questions to these folks about dispatch and how
20 you do this and how you do that, but the purpose of this panel is
21 the EMS current models and reimbursement structure, so what I
22 would ask is that -- I don't want to get -- I'm not going to sit
23 here and say what you can and cannot ask, but what I would really
24 prefer that you do is make a concerted effort to keep it within
25 the scope of what the panel is.

1 If there's really a compelling reason that you need to
2 ask a question to a particular witness, that's fine, but we hear
3 situations where people are saying well, that's -- I think it's
4 out of fairness to the witnesses because they have been brought
5 here to present their technical expertise on a particular area and
6 when we start asking them questions outside of that, it's not
7 really fair to them.

8 Also, out of fairness to all of the parties, I will ask
9 -- I do want to be equitable in how we allot the time and my
10 desire is not to have to remind somebody that your time is up, so
11 what I would ask is that you've got about six people at your
12 table, perhaps one person could be the designated timekeeper so
13 that you can do the kicking instead of me. But having said that,
14 since you've all been very patient, let's take a nice break.
15 Let's come back at 3:50. That'll give you 23 minutes to run for
16 the coffee counter. Twenty-three minutes, 3:50.

17 (Off the record.)

18 (On the record.)

19 CHAIRMAN SUMWALT: Please take your seats. We will
20 begin in one minute. We will reconvene. Somebody asked me during
21 the break if they hear something that's said in the discussion and
22 they'd like to rebut it, how would you go about doing that and a
23 good way to do it to ensure that everyone at the Board that's
24 involved in this process reviews that would be to submit it,
25 submit your rebut to HEMS@ntsb.gov. That everyone will have the

1 benefit of seeing it.

2 The next panel will be State Oversight and Competition
3 and the issue areas that we will look at will involve
4 certification of need, the Airline Deregulation Act and the
5 states' rights, medical necessity, federal EMS management,
6 helicopter shopping and air taxi models versus patient transport.
7 So again, I remind all involved to please limit your scope to
8 those issues when we have the opportunity to question the
9 witnesses. Ms. Ward, are you ready to -- would you please
10 introduce the witnesses and qualify them, as well, please?

11 HEARING OFFICER WARD: Thank you, Mr. Chairman. Could I
12 have the witnesses please rise? Raise your right hand.

13 (Witnesses sworn.)

14 HEARING OFFICER WARD: Thank you. Mr. Manz, could you
15 please state your name, your title, and your organization?

16 MR. MANZ: Good afternoon, I'm Dan Manz. I'm the
17 Director of Emergency Services for the Vermont Department of
18 Health and I'm here representing the National Association of State
19 EMS Officials.

20 HEARING OFFICER WARD: Thank you. And Dr. Bledsoe?

21 DR. BLEDSOE: Name is Bryan Bledsoe. I'm a Clinical
22 Professor of Emergency Medicine at the University of Nevada School
23 of Medicine, emergency physician at University Medical Center of
24 Nevada in Las Vegas.

25 HEARING OFFICER WARD: Thank you. And Dr. Thomson?

1 DR. THOMSON: I am Dave Thomson. I am an emergency
2 physician in Syracuse, New York. I'm the National Medical Advisor
3 for PHI Air Medical and I'm here representing AAMS.

4 HEARING OFFICER WARD: Thank you. Mr. Chairman, these
5 witnesses are now qualified.

6 CHAIRMAN SUMWALT: Thank you. Another thing said to me
7 during the break was that most of the people in this room have
8 been hanging around turbine engines for most of our lives, so
9 witnesses, please speak up and we'll make sure that Antoine has
10 the volume turned up as loud as we can get it, but some of the
11 witnesses are easier to hear than others. Dr. Dodd, you're
12 leading this technical panel. Would you please introduce the
13 Technical Panel and begin the questioning?

14 TECHNICAL PANEL QUESTIONS

15 DR. DODD: Yes. Dr. Coury had to leave and so Dr. Byrne
16 is going to be my assistant on this panel. Okay. Mr. Manz, let
17 me start by asking you, what does a state EMS director do?

18 MR. MANZ: State EMS directors wake up in the morning,
19 go to work and ask themselves the question what would I want for
20 care if I was a patient in this state's emergency medical services
21 system today. Broadly, state EMS offices have responsibilities
22 that fall into kind of two categories. One is planning,
23 development, implementation, evaluation of systems of emergency
24 medical care. Second part is regulation, quality assurance
25 measures for providers within that EMS system.

1 DR. DODD: Is there a difference between states and what
2 state EMS directors typically do?

3 MR. MANZ: There are some variations. I think the two
4 major categories that I described are common for almost all, if
5 not all, of the state EMS offices in the nation. They have other
6 responsibilities and duties around planning for disasters,
7 Homeland Security related issues, other kinds of activities, as
8 well.

9 DR. DODD: Do state EMS directors have any type of
10 regulatory or rule making authority as far as training or
11 qualifications for EMS personnel?

12 MR. MANZ: Yes. Virtually every state has statutory
13 authority to create rules or regulations relating to provider
14 training and qualifications, that sort of thing.

15 DR. DODD: Okay, thank you. In 1978, the U.S. Congress
16 passed a law called the Airline Deregulation Act. It was designed
17 to remove government control over fares, routes and markets for
18 commercial aviation. Can you describe what impact the Airline
19 Deregulation Act has on the ability of state EMS officials to
20 oversee EMS helicopters and could you provide an example, if
21 appropriate?

22 MR. MANZ: Sure. I can try. Let me begin this and
23 preface my remark by saying that I am not an expert on the Airline
24 Deregulation Act. I'm not an attorney. It's not a matter that I
25 personally have a great deal of expertise on that particular law.

1 The effect of that law for a number of states has been to erode
2 the ability of a state EMS office to regulate helicopter emergency
3 medical services in the same way that they regulate ground
4 emergency medical services. It is thrown somewhat into confusion
5 exactly who has authority over regulating what aspects of
6 helicopter emergency medical services. And as an example, the
7 topic of certificate of need, as an example, has come up before
8 and the idea that a state would play some role in regulating the
9 number of providers, the assignment of service areas of providers,
10 where patients might be taken within an EMS system, that sort of
11 thing, I think, has been eroded by the application of the ADA.

12 An example would be -- I think there has been a case or
13 two around requirements for 24 hour a day coverage by licensed air
14 ambulance services. That's very common requirements for ground
15 services as a means of making sure that the service is accessible
16 and available any time patients would need it, but that's sort of
17 a matter that, as I understand the preemption under the ADA,
18 affects service delivery and so it has been preempted from state
19 authority.

20 DR. DODD: Now, does this particular issue impact your
21 ability to ensure patient care and safety or is that taken care of
22 by other organizations associated with the helicopter EMS service?

