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STOP THE BLEEDING!

Arkansas' Hospitals Plea to End the Medicare Hospital Wage Index

Approaching Grief

Wisdom for Practitioners, Patients, and All Humans

Greg Adams, LCSW, ACSW, FT

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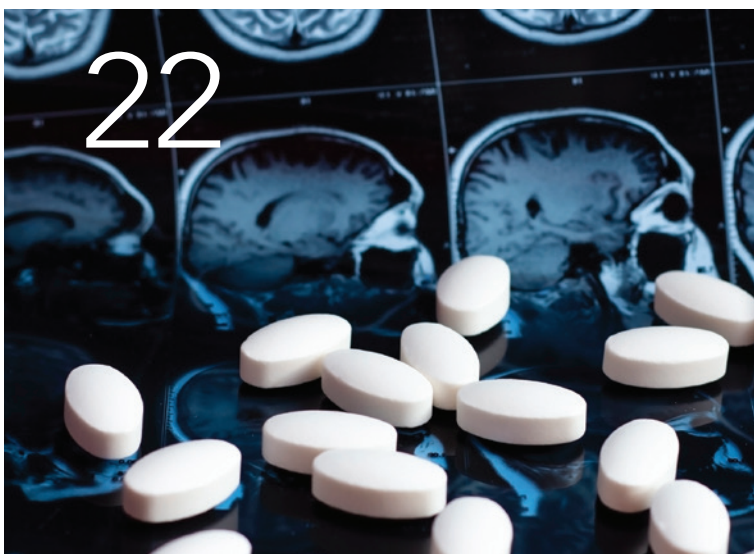

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bull·shit

/ˈbo͝olˌSHit/

VULGAR SLANG

noun

1. stupid or untrue talk or writing; nonsense.

verb

1. talk nonsense to (someone), typically to be misleading or deceptive.

Forgive me, my time in Texas just poked through. But, from this editor's perspective, what is happening to citizens in Arkansas and other poor states, vis à vis the Medicare Area Wage Index (AWI), using federal funds is unconscionable.

In this AWI death spiral, hospitals in rural areas and poorer states are paid nearly 30% less for the same procedure than is paid to the average U.S. hospital when treating a Medicare patient, which includes nearly all 65+ Americans. Oh, and 180% less than what is paid to richer, urban hospitals. Know why? Because you are poor. It is a dirty little secret that hospitals in poorer states have had to accept because the richer, more powerful ones have more congressional representatives to keep it that way and to ensure their hospitals get paid more. This is set up as a David and Goliath fight. It shouldn't be.

Our leadership time is now; may we continue to find a way to provide the best care for all. If rules set up by past leaders, for different circumstances, need to be adjusted, then let's have the courage to rewrite the rulebook. Current rules and laws are making this way too complicated and simply unfair to people in poorer states and rural areas. Should Medicare payments across the U.S. be equal — you know, that "... one nation under God, indivisible, with liberty and justice for all," thing? Should the index be flipped temporarily to give these hospitals a chance to catch up? Should the federal government be blind to cost-of-living indexes when it comes to healthcare, because the pandemic exposed the need for all hospitals to be able to compete nationally for workforce?

We asked Bo Ryall from the Arkansas Hospital Association to explain, in more eloquent terms than my expletive above, the background and status of the Medicare Wage Index. Bo, you are right; this is a "meaty topic." Readers, be prepared to hold your noses, and when you are finished, let's figure out how to change this. Poor means poor; it doesn't mean less.

We, as a country, can do better. Let's.

Dianne Marie Normand Hartley
Chief Editor
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STOP THE BLEEDING

Is It Time to Nix the Medicare Hospital Wage Index?

by Bo Ryall, President & CEO
Arkansas Hospital Association

The Medicare hospital inpatient and outpatient prospective payment systems (PPS) are designed to pay hospitals for services provided to Medicare beneficiaries based on a national average payment amount, adjusted for two factors that affect hospitals' costs: 1) the patient's condition and related treatment strategy and 2) market conditions in the hospital's location. One of the significant adjustments in the systems is an adjustment for market conditions known as the area wage index (AWI). The AWI is intended to measure differences in hospital wage rates among labor markets; it compares the average hourly wage for hospital workers in each metropolitan statistical area (MSA) or statewide rural area to the nationwide average.

The area wage index (AWI) is a vital component of determining Medicare hospital payment rates. The AWI has become controversial in hospital and hospital association circles both because of the changes in the payments that have been influenced by Congress and because of the regulatory changes implemented by the Centers for Medicare and Medicaid Services (CMS).

What is AWI?

The basic premise of the AWI is that payments should be partially based upon the local cost of labor. If, for example, it costs more to hire a nurse in one market than another, then payments should reflect that difference because area labor costs are beyond a healthcare provider's control. Hospitals report wage data for their employees yearly, and those numbers are used to calculate the AWI. The same pool of funding is used for the AWI, so as payment is adjusted each year, there are increases to some hospitals and decreases to others.

The AWI is broken down into metropolitan statistical areas (MSA), and the rest of a state is combined in one rural area. In Arkansas, our MSAs are in Little Rock, Fayetteville, Fort Smith, Texarkana, Pine Bluff, Memphis/West Memphis, and Jonesboro.

What's Wrong with the AWI?

CIRCULARITY

The AWI gives financial benefit to hospitals in regions that are already able to provide higher wages while decreasing funding to hospitals in other areas. Hospitals that moderate increases in hourly wages due to financial considerations, such as high government payer mix and low commercial pay rates, become low-cost providers, unable to keep up with other regions' pay increases. The result is that regions with higher pay increases have an increase in the AWI, and other states like Arkansas, Alabama, and West Virginia continue to get pushed lower. This occurs incrementally over time, but with each passing year, the gap widens.

To illustrate how this happens, consider the following: in 2003, the lowest wage index was 0.759, and the highest was 1.5185 – a difference of 100%. However, this gap has since widened considerably; in 2019, the lowest wage index had dropped to 0.6704, and the highest rate had climbed to 1.9025 – a difference of 184%. In the AWI system, even minor changes can cost hospitals millions of dollars, so this widening gap is quite alarming.

Core-Based Statistical Area (CBSA)	Final 2022 Wage Index
Fayetteville-Springdale-Rogers, AR	0.8271
Fort Smith, AR-OK	0.7998
Hot Springs, AR	0.8584
Jonesboro, AR	0.8002
Little Rock-North Little Rock-Conway, AR	0.8202
Memphis, TN-MS-AR	0.8458
Pine Bluff, AR	0.7827
Rural Arkansas	0.7132

EXCEPTIONS

The basic wage index can result in major differences between adjoining geographic areas. Because of this, numerous exceptions to the basic calculation have been incorporated into the system that permit hospitals to have their payments adjusted by a higher wage index value. There are seven different reclassifications and exceptions that hospitals can obtain. More than 40% of hospitals take advantage of some type of exception. The most common is for hospitals around a state border to reclassify into a neighboring state's nearby MSA. The widespread use and implied necessity of these exceptions raises questions about the underlying program methodology; any program that grants exceptions at more than 40% is not a fair and accurate formula for payment rate determinations.

RURAL FLOOR

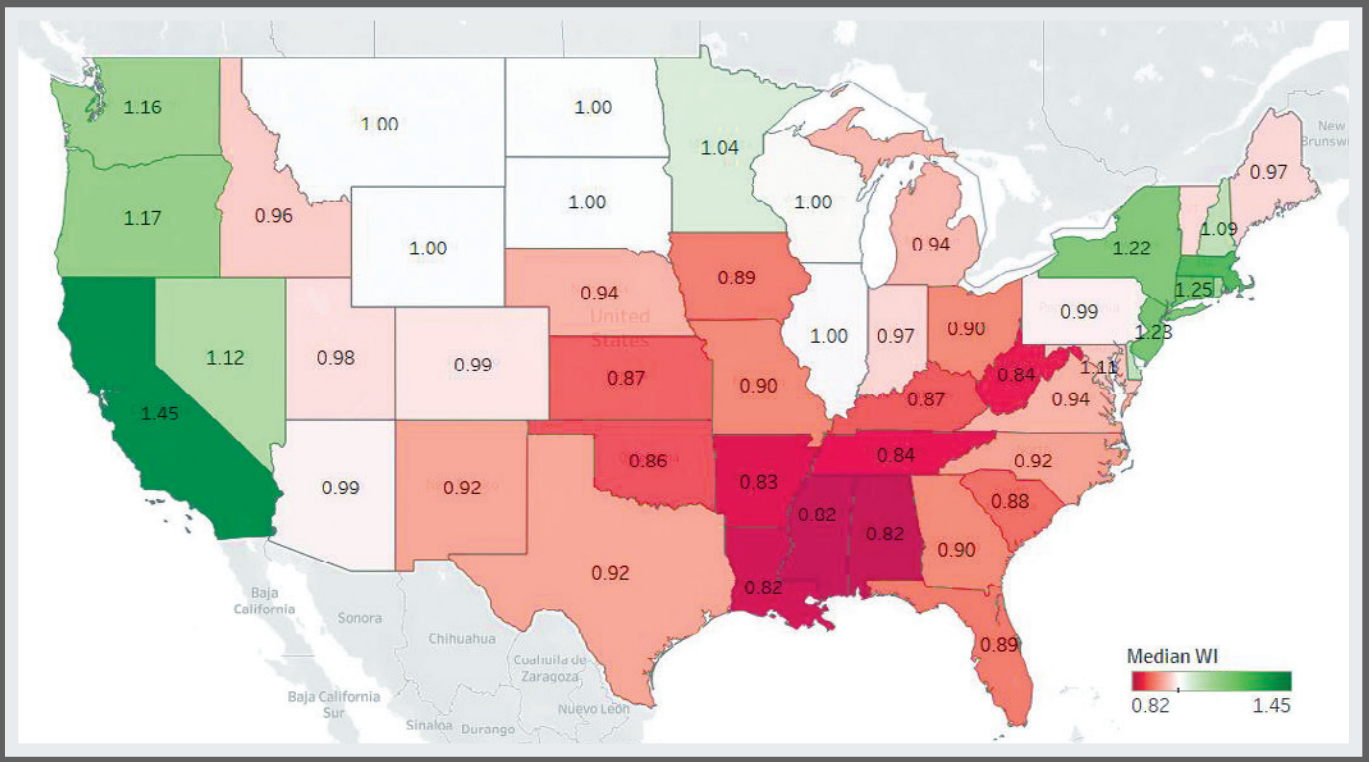
In 1999, CMS implemented the rural floor, as required by the Balanced Budget Amendment (BBA). In a particular state, an MSA cannot be paid lower than the rural AWI, hence the rural floor. To pay for the rural floor, a nationwide budget neutrality adjustment is made each year. In essence, if a hospital receives more funding, then the pool is adjusted nationally, and others receive a decrease to offset the change.

In 2009, CMS proposed a rule to move to adoption of statewide, rather than nationwide, budget neutrality for the rural floor. Thus began a three-year period of transitioning to a statewide budget neutrality. As a result, states with hospitals receiving a rural floor wage index would have funded the higher payments for those hospitals entirely within the state.

In 2010, the Affordable Care Act (ACA) included a provision to prohibit CMS from implementing the statewide budget neutrality adjustment. Instead, it required CMS to revert to a nationwide budget neutrality adjustment in 2011.

CMS cautioned about the potential for gaming this program by stating, "rural

Median Area Wage Index by State, FFY 2022



Critical Access Hospitals were converting to IPPS status, apparently to raise the State's rural wage index to a level whereby all urban hospitals in the State would receive the rural floor."

The legislative and regulatory changes as outlined above all added up to gaming the program and the best/worst case occurred in Massachusetts.

BAY STATE BOONDOGGLE

As the Affordable Care Act was winding its way through Congress, a backroom deal allowed every hospital in Massachusetts to benefit from the labor rates paid by tiny, 19-bed Nantucket Cottage Hospital. The sweetheart deal came at the expense of nearly every other hospital in the U.S. Known to many as the "Bay State Boondoggle," the sleight of hand resulted in more than a billion dollars in additional payments to Massachusetts hospitals.

At the heart of the issue is Section 3141 of the ACA. The provision allowed Massachusetts hospitals to gerrymander the arcane Medicare wage index system to their advantage by using an extremely remote, low-volume hospital located on an extremely high-cost-of-living island as the floor for all wages statewide. The increase benefited Massachusetts significantly and a few other states marginally. It disadvantaged the vast majority.

CMS quickly criticized the ACA policy as a "manipulation," yet they are required by law to enforce it. Ultimately, tiny Nantucket Cottage Hospital treats only about 150 inpatients a year, yet it influences payments nationally.

Any formula that allows for these types of gamesmanship should not be part of the formula for a hospital payment system. Karma did work in a strange way in 2017, when the hospital's consultants misreported wages, which lowered the reimbursement to Massachusetts hospitals by $160 million.

RECENT DEVELOPMENTS

CMS made a policy change in 2019 that was extremely helpful; under this change, hospitals with a wage index value below the lowest quartile would temporarily receive a wage index adjustment of 50% of the difference between the standard wage index value for the hospital and the 25th percentile wage index value. In short, those hospitals on the bottom got a raise, and those on the top got a reduction.

However, CMS also adjusted other hospitals' payments downward to make the policy budget neutral. The hospitals that lost significant dollars filed a lawsuit arguing that CMS did not have the authority to make such a rule change. (Although, in 2005, CMS used rule-making authority to make the same type of adjustments.)

The court granted the hospitals' motion for summary judgment on March 2, and CMS is currently contemplating whether to appeal the ruling. Should the ruling stand,

the question is whether CMS will make changes prospectively or attempt to pull back the funding already provided to hospitals in low wage index areas.

CHANGES NEEDED

The pandemic has shown us that Arkansas hospitals are not only competing against other local facilities for workforce, but we are also competing regionally and nationally for the same pool of nurses, respiratory therapists, etc. The notion that an area wage index is needed because costs are lower in certain areas of the country is outdated.

The AWI in its current form is influenced by Congress, CMS, hospitals, and the courts. Because any change threatens that one hospital will receive more funding at the expense of another hospital, the present circumstance pits hospitals against each other, states against each other, and Congressional delegations against each other. Even the possibility of scrapping the entire system and starting over will lead to protectionism from those receiving the most money.

Unless more funding is appropriated to the pool to encourage reform, we are destined to continue battling over incremental changes that have sizeable consequences. The circularity issue is most egregious. CMS's last rule change raised those hospitals in the lowest quartile – a step in the right direction. CMS should maintain a funding floor to minimize the impact of ever greater differences between the highest and lowest wage indices. ■

"The AWI gives financial benefit to hospitals in regions that are already able to provide higher wages while decreasing funding to hospitals in other areas. Hospitals that moderate increases in hourly wages due to financial considerations, such as high government payer mix and low commercial pay rates, become low-cost providers, unable to keep up with other regions' pay increases."

March 21, 2022

Chiquita Brooks-LaSure
Administrator
Centers for Medicare and Medicaid Services
200 Independence Ave., S.W..
Washington, DC 20001

Administrator Brooks-LaSure,

On March 2, 2022, the United States District Court for the District of Columbia ruled that the Department of Health and Human Services (HHS) exceeded its statutory authority when the Centers for Medicare and Medicaid Services (CMS) promulgated a regulation to address wage disparities among hospitals. On behalf of our member hospitals, our Associations are writing to encourage HHS to appeal the ruling to protect not only the agency's clear statutory authority to make such an adjustment, but also to protect the nearly 800 hospitals helped by this quartile adjustment known as the Low Wage Index Hospital Policy.

The Medicare Hospital Area Wage Index (AWI) has been a problem for decades, creating a disparity between high wage index states and low wage index states that results in a downward spiral. In 2003 the lowest wage index was 0.759 and the highest was 1.5185, a difference of 100%. However, this gap has since widened exponentially, and in 2019, the lowest wage index had dropped to 0.6704 and the highest rate had climbed to 1.9025, a difference of 184%. In the AWI system, small changes can cost hospitals millions of dollars, so this widening gap is quite alarming. The facts illustrate that HHS was right to express concern that the AWI methodology used by the agency exacerbates the disparities between hospitals. The implementation of the Low Wage Index Hospital Policy in fiscal year (FY) 2020 has provided much needed financial relief to low AWI hospitals.

CMS has used its rulemaking authority to provide relief from the broken wage index system in the past. In 2005, the agency established an imputed rural floor to address concerns from hospitals in all-urban States. CMS has continued this policy year after year, noting that these changes were made pursuant to comment and rulemaking, just as the quartile adjustment received comment and rulemaking, and, most importantly, that the Secretary has "broad authority under section 1886(d)(3)(E) of the Act to adjust the proportion (as estimated by the Secretary from time to time) of hospitals' costs which are attributable to wage and wage-related cost of the DRG prospective payment rates for area differences in hospital wage levels by a factor (established by the Secretary)."

In fact, when CMS used this authority in the FY 2005 Medicare Hospital Inpatient Prospective Payment System (IPPS) final rule to make a policy adjustment, they noted the special circumstances of hospitals in all-urban states in creating the imputed rural floor. These all-urban states noted that the absence of a

rural floor disadvantages them in calculating the wage index much like low-wage index states noted the detrimental impact of the downward spiral they have faced for decades. This policy adjustment was paid for by taking Medicare funding from hospitals in low wage index states and further reducing their wage indexes yet again. As noted above, the Secretary of HHS used the authority granted him in the statute to develop an undisclosed formula to create a rural floor for these states. Ironically, many of the hospitals in states who benefited from the imputed rural floor are among the plaintiffs in the current case. It appears they appreciate the use of the Secretary's broad authority when it benefits them but oppose it when it benefits hospitals in other states. In fact, CMS said in the FY2015 IPPS final rule:

> In response to the commenter who questioned what statutory authority CMS has to extend the imputed floor policy and declare new States eligible, as we stated in the FY 2005 IPPS final rule (69 FR 49110), we note that the Secretary has broad authority under section 1886(d)(3)(E) of the Act to "adjust the proportion (as estimated by the Secretary from time to time) of hospitals' costs which are attributable to wages and wage-related costs of the DRG prospective payment rates . . . for area differences in hospital wage levels by a factor (established by the Secretary) . . ." Therefore, we believe that we do have the discretion to adopt a policy that would adjust area wage indexes in the stated manner. We adopted the imputed floor policy and subsequently extended it through notice-and comment rulemaking to address concerns from hospitals in all-urban states

Beyond the need to appeal we also encourage CMS to continue the Low Wage Index Hospital Policy in the FY2023 IPPS rule currently being developed. As noted above, the Secretary of HHS clearly has the statutory authority to adjust the wage index from time to time and the agency should not remove the policy until all appeals have been exhausted. The COVID-19 pandemic created a skewed labor market that will only further disrupt the wage index calculations. We have not had the opportunity to see the true impact of the Low Wage Index Hospital Policy because the pandemic has so disrupted the marketplace. Extending the policy for another year, and for years beyond, will allow hospitals and the agency to understand the true impact in a somewhat normal environment. The pandemic has added tremendous pressure to an already fragile health care infrastructure and ending this small lifeline would be devastating.

