

UNIVERSITY OF MARYLAND MEDICINE

Clinical and Research Updates from the University of Maryland School of Medicine and the University of Maryland Medical Center

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UM EARNS DISTINCTION WITH LIVING DONOR LIVER TRANSPLANTS

The living donor liver transplant (LDLT) program at the University of Maryland Medical Center (UMMC) has gained a new distinction: In 2016, its performance on two key outcome measures, patient survival and graft survival, rose to second best in the nation among highvolume centers.

According to a report from the Scientific Registry of Transplant Recipients (SRTR), the program achieved 96.3 percent patient survival at one year, surpassing the national average of 92.3 percent.

Making those outcomes even more impressive, UMMC transplants livers into some of the sickest patients in the country. John LaMattina, M.D., assistant professor of surgery at the University of Maryland School of Medicine, notes that patients in the region have particularly high Model for End-Stage Liver Disease (MELD) scores, a measure of mortality risk. Regardless, "we're doing better than the computers would predict we should do with our patient population," he says. That could help explain why the University of Maryland performs more LDLTs annually than any other hospital in the state.

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A REMEDY FOR A TOUGH PROBLEM

Dr. LaMattina, director of the LDLT program at the University of Maryland, says, "Our feeling is that patients do better with it, and that is why we're so enthusiastic about it." The process of taking a liver graft from a living donor and using it to replace a patient's failing organ harnesses the liver's gift for regrowth. "The liver returns to about 90 percent of its volume in less than a month in both the donor and the recipient," he notes, deeming outcomes "excellent" for donors as well as patients.

Living donor liver transplantation started as a way to address the lack of suitable organs for children; it spread to adults for similar reasons. "We have one of the largest waiting lists in the country with not enough organs for patients. We are focused on maximizing the organ donor pool, and living donors play a key role in this," says Rolf Barth, M.D., associate professor of surgery and head of division of transplantation at the UM School of Medicine. He adds, "This approach has allowed us to become the third largest program in the United States."

THE SURVIVAL ADVANTAGE

No measure can perfectly predict mortality, and for some patients with end-stage liver disease, transplant day never comes. In 2016, 2330 people in the United States died while waiting for a new liver, reported SRTR.

Many patients receive a liver from a deceased donor only after waiting for

months or years as their health declines. At UMMC, at least 30 percent of those who receive a liver from a deceased donor are hospitalized, often in the intensive care unit, before their transplant. "What we typically fight against is how sick they are coming into the operating room," not the actual liver replacement or the anesthesia management, says Dr. LaMattina. An ICU patient with end-stage liver disease who is intubated, in kidney failure, and taking medicine for high blood pressure will take longer to recover from transplant surgery than a patient called in from home.

"If you have your own living donor, you don't have to wait till you're quite ill at the top of the list before you can undergo a transplant," Dr. LaMattina explains. That could contribute to LDLT's survival advantage at UMMC and other large liver-transplant centers. "We're talking a difference of 10 percent better survival rate at one year with a living donor versus a deceased donor," he notes.

"Virtually anyone who is a candidate for a liver transplant should consider LDLT," says Dr. Barth, head of transplantation at UMMC. In fact, these intricate procedures make up about 8 to 10 percent of all liver transplants carried out at UMMC.

THE DONOR

Of course, "living liver donation is a major operation for the donor," says Dr. LaMattina. He tells patients that donors should be about 18 to 55 years old and in excellent health, with no history of major

"Living donors give an amazing gift to patients whose livers are failing, and we're glad to play a role in that."



- All liver transplant patients should be considered for LDLT.
- Living-donor transplantation enables many patients to receive a new liver sooner than typically happens with deceased-donor transplants.
- LDLT confers a 10 percent survival edge at one year over deceased-donor transplants.
- Nationwide, UMMC ranks second among large centers in patient survival and graft survival, despite treating sicker patients.
- UMMC carries out more LDLTs than any other hospital in the state.
- UMMC's liver transplant program is ranked number
 1 in the nation for medical excellence and patient safety by CareChex.

abdominal surgery. Furthermore, they should have an important relationship with the patient. If blood typing shows that they and the patient have compatible blood types, the surgeon then meets with them to talk in depth about the process of donating.