23 MR. MANZ: Yes, yes and yes to, you know, all of the
24 above. I think that the FAA has specific responsibility over the
25 aircraft, the vehicle, pilot qualifications, those sorts of

1 factors. As you said, rates, routes, services kind of were the
2 part that was really deregulated. The medical care aspects
3 strictly narrowly define medical care aspects, are still able to
4 be regulated by states, so qualifications of the paramedics who
5 may be providing care or the other clinical staff who may be
6 providing care are still within the domain of state EMS offices,
7 provided they have the sufficient statutory and regulatory
8 authority established to do that. I think it gets a little
9 fuzzier around matters that kind of intersect some of those
10 authorities.

11 For instance, oxygen cylinders in the vehicle, how
12 they're configured, the quantity of oxygen to be carried, the
13 weight of that affect both matters that are regulated by the FAA
14 and matters that may reflect healthcare to patients.

15 DR. DODD: Okay. In your opinion, what role should
16 states have in overseeing EMS helicopter services?

17 MR. MANZ: My estimation, states need to have the same
18 sort of broad authorities to consider what is actually best for
19 the patient in this particular circumstance and we need to think
20 of helicopters as one more tool in the system that provides that
21 care to patients. We need to be considering the effect of
22 regulation of helicopter EMS in ways that sort of parallel what we
23 do with ground emergency medical services.

24 DR. DODD: Okay. In your opinion, what are the roles
25 and importance of helicopter transportation in an EMS system of

1 care?

2 MR. MANZ: Helicopters are very important, as a number
3 of the presenters have alluded to earlier. The broad goal of an
4 EMS system is to reliably deliver the right patient to the right
5 hospital in the right amount of time. Helicopters and helicopter
6 emergency medical services represent a huge tool that can cover
7 great distances while providing very sophisticated levels of
8 clinical care and move patients from where they are to the right
9 hospital, whether it's a trauma center or a specialty center that
10 handles cardiac patients or some other clinical problem. The
11 helicopter can narrow distances that would be otherwise difficult
12 to make on the ground in an amount of time where treatment for the
13 patient would be affected.

14 DR. DODD: Okay. And finally, is there an equivalent
15 federal law or limitation that applies to a state's ability to
16 oversee ground ambulance services?

17 MR. MANZ: I am not aware of a parallel to the ADA that
18 affects ground.

19 DR. DODD: Okay. Thank you very much. I'd now like to
20 direct a few questions to Dr. Bryan Bledsoe, as he said, an
21 emergency physician.

22 Dr. Bledsoe, you've written at length about helicopter
23 EMS transport. Many of your comments have been critical of such
24 issues, such as medical necessity, safety and competition within
25 the EMS helicopter community. Having said that, what do you

1 believe are the beneficial aspects of EMS helicopter transport?

2 DR. BLEDSOE: Well, to follow what Dan said, first of
3 all, you know, helicopters are an important part of the EMS
4 system, you know, they have been for many years and they will
5 continue to be and the rule is there, it's just not clearly
6 defined. When we're looking medically at the need for helicopter
7 transport, we're looking at two different components. We're
8 looking at speed and we're looking at quality of patient care.
9 And generally, if a patient needs the speed, they're going to need
10 high quality patient care because their condition is such that
11 it's time sensitive.

12 The issue comes down to is a patient who needs high
13 quality above that of the typical ground ambulance, is it capable
14 or possible to put them in a ground ambulance with outcomes being
15 similar. So the quality care and speed are the two primary
16 concerns. In the past the quality of care provided by helicopter
17 EMS has been good and uniform. However, as there's been more
18 provides come in, there's been some lamination, I guess, of the
19 levels of care provided and it's not always an apples and apples
20 comparison whenever you call in a helicopter EMS service.

21 DR. DODD: Okay. And in your practice, you said you're
22 a physician in Las Vegas?

23 DR. BLEDSOE: Yes, sir.

24 DR. DODD: Okay. Do you have the opportunity to
25 interface with air medical services in that practice --

1 DR. BLEDSOE: Well, I'm very new to Las Vegas. We just
2 moved out there, but in my previous role in Texas, I dealt with
3 helicopter services quite a bit for 10 years and again, at that
4 time, that was really before the big proliferation, but I found
5 the quality of care generally good and I was medical director for
6 a helicopter service in Dallas that primarily did inner-facility
7 work and again, we didn't really have any problems at that time,
8 but that ended around 2001.

9 DR. DODD: Okay. Competition among EMS helicopter
10 providers has often been cited as a potential safety problem.
11 What is your opinion on the influence of competition between EMS
12 helicopter programs and the safety of operations?

13 DR. BLEDSOE: I think it all ties together with what
14 we've heard here today. The only way that a provider is going to
15 be reimbursed for care is to transport a patient unless they're
16 subsidized like the LifeFlight of Maine and Boston MedFlight
17 programs or others across the country. And so if you don't turn a
18 rotor and you don't transport a patient your chances of billing
19 are nil.

20 And so what that has created is basically a situation
21 where patients are transported regardless of need and if the need
22 is just basically, the paramedic calls for the helicopter or if an
23 emergency physician or transferring physician, in an inner-
24 facility transfer, calls for a helicopter, then the implication is
25 it is necessary and the flight goes on.

1 There is really no -- other than the systems we've
2 talked about here, certainly in Maryland and some of these other
3 areas, there's really no significant retrospective review specific
4 to inner facility flights because there's really no stimulus by
5 some providers to limit their flights because their flights are
6 directly related to reimbursement potential.

7 DR. DODD: Are you aware of any evidence that has shown
8 competition to be a safety problem?

9 DR. BLEDSOE: Well, I mean, it's -- not personally,
10 anecdotally, certainly we've seen several accidents that have been
11 attributed to "helicopter shopping," that is paramedics on scene
12 with a patient, want a particular patient flown and they call two
13 or three services. I've seen situations in Texas before I went to
14 Nevada where I'd go into a flight crew quarters based in Texas and
15 they're actually tracking the number of flights they need each
16 month and they know what the breakeven point is, in other words,
17 in terms of the number of flights necessary to keep that base open
18 for a prolonged period of time.

19 There's actually a graph on the wall that shows how many
20 flights they've done that month and how many they need and while
21 that may or may not be a good thing, what that does is plant this
22 thought that we need to get more flights and really, the pilots
23 and the flight crews really have no control over what they do.