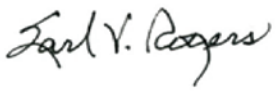
It is more important than ever that CMS uses its authority to ensure that every American have equal access to care and not be punished for living in a majority rural state. CMS noted when it initially finalized the rule that "rural areas have experienced more than 100 hospital closures since 2010 and continue to face limited access to specialty care," stressing that this policy adjustment would "help low-wage hospitals attract and maintain a highly skilled workforce, which will strengthen competition and lead to greater choice for patients in rural areas."

CMS has the authority to make policy adjustments and this step towards achieving health equity was justified and supported by Congress. In the fiscal year 2019 Labor, Health and Human Services Appropriations report, CMS was encouraged to identify ways to reduce regional disparities in the Medicare wage index. There is also bipartisan legislation currently being considered. S999/H.R.4066, the *Save Rural Hospitals Act of 2021*, would establish a nationwide floor of 0.85 to stop the downward spiral that is crushing hospitals in low-wage index states. While we work towards this comprehensive reform, we sincerely hope that CMS will use the current IPPS rulemaking process to reduce the significant vulnerabilities our member hospitals have faced for decades.

Sincerely,

Donald E. Williamson, MD
President / CEO
Alabama Hospital Association

Bo Ryall
President & CEO
Arkansas Hospital Association



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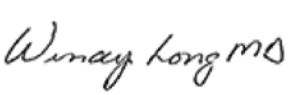

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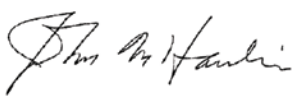

John Hawkins
President/CEO
Texas Hospital Association

A little insight into the hospital Medicare payment struggle: In this recent letter to the federal government, Southern hospital associations are pleading for the reinstatement of a small correction to Medicare Area Wage Index (AWI), which benefited hospitals in their states. Medicare's budget-neutral calculation pits richer states, whose hospitals don't feel they are paid enough, against poorer states whose hospitals are definitely not. Thus, nobody is happy. The current setup has richer states fighting any attempt to create equity or equality in Medicare payments across the country.

Can We Take a Minute to Talk about Grief?

by Greg Adams, LCSW, ACSW, FT
Program Coordinator
Center for Good Mourning and Staff Bereavement Support
Arkansas Children's Hospital

Greg Adams, LCSW, ACSW, FT, coordinates the Center for Good Mourning and Staff Bereavement Support at Arkansas Children's Hospital (ACH) and is a fellow in thanatology with the Association of Death Education and Counseling. Greg has served at ACH in various roles and disciplines, including pediatric oncology and palliative care, since 1991. He is an adjunct professor with the University of Arkansas at Little Rock and has been an active volunteer with community and professional organizations. He is also the author of "Adam Gets Back in the Game," a children's storybook about coping with grief and loss.

We're going to think about grief for a bit. Let's start by speaking plainly. Grief is miserable. Grief hurts, confuses, disorients, angers, and exhausts. Sometimes, grief entangles with feelings of relief and gratitude.

Grief naturally comes from loss – losses of all kinds and throughout our lives. It's a fitting human response to loss, but that doesn't make it easier. On its own, grief is not a problem to be solved but an essential part of life to be experienced. While challenging, the presence of grief is not a "red flag" or worry. However, the absence of grief following a significant loss would be a "red flag" or worry.

It has been said that grief is what love looks like after someone dies. It is a natural part of caring and the bonds between us. If one can connect to another person or a thing, then one would grieve the loss of that person or thing. We can experience grief even when we don't have words to describe it. We see this with infants separated from their parents. A life void of caring, bonding, and love is the only way to truly avoid grief, but this is too high a price to pay.

Grief impacts us all. Babies, children, adolescents, adults, young, and old. Parents, siblings, spouses, partners, and friends. And caring healthcare professionals. Everyone.

Each experience of grief is unique to that person, their time of life, and the relationship to the person or thing lost.

There are no universal "stages of grief," and we would do better to leave that concept behind. The "stages of grief" concept came from a misapplication of ideas from the book On Death and Dying by Elizabeth Kubler-Ross, published in 1969. Kubler-Ross did the world a great service by promoting needed thinking and conversations about death and dying. However, her observations of dying adults have not proven generalizable for those who grieve. When we give it some thought, we know this. Grief is not linear and is messier than any five structured stages. It's comforting to think of grief as that predictable and limited, but it's just not true to our experiences. As grief writer, counselor, and researcher, Ken Doka has said, "Would you want to go to an oncologist who hasn't learned anything new since 1969?" The same principle applies to how we try to understand our experiences of grief. We keep learning.

However, while there is great variety, some commonalities apply to most of us, young, old, and in-between.

In more recent years, grief specialists have discovered that it helps to think of grieving people as addressing two major challenges: dealing with the pain of grief and finding ways to live in a new reality. The clarity of this insight has been helpful to many grieving people. Researchers Margaret Strobe and Henk Schut describe this as the "dual process model" where we oscillate between a "loss orientation" and a "restoration orientation." We go back and forth, and the challenge for each person is to find their balance, giving enough attention to both grieving and living.

Making Meaning of Grief

Thinking of grief as a deep wound is a helpful metaphor. Imagine someone left a broken bottle in a parking lot, and we trip and fall with our hand landing on a large, jagged piece of glass. We look at this big chunk of glass stuck deep in our hand. This is grief – a big hurt that we didn't choose, but have nevertheless. Now we have choices about how to respond. We could tend to the wound, seek help, treat our hand with extra care and caution while in this vulnerable state, and gradually begin to use our hand again as healing occurs. Our hand may eventually be fully useful again, and it might even grow stronger than it was before. Nevertheless, we will have a scar that can remind us of how bad it was and how much healing has taken place.

There is another choice with our injured hand, however. We could skip the "loss orientation" and focus solely on the

"restoration orientation." We could leave the glass in our hand and do our best to go on with life. We could ignore the pain and stay "busy." While possibly tempting in the short term, this approach has some real long-term problems. The wound could get infected, causing complications with our hand and the rest of our body. The unattended hand will not heal well and will be limited in its usefulness. And leaving the glass in our hand could hurt those closest to us. It's a silly choice, really, to ignore the glass in our hand, but we all know people who choose this path. They have big hurts and losses that deserve and need attention, but they focus exclusively on moving on. They ultimately create other hurts and problems for themselves and those they love. It is likely that most, if not all of us, have done this to some extent in our lives.

Along with vacillating between loss and restoration, we make meaning of our loss. We find ways to integrate the loss and grief experiences into our life stories. Part of meaning-making is sense-making – how we understand and make sense of loss. Another part is benefit-finding, where we can sometimes find benefit amid loss. This doesn't mean that the benefit is worth the loss. Rabbi Harold Kushner put this beautifully in his book, When Bad Things Happen to Good People, as he described the impact of his young son's death:

> "I am a more sensitive person, a more effective pastor, a more sympathetic counselor because of Aaron's life and death than I would have ever been without it. And I would give up all of those gains in a second if I could have my son back. If I could choose, I would forego all the spiritual growth and depth which has come my way because of our experiences, and be what I was fifteen years ago, an average rabbi, an indifferent counselor, helping some people and unable to help others, and the father of a bright, happy boy. But I cannot choose."

With meaning-making, the better sense we can make of the loss and the more benefit we can find amid loss, the more likely we are to make a healthy adjustment. The more we struggle with this – the more the loss resists integrating into our life story – the more at-risk we are for adjustment complications. Losses can be deeply painful, of course, even when they make sense to us and lend themselves to finding benefits. Perhaps a grandparent dies peacefully following a long illness during which there are times of poignant connection. While sad, we know we all eventually die, and we are grateful for a long life and special moments. What if, instead, the loss is a child who dies from a long illness? That loss is more challenging to make sense of for most of us. Or perhaps a person dies unexpectedly. Or maybe the person dies violently. Some deaths are much more challenging for sense-making and benefit-finding. It's still possible to make a healthy adjustment, and most of us eventually do, but the challenges are greater.

We often think of grief as an emotional experience, but it is much more. Grief is a whole-person experience, impacting us emotionally, cognitively, behaviorally, socially, and spiritually. Leaning into the cognitive and spiritual aspects of grief, author and grief expert John Schneider described grief as a discovery process through three questions: What is lost? What is left? What is possible?

These are not one-time questions. We will revisit these questions repeatedly throughout our lives following significant losses. Imagine a 6-year-old girl whose mother dies. She will answer these questions differently when she experiences puberty, finishes high school, has a job of her own, becomes a mother, and again when her child is 6 years old.

Grief and the Child

Children and adults have many of the same needs in grieving but different ways of understanding and processing. When thinking of a preschool child who experiences the death of an important person in their life, the child needs several basic supports:

- An explanation that is true and fitting to their comprehension.
- Reassurance that while some things will be different, other things will remain the same.
- Understanding that others are upset but those who are upset will still do what needs to be done to care for the child.
- Opportunities to talk about the person who died and ways to remember and be connected to them in this new reality.

As adults, we have these same needs. Our capacity to comprehend and express needs differ depending on developmental level, though.

Let's consider a 3-year-old boy whose father dies. What might we expect to see? Perhaps he is more anxious around new people and new situations. Maybe he clings more to his mother, fearing that she may also go away. He might search for his father and have continued expectations that he will come home. The boy's moods may be more volatile, and tears may come more easily. Perhaps he withdraws. Bedtime and sleep may be more challenging, and his appetite might be affected. He could also regress developmentally, perhaps struggling again with potty-training, and this regression can signal a need for greater care and comfort.

We would not be surprised if the boy's mother had some of the same grief reactions. She may feel most comfortable and secure with familiar surroundings and people. She might cling to her son and still expect his father to come through the door at the end of the day. Perhaps she cries more easily and unpredictably and finds herself uncharacteristically losing her patience. Withdrawing from her friends and previous activities, her sleep and appetite may

be disturbed. Although a grown woman, she may feel the need to be held and comforted as she was when she was a young girl. Not feeling herself, the mother knows this is related to the terrible loss of the boy's father in her life and how her life has changed in ways that she is just beginning to understand.

None of what is described for the mother and her son would be unexpected. We would not expect the 3-year-old boy to express the insight and awareness of the connection between his feelings and his situation. We would be shocked and amazed for him to come home from preschool and tell his mother, "Mom, I had a bad day. I spilled my milk, bit a kid and ended up in time-out. I think it's because Dad died. I'm just not myself these days."

The higher our developmental level, the more we can understand and express the sources of our distress and our grief. Children need adult support and guidance when grieving due to their limited experience, awareness, and comprehension. They need positive outlets for their feelings, questions and thoughts, good role-modeling, age-appropriate explanations, and new ways to remember and be connected to who or what was lost. Children, like adults, can make healthy adjustments, but they need adult support and assistance. Adults often need support and assistance, too, as few of us navigate grief well alone.

Grief and the Provider

Grief can have a powerful presence in our roles as healthcare providers. Our healthcare lives and the lives of those we serve are full of losses. Some of these losses are challenging because of their significance or frequency.

Some losses are easy to identify, such as when we come to care deeply for a patient who dies. Other losses are about how we see ourselves, people, and the world. Faced with intractable problems and pain, we grieve the loss of the image of ourselves as effective helpers and healers. We grieve the loss of the dream of a world where the innocent are protected from suffering. We grieve the loss of certainty and predictability in life. We grieve the idea that we can always make a significant difference – that we can avoid feeling and being helpless.

How we handle loss and grief makes a difference to the people we serve, our families, and ourselves. A story to illustrate:

I once worked with a mom and her elementary-age son who had a serious, life-threatening illness. Over months, many aggressive and creative efforts were made to prevent his death and provide him with a good life. Sadly, the boy died. On the day of his death, a healthcare team member who tried so hard to save his life came to his room, approached his mother, hugged her and stood with her. Few words were needed or spoken, but the message of care and support was clearly communicated. After this team member left, another came. This team member also pushed the bounds of conventional treatment to give this child a better chance to live, but when the team member looked in and saw the lifeless body in bed and the grieving mother with no family present for support, they turned and walked away. Both team members had losses. Both were grieving. Motivated by care and pain, one was able to offer comfort to the mother. For the other compassionate team member, the burden of grief blocked the path to offering comfort. Regardless of the outward reaction, each experienced heartbreak.

"As healthcare professionals, we need to find ways to validate and support the significant grief experienced in our work. We need to give our disenfranchised grief a caring home, and we can all do better with this."

Too often, the grief experienced by healthcare professionals is "disenfranchised grief," a term also coined by researcher Ken Doka. Disenfranchised grief exists when grief is not acknowledged or is viewed as invalid. Disenfranchised grief is grief in need of a home where it can be recognized, welcomed and treated with the care it deserves. As healthcare professionals, we need to find ways to validate and support the significant grief experienced in our work. We need to give our disenfranchised grief a caring home, and we can all do better with this.

Part of doing better by grieving people is recognizing and attending to grief when it exists. Because loss is part of our patients' and their families' lives – and our own lives – grief naturally occurs. The presence of grief is an experience that deserves recognition, understanding, and support. Grief is there because care, love, and compassion are present, and that is good news.

What can we do with the presence of grief in our lives? Here is a suggestion for a place to start: take a moment and a few deep breaths, breathing in compassion for yourself and breathing out compassion for others.

Grief is still mostly miserable, but it doesn't have to be as lonely. ■

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DRUG ADDICTION

In Part II of the USHJ Series on drug addiction, we look into the question, "Is drug addiction a brain disease or a compulsive behavior?", and why it matters. For those of you not intimately familiar with drug addiction, there is a scene in the Netflix series, "After Life," where two men whose wives died recently are seeking relief from the pain of grief together — through street drugs. This is their second time "using" together. One is a homeless addict; the other, new to this type of drug use, is a middle-aged, middle-class, somewhat respectable man named Tony. Both are struggling with existence without their beloved wives. The conversation goes something like this:

Tony: *You know I know how you feel?*

The Addict: *Okay, try imagining if everyone you told about your wife dying just thought it was her own fault.*

Tony: *What do you mean?*

The Addict: *Well, Mel was an addict, wasn't she? She injected herself, so, you know, most people just think it was her fault. They don't feel the same sympathy ... for me or for her.*

The addict, in despair, goes on to intentionally overdose, actually with Tony giving him the money for that purpose. This scene should speak to us on why it matters, if you don't already understand.

Part II: Addiction as a brain disease revised: why it still matters, and the need for consilience

Heilig, M., MacKillop, J., Martinez, D. *et al.* Addiction as a brain disease revised: why it still matters, and the need for consilience. *Neuropsychopharmacol.* 46, 1715–1723 (2021). https://doi.org/10.1038/s41386-020-00950-y

ABSTRACT

The view that substance addiction is a brain disease, although widely accepted in the neuroscience community, has become subject to acerbic criticism in recent years. These criticisms state that the brain disease view is deterministic, fails to account for heterogeneity in remission and recovery, places too much emphasis on a compulsive dimension of addiction, and that a specific neural signature of addiction has not been identified. We acknowledge that some of these criticisms have merit, but assert that the foundational premise that addiction has a neurobiological basis is fundamentally sound. We also emphasize that denying that addiction is a brain disease is a harmful standpoint since it contributes to reducing access to healthcare and treatment, the consequences of which are catastrophic. Here, we therefore address these criticisms, and in doing so provide a contemporary update of the brain disease view of addiction. We provide arguments to support this view, discuss why apparently spontaneous remission does not negate it, and how seemingly compulsive behaviors can co-exist with the sensitivity to alternative reinforcement in addiction. Most importantly, we argue that the brain is the biological substrate from which both addiction and the capacity for behavior change arise, arguing for an intensified neuroscientific study of recovery. More broadly, we propose that these disagreements reveal the need for multidisciplinary research that integrates neuroscientific, behavioral, clinical, and sociocultural perspectives.

INTRODUCTION

Close to a quarter of a century ago, then director of the US National Institute on Drug Abuse Alan Leshner famously asserted that "addiction is a brain disease", articulated a set of implications of this position, and outlined an agenda for realizing its promise [1]. The paper, now cited almost 2000 times, put forward a position that has been highly influential in guiding the efforts of researchers, and resource allocation by funding agencies. A subsequent 2000 paper by McLellan et al. [2] examined whether data justify distinguishing addiction from other conditions for which a disease label is rarely questioned, such as diabetes, hypertension or asthma. It concluded that neither genetic risk, the role of personal choices, nor the influence of environmental factors differentiated addiction in a manner that would warrant viewing it differently; neither did relapse rates, nor compliance with treatment. The authors outlined an agenda closely related to that put forward by Leshner, but with a more clinical focus. Their conclusion was that addiction should be insured, treated, and evaluated like other diseases. This paper, too, has been exceptionally influential by academic standards, as witnessed by its ~3000 citations to date. What may be less appreciated among scientists is that its impact in the real world of addiction treatment has remained more limited, with large numbers of patients still not receiving evidence-based treatments.

In recent years, the conceptualization of addiction as a brain disease has come under increasing criticism. When first put forward, the brain disease view was mainly an attempt to articulate an effective response to prevailing nonscientific, moralizing, and stigmatizing attitudes to addiction. According to these attitudes, addiction was simply

the result of a person's moral failing or weakness of character, rather than a "real" disease [3]. These attitudes created barriers for people with substance use problems to access evidence-based treatments, both those available at the time, such as opioid agonist maintenance, cognitive behavioral therapy-based relapse prevention, community reinforcement or contingency management, and those that could result from research. To promote patient access to treatments, scientists needed to argue that there is a biological basis beneath the challenging behaviors of individuals suffering from addiction. This argument was particularly targeted to the public, policymakers and health care professionals, many of whom held that since addiction was a misery people brought upon themselves, it fell beyond the scope of medicine, and was neither amenable to treatment, nor warranted the use of taxpayer money. Present-day criticism directed at the conceptualization of addiction as a brain disease is of a very different nature. It originates from within the scientific community itself, and asserts that this conceptualization is neither supported by data, nor helpful for people with substance use problems [4–8]. Addressing these critiques requires a very different perspective, and is the objective of our paper. We readily acknowledge that in some cases, recent critiques of the notion of addiction as a brain disease as postulated originally have merit, and that those critiques require the postulates to be re-assessed and refined. In other cases, we believe the arguments have less validity, but still provide an opportunity to update the position of addiction as a brain disease. Our overarching concern is that questionable arguments against the notion of addiction as a brain disease may harm patients, by impeding access to care, and slowing development of novel treatments.

A premise of our argument is that any useful conceptualization of addiction requires an understanding both of the brains involved, and of environmental factors that interact with those brains [9]. These environmental factors critically include availability of drugs, but also of healthy alternative rewards and opportunities. As we will show, stating that brain mechanisms are critical for understanding and treating addiction in no way negates the role of psychological, social and socioeconomic processes as both causes and consequences of substance use. To reflect this complex nature of addiction, we have assembled a team with expertise that spans from molecular neuroscience, through animal models of addiction, human brain imaging, clinical addiction medicine, to epidemiology. What brings us together is a passionate commitment to improving the lives of people with substance use problems through science and science-based treatments, with empirical evidence as the guiding principle.