If, at that point, donors still want to do it, they undergo a CAT scan to check the blood vessels and the size of their liver, an MRI of the bile ducts of the liver, cardiac testing, and a comprehensive laboratory panel. Next come meetings with a hepatologist, an anesthesiologist, a social worker, and an independent living donor advocate. If all looks good, the transplant can proceed at a convenient time for both donor and recipient.

A GROUP EFFORT

Dr. LaMattina tells patients that their transplant "involves an impressively large number of people coming together." At UMMC, the dedicated transplant team includes nurses, surgical technicians, and liver transplant anesthesiologists. "It's very collaborative, and everybody has an important role," he says.

In the hospital, staff transplant surgeons, staff hepatologists, and a transplant pharmacist see all patients on the transplant service daily. They also confer with nephrologists and infectious disease specialists, who see patients twice a week. An intensivist coordinates the care of transplant patients in the intensive care unit. A transplant coordinator, a nutritionist, a social worker and, for donors, the independent living-donor advocate also attend to hospitalized patients.

SERVICES RARELY FOUND ELSEWHERE

UMMC offers some special services that, while not specific to the LDLT program, help patients who receive liver transplants. For instance, UMMC was the first hospital in Maryland to offer liver dialysis. Its Molecular Adsorbent Recirculating System (MARS) uses a charcoal filter to extract albumin-based toxins, aiding a poorly working liver. "We've been able to get people that might not have otherwise made it to transplant or through transplant with the system," says Dr. LaMattina.

The ability to offer liver dialysis came through UMMC's R Adams Cowley Shock Trauma Center, which Dr. LaMattina deems "probably the best in the world." Its Critical Care Resuscitation Unit (CCRU) provides quick access to time-critical, intensive care for patients transferred to UMMC from other hospitals. By communicating with referring physicians and transport teams, the staff readies the appropriate treatment, equipment, and subspecialists before patients arrive.

In addition, UMMC often serves as a second or third referral center for patients deemed by other centers as unsuitable for liver transplant, due to advanced age, comorbid conditions, malignancy, or malignancy risk. Through UMMC's eVisit program, the initial evaluation can happen via computer, tablet, or smartphone, avoiding a needless trip to Baltimore.

LIVER TRANSPLANTATION

"No matter what other centers have told them, we're always glad to evaluate patients and share our thoughts about whether a transplant would benefit them," says Dr. Barth. Despite taking on some of the most complex cases in the country, UMMC is ranked first in the nation for medical excellence and safety by CareChex Quality Rating System.

From its impressive results to the services available, the LDLT program at UMMC stands out from the pack. As Dr. Barth says, "Living donors give an amazing gift to patients whose livers are failing, and we're glad to play a role in that."

To reach the Division of Transplantation, please call **410-328-3444**.



BUILDING A RESOURCE-RICH PROGRAM TO ADDRESS MOOD AND ANXIETY DISORDERS THAT OCCUR DURING AND AFTER PREGNANCY

Perinatal mood and anxiety disorders are a major complication of pregnancy, disproving the myth that pregnancy protects women against mental health disorders. The fact is pregnancy can increase a woman's risk of mental health disorders, particularly in those with a history of a mental health problem.

Perinatal mood and anxiety disorders, which include postpartum depression, are estimated to occur in as many as 20 percent of pregnant women. They occur as early as the first trimester and as late as a year after birth. Research suggests only one in five women with a perinatal mood or anxiety disorder receives adequate treatment. It is evident that problems exist both with identifying these disorders and connecting women to appropriate resources for treatment.

BUILDING CHANNELS

To address this, the University of Maryland Women's Mental Health Program has been created. A true multidisciplinary program, teams from the Department of Psychiatry, both Adult and Child Divisions, work directly with social workers, nurses and physicians from the University of Maryland's Departments of Obstetrics Gynecology and Reproductive Sciences, Family Medicine and Pediatrics "to build channels and set up resources," says Patricia F. Widra, M.D., assistant professor of psychiatry at the University of Maryland School of Medicine. Because providers are developing better ways to effectively connect with and triage these patients, Dr. Widra and her colleague, Nicole A. Leistikow, M.D., can often be found interacting with pregnant women initially in the programs where they receive prenatal care.



