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LIVES AT RISK

Team takes to the sky to bring back a donated liver



Photos by DAVID P. GILKEY/Detroit Free Press

THE RUSH TO RETRIEVAL: An ambulance stands ready to take the team to Spectrum Health Butterworth Campus in Grand Rapids where a liver is available for Michael Johnson of Warren, who is waiting at Henry Ford Hospital in Detroit.

A plane crash June 4 that killed the members of a University of Michigan organ transplant team stunned the medical community. Despite the risk, transplant teams continue life-saving flights that are critical to thousands, including 905 people in Michigan who had transplants last year.

Henry Ford Hospital's Transplant Institute is the second-largest transplant program in the state, next to the U-M Transplant Center. Last year, the Ford institute gave a second chance at life to at least 350 people, compared to U-M's 425.

This is the story of one such transplant and the team that made it happen.

By CATHERINE HO
FREE PRESS MEDICAL WRITER

Michael Johnson waited eight years for the phone call that finally came at 1:30 on a Saturday morning.

Four shrill rings cut through the Johnson household in Warren, where Johnson, a soft-spoken man with graying hair, an easygoing grin and a diseased liver, lay sleeping.

"You better check if that's Henry Ford Hospital," said Gail Johnson, his wife of 34 years.

It was.

"They said they had a liver," she remembered of the call on June 30. The

couple had to get to the hospital on West Grand Boulevard in Detroit, a trip they had made only a few times before, always in daylight.

A similar call had raised the couple's jittery hopes for an organ match a month earlier, but that ended in disappointment when the donor liver was judged to be unsuitable for transplant.

Michael Johnson, 53, sensed that this time was different.

"I had a feeling the second time it was going to happen," he said. "It was going too smooth."

The past 17 years of Johnson's life have been agonizing and exhausting,

See **TRANSPLANT, 12A**

The transplant clock is ticking

Time is critical in any organ recovery mission. Once a liver's been extracted, it shouldn't be preserved for more than 16 hours. Within a 14-hour span on June 30, transplant surgeons from Henry Ford Hospital extracted a liver from organ donor Richard Herald at Spectrum Health Butterworth Campus in Grand Rapids, and implanted it in Michael Johnson at Henry Ford Hospital in Detroit. Here's how it happened:

1:01 a.m.: Gift of Life notifies Henry Ford donor coordinator Rob Hayes that a liver has been offered for Michael Johnson, a patient at Henry Ford Hospital.

1:05 a.m.: Hayes phones Dr. Marwan Abouljoud, director of the Transplant Institute at Henry Ford Hospital, who accepts the surgery.

1:30 a.m.: Johnson gets a phone call from a recipient coordinator at Henry Ford, telling him to be at the hospital by 4 a.m.

2:45 a.m.: A three-person Henry Ford transplant team meets outside the emergency department to prepare to retrieve a donor liver in Grand Rapids. They load supplies into the ambulance that will take them to the airport.

'Every time I get on a plane I'm aware of the fact that it's dangerous to fly. ... How scared am I? I'm not.'



CONSERVING ENERGY: Dr. Ayman Al-Harakeh, left, and Rob Hayes, donor coordinator for Henry Ford Hospital's Transplant Institute, take catnaps during the flight back to Detroit. Hayes got the call from Gift of Life at 1 a.m., telling him a liver was available for Michael Johnson of Warren. The transplant team's long night-into-day mission will conclude at 6 p.m.

Meet the team

The Henry Ford Hospital transplant team that handled Michael Johnson's new liver includes:

MARWAN ABOLJOU
 ■ Director of the Henry Ford Transplant Institute
 ■ Approved donor liver for Johnson
 ■ Led surgery for implantation

LAUREN MALINZAK
 ■ Staff surgeon
 ■ Led surgery to remove donor liver
 ■ Prepared liver for implantation

AYMAN AL-HARAKEH
 ■ Fellow, completing second year of training in transplant surgery
 ■ Assisted in liver removal and implantation

ROB HAYES
 ■ Donor coordinator
 ■ Coordinated with donor hospital, Henry Ford's recipient coordinator, surgeons, ambulance, jet company, Gift of Life (which manages organ donation and allocation in Michigan), United Network for Organ Sharing



READY TO GO: Dr. Lauren Malinzak, on the flight to Grand Rapids, will perform the surgery with Dr. Ayman Al-Harakeh that removes the healthy liver for transplant. The operation is to take 2½ hours.

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 common for people with primary sclerosing cholangitis, a bile duct disorder that ravages the liver.