To achieve this goal, we first discuss the nature of the disease concept itself, and why we believe it is important for the science and treatment of addiction. This is followed by a discussion of the main points raised when the notion of addiction as a brain disease has come under criticism. Key among those are claims that spontaneous remission rates are high; that a specific brain pathology is lacking; and that people suffering from addiction, rather than behaving "compulsively", in fact show a preserved ability to make informed and advantageous choices. In the process of discussing these issues, we also address the common criticism that viewing addiction as a brain disease is a fully deterministic theory of addiction. For our argument, we use the term "addiction" as originally used by Leshner [1]; in Box 1, we map out and discuss how this construct may relate to the current diagnostic categories, such as Substance Use Disorder (SUD) and its different levels of severity (Fig. 1).

What is a disease?

In his classic 1960 book "The Disease Concept of Alcoholism", Jellinek noted that in the alcohol field, the debate over the disease concept was plagued by too many definitions of "alcoholism" and too few

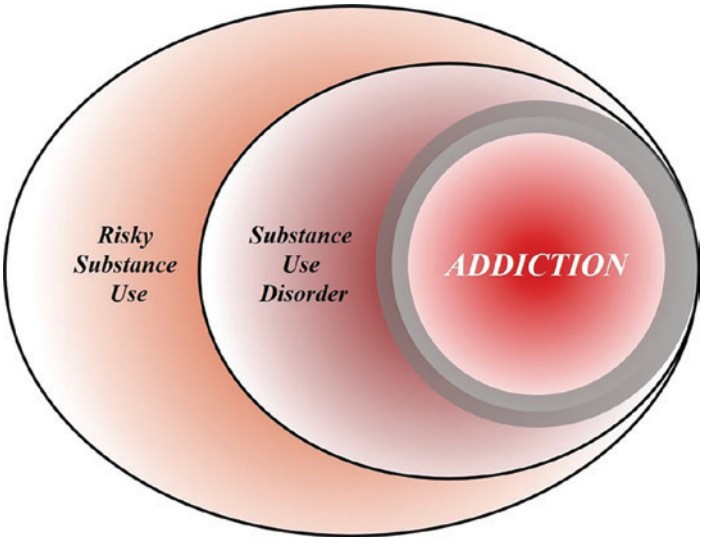

Fig. 1: A heuristic Venn diagram of the putative relationships among risky (hazardous) substance use, substance use disorder (SUD), and addiction. Risky (hazardous) substance use refers to quantity/frequency indicators of consumption; SUD refers to individuals who meet criteria for a DSM-5 diagnosis (mild, moderate, or severe); and addiction refers to individuals who exhibit persistent difficulties with self-regulation of drug consumption. Among high-risk individuals, a subgroup will meet criteria for SUD and, among those who have an SUD, a further subgroup would be considered to be addicted to the drug. However, the boundary for addiction is intentionally blurred to reflect that the dividing line for defining addiction within the category of SUD remains an open empirical question.

definitions of "disease" [10]. He suggested that the addiction field needed to follow the rest of medicine in moving away from viewing disease as an "entity", i.e., something that has "its own independent existence, apart from other things" [11]. To modern medicine, he pointed out, a disease is simply a label that is agreed upon to describe a cluster of substantial, deteriorating changes in the structure or function of the human body, and the accompanying deterioration in biopsychosocial functioning. Thus, he concluded that alcoholism can simply be defined as changes in structure or function of the body due to drinking that cause disability or death. A disease label is useful to identify groups of people with commonly co-occurring constellations of problems–syndromes–that significantly impair function, and that lead to clinically significant distress, harm, or both. This convention allows a systematic study of the condition, and of whether group members benefit from a specific intervention.

It is not trivial to delineate the exact category of harmful substance use for which a label such as addiction is warranted (See Box 1). Challenges to diagnostic categorization are not unique to addiction, however. Throughout clinical medicine, diagnostic cut-offs are set by consensus, commonly based on an evolving understanding of thresholds above which people tend to benefit from available interventions. Because assessing benefits in large patient groups over time is difficult, diagnostic thresholds are always subject to debate and adjustments. It can be debated whether diagnostic thresholds "merely" capture the extreme of a single underlying population, or actually identify a subpopulation that is at some level distinct. Resolving this issue remains challenging in addiction, but once again, this is not different from other areas of medicine [see e.g., [12] for type 2 diabetes]. Longitudinal studies that track patient trajectories over time may have a better ability to identify subpopulations than cross- sectional assessments [13].

By this pragmatic, clinical understanding of the disease concept, it is difficult to argue that "addiction" is unjustified as a disease label. Among people who use drugs or alcohol, some progress to using with a quantity and frequency that results in impaired function and often death, making substance use a major cause of global disease burden [14]. In these people, use occurs with a pattern that in milder forms may be challenging to capture by current diagnostic criteria (See Box 1), but is readily recognized by patients, their families and treatment providers when it reaches a severity that is clinically significant [see [15] for a classical discussion]. In some cases, such as opioid addiction, those who receive the diagnosis stand to obtain some of the greatest benefits from medical treatments in all of clinical medicine [16, 17]. Although effect sizes of available treatments are more modest in nicotine [18] and alcohol addiction [19], the evidence supporting their efficacy is also indisputable. A view of addiction as a disease is justified, because it is beneficial: a failure to diagnose addiction drastically increases the risk of a failure to treat it [20].

Of course, establishing a diagnosis is not a requirement for interventions to be meaningful. People with hazardous or harmful substance use who have not (yet) developed addiction should also be identified, and interventions should be initiated to address their substance-related risks. This is particularly relevant for alcohol, where even in the absence of addiction, use is frequently associated with risks or harm to self, e.g., through cardiovascular disease, liver disease or cancer, and to others, e.g., through accidents or violence [21]. Interventions to reduce hazardous or harmful substance use in people who have not developed addiction are in fact particularly appealing. In these individuals, limited interventions are able to achieve robust and meaningful benefits [22], presumably because patterns of misuse have not yet become entrenched.

Thus, as originally pointed out by McLellan and colleagues, most of the criticisms of addiction as a disease could equally be applied to other medical conditions [2]. This type of criticism could also be applied to other psychiatric disorders, and that has indeed been the case historically [23, 24]. Today, there is broad consensus that those criticisms were misguided. Few, if any healthcare professionals continue to maintain that schizophrenia, rather than being a disease, is a normal response to societal conditions. Why, then, do people continue to question if addiction is a disease, but not whether schizophrenia, major depressive disorder or post- traumatic stress disorder are diseases? This is particularly troubling given the decades of data showing high comorbidity of addiction with these conditions [25, 26]. We argue that it comes down to stigma. Dysregulated substance use continues to be perceived as a self-inflicted condition characterized by a lack of willpower, thus falling outside the scope of medicine and into that of morality [3].

Chronic and relapsing, developmentally-limited, or spontaneously remitting?

Much of the critique targeted at the conceptualization of addiction as a brain disease focuses on its original assertion that addiction is a chronic and relapsing condition. Epidemiological data are cited in support of the notion that large proportions of individuals achieve remission [27], frequently without any formal treatment [28, 29] and in some cases resuming low risk substance use [30]. For instance, based on data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) study [27], it has been pointed out that a significant proportion of people with an addictive disorder quit each year, and that most afflicted individuals ultimately remit. These spontaneous remission rates are argued to invalidate the concept of a chronic, relapsing disease [4].

Interpreting these and similar data is complicated by several methodological and conceptual issues. First, people may appear to remit spontaneously because they actually do, but also because of limited test–retest reliability of the diagnosis [31]. For instance, using a validated diagnostic

interview and trained interviewers, the Collaborative Studies on Genetics of Alcoholism examined the likelihood that an individual diagnosed with a lifetime history of substance dependence would retain this classification after 5 years. This is obviously a diagnosis that, once met, by definition cannot truly remit. Lifetime alcohol dependence was indeed stable in individuals recruited from addiction treatment units, ~90% for women, and 95% for men. In contrast, in a community- based sample similar to that used in the NESARC [27], stability was only ~30% and 65% for women and men, respectively. The most important characteristic that determined diagnostic stability was severity. Diagnosis was stable in severe, treatment-seeking cases, but not in general population cases of alcohol dependence.

These data suggest that commonly used diagnostic criteria alone are simply overinclusive for a reliable, clinically meaningful diagnosis of addiction. They do identify a core group of treatment seeking individuals with a reliable diagnosis, but, if applied to nonclinical populations, also flag as "cases" a considerable halo of individuals for whom the diagnostic categorization is unreliable. Any meaningful discussion of remission rates needs to take this into account, and specify which of these two populations that is being discussed. Unfortunately, the DSM-5 has not made this task easier. With only 2 out of 11 symptoms being sufficient for a diagnosis of SUD, it captures under a single diagnostic label individuals in a "mild" category, whose diagnosis is likely to have very low test–retest reliability, and who are unlikely to exhibit a chronic relapsing course, together with people at the severe end of the spectrum, whose diagnosis is reliable, many of whom do show a chronic relapsing course.

The NESARC data nevertheless show that close to 10% of people in the general population who are diagnosed with alcohol addiction (here equated with DSM-IV "dependence" used in the NESARC study) never remitted throughout their participation in the survey. The base life-time prevalence of alcohol dependence in NESARC was 12.5% [32]. Thus, the data cited against the concept of addiction as a chronic relapsing disease in fact indicate that over 1% of the US population develops an alcohol-related condition that is associated with high morbidity and mortality, and whose chronic and/or relapsing nature cannot be disputed, since it does not remit.

Secondly, the analysis of NESARC data [4, 27] omits opioid addiction, which, together with alcohol and tobacco, is the largest addiction-related public health problem in the US [33]. This is probably the addictive condition where an analysis of cumulative evidence most strikingly supports the notion of a chronic disorder with frequent relapses in a large proportion of people affected [34]. Of course, a large number of people with opioid addiction are unable to express the chronic, relapsing course of their disease, because over the long term, their mortality rate is about 15 times greater than that of the general population [35]. However, even among those who remain alive, the prevalence of stable abstinence from opioid use after 10–30 years of observation is <30%. Remission may not always require abstinence, for instance in the case of alcohol addiction, but is a reasonable proxy for remission with opioids, where return to controlled use is rare. Embedded in these data is a message of literally vital importance: when opioid addiction is diagnosed and treated as a chronic relapsing disease, outcomes are markedly improved, and retention in treatment is associated with a greater likelihood of abstinence. The fact that significant numbers of individuals exhibit a chronic relapsing course does not negate that even larger numbers of individuals with SUD according to current diagnostic criteria do not. For instance, in many countries, the highest prevalence of substance use problems is found among young adults, aged 18–25 [36], and a majority of these 'age out' of excessive substance use [37]. It is also well documented that many individuals with SUD achieve longstanding remission, in many cases without any formal treatment (see e.g., [27, 30, 38]).

Collectively, the data show that the course of SUD, as defined by current diagnostic criteria, is highly heterogeneous. Accordingly, we do not maintain that a chronic relapsing course is a defining feature of SUD. When present in a patient, however, such as course is of clinical significance, because it identifies a need for long-term disease management [2], rather than expectations of a recovery that may not be within the individual's reach [39]. From a conceptual standpoint, however, a chronic relapsing course is neither necessary nor implied in a view that addiction is a brain disease. This view also does not mean that it is irreversible and hopeless. Human neuroscience documents restoration of functioning after abstinence [40, 41] and reveals predictors of clinical success [42]. If anything, this evidence suggests a need to increase efforts devoted to neuroscientific research on addiction recovery [40, 43].

Lessons from genetics

For alcohol addiction, meta-analysis of twin and adoption studies has estimated heritability at ~50%, while estimates for opioid addiction are even higher [44, 45]. Genetic risk factors are to a large extent shared across substances [46]. It has been argued that a genetic contribution cannot support a disease view of a behavior, because most behavioral traits, including religious and political inclinations, have a genetic contribution [4]. This statement, while correct in pointing out broad heritability of behavioral traits, misses a fundamental point. Genetic architecture is much like organ structure. The fact that normal anatomy shapes healthy organ function does not negate that an altered structure can contribute to pathophysiology of disease. The structure of the genetic landscape is no different. Critics further state that a "genetic predisposition is not a recipe for compulsion", but no neuroscientist or geneticist would claim that genetic risk is "a recipe for compulsion". Genetic risk is probabilistic,

not deterministic. However, as we will see below, in the case of addiction, it contributes to large, consistent probability shifts towards maladaptive behavior.

In dismissing the relevance of genetic risk for addiction, Hall writes that "a large number of alleles are involved in the genetic susceptibility to addiction and individually these alleles might very weakly predict a risk of addiction". He goes on to conclude that "generally, genetic prediction of the risk of disease (even with whole-genome sequencing data) is unlikely to be informative for most people who have a so-called average risk of developing an addiction disorder" [7]. This reflects a fundamental misunderstanding of polygenic risk. It is true that a large number of risk alleles are involved, and that the explanatory power of currently available polygenic risk scores for addictive disorders lags behind those for e.g., schizophrenia or major depression [47, 48]. The only implication of this, however, is that low average effect sizes of risk alleles in addiction necessitate larger study samples to construct polygenic scores that account for a large proportion of the known heritability.

However, a heritability of addiction of ~50% indicates that DNA sequence variation accounts for 50% of the risk for this condition. Once whole genome sequencing is readily available, it is likely that it will be possible to identify most of that DNA variation. For clinical purposes, those polygenic scores will of course not replace an understanding of the intricate web of biological and social factors that promote or prevent expression of addiction in an individual case; rather, they will add to it [49]. Meanwhile, however, genome-wide association studies in addiction have already provided important information. For instance, they have established that the genetic underpinnings of alcohol addiction only partially overlap with those for alcohol consumption, underscoring the genetic distinction between pathological and nonpathological drinking behaviors [50].

It thus seems that, rather than negating a rationale for a disease view of addiction, the important implication of the polygenic nature of addiction risk is a very different one. Genome-wide association studies of complex traits have largely confirmed the century old "infinitisemal model" in which Fisher reconciled Mendelian and polygenic traits [51]. A key implication of this model is that genetic susceptibility for a complex, polygenic trait is continuously distributed in the population. This may seem antithetical to a view of addiction as a distinct disease category, but the contradiction is only apparent, and one that has long been familiar to quantitative genetics. Viewing addiction susceptibility as a polygenic quantitative trait, and addiction as a disease category is entirely in line with Falconer's theorem, according to which, in a given set of environmental conditions, a certain level of genetic susceptibility will determine a threshold above which disease will arise.

A brain disease? Then show me the brain lesion!

The notion of addiction as a brain disease is commonly criticized with the argument that a specific pathognomonic brain lesion has not been identified. Indeed, brain imaging findings in addiction (perhaps with the exception of extensive neurotoxic gray matter loss in advanced alcohol addiction) are nowhere near the level of specificity and sensitivity required of clinical diagnostic tests. However, this criticism neglects the fact that neuroimaging is not used to diagnose many neurologic and psychiatric disorders, including epilepsy, ALS, migraine, Huntington's disease, bipolar disorder, or schizophrenia. Even among conditions

where signs of disease can be detected using brain imaging, such as Alzheimer's and Parkinson's disease, a scan is best used in conjunction with clinical acumen when making the diagnosis. Thus, the requirement that addiction be detectable with a brain scan in order to be classified as a disease does not recognize the role of neuroimaging in the clinic.

For the foreseeable future, the main objective of imaging in addiction research is not to diagnose addiction, but rather to improve our understanding of mechanisms that underlie it. The hope is that mechanistic insights will help bring forward new treatments, by identifying candidate targets for them, by pointing to treatment-responsive biomarkers, or both [52]. Developing innovative treatments is essential to address unmet treatment needs, in particular in stimulant and cannabis addiction, where no approved medications are currently available. Although the task to develop novel treatments is challenging, promising candidates await evaluation [53]. A particular opportunity for imaging-based research is related to the complex and heterogeneous nature of addictive disorders. Imaging-based biomarkers hold the promise of allowing this complexity to be deconstructed into specific functional domains, as proposed by the RDoC initiative [54] and its application to addiction [55, 56]. This can ultimately guide the development of personalized medicine strategies to addiction treatment.

Countless imaging studies have reported differences in brain structure and function between people with addictive disorders and those without them. Meta-analyses of structural data show that alcohol addiction is associated with gray matter losses in the prefrontal cortex, dorsal striatum, insula, and posterior cingulate cortex [57], and similar results have been obtained in stimulant-addicted individuals [58]. Meta-analysis of functional imaging studies has demonstrated common alterations in dorsal striatal, and frontal circuits engaged in reward and salience processing, habit formation, and executive control, across different substances and task-paradigms [59]. Molecular imaging studies have shown that large and fast increases in dopamine are associated with the reinforcing effects of drugs of abuse, but that after chronic drug use and during withdrawal, brain dopamine function is markedly decreased and that these decreases are associated with dysfunction of prefrontal regions [60]. Collectively, these findings have given rise to a widely held view of addiction as a disorder of fronto-striatal circuitry that mediates top-down regulation of behavior [61].

Critics reply that none of the brain imaging findings are sufficiently specific to distinguish between addiction and its absence, and that they are typically obtained in cross-sectional studies that can at best establish correlative rather than causal links. In this, they are largely right, and an updated version of a conceptualization of addiction as a brain disease needs to acknowledge this. Many of the structural brain findings reported are not specific for addiction, but rather shared across psychiatric disorders [62]. Also, for now, the most sophisticated tools of human brain imaging remain crude in face of complex neural circuit function. Importantly however, a vast literature from animal studies also documents functional changes in fronto-striatal circuits, as well their limbic and midbrain inputs, associated with addictive behaviors [63–68]. These are circuits akin to those identified by neuroimaging studies in humans, implicated in positive and negative emotions, learning processes and executive functions, altered function of which is thought to underlie addiction. These animal studies, by virtue of their cellular and molecular level resolution, and their ability to establish causality under experimental control, are therefore an important complement to human neuroimaging work.

Nevertheless, factors that seem remote from the activity of brain circuits, such as policies, substance availability and cost, as well as socioeconomic factors, also are critically important determinants of substance use. In this complex landscape, is the brain really a defensible focal point for research and treatment? The answer is "yes". As powerfully articulated by Francis Crick [69], "You, your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules". Social and interpersonal factors are critically important in addiction, but they can only exert their influences by impacting neural processes. They must be encoded as sensory data, represented together with memories of the past and predictions about the future, and combined with representations of interoceptive and other influences to provide inputs to the valuation machinery of the brain. Collectively, these inputs drive action selection and execution of behavior—say, to drink or not to drink, and then, within an episode, to stop drinking or keep drinking. Stating that the pathophysiology of addiction is largely about the brain does not ignore the role of other influences. It is just the opposite: it is attempting to understand how those important influences contribute to drug seeking and taking in the context of the brain, and vice versa.