"The ultimate goal of the program is to improve outcomes across the board, from the baby, to other children in the house and the mom herself," explains Dr. Widra. When untreated, perinatal mood and anxiety disorders not only impact the mother, but negatively affect the child with problems that can include behavioral issues and both cognitive and developmental delays.

"Linking these women in crisis to immediate care is vital," says Christopher Harman, M.D., the Sylvan Frieman, M.D., Endowed Professorship in Obstetrics, Gynecology & Reproductive Sciences and Chair at the University of Maryland School of Medicine. He adds, "A priority includes getting our Medicaid patients quickly connected to mental health care."

"Women who have delivered a healthy baby are often expected to be happy, so there is often a degree of stigma associated with patients acknowledging mental health disorders in the pregnant or post-partum period," explains May Blanchard, M.D., an associate professor of obstetrics & gynecology at the University of Maryland School of Medicine. She adds, "Having mental health resources available on-site, without having to go to a new office or unfamiliar location improves the chances of the patient receiving the care she needs in a timely fashion."

SCREENING

The Edinburgh Postnatal Depression Scale (EPDS), created in 1987, is a simple, 10-question screening tool developed to help identify patients with possible symptoms of depression following birth. Thirty years after its inception, the EPDS remains the

PERINATAL MOOD & ANXIETY DISORDERS

standard screening tool for depression during pregnancy and postpartum. While the EPDS may help detect depression, it is not specifically used to detect anxiety or phobias. Other tools, such as the Perinatal Anxiety Screening Scale (PASS), can be used concurrently with the EPDS.

"Screening for mental health in pregnant women is recommended by ACOG, AAP and AAFP. But just like Group B strep testing is standardized for all pregnant women, so should screening for perinatal mood and anxiety disorders," says Dr. Widra.

Early screening is important and providers should pay attention to the score of any screening tool used. But Dr. Widra adds, "Screening is not helpful if there are no resources and no one is in place to help these patients. Providers need to know what's available and if they don't have any resources, they should be in touch with us or one of the many national organizations promoting perinatal mental health." Postpartum Support International is one such organization.

SOLUTIONS FOR PREGNANT PATIENTS, INCLUDING MEDICATIONS

With a history of establishing a similar screening and treatment program at Georgetown University Medical Center almost two decades ago, Dr. Widra is well versed in perinatal mental healthcare. Postpartum depression is the most recognized mental health problem associated with pregnancy but most certainly not the only one.

Solutions for women with a perinatal mood and anxiety disorder vary and can include social support, talk therapy and even medication.

"Providers often think withholding psychiatric medications during pregnancy is appropriate," says Dr. Widra. "Eliminating the use of any psychiatric medication just because a patient is pregnant can do more harm than good." Perinatal mood and anxiety disorders are a major
complication of pregnancy

- The newly-established University of Maryland Women's Mental Health Program is available to evaluate and treat women with mental health problems during pregnancy and connect them with additional resources
- All providers working with pregnant woman should screen for perinatal mood and anxiety disorders
- All providers working with women with identified mental health issues who anticipate becoming pregnant should consider referral for pre-pregnancy psychiatric consultation and recommendations

Patricia Widra, M.D.

• Eliminating psychiatric medications in pregnancy is not always recommended and should include consultation with the treating psychiatrist

To reach Dr. Widra, please call 410-328-6091.

KEY

POINTS

A BETTER WAY TO CARE FOR HEART PATIENTS ON VENTILATORS

Driven to improve treatment for heart patients with breathing problems, researchers at the University of Maryland School of Medicine had an idea: If cardiologists and intensivists teamed up to treat patients who are undergoing mechanical ventilation in the cardiac intensive care unit (CICU), patients might benefit.

When they tested that idea, the results surprised Michael McCurdy, M.D., associate professor of pulmonary and critical care medicine and emergency medicine at the UM School of Medicine. Using resources already available at most hospitals, the new approach freed patients from the ventilator sooner, decreased mortality and let patients leave the hospital earlier, without raising their hospital bills.

In the 15-bed CICU at the University of Maryland Medical Center, "usually a handful" of patients are on a ventilator at any given time, says Gautam Ramani,

M.D., assistant professor of medicine at UM School of Medicine and medical director of clinical advanced heart failure and the cardiac ICU. Typically, physicians at medical centers manage their own patients' care, consulting a specialist only if they feel uneasy about something, want a question answered, or have a specialized need.