24 I think another thing is there's been a degradation in
25 the line that Tom Judge well described between the role of

1 aviation and the role of the medical side. You know, I think the
2 medical side, whether it's management or medical crews that
3 started to intrude, I guess, somewhat on the decision making of
4 the pilots. You know, the information we heard from the Canadians
5 and HAI shows that basically the decision needs to be made purely
6 on aviation standpoint, but there's the knowledge that jobs depend
7 on this, the business depends on this, feeding my kids depends on
8 this; and so, it's gotten muddled somewhere along the way.

9 DR. DODD: The FAA is the primary federal agency that's
10 responsible for the safety of the EMS helicopter industry. Are
11 there any other federal oversight responsibilities that you think
12 might be appropriate not necessarily addressing aviation
13 operations or safety, but as I understand it and what I've been
14 told, there is no federal agency that really is responsible for
15 EMS activities in the nation.

16 DR. BLEDSOE: The same as what Dan said. I'm not aware
17 of any. There's been a push from both within the fire service
18 community and the EMS community to have some home for EMS in the
19 federal infrastructure. Currently, it resides primarily in the
20 Department of Transportation, which is unusual since it's
21 primarily a healthcare venture, but I'm not aware of any statute or
22 regulation other than those that somewhat dovetail with CMS in
23 terms of -- and some of the laws that regulate the inter-hospital
24 transfer of patients.

25 DR. DODD: Okay, thank you. And lastly, in Dr. Blumen's

1 presentation, the slide that I cited showing the increase in the
2 number of helicopters over time indicated that there's been a
3 steady growth in the community and I was curious about your
4 opinion concerning the growth of the number of helicopters active
5 in EMS helicopter transport.

6 DR. BLEDSOE: Well, there's been both good and bad
7 components of that. I think the movement of helicopter bases from
8 the tertiary care facilities to the community, basically closer to
9 the patient, has been a good thing. And the movement of the
10 helicopter services to rural areas where they're underserved, I
11 think is a good thing. But the other aspect of your question, I
12 think we have too many. You look at Canada, we just listened to
13 them.

14 They have 20 helicopters for 21 million people, about
15 one helicopter per million. If you extrapolate that to the United
16 States, we should probably have about 300 helicopters and we've
17 got nearly 850. When you look at all the other, what we would say
18 first world countries or commonwealth countries such as Canada and
19 Australia and the UK, you know, we don't have in those countries
20 the large number of aircraft we have here.

21 In the 1960s and 1970s when EMS was in its infancy, we
22 saw problems with the way the system operated. A lot of times the
23 ambulance services were operated by funeral homes. There were
24 areas that basically were called No Man's Land; that is, whoever
25 heard the call and got there the fastest got the patient because

1 those that transported the patient got the billing. You know, we
2 realized that an expensive and dangerous service such as emergency
3 medical services is something that needed to be controlled and we
4 then developed, through federal funding in 1973, EMS systems and
5 of course, the prototype, I guess, would be certainly Maryland.

6 So we've done a good job of coordinating ground services
7 and DMAT teams, these other things under the EMS system. For some
8 reason, for the most part, the aviation side, the helicopter EMS
9 service has not really been a part of that, with centralized
10 dispatch and it's pretty much kind of a free market approach.

11 DR. DODD: Okay. Thank you very much. I'd now like to
12 ask a few questions of Dr. David Thomson, an emergency physician,
13 also from New York. You mentioned that you're representing the
14 Association of Air Medical Services.

15 DR. THOMSON: Yes, sir.

16 DR. DODD: What is AAMS position on the appropriate role
17 of states in the oversight of EMS helicopter providers?

18 DR. THOMSON: States and the federal government have
19 both a role to play in this regard. As in most of healthcare
20 there are state regulations that deal with all aspects of
21 healthcare. There are also federal regulations and federal
22 agencies that deal in much of healthcare from the Department of
23 Health and Human Services, Department of Transportation that makes
24 some ambulance standards -- you can go on and on -- Department of
25 Commerce. There are many federal organizations that have

1 oversight.

2 States, likewise, have oversight in EMS and in air
3 medical transport. So everybody's got oversight, they've got a
4 role to play. We need to clearly define where those roles are.
5 Clearly, the states have a medical care interest. The FAA and
6 other federal agencies have interest in the aviation aspects or in
7 the reimbursement aspects.

8 So all those players have to figure out what the right
9 parsing of this industry is in order to provide good quality care
10 for the citizens of the states, the United States.

11 DR. DODD: And how does a dialog like that occur? Is
12 there some type of forum or activity that's currently ongoing
13 among the stakeholders to address these issues? I know the ADA
14 issue has been primarily tested in the courts and has been pretty
15 much ruled upon as federal preemption takes precedence over a
16 number of issues when the states are involved. But the ultimate
17 question is whether or not there is some type of activity where
18 some of these issues are trying to be addressed.

19 DR. THOMSON: Well, EMS recently has had the opportunity
20 and I believe some of members of previous panels, I believe
21 Mr. Judge is one of the members of an EMS coordinating body that
22 has recently been introduced through some federal legislation to
23 try to deal with those issues in a more rational manner than, at
24 least, as a physician, in my mind, going to the courts is probably
25 not the most advantageous way to make that happen. So there are

1 ways that that's being addressed at this time.

2 DR. DODD: Do you believe the role of helicopter
3 oversight is currently, as far as the states' role in helicopter
4 oversight is currently adequately addressed by the regulatory and
5 standard structure that we have in place?

6 DR. THOMSON: Yes. I think that the states have a good
7 system for making sure that the quality of the care delivered is
8 appropriate for the citizens of that state. They know what the
9 system is locally and, unfortunately, I have to use system in a
10 rather loose sense in the United States because states really work
11 hard to make a healthcare system, but oftentimes it's a little --
12 it's not what many of us would think of as an organized system.
13 States are doing a good job that way. The federal government is
14 doing a good job with their piece of the oversight. Clearly,
15 there are some improvements that could be made on both sides of
16 that and I think that's why we're here today.

17 DR. DODD: Okay. What do you believe are the beneficial
18 aspects of EMS helicopter transport?

19 DR. THOMSON: Patients have to get from Point A to
20 Point B. We are in a society -- I believe others have said this
21 today and it's rampant that we're closing hospitals. We are
22 having more and more difficulty getting specialist physicians to
23 respond to the emergency department.

24 We do have increasingly elderly rural populations and we
25 have an expectation, whether it's from television shows, perhaps,

1 or because of our court system, we have an expectation that no
2 matter where you are in this country, you're going to topnotch
3 care in a timely fashion. So if you're in a small community or
4 even a suburban community, you may not be able to get timely
5 access to that specialist that that patient needs at your
6 hospital, so you have to get them to another facility, a tertiary
7 care center, whether it's for stroke, whether it's for trauma,
8 whatever the problem might be we know that there are specialty
9 needs.