But if the criticism is one of emphasis rather than of principle– i.e., too much brain, too little social and environmental factors – then neuroscientists need to acknowledge that they are in part guilty as charged. Brain-centric accounts of addiction have for a long time failed to pay enough attention to the inputs that social factors provide to neural processing behind drug seeking and taking [9]. This landscape is, however, rapidly changing. For instance, using animal models, scientists are finding that lack of social play early in life increases the motivation to take addictive substances in adulthood [70]. Others find that the opportunity to interact with a fellow rat is protective against addiction-like behaviors [71]. In humans, a relationship has been found between perceived social support, socioeconomic status, and the avail- ability of dopamine D2 receptors [72, 73], a biological marker of addiction

vulnerability. Those findings in turn provided translation of data from nonhuman primates, which showed that D2 receptor availability can be altered by changes in social hierarchy, and that these changes are associated with the motivation to obtain cocaine [74].

Epidemiologically, it is well established that social determinants of health, including major racial and ethnic disparities, play a significant role in the risk for addiction [75, 76]. Contemporary neuroscience is illuminating how those factors penetrate the brain [77] and, in some cases, reveals pathways of resilience [78] and how evidence-based prevention can interrupt those adverse consequences [79, 80]. In other words, from our perspective, viewing addiction as a brain disease in no way negates the importance of social determinants of health or societal inequalities as critical influences. In fact, as shown by the studies correlating dopamine receptors with social experience, imaging is capable of capturing the impact of the social environment on brain function. This provides a platform for understanding how those influences become embedded in the biology of the brain, which provides a biological roadmap for prevention and intervention.

We therefore argue that a contemporary view of addiction as a brain disease does not deny the influence of social, environmental, developmental, or socioeconomic processes, but rather proposes that the brain is the underlying material substrate upon which those factors impinge and from which the responses originate. Because of this, neurobiology is a critical level of analysis for understanding addiction, although certainly not the only one. It is recognized throughout modern medicine that a host of biological and non-biological factors give rise to disease; understanding the biological pathophysiology is critical for understanding etiology and informing treatment.

Is a view of addiction as a brain disease deterministic?

A common criticism of the notion that addiction is a brain disease is that it is reductionist and in the end therefore deterministic [81, 82]. This is a fundamental misrepresentation. As indicated above, viewing addiction as a brain disease simply states that neurobiology is an undeniable component of addiction. A reason for deterministic interpretations may be that modern neuroscience emphasizes an understanding of proximal causality within research designs (e.g., whether an observed link between biological processes is mediated by a specific mechanism). That does not in any way reflect a superordinate assumption that neuroscience will achieve global causality. On the contrary, since we realize that addiction involves interactions between biology, environment and society, ultimate (complete) prediction of behavior based on an understanding of neural processes alone is neither expected, nor a goal.

A fairer representation of a contemporary neuroscience view is that it believes insights from neurobiology allow useful probabilistic models to be developed of the inherently stochastic processes involved in behavior [see [83] for an elegant recent example]. Changes in brain function and structure in addiction exert a powerful probabilistic influence over a person's behavior, but one that is highly multifactorial, variable, and thus stochastic. Philosophically, this is best understood as being aligned with indeterminism, a perspective that has a deep history in philosophy and psychology [84]. In modern neuroscience, it refers to the position that the dynamic complexity of the brain, given the probabilistic threshold-gated nature of its biology (e.g., action potential depolarization, ion channel gating), means that behavior cannot be definitively predicted in any individual instance [85, 86].

Driven by compulsion, or free to choose?

A major criticism of the brain disease view of addiction, and one that is related to the issue of determinism vs indeterminism, centers around the term "compulsivity" [6, 87–90] and the different meanings it is given. Prominent addiction theories state that addiction is characterized by a transition from controlled to "compulsive" drug seeking and taking [91–95], but allocate somewhat different meanings to "compulsivity". By some accounts, compulsive substance use is habitual and insensitive to its outcomes [92, 94, 96]. Others refer to compulsive use as a result of increasing incentive value of drug associated cues [97], while others view it as driven by a recruitment of systems that encode negative affective states [95, 98].

The prototype for compulsive behavior is provided by obsessive-compulsive disorder (OCD), where compulsion refers to repeatedly and stereotypically carrying out actions that in themselves may be meaningful, but lose their purpose and become harmful when performed in excess, such as persistent handwashing until skin injuries result. Crucially, this happens despite a conscious desire to do otherwise. Attempts to resist these compulsions result in increasing and ultimately intractable anxiety [99]. This is in important ways different from the meaning of compulsivity as commonly used in addiction theories. In the addiction field, compulsive drug use typically refers to inflexible, drug-centered behavior in which substance use is insensitive to adverse consequences [100]. Although this phenomenon is not necessarily present in every patient, it reflects important symptoms of clinical addiction, and is captured by several DSM-5 criteria for SUD [101]. Examples are needle-sharing despite knowledge of a risk to contract HIV or Hepatitis C, drinking despite a knowledge of having liver cirrhosis, but also the neglect of social and professional activities that previously were more important than substance use. While these behaviors do show similarities with the compulsions of OCD, there are also important differences. For example, "compulsive" substance use is not necessarily accompanied by a conscious desire to withhold the behavior, nor is addictive behavior consistently impervious to change.

Critics question the existence of

"SYNTHESIZED, THE NOTION OF ADDICTION AS A DISEASE OF CHOICE AND ADDICTION AS A BRAIN DISEASE CAN BE UNDERSTOOD AS TWO SIDES OF THE SAME COIN. ... TO ARTICULATE IT MORE SPECIFICALLY, EMBEDDED IN AND PRINCIPALLY EXECUTED BY THE CENTRAL NERVOUS SYSTEM, ADDICTION CAN BE UNDERSTOOD AS A DISORDER OF CHOICE PREFERENCES."

compulsivity in addiction altogether [5–7, 89], typically using a literal interpretation, i.e., that a person who uses alcohol or drugs simply cannot do otherwise. Were that the intended meaning in theories of addiction—which it is not—it would clearly be invalidated by observations of preserved sensitivity of behavior to contingencies in addiction. Indeed, substance use is influenced both by the availability of alternative reinforcers, and the state of the organism. The roots of this insight date back to 1940, when Spragg found that chimpanzees would normally choose a banana over morphine. However, when physically dependent and in a state of withdrawal, their choice preference would reverse [102]. The critical role of alternative reinforcers was elegantly brought into modern neuroscience by Ahmed et al., who showed that rats extensively trained to self-administer cocaine would readily forego the drug if offered a sweet solution as an alternative [103]. This was later also found to be the case for heroin [103], methamphetamine [104] and alcohol [105]. Early residential laboratory studies on alcohol use disorder indeed revealed orderly operant control over alcohol consumption [106]. Furthermore, efficacy of treatment approaches such as contingency management, which provides systematic incentives for abstinence [107], supports the notion that behavioral choices in patients with addictions remain sensitive to reward contingencies.

Evidence that a capacity for choosing advantageously is preserved in addiction provides a valid argument against a narrow concept of "compulsivity" as rigid, immutable behavior that applies to all patients. It does not, however, provide an argument against addiction as a brain disease. If not from the brain, from where do the healthy and unhealthy choices people make originate? The critical question is whether addictive behaviors—for the most part—result from healthy brains responding normally to externally determined contingencies; or rather from a pathology of brain circuits that, through probabilistic shifts, promotes the likelihood of maladaptive choices even when reward contingencies are within a normal range. To resolve this question, it is critical to understand that the ability to choose advantageously is not an all-or-nothing phenomenon, but rather is about probabilities and their shifts, multiple faculties within human cognition, and their interaction. Yes, it is clear that most people whom we would consider to suffer from addiction remain able to choose advantageously much, if not most, of the time. However, it is also clear that the probability of them choosing to their own disadvantage, even when more salutary options are available and sometimes at the expense of losing their life, is systematically and quantifiably increased. There is a freedom of choice, yet there is a shift of prevailing choices that nevertheless can kill.

Synthesized, the notion of addiction as a disease of choice and addiction as a brain disease can be understood as two sides of the same coin. Both of these perspectives are informative, and they are complementary. Viewed this way, addiction is a brain disease in which a person's choice faculties become profoundly compromised. To articulate it more specifically, embedded in and principally executed by the central nervous system, addiction can be understood as a disorder of choice preferences, preferences that overvalue immediate reinforcement (both positive and negative), preferences for drug-reinforcement in spite of costs, and preferences that are unstable ("I'll never drink like that again;" "this will be my last cigarette"), prone to reversals in the form of lapses and relapse. From a contemporary neuroscience perspective, pre-existing vulnerabilities and persistent drug use lead to a vicious circle of substantive disruptions in the brain that impair and undermine choice capacities for adaptive behavior, but do not annihilate them. Evidence of generally intact decision making does not fundamentally contradict addiction as a brain disease.

CONCLUSIONS

The present paper is a response to the increasing number of criticisms of the view that addiction is a chronic relapsing brain disease. In many cases, we show that those criticisms target tenets that are neither

needed nor held by a contemporary version of this view. Common themes are that viewing addiction as a brain disease is criticized for being both too narrow (addiction is only a brain disease; no other perspectives or factors are important) or too far reaching (it purports to discover the final causes of addiction). With regard to disease course, we propose that viewing addiction as a chronic relapsing disease is appropriate for some populations, and much less so for others, simply necessitating better ways of delineating the populations being discussed. We argue that when considering addiction as a disease, the lens of neurobiology is valuable to use. It is not the only lens, and it does not have supremacy over other scientific approaches. We agree that critiques of neuroscience are warranted [108] and that critical thinking is essential to avoid deterministic language and scientific overreach.

Beyond making the case for a view of addiction as a brain disease, perhaps the more important question is when a specific level of analysis is most useful. For understanding the biology of addiction and designing biological interventions, a neurobiological view is almost certainly the most appropriate level of analysis, in particular when informed by an understanding of the behavioral manifestations. In contrast, for understanding the psychology of addiction and designing psychological interventions, behavioral science is the natural realm, but one that can often benefit from an understanding of the underlying neurobiology. For designing policies, such as taxation and regulation of access, economics and public administration provide the most pertinent perspectives, but these also benefit from biological and behavioral science insights.

Finally, we argue that progress would come from integration of these scientific perspectives and traditions. E.O. Wilson has argued more broadly for greater consilience [109], unity of knowledge, in science. We believe that addiction is among the areas where consilience is most needed. A plurality of disciplines brings important and trenchant insights to bear on this condition; it is the exclusive remit of no single perspective or field. Addiction inherently and necessarily requires multidisciplinary examination. Moreover, those who suffer from addiction will benefit most from the application of the full armamentarium of scientific perspectives. ■

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Healthcare Briefs

DHS Launches 'Me Over Meth' Prevention Campaign

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Healthcare Briefs

DHS Launches 'Me Over Meth' Prevention Campaign

While the opioid epidemic earns a great deal of attention, methamphetamine is currently Arkansas's greatest drug threat. That's why the Arkansas Department of Human Services (DHS) is launching the "Me Over Meth" prevention campaign.

"Methamphetamines have a devastating impact on the body," said Arkansas State Drug Director Kirk Lane. "Repeated use of the drug can cause major physical changes that accumulate over time. We have to take action now and focus on prevention to stop this cycle."

Lane wants everyone to understand the scope of the issue and the negative impact methamphetamine use is having on Arkansans in all walks of life.

"Since 2014, the number of methamphetamine overdose deaths has quadrupled," noted Lane. "In 2020, 142 lives were taken by meth in Arkansas."

By itself, methamphetamine use is dangerous and deadly enough. But the common practice of using methamphetamine along with other illicit substances like fentanyl has made it even more damaging.

"Because of the rise of fentanyl, co-occurring opioid and methamphetamine use has doubled from 2011 to 2017," Lane noted.

The issue is not unique to Arkansas. According to information from the federal Substance Abuse and Mental Health Services Administration (SAMHSA), roughly two million people in the United States aged 12 years or older use meth in any given year. Every day, 500 people in the United States try meth for the first time.

In response, the Department of Human Services' Division of Aging, Adult, and Behavioral Health Services (DAABHS) and the Arkansas Drug Director have created the "Me Over Meth" campaign to raise awareness of the threat to Arkansas.

"Life in its natural state is full of gifts," said DAABHS Prevention Manager Tenesha Barnes. "The focus of the 'Me Over Meth' campaign is to encourage everyone to commit to choosing the things that matter most — like your family, your future, and your community — over meth."

As part of the "Me Over Meth" campaign, DHS will:

- Hold a "Me Over Meth" prevention-focused conference on May 9 at the Wyndham Riverfront Hotel in North Little Rock offering practical, useful information and best practices on educating Arkansans and preventing meth use in local communities.
- Provide a downloadable toolkit that includes graphics, flyers, and social media content promoting the "Me Over Meth" message.
- Launch a website dedicated to providing more information and resources about meth use, prevention, and recovery.

To download the toolkit or to learn more, visit www.meovermeth.org.

Arkansas Health Secretary Jose Romero, MD, Resigns

Arkansas Health Secretary Jose Romero, MD, has announced that he is resigning from the position. He has accepted a job with the Centers for Disease Control and Prevention as the director of the National Center for Immunization and Respiratory Diseases.

The resignation be in effect beginning May 6. A replacement has not been announced.

Romero will work alongside Nathaniel Smith, MD, MPH, who is the acting director for the Center for Global Health (CGH) where he leads CDC's efforts to protect and improve health globally through science, policy, partnership, and evidence-based public health action. Smith previously served as secretary of health and state epidemiologist for the state of Arkansas and voluntary professor of epidemiology at the University of Arkansas College of Public Health.

R. Jonathan Henderson, MD, Joins Arkansas Urology Practice

Arkansas Urology announced that R. Jonathan Henderson, MD, has joined its central Arkansas practice. The nationally recognized urologist started serving patients in North Little Rock, Conway, and Little Rock March 14, 2022.

Before joining the Arkansas Urology team, Henderson worked at Regional Urology in Shreveport, Louisiana, and also practiced in Birmingham, Alabama. He is certified by the American Board of Urology and focuses primarily on robotic surgeries and the treatment of prostate, bladder, and kidney cancers. Throughout his career, he has also specialized in laparoscopy and treating disorders of the female bladder.

"One of the main aspects that drew me to the urology field is the fact that we treat patients long term, both sexes, all ages, procedures in both medical treatment and surgical treatment," said Henderson. "The work urologists do every day affects men, women, children, adults, and the elderly. In this field, we treat our patients and their families not just for one procedure, but for a lifetime. I get to be a part of my patient's life and more often than not, their family's life. I look forward to joining the AU team and utilizing my skills to serve central Arkansas. This is a well-respected practice, and it is an honor to now be a part of one of the most talented groups of physicians in the country."

During his time in Alabama, he served as a representative of Alabama to the Southeastern Section of the American Urology Association and as an assistant clinical professor of Urology at the University of Alabama.

Other involvement includes memberships in the American Urologic Association, Shreveport Medical Society, Louisiana State Medical Society, the Society of Laparoscopic Surgeons, and the Alpha Omega Alpha Medical Honor Society. Henderson was chosen at LUGPA's 12th Annual Meeting in November of 2021. Prior to being elected LUGPA president, Henderson served as president-elect and secretary and has been a member of the LUGPA Board of Directors since 2011.

Henderson obtained a Bachelor of Science at Louisiana State University (LSU) in Baton Rouge in microbiology. After receiving a medical degree at LSU Medical Center in Shreveport, he completed an internship and residency in urology at LSUMC Hospital where he authored several papers and presentations.

Harding University Offering Master of Science in Cardiac Function and Interventional Technology Degree

Harding University has created the first Master of Science in Cardiac Function and Interventional Technology (CFIT) degree program in the nation. Beginning in the fall of 2022, accepted students will begin a 10-month cohort program


Michael Bogatch, MD


Dinesh Edem, MD

that provides specialized training in cardiac function, cardiac rhythm management, electrophysiology, cardiac interventional procedures, and career leadership. "We are leading the charge in the cardiac rhythm management and electrophysiology fields with the launch of our new CFIT program, designed to meet the need for highly-qualified and highly-skilled professionals in such a vital industry," said David Burks, PhD, president of Harding University.

The CFIT program combines training led by Harding's faculty and staff with learning opportunities developed through partnerships with business and industry leaders. Because of these partnerships, students will also gain hands-on clinical experience through utilization of an on-campus simulator, technology, anatomy, and cadaver labs, as well as off-campus supervised clinical activities.

Students interested in the new program must have a bachelor's degree, including at least two courses in anatomy and physiology, and have completed the GRE. For more information, visit Harding.edu/CFIT.

Michael Bogatch, MD, Joins Baptist Health Orthopedic Clinic-Little Rock

Baptist Health Orthopedic Clinic-Little Rock recently welcomed Michael Bogatch, MD, MSc.

"I approach treatment of every patient as if they were my own family member," said Bogatch. "My goal is to establish good patient rapport and apply myself to the fullest to obtain the best outcomes possible."

Bogatch received a medical education from the Tulane University School of Medicine in New Orleans, where he also completed residency training. He is board-certified in orthopedic surgery and fellowship-trained in orthopaedic sports medicine.

Dinesh Edem, MD, Joins UAMS as Endocrinologist, Director of Weight-Loss Clinic

Dinesh Edem, MD, has joined the University of Arkansas for Medical Sciences (UAMS) as an assistant professor in the Division of Endocrinology and Metabolism in the Department of Internal Medicine in the College of Medicine.

Edem is triple board-certified in obesity medicine, internal medicine, and endocrinology. He will be directing a weight management program at UAMS that is aimed at diabetic or prediabetes patients who are considered obese. He is seeing patients at the UAMS Neighborhood Clinic at 11300 Financial Centre Parkway in Little Rock.

He will also be seeing general endocrinology patients in the UAMS endocrine clinic with special interest in type 1 and type 2 diabetes, thyroid disorders, and male hypogonadism.

He comes to UAMS from Indiana University Health in Lafayette, Indiana, where he was a clinical assistant professor of medicine and endocrinology from July 2017 until December 2021. He was fellowship-trained in endocrinology at the University of Pittsburgh Medical Center in Pittsburgh after completing a residency in internal medicine at Johns Hopkins University/Sinai Hospital of Baltimore. Earlier, he received a medical degree from Topiwala National Medical College in Mumbai, Maharashtra, India, in 2009.

Arkansas Senators Cotton and Boozman Host Healthcare Roundtable

Arkansas senators Tom Cotton and John Boozman hosted a healthcare roundtable discussion in Arkansas to examine the impact and future implications of COVID-19 in the state. Moderated by Arkansas Health Care Association (AHCA) executive director, Rachel Bunch, the event included 15 other experts in varying aspects of Arkansas' healthcare system and was held at the AHCA office in downtown Little Rock.

Discussion covered workforce concerns, quality of life considerations, CDC and CMS guidance, and the future of the Arkansas healthcare industry post-COVID. Arkansas' long-term care facility staff is, for example, among the highest vaccinated in southern states with a vaccination rate of 85.8%t. Its residents have an even higher percentage of vaccinations, sitting at 88.4% as of early February.

"Arkansas's long term care facility workers are committed to providing quality care for its residents, which means we must critically evaluate quality of life for those who live in our facilities," said Bunch. "This discussion is vital in order to strategically move forward to meet the needs of Arkansans in the healthcare system."