However, "we were getting a number of transfers from the cardiac ICU to the medical ICU years ago for difficulty weaning from the ventilator," notes Dr. McCurdy, an intensivist. "There was room for improvement," says Dr. Ramani, a cardiologist. Maybe if they joined forces, they could improve outcomes while using patients' time, and theirs, more effectively.

Right: Dr. Ramani and Dr. McCurdy Before then, Dr. McCurdy says, "we were operating in a bit of isolation and independently caring for these patients."

A PARADIGM SHIFT

The researchers thought involving a critical care specialist might help patients, even if the cardiologist or other physician felt comfortable managing the patients' ventilation and sedation. To find out, Dr. Ramani, Dr. McCurdy and their colleagues conducted an experiment. For one year, they would require a board-certified intensivist



to consult on ventilation and sedation management for every patient receiving mechanical breathing support in the cardiac ICU.

Each morning, medical intensivists rounded on patients with breathing difficulties, discussed them with the cardiology team and drew up treatment plans. "We made various ventilator recommendations on how much air to deliver for how long, when to take the breathing tube out, and sometimes when to put the tube in," says Dr. McCurdy.

The changes "took a little bit of getting used to," Dr. Ramani says. Cardiologists who typically managed these ventilator patients now had an intensivist offering additional thoughts, such as different ways to optimize fluid balance on the ventilators, sedate patients and mobilize them. "There are going to be some growing pains along the way with any change," says Dr. McCurdy. Yet, when physicians started seeing how the new approach benefitted patients, they embraced it.

A WINNING WAY

The researchers' study, published in the Journal of the American College of Cardiology in September 2017, confirmed what they saw in the unit. It tested whether intensivist consultation improves the care of cardiac ICU patients who are receiving mechanical breathing support. Analyses compared 162 such patients who had received care in the year before the intervention with 201 patients treated during the intervention. Throughout the study, cardiac ICU staffing models and practices stayed constant.

"The results were striking...it's one of those rare win-win situations."

- MICHAEL MCCURDY, M.D.

The results were striking. As Dr. McCurdy put it, "It's one of those rare win-win situations."

Under the collaborative approach, patients spent fewer days on the ventilator. Dr. McCurdy recalls, "We're taking this tube out sooner and, at the same time, we aren't having to put it back in more often." Moreover, patients left the cardiac ICU an average of 2 days sooner. Their average hospital stay decreased from about 20 days to 14.

...Patients left the cardiac ICU an average of 2 days sooner.

Patients also rang up a lower cardiac ICU bill. Those charges fell from an average of \$43,000 to \$30,000, although a statistically significant drop in total hospital charges did not follow.

A SURVIVAL ADVANTAGE

The researchers found only one difference between the two patient groups at baseline: The intervention group actually began the study sicker, as shown by their scores on the Acute Physiology and Chronic Health Evaluation II (APACHE). According to Dr. McCurdy, the baseline APACHE scores correspond to a predicted mortality of 40 percent in the preintervention group and 55 percent in the intervention group, making the outcomes "even more dramatic."

Analyses controlling for initial health not only confirmed the benefits already found, but also uncovered a drop in mortality. Before the intervention, 35.2 percent of cardiac ICU patients on ventilators died; after its implementation, 26.4 percent.

In explaining the findings, Dr. Ramani points out that cardiac ICU patients

often have, besides their heart condition, other problems, such as a lung condition or a need for dialysis. The cardiologist says, "When things get complicated, when they have sepsis or they have a bad pneumonia, then I think the care becomes a little bit more complicated, and involving a critical care specialist is very valuable." Dr. McCurdy, for his part, hopes he and his colleagues taught the cardiologists something about ventilator management. "I know that they taught us a lot about various nuances of cardiac management," he says. "It really is a good model."

PUTTING THE RESULTS TO USE

Specifically what about the model improved outcomes remains unclear. Drs. Ramani and McCurdy think that intensivists might be better at fine-tuning ventilator management and tailoring it to patients' needs. That, in turn, may lessen the sedation needed to ease ventilator-related discomfort; it also could enable patients to participate more in their care. The researchers are revisiting the data to test possible explanations for their findings.