He spent eight years on the transplant list, longer than most, because medication stabilized his liver enzymes to a point that his status wasn't considered urgent compared to the 398 people also waiting for a liver in Michigan. Only one in four wait five years or more.

Johnson struggled to control fevers for months at a time, as well as chills, constant fatigue and itching so unbearable that his sheets would be stained with blood from scratching.

Sometimes he could barely make it through work as a supervisor at the Warren water division before coming home and collapsing. The disease was devastating for an athletic, do-it-yourself guy who used to play tennis with his son and tackle jobs around the house.

"You get so tired of being tired," he said. "It's hard just knowing you can't do anything about it except a transplant, and you never know for sure if that's going to happen."

It finally did, and a frantic, nighttime scramble to the hospital in their son's car was just the beginning.

The mission begins

As Steve Johnson's car darted through the empty streets of metro Detroit, a three-person transplant team gathered at 2:45 a.m. outside Henry Ford Hospital's emergency department north of downtown Detroit.

They were alert but calm, professional yet relaxed.

Dr. Lauren Malinzak, a staff surgeon, and Dr. Ayman Al-Harakeh, a physician on a fellowship who is training to be a transplant doctor, met up with Rob Hayes, one of three donor coordinators at Henry Ford's Transplant Institute. Hayes has 20 years of experience in organ recovery.

An ambulance took them to City Airport on Detroit's east side, where two pilots waited in an eight-seat jet, chartered from Waterford-based Corporate Flight Inc. The trio moved quickly in their green scrubs and sneakers, strapping themselves into their seats. Airborne, they drank bottled water and cans of pop as they pointed out familiar sights.

"There's 75, the intersection right here is 696," Hayes said of the freeway landmarks as the jet glided across the dark blue sky toward Grand Rapids. "Can you see your house?"

Hayes has made these trips

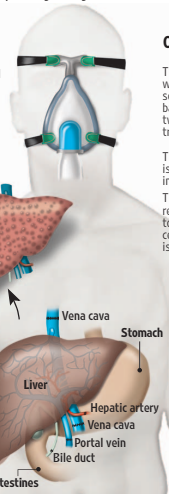
Liver transplant

1 The operation is performed under general anesthesia. Sometimes the patient is placed on a liver bypass machine.

2 An incision is made in the patient's abdomen. The diseased liver is cut away from nearby structures and blood vessels.

3 Four major blood vessels are connected to the new liver.

4 A small tube is connected to the bile duct, to carry waste to the intestines.



Organ retrieval

The organ is placed in a large plastic bag with an ice-cold sterile preservation solution. Air is squeezed out and the bag is sealed. This process is repeated two more times, until the organ is triple-bagged.

The bagged liver is put on ice inside a cooler. The organ is kept refrigerated at 2 to 8 degrees centigrade until it is transplanted.



5 Major complications include infection, bleeding, clotting of major blood vessels, bile duct problems, organ rejection and cancer, a long-term consequence of anti-rejection drugs. Cirrhosis patients also have a 30% higher risk of cancer.

Sources: Gift of Life Michigan; United Network for Organ Sharing; American Liver Foundation; Bill Madak, Henry Ford Hospital.

Text by PATRICIA ANSTETT. Graphic by DAVID PIERCE/Detroit Free Press

On freep.com: The head of the transplant team describes the surgery.

numerous times before, to Mississippi, Kentucky, New York and Georgia. He understands that risks are part of the job.

"Every time I get on a plane I'm aware of the fact that it's dangerous to fly," he said. "Every time I drive home at 3 in the morning knowing I'm on the freeway with all the drunks, I'm aware of the risks. How scared am I? I'm not. I'm aware there's a risk involved, and maybe it's increased because I fly more than you. But you might be at more risk on the highway than I am on a plane."

Hayes knew three of the six people on the U-M Survival Flight that plunged into Lake Michigan — surgeon Martinus

Spoor, transplant specialist Richard Chenault II, and firefighter and part-time transplant specialist Rick LaPensee. The crash also killed surgical fellow Dr. David Ashburn, copilot Dennis Hoyes and pilot Bill Serra.

Hayes spent time with the three he knew at conferences and dinners, and often crossed paths with them when they went to retrieve multiple organs from the same donor.

"You talk to them, you ask them, 'Hey, how's your family?'" Hayes said. "If you've got a few hours to kill, you sit and talk in the cafeteria. You talk about sports, you talk about the election. It's your competitor, but you talk to them, you get insights."