Research about Mask Mandates in Arkansas Schools Published in CDC Report

The Centers for Disease Control and Prevention's latest Morbidity and Mortality Weekly Report (MMWR) contains research on mask mandates in Arkansas school districts and how the mandates helped to limit COVID-19 at the schools.

Researchers from the University of Arkansas for Medical Sciences' (UAMS) Fay W. Boozman College of Public Health and College of Medicine teamed up with the Arkansas Department of Health (ADH), Arkansas Center for Health Improvement (ACHI), and the Centers for Disease Control and Prevention (CDC) on the project.

"This important and well-conducted study involving Arkansas schools amply demonstrates the efficacy of facemasks during viral surges," said Mark Williams, PhD, dean of the UAMS College of Public Health.

Healthcare Briefs

The team of researchers focused primarily on COVID-19 cases among K–12 students and staff members in Arkansas public school districts with varying mask policies. The investigation began in August 2021 and concluded in mid-October.

ACHI President and CEO Joe Thompson, MD, MPH, explained how this project displays why joint efforts are important when researching a public health crisis.

"Throughout the pandemic, ACHI helped inform local decision makers, including the policymakers, school leaders and parents who enabled this study," he said. "Future emergency response planning must include data and communication strategies to support these local decision makers."

The goal of the MMWR is to promote important, fact-based, objective information related to public health issues. The research selected for publishing in the MMWR are typically reports submitted to the CDC from a state health department.

When the coalition first began to gather and research the data, the goal was to get correct information to Arkansans about mask mandates in schools. Additionally, many of Arkansas' youth were still not eligible to get a COVID-19 vaccine.

During the study, Arkansas' COVID-19 community transmission levels declined while vaccination coverage increased. Among the 233 school districts included in the study, 30%, 21%, and 48% had full, partial, or no mask policies, respectively. Among 26 districts that switched from a no mask policy to either a full or partial policy, COVID-19 cases were higher than community rates during the period with no mask policy. However, when districts implemented a mask policy, the COVID-19 rates among students and staff decreased.

UAMS to Host In-Person Summer Day Camp for Grades 9-11

High school freshmen, sophomores, and juniors will attend a free in-person summer day camp June 13-17 at the University of Arkansas for Medical Sciences (UAMS).

During the camp, students will work in small and large groups on various guided activities. Examples include:

- Demonstrations of anatomy of major organ systems in the body (such as cardiovascular, respiratory, renal, gastrointestinal, and nervous systems) using virtual anatomy dissector software and real human cadaveric specimens.
- Ultrasound imaging of live standardized patients (people specially trained to portray patients).
- Analysis of 3D reconstructions of Computerized Tomography data.
- Recording of EEG and EKG activity.
- Using medical simulation equipment.

Students will collect data on standardized patients related to heart rate, blood pressure, pulse oximeter measurements, and infrared imaging and learn how to assess reflexes and cranial nerve function. Each small group will be assigned a faculty and student mentor (a medical student at UAMS).

This project is funded by a Science Education Partnership Award (SEPA) from the National Institutes of General Medical Sciences (NIGMS), National Institutes of Health (NIH).

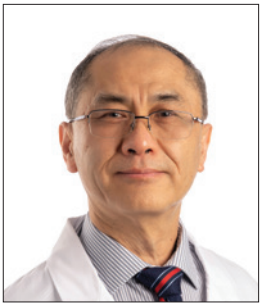
Kylie Rhodes, MD

Kylie Rhodes, MD, Joins Washington Regional Fayetteville Family Clinic

Kylie Rhodes, MD, is a board-certified family practice physician practicing at Washington Regional Fayetteville Family Clinic.

Rhodes sees patients from infancy through adulthood for chronic and acute illnesses. She also provides comprehensive women's care, including family planning with contraceptives.

Rhodes earned a medical degree and completed a residency at the University of Kansas Medical Center in Kansas City, Kansas. While at KU, she was elected as chief resident and was awarded the Jack Walker Award for exhibiting excellence in family medicine. As a chief resident, she helped to encourage an atmosphere that improved resident wellness and mental health.



Shi-Ming Tu, MD

MD Anderson Oncologist Shi-Ming Tu, MD, Joins UAMS Winthrop P. Rockefeller Cancer Institute

Shi-Ming Tu, MD, has joined the Winthrop P. Rockefeller Cancer Institute at the University of Arkansas for Medical Sciences (UAMS) as a medical oncologist specializing in the treatment and research of genitourinary cancer.

A fellowship-trained medical oncologist from MD Anderson Cancer Center with 30 years of clinical experience, Tu treats cancers of the urinary system of men and women and the reproductive organs in men. Prostate cancer is the most common genitourinary malignancy and the third highest cancer diagnosis in Arkansas with an estimated 2,680 cases per year.

"Dr. Tu will bolster a growing team of physicians and scientists in the battle against genitourinary malignancies," said Michael Birrer, Cancer Institute director and UAMS vice chancellor. "He joins a multidisciplinary team of clinicians committed to holistic and patient-centered cancer care, including uro-oncologic surgeons, radiation oncologists specializing in modern treatments of GU tumors and other clinical specialists."

Before joining UAMS, Tu served for 28 years on the medical oncology faculty at the University of Texas MD Anderson Cancer Center in Houston. There, he conducted clinical and translational research relating to genitourinary cancers, authored or co-authored more than 100

Brian Kirkpatrick, MD, MSPH

peer-reviewed research articles, presented at national and international conferences, and developed a highly regarded clinical practice. In addition to clinical work on the main campus, he also conducted specialty clinics at one of MD Anderson's satellite network sites in the greater Houston area.

After earning a medical degree from Washington University in St. Louis and completing a residency at the University of Illinois Hospitals, Tu completed a clinical fellowship in medical oncology at MD Anderson Cancer Center. He holds a bachelor's degree from Johns Hopkins University.

Brian Kirkpatrick, MD, Joins UAMS' Walker Family Clinic

Brian Kirkpatrick, MD, MSPH, has joined the Walker Family Clinic at the University of Arkansas for Medical Sciences (UAMS) as an outpatient psychiatrist.

The Walker Family Clinic provides outpatient mental health services to adults 18 years and older. The clinic offers psychiatric evaluation, medication management, neuropsychological testing, and psychotherapy for individuals and couples as well as group sessions. The clinic is located in the UAMS Psychiatric Research Institute on the Little Rock campus.

A graduate of the University of Texas Medical School at Houston, Kirkpatrick most recently served as a professor and chair of the Department of Psychiatry and Behavioral Sciences at the University of Nevada at Reno School of Medicine. He is a former chair of the Department of Psychiatry at Texas A&M College of Medicine and vice chair of the Medical College of Georgia Department of Psychiatry and Health Behavior. A professor in the UAMS College of Medicine's Department of Psychiatry, Kirkpatrick's research and clinical work focuses on schizophrenia and related disorders.

NYITCOM at A-State Enjoys 96% Match Rate

New York Institute of Technology College of Osteopathic Medicine at Arkansas State University (NYITCOM at A-State) announced that 96% of its Class of 2022 placed into residency programs.

"Match Day is one of the biggest days of the year for everyone involved in medical education, and we're very pleased with our results," said Shane Speights, DO, dean of NYITCOM at A-State. "The Class of 2022 experienced a number of unique challenges as their final two years of medical school took place during a pandemic. They persevered and worked incredibly hard to secure these residencies, and we just couldn't be prouder of them."

The Class of 2022 is NYITCOM at A-State's third to participate in Match Day, and the Jonesboro-based medical school continued a trend of placing a vast majority of its students in primary care positions. Approximately 70% of NYITCOM at A-State student doctors were placed into primary care programs, including 31% who matched into family medicine programs, 20% into internal medicine residencies, and 25% who will specialize in pediatrics, OB/GYN, or psychiatry.

Upon the completion of medical school, physicians must complete residency to obtain their license to practice medicine in the United States. Residencies typically last three to seven years, depending on the specialty. During their final year of medical school, student doctors apply and interview for residencies. Once they've completed their interviews, the student doctor ranks their preferred programs, and the programs rank their preferred candidates they've interviewed.

Malachi McCurdy, MD, Joins Washington Regional General Surgery Clinic

Malachi McCurdy, MD, recently joined the Washington Regional General Surgery Clinic where he provides laparoscopic, robotic, and open general surgical services alongside a team of physicians

McCurdy earned a medical degree from Indiana

Malachi McCurdy, MD

University School of Medicine and completed residency at Baylor University Medical Center. He is board-certified by the American Board of Surgery and most recently worked as a general surgeon at Baxter Regional Medical Center.

NYITCOM at A-State Accepting Applications for Project H.E.A.R.T. Summer Program

New York Institute of Technology College of Osteopathic Medicine at Arkansas State University (NYITCOM at A-State) will hold its annual summer program, Project H.E.A.R.T., which will be held June 13-16 on the A-State campus.

Project H.E.A.R.T. (Health Education, Advocacy, Reflection, and Training) serves to further NYITCOM at A-State's mission to develop students for service in Arkansas and the Delta region. There is no cost to the student to attend.

Project H.E.A.R.T. gives students a chance to learn about healthcare and higher education while participating in fun educational activities. Campers tour NYITCOM facilities and learn about a day in the life of a medical student. Their experience includes an opportunity to dissect a bovine heart in the anatomy lab.

Students receive tours of northeast Arkansas' two biggest hospitals — NEA Baptist Hospital and St. Bernards Medical Center — where they learn about the many different medical professionals who play a role in delivering healthcare. They also hear from Arkansas State University faculty who give them an overview of how to prepare for college and some of the career paths available to them.

NYITCOM medical students serve as counselors for Project H.E.A.R.T. ■

ORAL HEALTH:
A New Study by ACHI Shows Too Many in Arkansas Neglect It

ORAL HEALTH is an important part of overall health. The first-ever U.S. surgeon general's report on oral health, released in 2000, declared that "oral health means much more than healthy teeth" and "is essential to the general health and well-being of all Americans."[1] Preventive oral care, like other types of preventive care, can reduce the risk of serious health issues. Problems such as tooth decay, gum disease and oral cancer are not always visible or painful in the early stages, so regular visits to a dentist – once or twice a year is a common recommendation among U.S. dental care providers – are key for early detection.

Unfortunately, many Arkansans do not seek regular dental care, even if they have dental insurance. A new study by the Arkansas Center for Health Improvement (ACHI), of which I am president and CEO, finds that fewer than a third of Arkansas adults with dental insurance visited a dentist in 2019 – and even fewer visited a dentist in 2020 during the initial wave of the COVID-19 pandemic.

ACHI's study, "Utilization of Dental Care Among Arkansas Children and Adults," was funded by and developed in partnership with the Delta Dental of Arkansas Foundation and was not yet publicly available as of the press deadline for this column. ACHI's team reviewed claims data in the All-Payer Claims Database, a part of the Arkansas Healthcare Transparency Initiative, and found that about 54% of Arkansans had dental insurance in 2019. Among those with insurance, only about 30% of adults used any dental services in 2019, and only about 51% of children used any dental services that year.

Our study also found that use of dental services was lowest in rural areas in 2019, with about 37% of rural county residents visiting a dentist compared to 40% of urban county residents.

The onset of the COVID-19 pandemic in 2020 had unprecedented impacts on the state's healthcare system, including the delivery of dental care. In an effort to slow the spread of COVID-19, in March 2020 the Arkansas Department of Health called on dental offices to suspend non-urgent services. Dental offices were allowed to resume all services in May 2020, and dentists across the state adopted new operational protocols to protect patients and prevent the spread of COVID-19. Not surprisingly, our review

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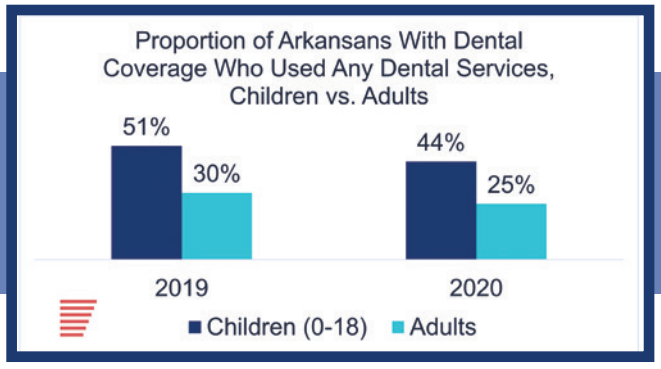
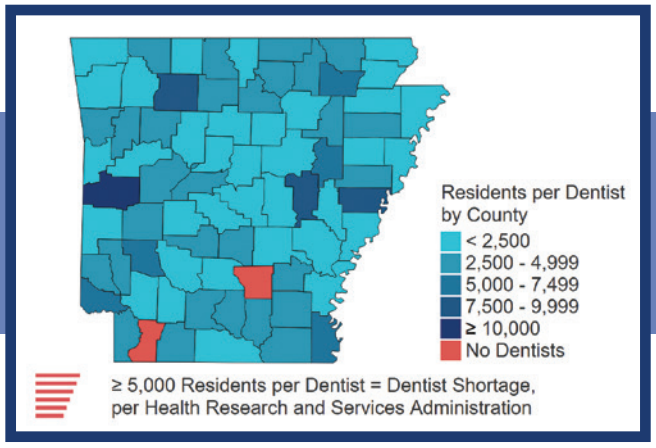
Arkansas Center for Health Improvement





of claims data for 2020 found that dental use by Arkansans with dental insurance decreased by 56% for the period of March through May. Monthly utilization returned to pre-pandemic levels by the end of 2020.

Dental offices in Arkansas were allowed to provide routine care for most of 2020, but even so, fewer Arkansans with dental insurance used dental services at all that year compared to 2019. The percentage of adults who visited a dentist dropped from 30% in 2019 to 25% in 2020, and the percentage of children with dental insurance who visited a dentist dropped from 51% in 2019 to 44% in 2020.

ACHI also looked at access issues that could be affecting Arkansans' oral health. Many Arkansas counties, particularly rural ones, appear to have too few active dentists providing services. The Health Research and Services Administration classifies a geographic area as having a shortage of dental care providers if it has a ratio of 5,000 or more residents per dentist. Our analysis of claims data found that there were 11 Arkansas counties with more than 5,000 residents per one active dentist in 2019: Chicot, Cleveland, Lafayette, Lawrence, Lee, Little River, Newton, Pike, Prairie, Scott, and Woodruff.

One of those counties, Scott, had more than 10,000 residents per dentist in 2019. Two, Cleveland and Lafayette, had no active dentist - which we defined as a dentist providing services to at least 20 residents in the study year.

We also found that too few dentists serve children with coverage under ARKids First, Arkansas' children's health insurance program. On average across Arkansas counties, 61% of dentists served any ARKids enrollees in 2019. The percentages varied widely from county to county: in 13 counties, 100% of dental care providers served ARKids enrollees in 2019, but in the most populous counties in northwestern and western Arkansas – Benton, Boone, Carroll, Crawford, Madison, Sebastian, and Washington – 45% or fewer dentists served any ARKids enrollees.

Regular dental visits can help patients avoid dental problems that require emergency treatment. ACHI found that among patients with private, Medicaid, or Medicare Advantage dental coverage who sought dental care in an emergency department in 2019, over 92% had not received any preventive dental care in the previous 12 months.

Historically, those with no insurance coverage are more likely to seek emergency dental treatment, which can result in non-optimal patient experiences and can add to hospitals' uncompensated care costs. Our study found that visits by uninsured Arkansans to emergency departments for dental care in 2019 resulted in nearly $6 million in charges.

What can Arkansas do to increase the use of preventive dental services? There is no simple answer, but the following policy approaches could contribute to a healthier future:

- Increase support for mobilized dental resources in underserved areas.
- Support the addition or expansion of dental services at existing healthcare provider locations, including clinics and schools.
- Expand training opportunities for dental care providers.
- Incentivize dentists to accept patients with ARKids First coverage.
- Encourage schools, parents, and healthcare providers to do more to educate Arkansans about the importance of preventive dental care and good dental hygiene.

Finally, for any parent reading this column who has a child enrolled in private coverage or ARKids First, I challenge you: make sure your kid sees a dentist this summer. ■

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COLUMN
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Hepatitis A & C
IN ARKANSAS

ARKANSAS continues to see an elevated number of hepatitis A and C cases. Therefore, with May being Hepatitis Awareness Month, the Arkansas Department of Health encourages healthcare workers to be aware of the risk factors for both of these hepatitis-associated viruses, to look for symptoms in patients, and test for them as necessary.

Hepatitis A and C are contagious liver diseases. However, the two illnesses differ in how long they last and how they are prevented. In general, hepatitis C infection can result in a chronic condition in two-thirds or more of the cases, while hepatitis A infection is an acute illness with mild symptoms that may last a few weeks or occasionally is a severe illness lasting several months.

Most people with hepatitis C infection have no symptoms. They do not become aware that they are infected until they are screened or become ill due to advanced liver disease, such as cirrhosis or liver cancer. In contrast, people infected with the hepatitis A virus may experience acute illness with symptoms that can include nausea, loss of appetite, abdominal pain, fatigue, jaundice (yellowing of the skin or eyes), and dark urine. Many people do not experience any symptoms at all from hepatitis A. Healthcare workers should know who is at high risk for hepatitis and test as needed.

Recommendations are for people at high risk to receive routine screening for hepatitis C. The Centers for Disease Control and Prevention recommends that all adults aged 18 and older be screened for hepatitis C at least once and that all pregnant women should be screened during each pregnancy. In Arkansas, Act 598 of 2021 requires that all pregnant women be offered hepatitis C screening. More frequent screening, or screening in other age groups, may be recommended depending on the patient's risk profile. To learn more, visit https://www.cdc.gov/hepatitis/hcv/guidelinesc.htm.

Hepatitis C is spread through contact with blood from an infected person or instruments contaminated with an infected person's blood, such as through unlicensed tattooing with needles reused on clients. Hepatitis C is mainly contracted through sharing needles used to inject drugs and rarely from sexual contact or from mother to child at birth. Many people also contracted hepatitis C from transfusions or organ transplants before 1992, so awareness of hepatitis C is essential even among people who do not have any ongoing risk of transmission.

A blood test called a hepatitis C virus (HCV) antibody test is used to determine if someone has ever been infected with the HCV. Those who test positive are given a follow-up HCV RNA test to determine if they are infectious

José R. Romero, MD
Secretary
Arkansas Department of Health

"THERE WERE 4,321 NEW HCV CASES IDENTIFIED IN ARKANSAS IN 2020."

and have chronic hepatitis C disease. There were 4,321 new HCV cases identified in Arkansas in 2020.

Chronic hepatitis C infection can be cured with medications that are effective in 95% of cases. Treatment in the form of oral medication is usually taken for eight to 12 weeks and may be covered by private insurance, federal insurance, Medicare, or Medicaid. In addition, those who have no insurance or have financial hardships can apply for assistance through pharmaceutical companies' medication assistance programs.