10 So we've got to get them from A to B. Helicopters play
11 an important role in that, so we have to maintain this system so
12 that we can get out to all those people, rural, suburban.
13 Obviously, there's times in this area where it would be a long
14 trip to go even five miles for a patient who was really critically
15 ill, so we need a helicopter sometimes just because the traffic
16 system is not functioning very well.

17 DR. DODD: A number of times today witnesses have cited
18 the changes in the healthcare system with the aging of the
19 population and the constriction of services and closing of
20 facilities out in the rural and suburban areas. Are you familiar
21 with any research that tries to quantify the impact or project
22 what those impacts might be for the healthcare system over the
23 longer term?

24 DR. THOMSON: I have seen a number of articles on the
25 impact, long term, especially in the emergency physician

1 literature you see frequent articles both scientific and
2 editorials about the problems that emergency physicians face
3 getting patients specialists, getting someone to just admit their
4 patient. Fewer and fewer physicians are willing to admit
5 emergency patients. Hospitals are struggling with that.

6 Hospitals are closing, emergency departments are
7 overwhelmed. Hospitals are oftentimes overwhelmed, so we have to
8 have a way to get those very sick patients -- and sometimes
9 patients that are perhaps not as sick but need a longer transport,
10 we need to get these people to where they can be cared for
11 properly and helicopters play an important role in that.

12 DR. DODD: Finally, I'd like to ask whether the
13 Association of Air Medical Services believes competition between
14 air medical programs or providers is a safety problem.

15 DR. THOMSON: Competition, I see it -- as a physician, I
16 look at this as another stressor. The system is stressed, just as
17 all of us might be stressed. We can be improved by that stress.
18 We know that exercise or something like is a stress, but it makes
19 us better. Clearly, there are stresses that can harm us, that are
20 detrimental.

21 Competition is that sort of a thing. It's a stressor on
22 the system and if it's properly done, if it's done ethically, then
23 competition may actually make things better. We don't compete on
24 safety issues. We compete in many other areas. We try to
25 improve. Sometimes that competition is internal, where we're

1 trying to just simply get better through quality improvement
2 processes, through utilization and review processes, all those
3 things. Those are things that are somewhat competitive internally
4 and they do make us better.

5 DR. DODD: Okay. Well, thank you very much. Dr. Byrne.

6 DR. BYRNE: Mr. Chairman, I have no other questions for
7 this panel.

8 CHAIRMAN SUMWALT: All right, thank you. We'll start
9 with the FAA this time and again, Ms. Kinkade, we will allow you
10 to decide how you want to proceed in which order since you had a
11 witness. Mr. Harris.

12 PARTY QUESTIONS

13 MR. HARRIS: Thank you, Mr. Chairman, and thank you all
14 for your testimony this afternoon. I really only have one
15 question and I'd like both Dr. Bledsoe and Dr. Thomson to consider
16 answering.

17 Given the fact that all flights, including HEMS
18 operations, have to be conducted safely and in accordance with
19 regulations, how does the proliferation in service and increased
20 competition that at least Dr. Bledsoe described cause or affect,
21 rather, EMS helicopter transport safety?

22 DR. BLEDSOE: Well, one thing is the subscription
23 program, memberships. This was discussed earlier. You know, my
24 home, Dallas-Fort Worth, there's two or three air ambulance
25 providers who sell subscriptions and we got situations in Ellis

1 County, south of Dallas, where patients actually had subscriptions
2 to two different programs and they weren't the closest helicopter
3 and the services generally don't cross-honor that.

4 So you've got these issues where you've got clustered
5 helicopter operators in a given geographic area, and it tends to
6 be clustered around communities like Phoenix and Dallas-Fort Worth
7 that are affluent, and is very much sometimes overriding in terms
8 of their service area. And the crews know that if they want to
9 keep the job and pilots know that if they want to keep the job
10 that they've got to fly.

11 And so, the pressure in terms of recruiting ground
12 providers to call your service or another service or to position
13 your helicopter into certain areas so you capture certain patient
14 flow patterns is all part of the competition. And again, I agree
15 with Dave in that certainly competition is good in certain areas,
16 but too much competition's problematic.

17 DR. THOMSON: The problem that I see with this whole
18 direction is we don't have any way to control being called. We
19 don't just show up when we hear that there might be a good
20 accident, if there is such a thing. We show up because someone
21 called for our service, whether that's a physician or an EMT or
22 perhaps, in some cases, fire or police. Those are the people that
23 call us and so that's what drives us to fly. It's not that we're
24 going to -- we need to get 37 flights this month and somehow we're
25 going to do that. We only come when we're called.

1 DR. BLEDSOE: Let me follow up on what Dave said.
2 Generally correct, there are some services that say especially to
3 their members call us first and we'll call the local EMS service.
4 So it's not totally like that. I mean, there are some services
5 where the patients are encouraged to call the helicopter service
6 directly.

7 DR. THOMSON: Just to comment there. In general,
8 services tend to limit their requests to EMS and public safety, I
9 should say, more generally, and to healthcare providers. I'm not
10 aware of anybody who is allowing somebody to call for a helicopter
11 like you might call for a taxi.

12 MR. HARRIS: And I suppose as a follow-up question, I
13 would offer a question of how is this different from other
14 on-demand air carrier or air taxi, as it used to be called,
15 activities? I hear you saying that we respond when we're called
16 as do other on-demand operators. I'm trying to get at the heart
17 of what specific kinds of degradations to safety this competition
18 and proliferation of services input and then that's my final
19 question.

20 DR. BLEDSOE: Well, for example, for EMS, an on-call 24
21 hour service, the states can regulate pretty much what the
22 ambulances consist of, what the qualifications of the flight crews
23 are and so on. When it comes to the helicopter EMS, certainly
24 there are FAA minimums that are there in terms of operational
25 information and certainly, people like Dan can regulate the

1 registration licensure of the care providers and what's on the
2 helicopters, but there are areas where aviation and medicine are
3 blurred.

4 For example, in Texas, I was on the Medical Directors
5 Committee of the Governor's Task Force on Trauma and we had two
6 issues come up. One, a lot of the helicopter didn't have air
7 conditioning. And the other thing, there was concerns about
8 certain aircraft being underpowered, landing on some helipads and
9 some of the hospitals raised some concerns about that.

10 When we started to look into that, again, the retreat
11 was oh, this was ADA, you can't talk to us about air conditioning
12 or you can't talk to us about the other equipment. Well, I
13 certainly understand the other equipment part, but certainly air
14 conditioning and things of that nature affect patient care and
15 where there is no oversight or no teeth to any sort of oversight,
16 then a kind of a low common denominator comes in and that does
17 result, I think, from the competition component of this.