On this night, the job is at Spectrum Health Butterworth Campus in Grand Rapids.

They land at 4:05 a.m. at Gerald Ford International Airport.

The donor

For 2½ hours, Malinzak and Al-Harakeh operated on Richard Herald, an Indiana man whose death held the promise of saving Johnson's life.

Herald died June 29, four days after a motorcycle accident at Grand Rapids Raceway Park, near Grand Rapids.

Herald, 54, was a South Lyon native and U-M alum who worked as a General Motors engineer until 1992, when he began working for Golden Engineering Inc., which develops X-ray equipment. He relocated to Indiana when the company moved from Ann Arbor. He and his wife of 32 years, Linda Herald, have

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DAVID P. GILKEY/Detroit Free Press

THE TRANSPLANT BEGINS: The team at Henry Ford Hospital's Transplant Institute starts the nine-hour operation that will replace Michael Johnson's diseased liver with Richard Herald's healthy one.

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three daughters, Laura, 26, Valerie, 24, and Bonnie, 21. Herald had told his wife his intentions about organ and tissue donation.

Graham Martin, a friend for more than 30 years, said Herald's decision to donate was "right in line with who he was. He would've wanted to help somebody. He was a very selfless person and always put other people before himself."

Martin had known Herald since the early 1970s, when Martin was a program director at the Upper Peninsula Bible Camp in Little Lake, Mich., and Herald was one of his camp counselors. His fondest memories of Herald — who loved to canoe and bike, and used to go by the nickname Homer — are of laughter and kindness.

Bob Morrow, a friend and neighbor for 13 years, said Herald's Christian faith was a central part of his life. They met after Morrow noticed that Herald's black 1981 BMW motorcycle was nearly identical to his own 1982 BMW.

"He was one of these guys

that are so rare," Morrow said. "Anytime anyone needed help with something, even if he was in the middle of something himself, he'd come immediately to help."

Herald was a multiple-organ donor: Johnson got his liver, two others received his kidneys and two got his corneas. Two more received his heart valves, and several others benefited from his bone donation.

The extraction

At Butterworth Campus, Malinzak and Al-Harakeh examined Herald's liver for damage, flushed it with preservation solution and soaked it in ice inside the abdomen before removing it, packaging it in bags and placing it on ice. Hayes had called ahead to Ford hospital to tell them Herald's liver was a good match for Johnson.

At 7:38 a.m., the Ford team loaded a red Igloo cooler — one that might otherwise tote cans of soda to a picnic — with the liver, precisely packaged, into an ambulance and headed to the Grand Rapids airport, sirens blaring.

By 8 a.m., the team was back in the air.

The ride back

The jet took off smoothly, this time in daylight. The team passed around turkey and ham-and-cheese subs, knowing they had only 30 minutes before they were to land and take an ambulance back to Henry Ford.

"You've got to eat to keep going," said Malinzak, unwrapping her sandwich.

Beside her, Al-Harakeh joked that he hates flying before closing his eyes — with his scrub cap still on — to grab a few moments of sleep.

Behind him, Hayes had already fallen asleep. They landed at City Airport at 8:33 a.m.

The transplant

Inside a Ford operating room, a transplant team had Michael Johnson ready for surgery.

Because surgeons were removing his entire liver, blood circulation between the lower and upper half of Johnson's body would be interrupted. So he had to be hooked up to a heart bypass machine. The machine took his blood, warmed it and automatically returned it to his heart.

The normally five-hour oper-



STEPHEN MCGEE/Detroit Free Press

A NEW LIFE: Five days after surgery, Michael Johnson talks with doctors. He is able to go home a day later. He will need medication for the rest of his life to prevent his body from rejecting his new liver.



STEPHEN MCGEE/Detroit Free Press

JOY AND RELIEF: Gail Johnson waited eight years for her husband, Michael, to get a transplant. They've been married for 34 years.



Herald family photo

THE DONOR: Richard Herald with daughter Bonnie, 21; wife Linda, and daughters Laura, 26 and Valerie, 24. He was 54 when he died after a motorcycle accident. More than 10 people received his organs and bone tissue.

ation dragged on for nine hours. Johnson's liver was more difficult to remove than most. Blockages in Johnson's bile ducts caused his liver to shrink in some parts and swell in others. Years of disease had left the organ scarred with collateral vessels, which bled when touched. He required more than 20 units of A-negative whole blood and plasma.

"If you combine the scars from the surgery, the hypertension and the rotation of the liver, you wind up having a technical mix that is quite a challenge," Dr. Marwan Abouljoud, director of Henry Ford's Transplant Institute, said later.