Meanwhile, the Medical Center's cardiac ICU plans to continue requiring an intensivist consult for all patients on mechanical ventilation. Dr. McCurdy suggests that other hospitals try the new approach. For small hospitals with no intensivist, tele-intensivists could play a similar role in ICUs, whether they treat cardiac patients or not. "There are data suggesting the benefit of that kind of care as well," he says.

DUALLY TRAINED VERSUS TWO SPECIALISTS

About two thirds of the intensivists in the study trained in critical care and pulmonology; the rest came from a pure critical care background. Nationwide, "there is a very limited number of individuals who are trained and certified

COLLABORATION FOR BETTER CARE

in both cardiology and critical care," but that "probably would be the ideal," Dr. McCurdy says.

Even so, involving intensivists in treating these patients "is a really practical solution for a lot of hospitals that don't have dually trained cardiac intensivists and aren't going to get them any time soon," says Dr. McCurdy. "This collaborative approach involving physicians who have expertise in critical care working together with the cardiologist can really improve outcomes and reduce costs," Dr. Ramani says. In sum, he notes, "We did more with less."

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For Dr. Ramani, please email him at: gramani@som.umaryland.edu

KEY POINTS

- To improve outcomes, University of Maryland researchers tested a novel collaborative approach to treating mechanically ventilated patients in the cardiac ICU.
- The approach involved mandatory intensivist consults for all such patients.
- A study testing the new approach found that collaboration between intensivists and cardiologists liberated patients from ventilators sooner, got them out of the hospital faster, and decreased mortality.
- Collaboration also lowered cardiac ICU charges.

UM REACHES OUT TO HALT THE HUMAN IMMUNODEFICIENCY VIRUS

uman immunodeficiency virus (HIV) is ravaging Maryland, which now has the highest prevalence of HIV infection in the country. If untreated, HIV leads to acquired immune deficiency syndrome (AIDS), which leaves patients vulnerable to many infections and illnesses. In Baltimore, an epicenter of the US AIDS epidemic, 1 in 43 people over age 13 are already infected with HIV.

Rates in transgender women and samegender loving men (also called men who have sex with men, or MSM, in the medical community) are even higher. Yet, greater use of HIV pre-exposure prophylaxis (PrEP) could help tame this crisis, says Sarah Schmalzle, M.D., an assistant professor of medicine at the University of Maryland School of Medicine (UMSOM). She tells patients that one Truvada® tablet, taken daily, keeps people at high risk of HIV infection from becoming infected.

Before PrEP, efforts to prevent HIV focused on changing behaviors, such as encouraging safer sex, decreasing number of sexual partners and not sharing hypodermic needles for injection drug use. However, Dr. Schmalzle, medical director of UMSOM's Center for Infectious Diseases, says that approach failed to slow the onslaught of new infections. In fact, "studies show that about a quarter or less of adults actually use condoms consistently," she says. A new approach was needed.

KEY

POINTS

A DIFFERENT KIND OF PROPHYLACTIC

The only form of PrEP currently available, Truvada®, from Gilead Sciences, prevents the virus from establishing a chronic infection of the immune systems, if taken consistently before HIV exposure. It combines two drugs long used to treat HIV infection: emtricitabine and tenofovor disoproxil fumarate. When the Food and Drug Administration approved it in 2012 to prevent HIV infection in high-risk groups, experts had already been using it to protect uninfected people who wanted to conceive with their HIV-positive partners, and knew that it should be effective in other groups as well.

PrEP requires a prescription. To take it, patients must test negative for HIV and undergo retesting every three months.

As the world awaits an HIV vaccine, Dr. Schmalzle says anyone at high risk of HIV exposure should consider taking PrEP. Studies show benefit in five such groups, so far: (1) same-gender loving men who do not always use condoms, (2) people having unprotected sex with partners who have a positive or unknown HIV status, (3) individuals who, in the past 6 months, have had other sexually transmitted infections, (4) people who have unprotected sex in a high-risk area, Baltimore included, and (5) those who share needles to inject drugs.

"If PrEP is taken properly, meaning one pill every day, it's been shown to be up to 92 to 99 percent effective" in at-risk groups, says Dr. Schmalzle. In the largest study, PrEP cut infection risk by 44 percent in same-gender loving men. However, that number includes data from participants who did not take it as directed, lowering its efficacy. This phenomenon has been seen across multiple studies – the amount of Truvada* taken directly correlates with how effective it will be in preventing HIV.