There were 470 cases of hepatitis A in Arkansas in 2021. Hepatitis A is usually spread when a person ingests fecal matter – even in microscopic amounts – from contact with objects, food, or drinks contaminated by an infected person's feces or stool. It can also be spread through unprotected sex or sharing needles used to inject drugs. Hand sanitizers do not work against hepatitis A, so people at risk are encouraged to wash their hands using soap and water often.

A person can transmit the hepatitis A virus to others up to two weeks before and one week after their symptoms appear. After exposure, illness may take from two to seven weeks to appear. Most people will develop symptoms three to four weeks after exposure if infected. Many people, especially children, may have no symptoms. The older a person is when they get hepatitis A, the more severe the symptoms they may have. Pregnant women are also at risk of developing severe infections if infected. Fortunately, almost everyone who gets hepatitis A recovers completely and do not have any lasting liver damage, although they may feel sick for months.

There are no specific treatments once a person gets hepatitis A. However, it can be prevented through vaccination. The hepatitis A vaccine is safe and effective. The CDC recommends vaccination for all children ages six months and older. It is a two-dose series with six months between doses. It is also recommended for all adults who have not yet been vaccinated and wish to protect themselves from hepatitis A. It is specifically recommended for people with chronic liver disease, such as hepatitis C, people with certain underlying health conditions, such as HIV infection, and people who plan to travel to countries where hepatitis A is common.

If an unvaccinated person receives a dose soon after exposure to the hepatitis A virus, the vaccine can help prevent the disease from developing at all. A medicine called immune globulin containing antibodies from other people resistant to the hepatitis A virus may also be recommended for certain people at increased risk for severe illness. Post-exposure vaccination and immune globulin work best if given within two weeks of exposure to the virus.

The ADH outbreak response team investigates each case of hepatitis A reported. The ADH continues to see cases that are part of an ongoing outbreak that began in 2018 among high-risk individuals, including people who use drugs, people experiencing homelessness, and men who have sex with men. Since February 2018, 1,324 cases have been reported to the ADH that predominantly involved whites (91%), males (63%), and recreational drug users (49%). The ADH has focused vaccination campaigns in counties and groups hit the hardest during the outbreak. Thus far, more than 35,000 people have been vaccinated at community vaccination events, jails, homeless shelters, substance misuse treatment centers, and other settings.

Visit www.healthy.arkansas.gov to learn more about hepatitis A and C. ■

COLUMN
MEDICAID

Keith Metz
Medicaid Communications Manager
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Community and Employment Supports
WAIVER WAITLIST

THE Division of Developmental Disabilities Services (DDS) within the Department of Human Services (DHS) provides a variety of community-based and residential services to eligible individuals who have developmental disabilities and delays. A large program administered by DDS is the Community and Employment Supports (CES) Waiver, which provides home and community-based services for over 5,000 children and adults with intellectual and developmental disabilities.

The CES Waiver uses Medicaid providers to support clients with intellectual or developmental disabilities (IDD) with all major life activities, such as living independently and working at a job with help from an employment coach. The program promotes inclusion for clients through community experiences and skill development services. The goal of the waiver is simple: it helps clients with IDD remain in the community rather than an institutional setting such as an intermediate care facility. DDS promotes client choice, and having the waiver allows clients the choice on where to live.

For years, there has been a significant waitlist for services through the waiver. Governor Asa Hutchinson has long been a consistent advocate for reducing the size of the waitlist, and he has taken steps to address the waitlist since taking office in 2015. Over the last seven years, the Governor has worked with DHS and the state Legislature to add funding to serve hundreds more Arkansans waiting to be approved for the state's CES Waiver. In fact, Governor Hutchinson has more than doubled the number of individuals who can now be supported through this waiver program.

In December 2021, Hutchinson announced that his administration intended to eliminate that waitlist as it stood on Dec. 1, 2021, with 3,200 individuals on the list.

During the most recent legislative fiscal session, the Arkansas Legislature approved the Governor's proposal to set aside $37.6 million to fund these new waiver slots in the future, and the funds are now earmarked for the waiver. The pieces are in place for the reduction of the waiver waitlist—an accomplishment that will make a huge impact on the lives of thousands of vulnerable Arkansans.

What will that impact look like? Regan Reaves is a 23-year-old who began receiving waiver services roughly five years ago when the Governor allocated tobacco settlement funds that allowed 500 additional waiver slots. Before the waiver, Regan's mother, Wendie, had to help Regan with most of her day-to-day needs, like basic self-care activities, preparing and eating meals, etc. Wendie worked as hard as she could to care for Regan, but she knew that Regan needed more help than she could provide. And filling this caretaker role for Regan meant that Wendie could not work full time, depriving her of her livelihood and purpose as a teacher. Stress levels for the family were high, and no one was able to live the kind of life they wanted or deserved.

Since getting waiver services, the Reaves' lives look much different. Because Regan could receive support and services from her waiver staff, Wendie was able to return to the workforce full time. This had significant benefits for them both.

"We sat down, and we came up with goals. And so, her waiver person works very diligently with her to meet those goals. Regan is becoming more independent every day," Wendie said. "It's been healthy for me to be able to take a step back for myself and then it's also been good for Regan because I'm not there doing for her. So, she's having to learn how to do on her own and that is great for all of us. It's a win-win."

Both Wendie and Regan are thriving because of waiver services. "Regan would rather be with her waiver worker than us because she has so much fun with her," Wendie noted. "They're like the odd couple when you get

Melissa Weatherton
Director
Division of Developmental Disabilities Services

Wendie and Wade Reaves, of Bryant, with their daughter Regan.

them together."

Regan may be the direct recipient of waiver services, but Wendie benefits as well. She gets peace of mind and a part of her life back that she thought was gone forever. "I feel like I have a new identity in a way because I used to just be Regan's mom," Wendie said. "It's been nice to have that other identity now. So, I'm not just Regan's mom. Now, I'm a teacher. I'm Mrs. Reaves. I can do my job and feel like I don't have to worry about Regan. I know she's being taken care of."

This is why it is so important for providers to build capacity. Making waiver services available for thousands of deserving families is one very important part of the process. Being able to deliver those services in a timely manner is also critical.

It's made all the difference for the Reaves family. And, Wendie knows the combination of waiver availability and provider accessibility will make the same difference for other families. "We've seen a lot of changes for the better. You have waited this long, and there is light at the end of the tunnel. Waiver services is a great thing. It has impacted us for the better. Know that your life is going to change." ■

Scan to watch a video profiling the Reaves family and how waiver services have affected them.

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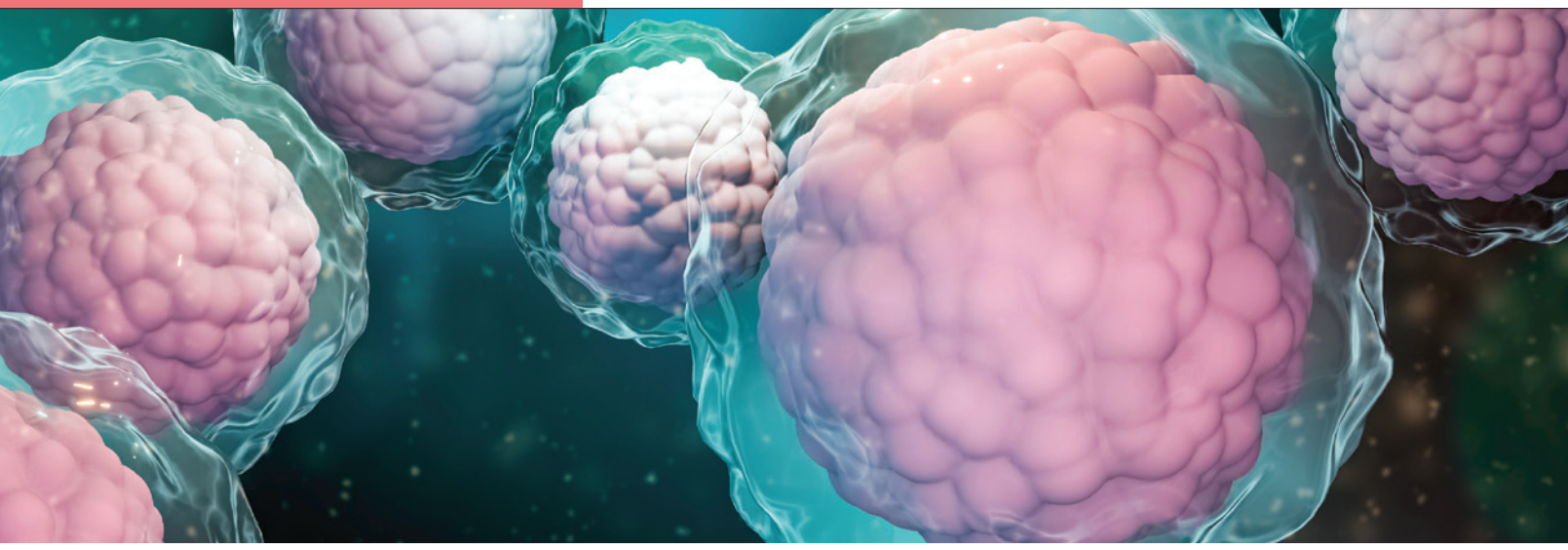

BONE MARROW
Transplantation and Cellular Therapy

Transplantation describes a procedure where an organ is transplanted from a donor to a recipient for the purpose of replacing a defective organ. However, bone marrow transplant (BMT) refers to a more complicated procedure that does not involve a solid organ like a liver, kidney, or heart but a liquid organ.

BONE MARROW is a liquid contained within the bones and responsible for the constant production of blood. There are primarily three types of blood cells; these include red cells (carrying oxygen), platelets (stop bleeding), and white cells (immune system). The immune system is not only responsible for protecting the human body against viruses and bacteria but also for functions like bone remodeling and liver protein storage. A successful BMT corrects inherited (inborn error) or acquired (such as cancer) diseases in any of the cells produced by the bone marrow.

What are the different types of BMT?

BMTs are mainly divided by the source of blood-producing cells. If bone marrow is the recipient's own, it is called autologous BMT. If the bone marrow is from a donor, it is called allogeneic BMT. BMT is also categorized by the source of cells; if cells are from umbilical cord blood or collected from a patient's peripheral blood, they are called umbilical cord blood transplant or peripheral blood stem cell transplant, respectively.

What are the uses of autologous BMT?

Autologous BMT is typically for patients who require very high doses of chemotherapy or radiation to treat their cancer. One of the most dangerous side effects of high-dose chemotherapy is wiping out of bone marrow cells, making a patient high risk of dying from bleeding and infectious complications. A successful BMT will allow the patient to have blood cell recovery within two to three weeks compared to eight weeks or more without it. Autologous BMT has only been used to treat chemotherapy-responsive cancer.

What is allogeneic BMT?

Allogeneic BMT is usually performed to replace the immune system to help correct the inherited defect in blood cells (sickle cell disease) or allow a new immune system to prevent blood cancer from coming back. When a person has blood cancer that is less likely to be cured by chemotherapy alone, BMT introduces a new immune system that prevents cancer from coming back. The most common reason for allogeneic BMT is blood cancer. Typically, blood cancers are protected against destruction by the immune system because of their likeness to normal blood cells. After BMT, the new immune system

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from closely matched or mismatched donors will overcome such a defense and keep blood cancer cells from coming back. Interestingly, when doctors used identical sibling donors for BMT, the cancer was more likely to come back than when using nonidentical donors.

Who can be an allogeneic BMT donor?

When doctors decide on a donor, they utilize tissue typing or human leucocyte antigen (HLA) typing. This is a group of proteins that are present on all body cells and play a crucial role in interactions with immune system cells. Matching at the tissue level helps prevent rejection from the recipient and prevents attacks by the new immune system on mismatched recipient cells, known as graft-versus-host disease (GVHD). An ideal donor is a nonidentical sibling followed by a very close match in the registry of unrelated donors. Doctors can also use a half-match family member like the parents or children of the patient who share half of the same genes.

How is the patient prepared to receive BMT?

A preparative regimen is usually comprised of multiple agents of chemotherapy and/or radiation. The primary goals of the preparative regimen are to eliminate the recipient's immune system and create space in the bone marrow. Preparative regimens are customized to the recipient's condition. For example, a child without an immune system will only need a preparative regimen to create some space in bone marrow, but a person with aggressive blood cancer will require a very intense chemotherapy regimen. When deciding on an ideal preparative regimen, doctors consider the risk of failure due to less preparation and risk of toxicity due to an intensive regimen.

How is BMT performed?

After a patient has received a preparative regimen, bone marrow cells are infused into their blood like a simple blood transfusion. Most people are surprised at how simple the procedure is.

What are the main complications of BMT?

Reconstruction of the immune system and blood puts a person at a very high risk of infections. At the time of BMT, the recipient's immune system is as good as that of an unborn child. This puts BMT recipients at a very high risk of infections from the environment and bacteria, fungus, and viruses that are present in their bodies. Patients are closely monitored for infections until one year after their BMT when infection risk decreases. When a new immune system from a donor attacks the recipient, it's called graft-versus-host disease (GVHD). Severe GVHD can be fatal and requires close monitoring and prompt treatment. Most patients will recover from immediate side effects of the preparative regimen within two months from BMT. There are long-term side effects from BMT that require life-long monitoring by specialists.

What is cellular therapy?

Cellular therapy is when a person's immune system cells are modified in the lab to make them target a specific protein present on cancer cells or virus-infected cells. chimeric antigen receptor T cell (CAR T cell) therapy against CD19-positive blood cancer can recognize, attack, and kill pre-B-cell leukemia that normally evades immune damage. This has been very successful in clinical trials and is now commercially available. There are many more types of CAR T cell therapies being tested in clinical trials worldwide to target different types of cancer cells. Similar techniques are used to target common viral infections in immune-compromised persons. This is the most modern way to harness the power of the human immune system to kill cancer and virus-infected cells. ■

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Men's Health:
INTEGRATION OF CARE

When it comes to treating a variety of men's health conditions, it's important that physicians of all backgrounds work together for the benefit of the patient. While a urologist's primary focus is on urology, it's crucial that specialists also pay attention to a patient's overall health from a general standpoint.

PROSTATE CANCER, along with a wide range of other diseases, can affect a man's well-being in myriad ways. For example, prostate cancer treatment can alter a patient's hormones, eating habits, weight, mental health, and more. Integration of care is important because it enhances communication and collaboration among professionals and doctors, which creates the best possible outcome and can greatly improve the overall health of the patient. Communication is truly key.

Prostate Cancer

Prostate cancer is one of the most common cancers among men in the United States, and there are often no symptoms in the early stages of the disease. However, when symptoms do develop, they often mimic those of less serious diseases. For example, symptoms can include frequent urination, sexual dysfunction, lower back pain and loss of appetite. It's important that men over the age of 50 receive a prostate cancer screening every year, and men should start receiving annual exams even earlier if they're at a higher risk of developing the disease. The problem is that most men are hesitant to regularly see a urologist, which is why physicians should work together to encourage patients to "check all of the boxes" and keep up with their necessary exams.

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Arkansas Urology

Motivating men to stay up to date on all of their screenings, whether you're a primary care physician or a specialist, can help men live longer and healthier lives in the long run.

Some men who undergo treatment for prostate cancer are at a higher risk of having a heart attack or stroke. Sometimes, prostate cancer has also spread to other parts of the body by the time it's diagnosed. This is exactly why a urologist should work with not only the patient's PCP, but with other specialists such as cardiologists. Men with certain underlying conditions may be at a higher risk of complications caused by prostate cancer and prostate cancer treatment, which is why all of the physicians a patient comes into contact with should collaborate and keep one another up to date to develop and change the overall treatment plan as needed.

Prostate cancer patients can also experience a variety of mental health conditions that require treatment. Some patients experience a decrease in quality of life and may develop depression, anxiety, or other mental health disorders whether they're actively receiving treatment for prostate cancer or not. In this scenario, working with mental health professionals is crucial for other doctors involved in the patient's life. The possible side effects of certain medications and the types of medical treatment that a patient is receiving or considering should be openly discussed.

Other Conditions

Sometimes, even mild symptoms can be red flags signaling underlying problems. When a urologist sees a patient who is experiencing erectile dysfunction (ED), their priority should be to get to the root of the problem – what's causing the symptoms of erectile dysfunction in the first place – instead of simply trying to treat the symptoms. Erectile dysfunction can be caused by vascular disease, low testosterone, diabetes, depression, anxiety, sleep disorders, certain medications, high blood pressure, and more. A patient may visit his urologist due to concerns over ED without realizing that he's diabetic, and that's what's causing the symptoms of ED in the first place. While a man may initially schedule an appointment with a urologist for treatment, it'll take more medical experts than just the urologist to holistically treat the patient.

Another example is testosterone (T) deficiency. Low T can cause hair loss, depression, fatigue, weight gain, sexual problems, and more. Some causes of testosterone deficiency include aging, obesity, certain genetic disorders, mumps, and cancer treatment. Primary care physicians, psychiatrists, and specialists can work together as a team to treat the patient's underlying condition when possible and help alleviate associated symptoms. Physical health and mental health go hand-in-hand, and this should never be overlooked.

Men's Health

Clinics that focus on men's health in particular should consider offering general screenings to help detect a variety of conditions that commonly affect men. Since it's no secret that many men avoid going to the doctor as much as possible, providing additional screenings when a man does finally schedule an appointment can be life-saving. A clinic screening men for not only prostate cancer but energy levels, sleep disorders, hormone levels, liver function, electrolytes, and more can help specialists detect underlying problems, even if those particular specialists can't treat some of the problems they detect alone. This is important because certain conditions, such as sleep apnea, are linked to an increased risk of heart disease, stroke, and other serious problems. Many men may not even have sleep apnea on their radar when they visit your clinic. Findings can be communicated to other physicians, and your team can work together as a whole to develop the best treatment plan for a patient's unique needs.

Integration of care applies to men's health in several ways, and it's easy to see why specialists of all backgrounds and practices should come together and have a hand in treating patients not only within their specialties, but in general. Openly collaborating and working with other doctors and medical professionals can improve patient outcomes, increase quality of life, and, most importantly, save lives. ■

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Effects of Substance Use ON ORAL HEALTH

THE OPIOID EPIDEMIC began in the late 1990s as healthcare providers prescribed pain medications to their patients, who later became addicted to these medications. This was further exacerbated by the fact that pharmaceutical companies encouraged and reassured healthcare providers their patients would not become addicted to these opioids. In turn, physicians prescribed these medications at increased rates.[1] It is not news how bad the opioid epidemic has become, and, unfortunately, the effects of substance abuse on oral health have not escaped this crisis.

Drug addiction is a public health concern, as it touches so many lives in terms of health, economics, lifestyle, psychological behavior, and physiological outcomes. Adverse oral health effects linked to illicit use and misuse of opioids have been well documented.[2] These oral health effects include caries, periodontal disease, bruxism, poor oral hygiene, and overall dental neglect. Substance misuse has both direct and indirect consequences for oral health, plus it adversely affects behavior and lifestyle. As shown in the table, the ADA has published a statement for treating patients with substance use disorder.[3] All oral healthcare providers should be acquainted with this policy.