18 MR. HARRIS: Thank you, Mr. Chairman.

19 CHAIRMAN SUMWALT: Thank you. HAI?

20 MR. ZUCCARO: Thank you, Mr. Chairman. Just some quick
21 questions.

22 Mr. Manz, you indicated that the FAA is responsible for
23 issues such as aircraft and pilot certification, what have you.
24 Are you aware of any states that have requirements or
25 qualifications for pilots and aircraft that are in the purview,

1 normally, of the FAA in what it operates -- within the state?

2 MR. MANZ: I'm not sure I know the answer to that
3 question, entirely. I think, in general, states defer to the FAA
4 on that.

5 MR. ZUCCARO: Okay. Do you have an opinion on whether
6 states should get into an area that's under the purview of the FAA
7 right now?

8 MR. MANZ: I think, for the technical aspects of
9 aircraft and flight qualifications of the pilots, that sort of
10 thing, I think most states are probably not well equipped to be
11 involved in that, but I think where medicine and air operations
12 may cross is probably where the discussion really needs to be.

13 MR. ZUCCARO: Fair enough. Thank you. Dr. Bledsoe, you
14 indicated about an operation, I believe you said, in Texas where
15 there was a posted, I'll call it, business performance type chart,
16 how well the particular base was doing predicated on the number of
17 operations and that was an actual posted conveyance that was
18 available or viewable by anybody in the operation as to how that
19 base was doing. Then that's inclusive of the pilots, as well, who
20 could see this type information?

21 DR. BLEDSOE: Yeah, it was about two years ago, but it
22 was a small facility and the pilots and the medical crew -- it was
23 a piece of poster board with a bar graph sort of thing.

24 MR. ZUCCARO: I don't mean organizationally specific,
25 but do you know who posted that?

1 DR. BLEDSOE: No, I don't.

2 MR. ZUCCARO: Oh, okay. So that wasn't something that
3 you know that an operator or somebody posted or just somebody took
4 it upon themselves to put it up there?

5 DR. BLEDSOE: Yeah. Either an operational employee or
6 the operator, I don't know which. There was no way to know. It
7 was hand drawn.

8 MR. ZUCCARO: Okay. And also, you had a free market
9 approach as a statement which obviously, that's what our system
10 is, you know, free market approach in a competitive nature. And
11 maybe my sense was incorrect, but did I sense that you think that
12 has issues to it by operating in a free market open competitive
13 environment, that it has potential disadvantages to HEMS
14 operations?

15 DR. BLEDSOE: I think it does. I think that the
16 saturation of resources in one given area is problematic and it
17 doesn't apply just to HEMS. It's, you know, deregulation and
18 remove of certificate of need opened up the avenues for
19 freestanding MRI centers and all these other things. I guess it's
20 a personal opinion, but it -- I think that it allows for the
21 lowest common denominator to somehow drive the market.

22 MR. ZUCCARO: Couldn't it also be -- do you think
23 there's a possibility that it also could be viewed as a positive
24 thing by the open competitive marketplace, moving into areas and
25 providing service where maybe a specific model of a regulated

1 service provision type environment would not decide to put service
2 and that the competitive marketplace causes entrepreneurs and
3 other people to go into areas that would normally not be served
4 under an organized type program?

5 DR. BLEDSOE: I agree. I think that certainly yes,
6 that's been one of the stimulus or stimuli to move to certainly
7 the rural areas, but you also see -- at the same time you see
8 helicopters parked in suburban areas that are not that far from
9 other services that are providing the same level of care, so it
10 goes both ways.

11 MR. ZUCCARO: If, in fact -- just out of curiosity, if,
12 in fact, you would remove the -- or have an option in mind to open
13 competitive marketplace which is basically how our entire system
14 in the country, quite frankly, operates, what would be an
15 alternative to that that you would think of?

16 DR. BLEDSOE: Well, I think you could keep the free
17 market system as long as you centralize dispatch.

18 MR. ZUCCARO: Okay.

19 DR. BLEDSOE: That is all the calls come in to a common
20 center. The closest operator capable of handling the call is sent
21 regardless of their 5013C status or whatever. But you can see,
22 and it was pointed out in one of the dockets, the Air Medical
23 Transport Alliance stratification of quality of care.

24 For example, you had a very complicated patient, for
25 example, a newborn that needed special equipment that wouldn't be

1 on, perhaps, a community based helicopter, then the communications
2 system should route the proper helicopter, but presently it's
3 basically, you know, whoever's on your keychain is who you call.

4 MR. ZUCCARO: Um-hum. Okay, thanks. Appreciate it.
5 Dr. Thomson, in the discussion there was a statement which I
6 believe is accurate, that there's a public perception that access
7 to proper medical care is an expected anticipated, you know, thing
8 available to the citizens of this country.

9 DR. THOMSON: Yes.

10 MR. ZUCCARO: And pretty much generated and propagated
11 by the healthcare system in terms of we can get -- care or get you
12 to the place that can do that. And certainly, it would seem that
13 in that environment, in order to deliver that promise or that
14 anticipation or expectation, the helicopter plays a key role to
15 that --

16 DR. THOMSON: Absolutely.

17 MR. ZUCCARO: -- in order to get those people to that
18 care.

19 DR. THOMSON: Yes.

20 MR. ZUCCARO: So it would seem that -- I got the sense
21 some people view that as some type of a negative from the
22 helicopter's perspective where I kind of look at it, just as I
23 stated, that the helicopter is actually the answer to the problem
24 in order to allow that medical care to be delivered.

25 DR. THOMSON: Having worked in tertiary care, trauma

1 centers, stroke centers, places like that and also in fairly rural
2 centers, the helicopter is a tool to get the patient from that
3 place where -- I'm an emergency physician, I admit, I don't do
4 bypass surgery, I don't do catheterizations, and I may be the only
5 physician in that hospital in many places. That patient that
6 needs those kinds of services has to be transported.

7 The best way -- I think Mr. Manz said it earlier, we
8 want to get the right patient, the right place in a timely
9 fashion, the right time. The helicopter is key in that role.
10 Also, in many areas we don't have the ability to have ground
11 transport.

12 Dr. Hutton, in the previous panel, mentioned some
13 studies that looked at distributing air ambulances versus ground
14 ambulances and what the cost would be. Many areas there is a
15 ground ambulance and if we say you've got to drive to the tertiary
16 care center, it's going to be out of service for two, three, maybe
17 more hours. Those people are oftentimes volunteers. They have
18 jobs the next day.