""If PrEP is taken properly...it's been shown to be up to 92 to 99 percent effective" in at-risk groups, says Dr. Schmalzle."

- Of all the states, Maryland has the highest HIV prevalence.
- When taken daily as pre-exposure prophylaxis, Truvada[®] boasts up to 99 percent efficacy for preventing HIV disease in high-risk patients.
- The drug appears safe with few serious side effects.
- As part of a citywide drive, UM is reaching out to inform young black same-gender loving men and transgender women about PrEP.
- Physicians can easily treat patients with PrEP by following available CDC guidelines, or can refer them to specialized HIV clinics for PrEP.

Dr. Schmalzle recalls "a young, samegender loving man, who took PrEP every day for 5 years with no problems, while dating a man with HIV infection. Then, due to a personal crisis, he stopped coming to the clinic and ran out of his medicine. Once he was off PrEP, he became infected within about a month."

ROADBLOCKS TO PREVENTION

Despite its efficacy, not everyone welcomed PrEP's release. Some people saw it as a party drug that would encourage risky sex. On the contrary, the majority of studies show that patients reduce their number of sexual partners when they take it as part of a program that includes talk about HIV risk and sexual health, says Dr. Schmalzle.

Others questioned whether healthy people should take a drug that could have side effects. Dr. Schmalzle says Truvada® is generally considered safe, but HIV-infected people who take it for many years sometimes develop bone or kidney problems. She checks patients' kidney function with blood tests every 3 to 6 months. When starting the drug, some patients experience slight nausea, headache or fatigue, which typically lift within two weeks.

PrEP's price also raised concerns. Some, but not all, insurance policies cover it. For patients who cannot afford it, Dr. Schmalzle says Gilead's patient assistance program may cover most or all of the cost.

The concerns are fading as skeptics see how well Truvada[®] works, Dr. Schmalzle says. Nevertheless, she cautions, samegender loving men still face stigma about Truvada[®], but would also face stigma if they became infected. Some feel "damned if I do, damned if I don't" take PrEP. This is why PrEP advocates have to fight both PrEP- and LGBTQ-related stigma as part of their campaign to increase awareness and uptake of PrEP.

GETTING THE WORD OUT

Alas, many at-risk people are not taking Truvada[®]. "The challenge is getting people to even be aware of PrEP and then come in and ask about it," says Dr. Schmalzle. The medical community also has been slow to embrace it.

To build awareness, the Centers for Disease Control and Prevention funded citywide projects aimed at young black same-gender loving men and transgender women in areas rife with HIV infection, as these are the groups currently with the highest risk. Through a CDC grant awarded to the JACQUES Initiative at the University of Maryland, Dr. Schmalzle and Dr. Patrick Ryscavage, an assistant professor of medicine at UMSOM, are striving to foster and assess the use of PrEP for preventing HIV. They are collaborating with the Baltimore City Health Department, clinics and community partners.

The Partners in

Prevention Clinic at

the UM Center for

Infectious Diseases

aims to replicate

the extensive and

comprehensive

services that are

living with HIV. In

available to people



Sarah Schmalzle, M.D.

"...stopping the epidemic requires the full medical community to lend a hand."

addition to discussion of individual HIV risk, scheduled HIV testing and testing for other sexually transmitted diseases, patients seeking PrEP have access to routine primary medical care, preventive care, social work services and mental health services. Staff members are able to help interested patients find an affordable way to get PrEP if not covered by their insurance.

"The main challenge is to raise awareness in a culturally sensitive manner in a city that's already full of medical mistrust," Dr. Schmalzle says. To that end, a key aspect of the program is the inclusion of peer navigators in the prevention team. These navigators have been recruited from high-risk groups in Baltimore, and offer the best chance of connecting with groups that are most in need of PrEP but also hesitant to engage with medical care. These navigators work to recruit patients, provide education and support and advocate for prevention patients. The peer navigators are always available by phone to answer questions, help patients remember to take their

PREVENTING THE SPREAD OF HIV

medication, and can also accompany them to their clinic visits.