These significant oral health ramifications affect not only a person's self-esteem and appearance, but also one's functionality and ability to converse, chew, smile, breathe, and digest food. These daily functions and quality-of-life factors are influenced by the patient's emotional well-being and personality issues that can result from being addicted.

Dental disease increases the incidence of heart disease, stroke, diabetes, and respiratory disease. Liver cirrhosis, nephropathy, hepatitis, tuberculosis, AIDS, and other sexually transmitted diseases are closely associated and prevalent in patients with drug addiction.[4] Consequently, some of the most prevalent health problems associated with drug addiction are oral health issues and dentition destruction.[5]

Intraorally, there are many signs of possible substance abuse. Rampant decay, xerostomia, worn teeth, ulcerations, leukoplakia, erythroplakia, and poor oral hygiene are all visible signs in the oral cavity of a drug addict. These physical signs linked with drug misuse are what set them apart from other conditions that patients could have without addiction. Many addicted patients do not seek dental care, unless they are in terrible pain or they are desperate for prescriptions to feed their habit. It is crucial that dentists screen patients for present and past history of drug addiction.[6]

According to the National Institute on Drug Abuse, the most misused drugs are cannabis products (marijuana), opioids, CNS stimulants (methamphetamines), and CNS depressants (barbiturates).[7] Alcohol is the most commonly misused legal drug.[8]

Xerostomia is associated with the use of cannabis products, especially smoking cannabis, which increases the risk of caries.[9] Since salivary flow is decreased, the rate of decay is potentially increased when prevention measures are not followed. An associated higher intake of cariogenic beverages, less dental visits, and less daily oral hygiene are additionally noted. This is not a one-size-fits-all analogy, as people may follow strict oral hygiene habits. However, oral cancer is an increased risk since cannabis smoking includes a variety of carcinogens.

Studies have shown that leukoplakia and erythroplakia have been present intraorally with smoking cannabis, as well as head and neck squamous cell carcinoma. When lesions of this type are not examined, monitored, or biopsied, these potential cancers grow, and the stages of malignancy can excel. Currently, there are 18 states in the nation that have legalized marijuana.[10] In the event other states legalize this substance, these types of illnesses will rise in numbers.

Patients with xerostomia often will rinse with mouthwash in an effort to add moisture and comfort. This is a harsh mistake if the mouthwash contains alcohol, which burns the mouth, irritates the oral cavity, and worsens the issue of xerostomia.

Methamphetamine is a highly addictive and potent CNS stimulant. Overt dental

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disease is common with methamphetamine drug use. The term "meth mouth" is used to describe the deterioration of the decayed and blackened presentation of the dentition. Meth mouth has been compared to bottle caries in infants. These patients crave sugary drinks and have a suppression of appetite along with any routine or daily dental care. Xerostomia causes reduction of saliva, which in turn promotes dental caries at a high rate. The short-term psychological effects of euphoria and long-term effects of depression and memory loss can result in total neglect of oral care. [11]

In chronic use of methamphetamine, bruxism and jaw clenching are well-documented. The large intake of acidic carbonated drinks and xerostomia mixture result in rampant decay and deterioration of teeth. As this grinding habit continues, teeth are broken due to the weak, carious condition of the teeth. Temporomandibular dysfunction (TMD) and joint pain is a common finding among those with this addiction.[12] The dentist must be acutely aware in treating these patients, as the duration of methamphetamine can last up to 24 hours, and local anesthetic with a vasoconstrictor is contraindicated.

Alcoholism and misuse of alcohol is often a concealed condition since it can be hidden cleverly. Many responsible and financially secure individuals have succumbed to this socially acceptable and legal form of drug use and are highly functioning alcoholics. [13] This intoxicating and potentially addictive substance is created from fermented sugars and can include added sugars. A faster formation of plaque is noted, which can lead to caries, given that alcohol is chemically acidic. With the possibility of acid reflux, this combination of sugars and gastric acids can wear away at the enamel. Cosmetically, stains originating from red wine and brown liquors can stain teeth and look unappealing. Chronic alcoholics are more prone to carcinoma of the tongue, have prolonged bleeding, and often have poor healing.[14]

In order to prescribe medication to effectively control pain in treating patients, healthcare providers must understand the pharmacology and the duration of these drugs patients have used.[15] Often times, the recovering addict is under contract with a pain specialist. It is essential for all healthcare providers to communicate collaboratively and plan treatment accordingly in the care of their patients.

In general, patients with a chemical dependency or with a past history of substance misuse are difficult to anesthetize adequately. It is absolutely contraindicated to anesthetize while a patient is intoxicated or under the influence of a substance. Alcohol affects the cardiovascular, respiratory, and metabolic systems and can lead to serious complications. It is unwise to mix this combination when treating patients.[16]

It is paramount that the healthcare provider not only take a thorough medical history, but also examine by looking, listening, and providing a platform for open communication. The interaction between the patient and provider is essential for extracting vital information to understand the context of the patient's problems with addiction. This leads to having full comprehension of the risk factors associated with the patient's substance use and ensures treating in the safest method with optimal outcomes. ■

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CANCER CLINICAL TRIAL RESEARCH: *The Only Pathway to Cancer Cure*

"The best way to predict the future is to create it."
— ABRAHAM LINCOLN

Significant strides in treating cancer have been achieved over the past five decades. Two major factors are behind this progress: better understanding of cancer brought about by the molecular and genomic revolutions that unraveled the mechanisms of many cancers and the translation of this understanding into the clinic through well conducted clinical trials.

AFTER the signature of the National Cancer Act in 1971 and the reorganization of the National Cancer Institute in its current form, funding for cancer research increased significantly. In 2020, of the $6.5 billion allocated to cancer research, almost $800 million was dedicated to clinical trials. Despite this major investment, the decrease of cancer mortality was not evenly distributed across the population. Childhood cancers benefited the most with decrease in mortality starting in the 1970's that led to cure rates of these cancers greater than 80%. Adult cancers followed two decades later with much slower pace in annual decrease of mortality.

What are the causes of this discrepancy between childhood and adult cancers, and how can we do better? It is believed that participation in clinical trials was the engine behind the amazing improvement of survival in childhood cancers. There is a strong correlation between high rates of enrollment in clinical trials and survival increases and mortality reductions in any cancer population. Childhood cancers are a small group (16,000) relative to the larger cancer population (1.8 million). However, enrollment in clinical trials has been consistently above 50% in childhood cancers and less than 5%

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CARTI

"Despite physicians acknowledging that clinical trials provide high-quality care (87%) and benefit enrolled patients (83%), 50% of the patients for whom a protocol was available and who were eligible did not participate due to physician preference."

in adult cancers. One of the differences is where the patients are treated. Most children with cancer are cared for at specialized children's cancer centers that are often affiliated with academic centers, while up to 85% of adult cancer patients are treated in a community setting. Adult cancer research is mainly conducted in academic settings, leaving a good percentage of the cancer population unrepresented.

Structural barriers, such as the availability of cancer clinics that offer clinical trial participation and transportation for rural and elderly patients, are responsible for 50% of nonparticipation. The availability of clinical trials for the patients' histology and stage and narrow eligibility criteria eliminate an additional 18% of patients from enrollment. Physician attitude is a major determinant of enrollment to cancer clinical trials. Despite physicians acknowledging that clinical trials provide high-quality care (87%) and benefit enrolled patients (83%), 50% of the patients for whom a protocol was available and who were eligible did not participate due to physician preference. Finally, traditionally, patient attitude is cited as the main reason for nonparticipation, but approximately 55% of white patients and 60% of Black patients agreed to participate in either a treatment trial or cancer control trial when offered, as reported by Unger and colleagues in a meta-analysis of patient agreement to participate in cancer clinical trials published in 2022. These numbers challenge the frequently cited reason for low accruals on cancer clinical trials among the cancer population in general and the Black population in particular (enrollment of Blacks remains at 2.7% of all clinical trial subjects, while they represent 12.4% of the American population). The main reasons cited by 70% of those who chose not to enroll were their desire to control their treatment choice, avoiding protocol treatment side effects, or their dislike of the idea of randomization. A small percentage of patients had concerns about coverage or transportation.

Interventions that address the main reasons for nonparticipation in clinical trials are likely to result in high return on investment. Expanding research to the community increases diversity and representation, allows generalizability of the results, and is likely to increase engagement of community oncologists and primary care physicians in research and hence in the dissemination of the results to the general population. Leveraging technology (standardizing treatment order sets; clinical trial matching based on molecular data in collaboration with public or private service providers) and taking advantage of telemedicine that flourished during the COVID-19 pandemic will solve many problems related to distance and transportation (provide clinical trial awareness and education; outreach to underserved patient populations; remote consenting and follow up and remote monitoring).

Tackling physician engagement is the second most important intervention. In 2022, every oncologist and staff member caring for cancer patients must be aware and committed to offering a clinical trial option to their patients. Clinical trials are not an afterthought or a luxury. They are another treatment option and, sometimes, the only life-saving option. Finally, educating cancer patients and dispelling their concerns about clinical trials is crucial.

The future is promising. But are we ready to create it? ■

Sam Makhoul, MD, is a hematologist/oncologist with more than 20 years of experience and currently serves as the medical director of clinical research at CARTI, Arkansas's largest community-based cancer care provider. Under his direction, the clinical research team seeks to build a network spanning the entire state and offers the newest life-saving treatment options available to all Arkansans. Before joining the CARTI team, he served at UAMS as the chief of hematology/oncology and the Laura Hutchins hematology/oncology chair. In addition, he helped develop the clinical research program at the Winthrop P. Rockefeller Cancer Institute and was the principal investigator of clinical trials.

NEW TECHNOLOGY MAKING A DIFFERENCE IN HEART CARE, ONE LIFE AT A TIME

Thurston Bauer, MD
CHI St. Vincent Heart Institute

HEALTHCARE is a journey that never truly reaches an end. From new skills and approaches to hyper-focused and specific disciplines, there are always improvements on the horizon to ensure that our mission to provide quality and compassionate care is fulfilled. Much like the effects on many other aspects of daily life, advancements in technology have proven to be increasingly influential in the continuous journey of healthcare. At the CHI St. Vincent Heart Institute, the latest treatments and technology for heart disease have given our team of cardiologists, surgeons, and heart specialists the opportunity to make very real impacts in our patients' lives.

One of those lives is Alabama native and former Marine, Luke Oliver. Suffering from a severe case of COVID-19, Luke was in dire need of extracorporeal membrane oxygenation, or ECMO treatment, but there were no beds or machines available in Alabama to help him. After hearing of Luke's case from a nurse who stumbled upon a Facebook post detailing his condition and a plea for help, we sprung into action and facilitated his transfer to CHI St. Vincent Infirmary in Little Rock just a few days later. Luke was in rough shape when he arrived in our care, and standard treatments proved to be inconsequential in our fight against his relentless case of COVID-19. I truly believe he would have been days away from death without ECMO, and at that point, we had no choice but to take him to the operating room and immediately begin treatment.

When it cmes to saving lives, ECMO has proven to be one of the most influential advancements to heart surgery in recent years. ECMO is a form of temporary cardiopulmonary support for patients recovering from heart failure, lung failure, and other critically ill conditions. The ECMO circuit removes blood from one of the large central veins, oxygenates that blood externally, and then returns that blood under pressure to either the venous or arterial circulation depending on the mode of support indicated.

In addition to recovery from heart failure, lung failure, and heart surgery, the ECMO machine is used for a variety of different conditions, including cardiogenic shock, severe air leak syndrome, acute respiratory distress syndrome, and for support during high-risk procedures in the cardiac catheterization lab. It can also be used as a bridge option to further treatment such as a heart assist device or for patients awaiting lung transplant. It's not an exaggeration to say that ECMO treatment has given us the opportunity to save lives that we couldn't have saved just 10 years ago.

Luke's ECMO journey was an emotional roller coaster, and his heart stopped on us several times, but he never gave up the fight. The typical stay for a patient on ECMO is anywhere from a few days to potentially a week. Luke, on the other hand, spent a total of 33 days on the ECMO machine to help him overcome the damage done by COVID-19. The coronavirus had destroyed parts of his lungs so much that air was leaking out. It was a grueling process that lasted nearly four months at CHI St. Vincent Infirmary, but Luke made a full recovery and returned home to Alabama with a new lease on life and renewed hope.

Luke was facing a life-or-death situation, and the power of advanced technology and comprehensive care made all the difference. Advancements in tools and techniques are evident across the world of heart care. The MitraClip has provided a new treatment for patients with mitral valve regurgitation, and those with severe heart valve disease now have a less invasive option with transcatheter aortic valve replacement. While these improvements have given doctors an opportunity to make very real impacts on our patients' lives, we must also recognize that the healthcare journey never ends. Techniques, procedures, and equipment will continue to evolve with new improvements and innovations always on the horizon, making a difference in lives like Luke's every day. ■

Thurston Bauer, MD, is a cardiovascular and thoracic surgeon with the CHI St. Vincent Heart Institute and surgical director of advanced heart failure and mechanical circulatory support at CHI St. Vincent Infirmary. In addition to his role in more than 1600 heart operations every year, Bauer helped build the CHI St. Vincent LVAD (left ventricular assist device) and ECMO (extracorporeal membrane oxygenation programs).

COLUMN
BARIATRIC

OBESITY *in America*

AMERICA'S obesity problem is at epidemic proportions. According to the Centers for Disease Control and Prevention (CDC), 73.6% of adult Americans are considered overweight with 42.5% being considered obese. It doesn't look like the problem will be reversing any time soon because almost 21.2% of adolescents aged 12-19 also struggle with obesity. The direct and indirect medical costs of health conditions related to obesity have been estimated to exceed $1.4 trillion per year. And the price tag for obesity in Arkansas alone exceeds $200 billion.

Latest estimates put Arkansas in third place when it comes to national obesity rates, lagging only to Mississippi and West Virginia. Of course, the downstream effects of obesity are staggering:

- We have among the highest acute myocardial infarction mortality rates in the country – 64% higher than the national averages.
- Approximately one out of every nine Arkansans has diabetes.
- We have the dubious honor of Jackson County – Newport being the county seat – having the highest rate of diabetes in the country with nearly one in three residents carrying the diagnosis.
- All of this results in the life expectancy of the average Arkansan to be reduced 2.6 years from the national average.

Thankfully, this has not escaped the notice of the legislators in Little Rock. For many years, state employees could access bariatric surgery—one option in the fight against obesity. Eligible members had access to a "pilot program" that allowed for bariatric surgery, but this program had requirements and hurdles that made real access an issue. As part of a restructuring to provide cost-effective and high-quality insurance options, Arkansas enlisted the assistance of consultants to evaluate the offerings and make recommendations. The consultants were specifically tasked with evaluating the results of the "pilot program" and make further recommendations concerning bariatric surgery in the

Samuel Bledsoe, MD, FACS, FASMBS
Bariatric and Metabolic Institute
Arkansas Heart Hospital

state. The final analysis was compelling.

In November of 2021, the "Segal Report" was finalized and documented the cost savings to the plan associated with bariatric surgery. To summarize the report, when an insured member had bariatric surgery, the State of Arkansas saved approximately $300 per member per month compared to their pre-surgery costs. This was due primarily to a 45% decrease in medical costs for that individual. ER visits and prescriptions were down 38% and 22%, respectively. The "Segal Report" ultimately recommended that Arkansas formally adopt bariatric coverage and lift restrictions to access, stating "there is a clear, clinical and financial benefit to reducing the burden of chronic disease."

"The public doesn't seem to recognize the genetic roots of obesity nor see the havoc that a person's environment can cause. When you see obesity as purely a self-control issue, there is a tendency to shame those who suffer and offer myriad impossible or unhelpful solutions. When you see obesity as a chronic disease, the response is support, and the solutions become more helpful."

Wisely, the legislators passed SB87, which incorporated all of the recommendations. This bill was signed by Governor Asa Hutchinson on March 2, 2022. While the bill has not yet taken effect, it is exciting to see that our state leaders are taking the health of its citizens seriously.

We're thrilled about the passage of this new legislation, yet there is still much work to be done in the state and across the country to help those who struggle with obesity. Perhaps the single biggest hurdle is educating the public about the disease of obesity. The public doesn't seem to recognize the genetic roots of obesity nor see the havoc that a person's environment can cause. When you see obesity as purely a self-control issue, there is a tendency to shame those who suffer and offer myriad impossible or unhelpful solutions. When you see obesity as a chronic disease, the response is support, and the solutions become more helpful.

Of course, there are additional things that our leaders in Little Rock and Washington can do to further the fight. The most glaring is to expand coverage and availability for behavioral, medical, pharmaceutical, and surgical options for those wrestling with obesity. Currently, there is a bipartisan bill in Congress that will help expand some of those options. The Treat and Reduce Obesity Act (S.596) will expand Medicare benefits to allow for intensive behavioral counseling through the community setting and through additional healthcare providers. In addition, it would allow for expanded coverage for FDA-approved prescription medications for weight loss. Since private insurance companies model their coverage after Medicare, these changes would likely trickle down and potentially lead to increased coverage for all Americans. Of note, Senator John Boozman of Arkansas is a co-sponsor of this legislation.

Obesity is a chronic disease that can contribute to the development of many additional medical problems including heart disease, diabetes, hypertension, and sleep apnea. We all have friends and loved ones who are fighting the scale. While it is sobering to see the health statistics in our nation and state, the future looks better when we all work together to assist those who struggle with their weight. ■

Having grown up in Rogers, Arkansas, and having received a medical degree from UAMS, Samuel Bledsoe, MD, returned to his roots to lead the Bariatric and Metabolic Institute at Arkansas Heart Hospital. He now also serves as medical director of Arkansas Heart Hospital Encore Medical Center.

Bledsoe completed residency at the Baptist Health System in Birmingham, Alabama, and completed additional training in Bariatric Surgery at the University of Alabama in Birmingham. In addition to other leadership positions, he previously served as the medical director for Bariatric Surgery at Christus Cabrini Medical Center in Alexandria, Louisiana.

Bledsoe is a Fellow of the American Society for Metabolic and Bariatric Surgery and of the American College of Surgeons.

TREATING,
Not Just Prescribing

It is our honor to be able to share with the Arkansas medical community our comments and experiences treating patients with chronic pain, the pain generators that can trigger it, and how the modern pain medicine field approaches these issues.

Julio Olaya, MD
Arkansas Pain Centers, Ltd.

IT IS OUR BELIEF that "pain management" is an outdated term as it implies that pain is untreatable. These days, we believe "pain medicine" is a more appropriate description for our practice; it is impressive and very rewarding to see how, during the last two decades, we have witnessed an evolution in how to approach and treat chronic pain conditions – that we are not limited to just trying to modulate and palliate, but rather, we have access to new, minimally invasive techniques that have been changing people's lives and have spared them long surgical procedures that require screws, rods, and bolts, with a very high possibility of ending up with something such as "failed back surgery syndrome" with as high as a 45-50% risk of development.