19 MR. ZUCCARO: Yeah.

20 DR. THOMSON: They're oftentimes -- people who have --
21 if they take that ambulance out of the area, there isn't going to
22 be an ambulance, at least not in a timely fashion, so somebody
23 else won't get timely care. So the helicopter oftentimes provides
24 that sort of a backup to local EMS and to these rural critical
25 access hospitals.

1 MR. ZUCCARO: Okay. Thank you very much. That's all I
2 have.

3 CHAIRMAN SUMWALT: Thank you, Mr. Zuccaro. PHPA/OPEIU?

4 MR. DUQUETTE: Thank you, Mr. Chairman. Dr. Thomson,
5 you brought up how sometimes we have good stress and bad stress.
6 In that regard, I want to bring up the subject of helicopter
7 shopping. In your estimation or can you give us what you feel is
8 the good side of helicopter shopping or the -- what can, in fact,
9 be problematic with helicopter shopping?

10 DR. THOMSON: Well, helicopter shopping, as I understand
11 the term, is where a hospital or a requester, hospital EMS
12 service, whoever that might be, police agency, et cetera, calls
13 for a helicopter and they're turned down. And that helicopter
14 says the weather is not adequate, we cannot fly. And so rather
15 than taking their word, they shop for another one. They call yet
16 another number. This is a problem. It's a problem mostly because
17 it's been difficult sometimes to communicate that previous
18 turndown and so you want to have as much information as you can
19 before you launch on your flight. It's actually required that you
20 try to ascertain as much information as you can before you launch
21 on your flight. That's a key piece of information. If one of
22 your colleagues has turned down a flight, maybe he knows something
23 that for whatever reason you don't, so I don't think helicopter
24 shopping is a positive in any form. It's not a good stressor on
25 the system.

1 MR. DUQUETTE: What if they make the call, they make the
2 request and it turns out, as you brought up, the pilot turns it
3 down because of weather, but this particular outfit, this
4 organization, flies a single pilot, a single engine aircraft,
5 basically a VFR operation and now they decide to call, like
6 Dr. Wedel's operation that's using single pilot IFR, multi-engine
7 aircraft, IFR crews, in essence, you are, in fact, shopping but
8 you're shopping to a higher level. I think the problem is when
9 you're shopping at the same level. And just like you have
10 different hospitals that have different level of care, I'm
11 wondering if maybe this is a direction that we need to go, that
12 when we talk about different operators that maybe we ought to
13 classify different operators with their level of care, so if
14 you're shopping, let's shop up as far as capability.

15 DR. THOMSON: Well, quite honestly, the problem with
16 helicopter shopping, as it's currently construed, is when that
17 provider that's right there at the scene or the referring hospital
18 has to call two or three people, in many cases today, if I call
19 for a helicopter and that service says we don't have availability
20 for whatever reason, it might be weather, it might be because
21 we're a VFR only aircraft, it might be that they're out on another
22 flight at that time.

23 Oftentimes, those communication centers will tell that
24 referring person here's an option or they'll pass them through to
25 another service that might be able to do that. That makes sense

1 because then the information is passed. We turned this down
2 because we're a VFR only aircraft. You're not that far away and I
3 understand that you can do -- you may be able to complete this
4 mission, would your pilot take a look at it, that's a more
5 appropriate way to do that and again, there are good stressors and
6 that may be a positive, ethical way to manage that sort of a
7 situation if there's differences in service.

8 MR. DUQUETTE: Dr. Bledsoe, do you have anything you'd
9 like to add to that particular question?

10 DR. BLEDSOE: I'm not a pilot. I'm really getting out
11 of my area talking about that. Thank you.

12 MR. DUQUETTE: I have no further questions.

13 CHAIRMAN SUMWALT: Thank you. AAMS, would you like to
14 go now?

15 MS. KINKADE: No. We'll go ahead and go last again.

16 CHAIRMAN SUMWALT: Great. NEMSPA?

17 MR. SIZEMORE: Mr. Chairman, thank you. Panel, thank
18 you, as well. We have no questions at this time.

19 CHAIRMAN SUMWALT: Air Methods?

20 MR. YALE: Thank you, Mr. Chairman. I do have a couple
21 of questions, if I can. Mr. Manz, couple of questions, if I may.
22 The first one is, is that -- I'd like to give you just sort of
23 three quick scenarios and just see where you think the states'
24 responsibility might fall as it relates to it.

25 Consider a case where you go to a specialty hospital,

1 say a children's hospital, and it determines that in the best
2 interest of the patient is to obtain their own helicopter to be
3 able to do the transport that they've got; these are for high-risk
4 -- neonates from rural hospitals to the children's hospital, et
5 cetera.

6 They intend to staff it with a neonatologist or one or
7 more of their neonatal nurses that they have within the hospital
8 and they intend to do this exclusively for the purpose of
9 transporting children to their children's hospital. Do you see
10 that within the purview of the pre-hospital system of the state's
11 EMS division to regulate?

12 MR. MANZ: A definite maybe. You know, is the
13 helicopter ever going to play a role in mutual aid backup for
14 anyone else, would it ever be pressed into service for a disaster
15 operation, would it be part of some other aspect of the system,
16 you know, the scenario's a little difficult for me to imagine that
17 it would be an entirely standalone with no other relationship.

18 MR. YALE: However, there are children's hospital
19 transport systems that are uniquely children's transport in the
20 way that they're set up in this country. Second, consider a
21 situation where the purpose of the helicopter is strictly for
22 inter-facility work between hospitals --

23 MR. MANZ: Right.

24 MR. YALE: -- where you have one physician who makes a
25 determination that it's necessary to transport the patient and a

1 receiving physician who's agreed to take that transport and those
2 two physicians have decided that the most appropriate way to
3 transport that person is by air. Do you see a role for the state
4 in regulating that?

5 MR. MANZ: Yeah. I think probably so, in the context of
6 the system and this sort of speaks to the question that was asked
7 by the FAA earlier. Part of it's different, it seems to me, about
8 helicopter emergency medical services versus other point-to-point
9 air carriers is the patient doesn't get to shop. The patient
10 pretty much gets whatever the patient gets and the patient's
11 vulnerable, isn't able to shop at the moment, can't objectively
12 evaluate I want this helicopter versus that helicopter and so I
13 think the duty that the system owes to that patient to assure that
14 that provision of care is appropriate, is the right mode of
15 delivery for him or her at the right time to the right place, I
16 think that's something that EMS systems generally tend to plan and
17 provide oversight to.