Dr. Schmalzle explains that having to take a pill every day when healthy seems funny to people. Yet, patients only need to take PrEP during what experts call their "seasons of risk." If their relationship or needle-sharing ends, they can quit the pill and resume it later if needed. PrEP does not have to be life-long once started.

MANY ROUTES TO PREP

Besides the Partners clinic, two University of Maryland clinics, Family Medicine and STAR TRACK for adolescents, also offer PrEP. Furthermore, the JACQUES Journey Center will open later in 2018 as a safe, supportive hangout for the lesbian, gay, bisexual and transgender community. There they can get tested for HIV and learn about PrEP without entering an HIV clinic, which some find to be a barrier.

Of course, stopping the epidemic requires the full medical community to lend a hand. Dr. Schmalzle urges physicians to become familiar with PrEP or to refer at-risk patients to an HIV clinic. She says, "If we hit a critical mass of people taking PrEP, we can actually change the dynamics of HIV transmission within our community."



To learn more about PrEP or to schedule an appointment at the Partners in Prevention clinic, please call **443-386-1746**.

PEDIATRIC ENT SAVES BABY WITH A RARE SACCULAR CYST

At 5:30 in the morning, Amal Isaiah, M.D., Ph.D., answered his phone. Just that week he had been credentialed at the University of Maryland Medical Center (UMMC). A resident was on the line, in need of help. An infant, just a few hours old, had been transferred because he was breathing noisily and thrashing about in respiratory distress. Dr. Isaiah rushed to the hospital. Soon he saw an extremely rare cyst blocking Noah Schultz's airway, leading him to perform multiple surgeries seldom done in a baby.

Dr. Isaiah, an assistant professor of otorhinolaryngology-head and neck surgery at the University of Maryland School of Medicine (UMSOM), first saw Noah on the operating table. "The baby was desaturating and in pretty significant distress," he recalls. He needed oxygen, fast, but three previous attempts to place a breathing tube had failed.

Dr. Isaiah had just completed a clinical fellowship in pediatric otorhinolaryngology at the University of Texas Southwestern Medical Center and the affiliated Children's Health Dallas. Before that, he had trained as an ear, nose, and throat resident at the University of Maryland. Now he was back, inspired by two professors, chair Scott Strome, M.D., and Kevin Pereira, M.D, both of UMSOM's Department of Otorhinolaryngology-Head and Neck Surgery.

A CONGENITAL SACCULAR CYST

In the operating room, Dr. Isaiah could not identify Noah's airway. Rather, he saw something he had never seen before, a saccular cyst. "Even in tertiary centers, it's once in a lifetime," he says. Congenital

saccular cysts, sometimes diagnosed after the baby's death, occur in perhaps 1 in 100,000 live births.

In Noah's case, the fluid-filled cyst, about 2 centimeters wide, started in the voice box. "Basically, Noah was breathing through a pinhole," recalls Dr. Isaiah. He weighed his options: He could try his luck with a breathing tube or perform a tracheotomy. The latter would carry a high risk of complications.

Using an endoscope, the doctor moved the cyst aside, uncovering the larynx. He quickly decompressed the cyst, which was lodged deep inside the voice box. He tried to insert a breathing tube, and it settled into place. Immediately, Noah started breathing.

"Really, somebody looked out for me, and somebody obviously looked out for the baby," Dr. Isaiah says. Two days after the surgery, he was able to remove the breathing tube. Finally, Noah was breathing on his own.

A LONG-TERM PLAN

"In medicine, we always say, 'It's subject to change," notes Dr. Isaiah. Sure enough, a few days later, the cyst reappeared. Again, he removed as much of it as possible.

As Noah recovered in the Neonatal Intensive Care Unit, Dr. Isaiah thought about the coming winter and flu season. If the cyst returned, Noah could suffer respiratory distress at home. The doctor could see only



one definitive way to prevent that: a tracheostomy, a procedure uncommonly done in babies, especially during the first month of life. Hence, three weeks after removal of the second cyst, Noah underwent his third surgery, one Dr. Isaiah hoped to later undo.

As a Rhodes scholar, Dr. Isaiah had studied developmental plasticity at Oxford University in England. He knew that Noah's chances of speaking normally depended on how soon he could learn speech and language skills; however, a combination of problems with his airway kept the boy from developing those skills normally. Reversing it soon would let Noah start speech and language therapy when his brain was still developing, giving him a chance to catch up with his peers.