It is important to stress the real benefits of the new minimally invasive technologies that offer a more permanent solution to radicular pain, neuropathic pain, nerve impingement, etc. The benefits are overwhelming; patients get immediate relief of their leg pain, the need for higher dosages of opioids diminishes dramatically, the need for frequent visits to the pain clinic goes down, the need for ongoing physical therapy goes down, the expense of radiological studies goes down. In many instances, the need for a "classic fusion," which most patients fear (Nobody wants sharp instruments close to their spinal cord!) goes down. To make matters more concerning, these surgeries are long – on average, they can last from two to four hours depending on the levels fused – putting the patients at risk for more health complications, especially in a population of patients that can have multiple co-morbidities, e.g., morbid obesity, sedentarism, diabetes, heart disease, and heavy smoking (as we all know, the more common causes of chronic pain are morbid obesity and lack of conditioning). This further increases the possibility of bad outcomes or, as I mentioned earlier, ending up with "post laminectomy syndrome" or "failed back surgery syndrome."

To give us an idea of the new minimally invasive techniques, dynamic interspinous spacers are an ingenious solution to spinal stenosis with neurogenic claudication. This condition makes the patient lean forward to open up the foramens where the radicular nerves leave the spinal cord to relieve the pressure and the pain. A classic description of this manifestation is the famous "shopping cart syndrome" or such a scene as an elderly patient leaning forward and using a cane or a walker to preserve balance, prevent falls, and ease the pain. I tell my patients: "You have a mechanical problem, we have a mechanical fix." Another recently developed treatment is an interlaminar spinal fixation system. This wonderful technique was developed in Macon, Georgia, and is called "StabiLink."

These two procedures can be performed in 25 to 40 minutes with minimal downtime. Sometimes when describing the procedure, my patients look at me with disbelief, so I tell them the story of how the minimally invasive therapy for coronary stenosis evolved where the cardiologist or interventional radiologist accesses only the femoral artery or the radial artery, places the device, and the patient goes home practically the same day. Four decades ago, these kinds of procedures were unheard of, and the same patients needed to have open-heart surgery with venous bypasses and grafts. It took several decades for these procedures to find their place and to establish their relevance in modern medicine. Such developments are now happening for lower back pain and spinal stenosis conditions.

I insist on labeling our subspecialty "pain medicine" because it takes more than just opioid prescriptions, steroid injections, blocks, and ablations to provide an appropriate medical treatment that would adhere to the standard of care that our patients expect from us. It is important to recognize the actual health status of our patients and the co-morbidities that are frequently part of their medical history and to be mindful of the pharmacological therapies prescribed by the rest of the medical doctors who take care of them in order to prevent deleterious drug interactions that could worsen their already friable health status or basically slow down the response to our prescription and treatment plan.

Thanks to new minimally invasive procedures, we can diminish the degree of pain to the point that our patients will need less dosages of opioids and, in some cases, will be able to live their lives without the need for potent opioids to treat moderate to severe pain. ■

Julio Olaya, MD, is a board-certified anesthesiologist specializing in pain medicine at Arkansas Pain Centers. He was an assistant professor of anesthesiology and critical care at SLU School of Medicine, pediatric anesthesiologist, director, and founder of the Pediatric Pain Service at Cardinal Glennon Children's Medical Center in St. Louis, Missouri, from 2013 to 2015. He was an assistant professor of anesthesiology and pain medicine at the UAMS College of Medicine from 2004 to 2012.

Olaya did a pediatric anesthesia fellowship at Arkansas Children's Hospital and a fellowship in pediatric pain management at Cincinnati Children's. He has been practicing adult pain medicine and spine intervention procedures since 2015.

Originally from Mexico, he completed a medical degree from La Salle University in 1986 and was the sports medicine doctor for the Mexican Tennis Federation from 1990 to 1993. He completed an anesthesiology residency at UAMS in 2003 before joining the UAMS/ACH faculty in 2004.

As Arkansas' only center for pediatric cancer treatment, Arkansas Children's is at the forefront of many of the most promising therapeutic innovations for childhood cancers and blood disorders – from diagnosis to survivorship, we're committed to the children of Arkansas.

Committed to providing access to leading-edge treatments, including cellular therapies

2021

Arkansas Children's Hospital (ACH) began offering **allogeneic bone marrow transplants** – the only facility in the state offering this lifesaving treatment for children

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ACH Cancer and Blood Disorders autologous stem cell transplant program is accredited by the internationally-recognized Foundation for the Accreditation of Cellular Therapy (FACT).

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Hospital Rounds

Therapy Dog Program Expands at Mercy Fort Smith

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Hospital Rounds

Therapy Dog Program Expands at Mercy Fort Smith

New co-workers are always welcome at Mercy — especially the four-legged kind.

When Baxter, the therapy dog, first began visiting patients and co-workers at Mercy Hospital Fort Smith last summer, the positive response was immediate. Now, a trio of new canines has joined Mercy's therapy dog program, with River, Honeybun, and Lola Belle now part of the volunteer staff.

"We are thrilled to have additional therapy dog teams visiting us every week," said Jenni Powell, manager of volunteer services at Mercy Fort Smith. "We began the therapy dog program last year and saw significant benefits. The dogs really brighten everyone's day and help bring a sense of calm to those who need it most."

Faith Walker is a full-time student at the University of Arkansas at Fort Smith and a full-time nanny. When she first heard about Mercy's therapy dog program, she knew it would be a great opportunity for herself and her dog, Honeybun. The 8-year-old long-haired Chihuahua has been Walker's emotional support animal for several years and is a familiar face at the university.

"She loves seeing everyone and making everyone happy," Walker said. "She brings a lot of joy to me while also spreading a little love around the community. That's something I'm really passionate about."

Walker hopes to open her own mental health practice someday. Until then, she enjoys bringing Honeybun to brighten the day of Mercy co-workers and patients. They generally visit hospice and the pharmacy team and stop by labor and delivery and the emergency room. The two try to visit the hospital at least once a week and often arrive during shift changes. If a co-worker has had a tough day, a visit from Honeybun can be therapeutic, Walker said. And for co-workers just beginning their shifts, seeing a therapy dog can bring a little comfort before the work ahead.

"Honeybun knows when we're going to 'work,' and she gets really excited," Walker said.

Visits from therapy dogs can help reduce patients' anxiety. Other goals for the program include improving patients' quality of stay, mood, and emotional well-being while providing comfort and joy; increasing interactions and dialogue; increasing overall patient satisfaction; and providing stress relief for hospital staff, visitors, and families.

Volunteer Kaley Moore, an assistant coach for the Southside High School girls' basketball team, brings therapy dog, River, to the hospital regularly. River is a 2-year-old Great Pyrenees-Australian shepherd mix.

"He loves it; he's awesome at it," Moore said of River. "I definitely think dogs make everything better."

Moore also teaches biology and a credit-recovery class and oversees virtual learning at Southside. A student once told her he would want to come to school every day and do his work if there was a dog in the classroom. Her interest in therapy dogs further took root after she learned more about Mercy's program. She signed up soon afterward, and River began his therapy dog training. The pair has been visiting the hospital on Sundays; Moore is hoping to expand the visits to a couple of days each week.

River has been most helpful when he and Moore are with patients and families when they receive difficult news.

"People will cry and just hug him," Moore said. "It's awesome to see the energy they get back. It's really cool to see how instantly a dog can change things, whether it's the mood or the energy in the room."

Walker agreed, saying, "I get a lot of people who have heard really hard news. I will walk through the ER, and you can tell everyone has a sigh of relief just for a second, being able to bring just a little bit of the outside world in."

Baxter's handler, volunteer Robert Mercer, said calm, controllable dogs are a good fit to serve as therapy dogs. Dogs should be receptive to strangers, not prone to nipping or barking, and nonreactive to other dogs.

Mercer assists in getting the dog trained and certified as a therapy dog, while Powell works with the dog's caretaker on the volunteer side. The Alliance of National Therapy Dogs vouches for the dog following the certification process. Because both dog and handler are one team, both are signed up as volunteers. The therapy dog certification process takes several months.

Anyone interested in Mercy's dog therapy program can email Jenni Powell at jeanette.powell@mercy.net.

Brittani Arnold, APRN

Brittani Arnold, APRN, Joins Washington Regional NICU

Brittani Arnold, APRN, recently joined the Washington Regional Neonatal Intensive Care Unit (NICU), where she provides care for premature and sick newborn infants. Arnold earned a Doctor of Nursing Practice and Master of Science in Nursing from the University of South Alabama.

She has more than three years of experience as a neonatal nurse practitioner and served 13 years as a NICU nurse. Arnold most recently worked at Arkansas Children's Hospital in Little Rock.

CHI St. Vincent Hot Springs Awarded Primary Heart Attack Center Certification from The Joint Commission

CHI St. Vincent Hot Springs has earned The Joint Commission's Gold Seal of Approval and the American Heart Association's Heart-Check mark for Primary Heart Attack Center certification. The certification, which was awarded during Heart Month, recognizes the hospital's demonstrated commitment to a high standard of service and framework to consistently improve patient outcomes for heart attack patients. CHI St. Vincent is one of only two hospitals in Arkansas and 30 nationally to receive this recognition.

"This certification recognizes the work of our entire team to drive better outcomes for heart attack patients and our commitment to ensuring they receive the highest standard of care possible when they come through our doors," said CHI St. Vincent Hot Springs President Douglas Ross, MD. "Because someone can be at risk for heart disease without experiencing any clear symptoms, many

begin their treatment in the emergency room. As we work hard to care for them, we're also working with our communities to learn to detect early signs of heart disease so we can begin treatment even sooner."

CHI St. Vincent Hot Springs underwent a rigorous, unannounced, on-site review as part of the certification process. During the visit, a team of Joint Commission reviewers evaluated compliance with related certification standards. Joint Commission standards are developed in consultation with healthcare experts and providers, measurement experts, and patients. The reviewers also conducted on-site observations and interviews.

"Primary Heart Attack Center Certification recognizes healthcare organizations committed to fostering continuous quality improvement in patient safety and quality of care," says Mark Pelletier, RN, MS, chief operating officer, Accreditation and Certification Operations, and chief nursing executive, The Joint Commission. "We commend CHI St. Vincent Hot Springs for using certification to reduce variation in its clinical processes and to strengthen its program structure and management framework for cardiac patients."

CHI St. Vincent recently completed a $2-million expansion of the hospital's cath lab. The renovation project includes state-of-the-art equipment, hybrid interventional catheterization lab resources, 50% increased capacity to serve patients, and upgraded hemodynamic systems.

Mercy Breaks Ground on Expansion of ICU, ER in Fort Smith

Mercy Hospital and community leaders broke ground on a $162.5 million ER and ICU expansion at Mercy Hospital Fort Smith.

Plans for the expansion were announced in June 2021. During a gathering outside the hospital, Ryan Gehrig, Mercy Hospital Fort Smith president, said Mercy co-workers, patients, and families in the region have been eagerly anticipating the hospital's growth.

"We are blessed to have such supportive community members and co-workers helping us look forward to improved healthcare in the River Valley," Gehrig said. "Today marks a huge milestone and a huge step forward." Gehrig also acknowledged the hard work and sacrifices made by Mercy co-workers, especially the past two years during the pandemic.

Mercy Fort Smith will expand its emergency department from 29 to 50 rooms and increase capacity in the intensive care unit from 38 to 64 in a design that provides better workflow and flexibility. The new ER will allow for about 25,000 more patient visits per year and include special considerations for infectious disease and behavioral health patients. An additional 140 parking spaces will accommodate the expansion, with parking closer to the new ER entrance.

In addition, the increase in ICU beds will more than double the number of rooms capable of supporting ventilators. The building's automation system is being designed to allow floors or pods to be turned into isolation areas as needed.

The ER expansion includes a five-room secured area for behavioral health patients that is designed for patient and co-worker safety. Additional plans include a 22-bed observation unit requiring no renovation in the former ICU space, helipad relocation that will improve the patient transport process, and new gift shop and meeting room space.

Father Paul Fetsko, vice president of mission at Mercy Fort Smith, offered a blessing for the new space against a backdrop of Mercy co-workers from the ER and ICU. Cherokee Nation Deputy Chief Bryan Warner also was on hand to discuss the tribe's focus on healthcare and the importance of working with Mercy to improve wellness throughout the region.

Construction on the expansion is being managed by McCarthy of St. Louis. Construction is expected to be complete in late 2024. Plans are being developed to minimize the impact to Mercy patients during the construction process.

CHI St. Vincent Hot Springs Awarded Advanced Primary Stroke Center Certification from The Joint Commission

CHI St. Vincent Hot Springs has earned The Joint Commission's Gold Seal of Approval and now holds Advanced Primary Stroke Center certification. The recognition makes CHI St. Vincent Hot Springs the only hospital in Arkansas to hold Advanced Primary Stroke Center, Primary Heart Attack Center, and Total Hip and Knee Replacement certifications from The Joint Commission.

Jarrett Powell, APRN

"We see a high prevalence of stroke affecting patients across Southwest Arkansas so it's especially important that they know that they have convenient access to the highest quality of care right here in Hot Springs," said CHI St. Vincent Hot Springs President Douglas Ross, MD. "I couldn't be more proud of our team and their commitment to patient care. To be recognized for our high standards of care and patient outcomes across stroke, heart attack, and total hip and knee replacement cases is a true honor for our entire community."

CHI St. Vincent Hot Springs underwent a rigorous, unannounced, on-site review as part of the certification process. During the visit, a team of Joint Commission reviewers evaluated compliance with related certification standards. Joint Commission standards are developed in consultation with healthcare experts and providers, measurement experts and patients. The reviewers also conducted on-site observations and interviews.

"We congratulate CHI St. Vincent Hot Springs for this outstanding achievement," says Nancy Brown, CEO of the American Stroke Association. "This certification reflects its commitment to providing the highest quality of care for stroke patients."

Jarrett Powell, APRN Joins Washington Regional Emergency Department

Jarrett Powell, APRN, recently joined the Washington Regional Emergency Department, where he provides care for patients with acute illnesses and injuries.

Powell earned a Master of Science in Nursing

Hospital Rounds

and a Bachelor of Science in Nursing from Arkansas State University. He has more than four years' experience in emergency care and urgent care and most recently worked at Washington Regional Urgent Care in Bentonville.

Jefferson Regional Introduces Robotic Arm for Knee Surgery

Jefferson Regional in Pine Bluff has announced the addition of the Mako SmartRobotics system for total knee replacements.

In clinical studies, Mako Total Knee demonstrated the potential for patients to experience less pain, less need for pain medication, less need for inpatient physical therapy, shorter hospital stays, improved knee flexion, and soft tissue protection in comparison to manual techniques.

Roy Burrell, MD, of Jefferson Regional Orthopaedics and Spine, is now offering the Mako system to his patients. "A Mako 3-D CT scan allows me to create a personalized surgical plan based on each patient's unique anatomy," said Burrell. "However, if needed, I can make adjustments during the procedure while guiding the robotic arm. This technology allows for a more predictable surgical experience with increased precision and accuracy, and it's exciting to offer this to the patients of Southeast Arkansas."

Jefferson Regional Orthopaedic and Spine is located in the Jefferson Professional Center 1, 1609 West 40th Avenue in Pine Bluff.

Arkansas Children's Hospital Receives Internationally Recognized FACT Accreditation for Cancer, Blood Disorders

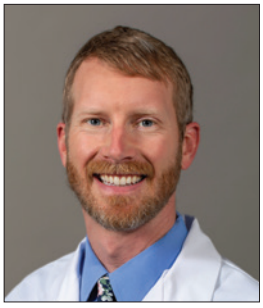
The Cancer and Blood Disorders program at Arkansas Children's Hospital (ACH) has received internationally recognized accreditation by the Foundation for the Accreditation of Cellular Therapy (FACT), designating the program as offering the highest quality patient care.

By demonstrating compliance with the FACT's international standards, Arkansas Children's Hospital has earned three-year accreditation for pediatric autologous hematopoietic progenitor cellular therapy and peripheral blood cellular therapy product collection.

"Achieving FACT accreditation means Arkansas Children's Hospital is providing the best care possible for children in Arkansas who are facing cancer and blood disorders," said Rick Barr, MD, MBA, chief clinical officer of Arkansas Children's. "These families face a long journey through cancer, and we are improving that experience by ensuring they can receive the highest quality care through accredited bone marrow transplants closer to home. We are grateful for the hard work of every member of our Cancer and Blood Disorders team to reach this vital accreditation."

FACT is an internationally recognized accrediting body for hospitals and medical institutions offering stem cell transplant and indicates Arkansas Children's Hospital has met the most rigorous standards in every aspect of stem cell therapy. This covers the entire spectrum of stem cell therapy, from clinical care to donor management, cell collection, processing, storage, transportation, administration, and cell release.

Accreditation is attained through evaluation of submitted documentation and on-site inspection to determine if an organization complies with current FACT standards and the United States Food and Drug Administration's current rules for Good Tissue Practice. FACT Standards are defined by leading experts based on the latest knowledge of the field of cellular therapy.



Justin Michael Hire, MD

Justin Hire, MD, Joins UAMS as Pediatric Orthopaedic Surgeon

Justin Michael Hire, MD, a decorated U.S. Army veteran who is fellowship-trained in pediatric orthopaedics, has joined the University of Arkansas for Medical Sciences (UAMS) as a pediatric orthopaedic surgeon.

An assistant professor in the UAMS College of Medicine's Department of Orthopaedic Surgery, Hire sees patients exclusively at Arkansas Children's Northwest in Springdale.

"I am so excited for Justin Hire to join our growing team of orthopedic and sports medicine specialists at Arkansas Children's Northwest," said Brant Sachleben, MD, chief of pediatric orthopedics at Arkansas Children's and an associate professor in the Department of Orthopaedic Surgery at UAMS. "He is a welcome addition and will complement Dr. Adrienne Koder quite well. Together, they are an awesome team to help take care of the children of Northwest Arkansas, and I couldn't be more excited."

Koder, DO, a pediatric orthopaedic surgeon, joined UAMS last fall and also sees patients at Arkansas Children's Northwest.

Hire is certified by the American Board of Orthopaedic Surgeons and was most recently an assistant professor of clinical orthopaedic surgery in the Pediatrics Department at Women and Children's Hospital at the University of Missouri in Columbia, and the Cox Medical Center South in Springfield, Missouri. Previously, he served at the General Leonard Wood Army Community Hospital in Fort Leonard Wood, Missouri, as an orthopaedic staff surgeon and chief of the Orthopaedics and Podiatry Department.

Hire received a medical degree in 2011 from the University of Oklahoma College of Medicine. He then completed an internship in orthopaedic surgery, followed by a residency in orthopaedic surgery, at the Eisenhower Army Medical Center in Fort Gordon, Georgia. He went on to complete a fellowship in pediatric orthopaedics from Cincinnati Children's Hospital.

Hire was deployed with the Army's 541st Forward Surgical Team as part of Operation Inherent Resolve in Ash Shaddadi, Syria, in 2017, and was a pediatric orthopaedic surgeon volunteer for CURE International, a Christian nonprofit organization providing medical care to children experiencing primarily orthopedic and neurological conditions, in Malawi in 2020.

Among his service awards are a commendation medal earned during combat, an achievement medal, a combat medical badge, a service medal, and a national defense service medal. ■

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