18 MR. YALE: And they can't do that under the current
19 models?

20 MR. MANZ: I think the ADA has muddied the water on
21 exactly how they can do that.

22 MR. YALE: Okay. I guess my specific question, though,
23 again is can states do it? I mean, it may be a situation where
24 there's been confusion, but do you understand whether they can or
25 cannot --

1 MR. MANZ: It is not clear to me today that they can.

2 MR. YALE: Okay. And the state of Vermont, how many
3 active helicopter programs are in your state?

4 MR. MANZ: We have zero based in the state. We are
5 covered by the Dartmouth Hitchcock Air Response Team's licensed
6 for coverage throughout the state of Vermont, flies two aircraft
7 and we have a network throughout New England.

8 MR. YALE: And could you regulate the New Hampshire
9 program?

10 MR. MANZ: We do.

11 MR. YALE: Okay.

12 MR. MANZ: They're licensed by us.

13 MR. YALE: Okay, so you're already exercising oversight,
14 then, of the medical operation that's provided by another state's
15 service?

16 MR. MANZ: Correct.

17 MR. YALE: Okay. But you --

18 MR. MANZ: We view it as Vermont service.

19 MR. YALE: But you feel that you need aviation
20 regulation responsibility over that, also?

21 MR. MANZ: No. The hat I wear today is not Vermont's
22 hat. The hat I wear today is the national association's hat.

23 MR. YALE: I understand, but I guess I'm concerned about
24 the idea of sort of a patchwork of 50 different states'
25 regulations all having different sets of rules for an operator

1 that's operating on a nationwide interstate type of a practice to
2 try to be able to deal with that. I mean, you brought up an
3 example of oxygen bottles, for example.

4 MR. MANZ: Right.

5 MR. YALE: If there were a different rule relative to
6 the retention of oxygen bottles in the state of Maine versus state
7 of Vermont versus state of New Hampshire versus state of
8 New York --

9 MR. MANZ: Right.

10 MR. YALE: -- it could be extremely difficult and
11 unwieldy, including possibly even unsafe, to have that type of a
12 situation where you were trying to operate as an air operator.

13 MR. MANZ: Right. Although you see there could be some
14 important reasons for that, that if you fly end to end in my
15 state, you're going to go about, I don't know, 125, 130 miles,
16 something like that. You go end to end in the state of Maine,
17 you're probably going to go 500 miles. And so the difference in
18 flight times might relate to the difference in amount of oxygen
19 that a state would want the licensed carrier to carry, that sort
20 of thing.

21 MR. YALE: But a state would, under the current rules,
22 be able to mandate the amount of oxygen necessary in order to be
23 able to care for a patient from a medical standpoint, correct?

24 MR. MANZ: I'm not sure that that's true.

25 MR. YALE: Okay.

1 MR. MANZ: That's where it gets blurry because it
2 relates to, you know, how is it mounted in the aircraft, how is it
3 carried, is it really aircraft structure or is it really medical
4 care.

5 MR. YALE: And that should be the purview of the states
6 instead of the federal government and the FAA?

7 MR. MANZ: I think it needs to be resolve as to how it
8 gets regulated.

9 MR. YALE: Okay. Let me ask another question. In a
10 case of a program that's decided that for safety reasons or other
11 considerations that it wants to operate during daylight hours
12 only, for example, which is now the practice, for example, of a
13 service in Montana.

14 MR. MANZ: Right.

15 MR. YALE: Do you believe the state should force them to
16 go ahead and operate all 24 hours in order to be able to receive a
17 license?

18 MR. MANZ: The state needs to have the ability to define
19 how that's done.

20 MR. YALE: Okay. And they don't have that ability from
21 the medical standpoint to be able to do it?

22 MR. MANZ: Again, it is not clear to me that they do.

23 MR. YALE: Okay, thank you. Dr. Bledsoe, I was
24 interested, for a man of science and a person who has done quite a
25 bit of research, you kept couching terms as being anecdotal and

1 subjective. You've made reference to, for example, the idea of
2 people being able to go ahead and call the service themselves if
3 they were a member of a particular piece. Do you have evidence of
4 that practice currently existing or are we talking about an issue
5 that was noted about four years ago in the media?

6 DR. BLEDSOE: It was about two years ago.

7 MR. YALE: Okay. So no current evidence of that
8 practice continuing?

9 DR. BLEDSOE: I haven't looked at it, no.

10 MR. YALE: Okay. The idea that Canada's ratio of one to
11 a million, how do you base that that's the ideal level?

12 DR. BLEDSOE: How do you base that it's not?

13 MR. YALE: Well, I guess my question is in one of the
14 most regulated states in the United States when it comes to EMS
15 and with really active involvement of physicians and everybody
16 else in it, the state of Maryland, you're probably looking at
17 somewhere in the neighborhood 13, 14 aircraft for five million
18 people, so it's better than two to one.

19 DR. BLEDSOE: I think Maryland has about 12 million
20 people.

21 MR. YALE: Actually, I just checked the census and
22 it's 5.6. If I may, while you're looking at that, Dr. Thomson,
23 the issue of CONs has been raised as a hindrance to air ambulance
24 development. In your experience, do CONs tend to expand or limit
25 the number of air providers and are you aware of studies or

1 statements from the Department of Justice on this issue?

2 DR. THOMSON: Yes, there is a statement that was
3 included in the dockets that was an opinion from the Department of
4 Justice about certificates of need and the attorney who wrote that
5 made it pretty clear that he didn't feel that certificates of need
6 were helpful in many of the issues around either controlling cost
7 or the things that CONs were originally designed for.

8 MR. YALE: If I could ask you one more question. It's
9 suggested that about 60 percent of the transports in this country
10 are done inter-facility and about 40 percent are done as a matter
11 of scene. The suggestion's been made that basically a
12 communications center ought to make a decision as to whether that
13 we should or should not honor the request of the requester. In
14 that case of the 60 percent, do you have a physician that's making
15 the request and the other 40 puts the -- agency on the scene?
16 What are your thoughts?

17 DR. THOMSON: I think it's difficult to second guess the
18 person on the scene. In the case of a physician or in a scene,
19 yes, we do need to follow up with them and if the request was
20 inappropriate, we need to give them feedback. But for the vast
21 majority, this is not something you can do up front. It's
22 something that you do later. You know, the -- as Dr. Wedel said,
23 it's an education issue when this kind of over-triage occurs.

24 DR. BLEDSOE: You're right. The population of Maryland
25 in 2006 was 5,615,000.

1 MR. YALE: Thank you. And I'm done with my questions.

2 CHAIRMAN SUMWALT: Thank you, Mr. Yale. CareFlite?

3 MR. DAUPHINAIS: Thank you. Dr. Bledsoe, I have, I
4 think, three questions for you. What do you believe to be the
5 central factor in controlling the helicopter utilization?