Yet, before the tube could come out, Dr. Isaiah had to make sure the cyst was gone for good. He waited nine months, then checked Noah's windpipe again in the OR. He explains, "The airway is a magic box; you can't assess it well until you get to the OR." There he saw only a tiny cyst, no longer obstructive, and unlikely to grow back.

A SETBACK

With the cyst out of the way, another problem became apparent: subglottic stenosis. Noah would never be able to breathe on his own through such a narrow airway. Widening it could give Noah a better life--without the tracheostomy.

- According to most reports, congenital saccular cysts occur in about 1 in 100,000 live births.
- Often, they go undiagnosed until after the infant's death.
- Noisy breathing at birth, though not always pathologic, may indicate a blocked windpipe and requires evaluation.

Just after his first birthday, Noah underwent a single-stage laryngotracheal reconstruction. The operation took several hours. Fortunately, Dr. Isaiah's training included performing many of these procedures. He knew how to make a small split into the trachea, insert a small cartilage spacer, and stitch it in.

At the same time, Dr. Isaiah removed the tracheotomy tube and closed the opening, rather than wait and do that later in a double-stage reconstruction. "I had enough confidence in his recovery that I was able to do both in one go," he says. Noah spent 10 days in the hospital, half of them in intensive care. Meanwhile, Dr. Isaiah watched for graft prolapse, infections, or other complications that could spoil Noah's recovery.

Furthermore, Noah had to learn to breathe normally, through his mouth and

nose, a process that involved sedating him to prevent agitation. "That's a big change for an infant who's had no time to learn that since birth," Dr. Isaiah says.

ONE DAY AT A TIME

After all the ups and downs, Noah has gone home. He was doing well at his first doctor's visit after the reconstruction. Dr. Isaiah says the treatment succeeded due to the collaborative work of "very capable" groups, including the pediatric anesthesia team and the teams in the neonatal and the pediatric intensive care units.

Still, Dr. Isaiah thinks about Noah frequently. He calls the parents often to make sure his breathing stays quiet. "Every day that goes by, we've won 1 percent, 2 percent of the battle," he says.

PEDIATRIC ENT

Noah is starting to speak better, but speech and language therapy should further improve his articulation and voice quality. He might need even more surgery later for his voice.

Dr. Isaiah says, "Noisy breathing at birth doesn't mean danger all the time, but a relatively high degree of suspicion is required when the noisy breathing occurs very early in life." It should spur investigation of mechanical airway blockage.

Because Dr. Isaiah found what hindered Noah's breathing and carried out four operations to fix it, Noah should live a normal life. "It was a very good thing I picked up the phone right away," says Dr. Isaiah.



To reach Dr. Isaiah, please call **410-328-5837.**

ROUNDING OUT CARE & RESEARCH

UM RESEARCHERS IDENTIFY POTENTIAL PROTECTIVE AGENT AGAINST FLU

A new study by researchers at the University of Maryland School of Medicine, published in the Journal of Leukocyte Biology, has identified an innovative strategy for treating influenza, and perhaps other infectious diseases. Scientists showed that a small protein called retrocyclin-101 (RC-101) could potentially improve the symptoms and mortality associated with the flu and possibly other types of infectious illness. The protein is unique in that it not only targets the flu virus itself, but also the harmful inflammation the virus triggers in the host.

While the effect of RC-101 has been studied as a flu treatment in cells before, it has never been studied in animals. When looking at human immune cells, the researchers found that RC-101 had two positive effects. First, it blocked the flu virus from infecting the cells; second it blocked the runaway inflammation that is behind most symptoms of influenza infection, such as fever, pain, lethargy, and trouble breathing.

"We think that this protein could lead to medicines that could be a powerful tool in the battle against the flu, and against inflammation in general," says the study's lead author, Daniel J. Prantner, PhD, a research associate in the Department of Microbiology and Immunology at the University of Maryland School of Medicine.

NEW CHARLES COUNTY LOCATION

University of Maryland Specialty Care is now in Waldorf at Pembrooke Square, providing surgical consults, pre- and post-op visits, minor in-office procedures and specialty care services in one convenient location.

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For more information or to refer a patient, please call **240-607-2010** or visit **umfpi.org/SC.**

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