Recovery

On July 6, six days after his surgery, Johnson went home. He looked relaxed in a plaid robe, grey socks and Nike slippers.

Although the total cost of the

transplant has not been determined, the Virginia-based United Network for Organ Sharing estimates a liver transplant done in the United States costs \$314,600 for surgeries, evaluations and a year's worth of follow-up medications. Johnson's medical bills are covered by PPOM Midwest, a health maintenance organization headquartered in Farmington Hills.

Johnson's daughter, Michelle, 33, recalled times growing up when she rode bikes with her dad during the healthy years of his life.

"My dad's not a real 'look at me' guy, he's not always touchy-feely, but he's just a nice hard-working and honest guy," she said. "He's always been a do-it-

yourself guy. Drywall, floors, ceilings ... all the outdoor stuff. Everything I know how to do, he taught me."

Johnson talked about reclaiming his life. His wife had her own expectations for him, including finishing a list of jobs around the house that he started and abandoned one too many times as his health waned.

But that's for later. Now was the time to savor the life a stranger in Indiana had given him.

"You get this second opportunity in life," he said. "I don't know what the end will be but I'm certainly blessed with the opportunity to find out."

Contact CATHERINE HO at cho@freepress.com.

What is primary sclerosing cholangitis?

It is a progressive, chronic disease that damages the bile ducts inside and outside the liver. The ducts become blocked with bile, a liquid that helps dissolve fats and fatty vitamins, causing them to become inflamed. It results in scarring or cirrhosis of the liver. That decreases the liver's ability to function properly. Actual liver failure could take as long as 10 years.

WHAT ARE THE SYMPTOMS?

The most common are profound fatigue, itchy skin and yellowing of the skin and eyes. Patients also may get chills and fever, pain, mental confusion and fluid buildup in the abdomen or legs. Swelling of the lower end of the esophagus may result from increased blood pressure in the vessels that lead to the liver.

WHAT CAUSES IT?

The cause is not known. Many patients have had bacterial or viral infections. It could be hereditary.

WHO GETS IT?

It is relatively rare, occurring in 1 to 6 of every 100,000 people in the United States. It is more common in men than women and occurs mostly in people ages 30 to 60. Three of four people with the condition have inflammatory bowel diseases, including ulcerative colitis.

HOW IS IT TREATED?

Patients use creams to relieve itching. Many take antibiotics for years. Sometimes they need bile duct surgery to reduce inflammation. Liver transplants are a last resort.

-PATRICIA ANSTETT

U-M strives to increase teams' safety

Since the plane crash that killed six members of a University of Michigan organ transplant team June 4, U-M transplant surgeons have implemented ways to reduce the dangers inherent in organ recovery missions.

Medical students no longer fly on organ recovery trips. "It's been an emotional time," said Dr. Jeffrey Punch, director of the transplant center at U-M. "It's hard to imagine how it could be more painful, but if there had been a 21- or 23-year-old medical student on that plane, it would have been even worse."

U-M transplant surgeons will meet next week to discuss how to rely less on air travel for organ retrieval. U-M's team now drives to hospitals within a 50-mile radius.

-CATHERINE HO

Michael Johnson got Richard Herald's liver, two other people received his kidneys and two got his corneas.

The making of “Lives at Risk” by Catherine Ho

About a month after a plane crash killed a University of Michigan organ transplant team, the *Free Press* followed up on the incident by shadowing a transplant team from Henry Ford Hospital, the second-largest transplant program in Michigan. I got a phone call around 1 a.m. from a hospital spokesperson alerting me that a team would be flying to western Michigan that night to retrieve a liver. I spent the next 12 hours with the transplant surgeons and coordinator, flying to Grand Rapids and back to Detroit on a jet, then watching the liver transplant in the operating room, inches away from the table. I later interviewed the recipient and his family, and tracked his recovery over several days. The piece was meant to capture the human drama of organ transplant, and to help readers grasp what goes into the process of organ donation.

Writing was a challenge. I worked with several editors to craft a piece that was broken down into chapters, each one leading up to a pivotal moment in the process, and from the different perspectives of the patient and their loved ones, and the doctors. I went through several drafts and got a lot of helpful feedback from my editors and my mentor, Pat Anstett. In the end, we presented a Sunday 1A package with the main story, a timeline, graphics explaining the medication condition of the patient, a cast of characters, and an update on safety measures at the University of Michigan transplant department. The Free Press Web site also included a video, shot by one of our photographers.

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