6 DR. BLEDSOE: Payment.

7 MR. DAUPHINAIS: Okay. Little bit more, please.

8 DR. BLEDSOE: Well, the dollars drive the operation.
9 You know, the thing we don't want is we don't want to throw the
10 baby out with the bath water. We need to correct the system and
11 bring it back, but payment ultimately is what drives it. Perhaps
12 a change to a more subsidized system much like Maryland, perhaps,
13 a more appropriate reimbursement scheme through CMS and the
14 insurance companies.

15 I think -- that said, I think temporizing measures or
16 things that have been discussed such as centralized dispatch, the
17 sharing of data amongst providers in terms of aircraft
18 availability and aircraft capabilities and if push comes to shove,
19 certificates of need.

20 MR. DAUPHINAIS: I'll get to that in a second. I know
21 that you deflected the question about the helicopter shopping
22 because you're not a pilot, but I believe you probably have an
23 opinion on that. What type of procedures or policies, whatever,
24 do you think could be put in place to control helicopter shopping?

25 DR. BLEDSOE: Well, again, it's kind of what's been said

1 here. I think that the capabilities of the aircraft, the crew,
2 needs to be somehow quantified and what can this aircraft do based
3 on the airframe, based on the instrument capabilities, pilot
4 capabilities and so on, and actually be kept on a continuous basis
5 at a central facility.

6 In other words, if the weather's bad like it was today
7 and an IFR capable helicopter can make the flight, they may be
8 sent despite the fact they're further than a VFR capable aircraft.
9 I think that's ultimately the solution, is to basically to make
10 one centralized number so that there is not the lack of
11 communication between the different operators and I know in
12 Dallas, for example, there's been some effort for the different
13 providers to sit down and keep the webpage updated, but I think it
14 looks better on paper than it's actually working.

15 MR. DAUPHINAIS: It's working fine, thanks. So I think
16 you've already answered this question on the CON, so you do
17 believe a CON should be required for every state, I mean, that's
18 how it should be controlled? And if it works in the state, why
19 not on a national level as somebody brought up a few minutes ago.

20 DR. BLEDSOE: I think it's a last resort. I think we've
21 got a long way to go before we get to that. You know, but even
22 with certificates of need, like you saw in North Carolina, South
23 Carolina -- state it was, there's ways around it, but I think
24 that's the last alternative to regulate things if they don't
25 regulate --

1 MR. DAUPHINAIS: But regardless of whether it could
2 happen in the short term, you do believe that's the answer?

3 DR. BLEDSOE: No, it's not necessarily the answer.

4 MR. DAUPHINAIS: Okay.

5 DR. BLEDSOE: It's the answer if things don't improve.

6 MR. DAUPHINAIS: Okay. And then, Mr. Manz, in the time
7 remaining for this table, I don't want to get called down. For
8 your state -- I mean, for the organizational hat you're wearing
9 today, what is the key piece that you guys would want to do that
10 you currently cannot?

11 MR. MANZ: A key piece that I would say is integration.
12 I think it's assuring the right medical fit of this expensive
13 resource into systems of care that have multiple components.

14 MR. DAUPHINAIS: That's all.

15 CHAIRMAN SUMWALT: Great, thank you. You did well,
16 time-wise. Thank you. AAMS?

17 MS. KINKADE: I can hear it starting to squeak.
18 Dr. Thomson, are you aware of -- is there any kind of correlation
19 that you're aware of where competition has actually been shown to
20 increase accidents?

21 DR. THOMSON: I'm not aware of any and I believe that
22 Dr. Blumen, in his remarks earlier, noted that at least in his
23 state that was not evidence of competition effect.

24 MS. KINKADE: Mr. Manz, in the -- position paper it's
25 concluded that the growth in the number of air medical transport

1 aircraft resulted not from medical necessity but from the increase
2 in reimbursement. Could it be as equally likely that the
3 reimbursement changes allowed for air medical transport assets to
4 be deployed to the underserved areas?

5 MR. MANZ: Absolutely. And I would say that probably
6 the growth in air medical services since about 1970, since about
7 the time of the fee schedule, is probably multi-factorial
8 including fee schedule.

9 MS. KINKADE: Thank you. And does every state currently
10 require a helicopter EMS program or helicopter to be licensed? Do
11 you know that?

12 MR. MANZ: I don't know that.

13 MS. KINKADE: Okay.

14 MR. MANZ: I'm just not sure.

15 MS. KINKADE: All right, fair enough. I think we're
16 done.

17 CHAIRMAN SUMWALT: Thank you. Any follow-ups to the
18 points, do any clarifications need to be raised by any of the
19 parties before we move on to the Board of Inquiry?

20 (No audible response.)

21 CHAIRMAN SUMWALT: Seeing none, Mr. Haueter.

22 (No audible response.)

23 CHAIRMAN SUMWALT: Dr. Ellingstad. Wow, people were
24 telling me we'd be late. The truth is, is that I do not have
25 questions. The truth is, I'm very impressed with the way today

1 has gone in terms of the questions being asked by all involved. A
2 couple of things I would like to go over just administratively for
3 tomorrow. The plan is to begin tomorrow morning at 8:30. We will
4 begin at 8:30 in the morning and it is my understanding, Ms. Ward,
5 that the boardroom will actually be available, will be open
6 at 7:30?

7 HEARING OFFICER WARD: That's correct.

8 CHAIRMAN SUMWALT: So I don't know how long it took to
9 get through security this morning, but do what you did today and
10 be a half an hour earlier than you were today. We will start
11 at 8:30. Let's see what else I had. Anything else before we wrap
12 it up for the day?

13 HEARING OFFICER WARD: Mr. Chairman, the slides that
14 were presented for the last three on the second panel on
15 reimbursement, I have sent that out to the parties and also to
16 Keith Holloway, who is our public affairs person, so that can be
17 made available and it will be put on the Internet.

18 CHAIRMAN SUMWALT: Good. I want to thank everyone
19 involved, the audience, the parties, the witnesses, thank you very
20 much for your panel, Technical Panel, Board of Inquiry. This
21 hearing is adjourned until 8:30 tomorrow morning.

22 **(Whereupon, at 5:00 p.m., the hearing in the above-**
23 **entitled matter was adjourned, to be reconvened on the following**
24 **day, Wednesday, February 4, 2009, at 8:30 a.m.)**

25

CERTIFICATE

This is to certify that the attached proceeding before the
NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: PUBLIC HEARING IN THE MATTER OF THE
ISSUES ON EMERGENCY MEDICAL SERVICES
HELICOPTER OPERATIONAL SAFETY

DOCKET NUMBER: SA-530

PLACE: Washington, D.C.

DATE: February 3, 2009

was held according to the record, and that this is the original,
complete, true and accurate transcript which has been compared to
the recording accomplished at the hearing.

Timothy Atkinson
Official Reporter