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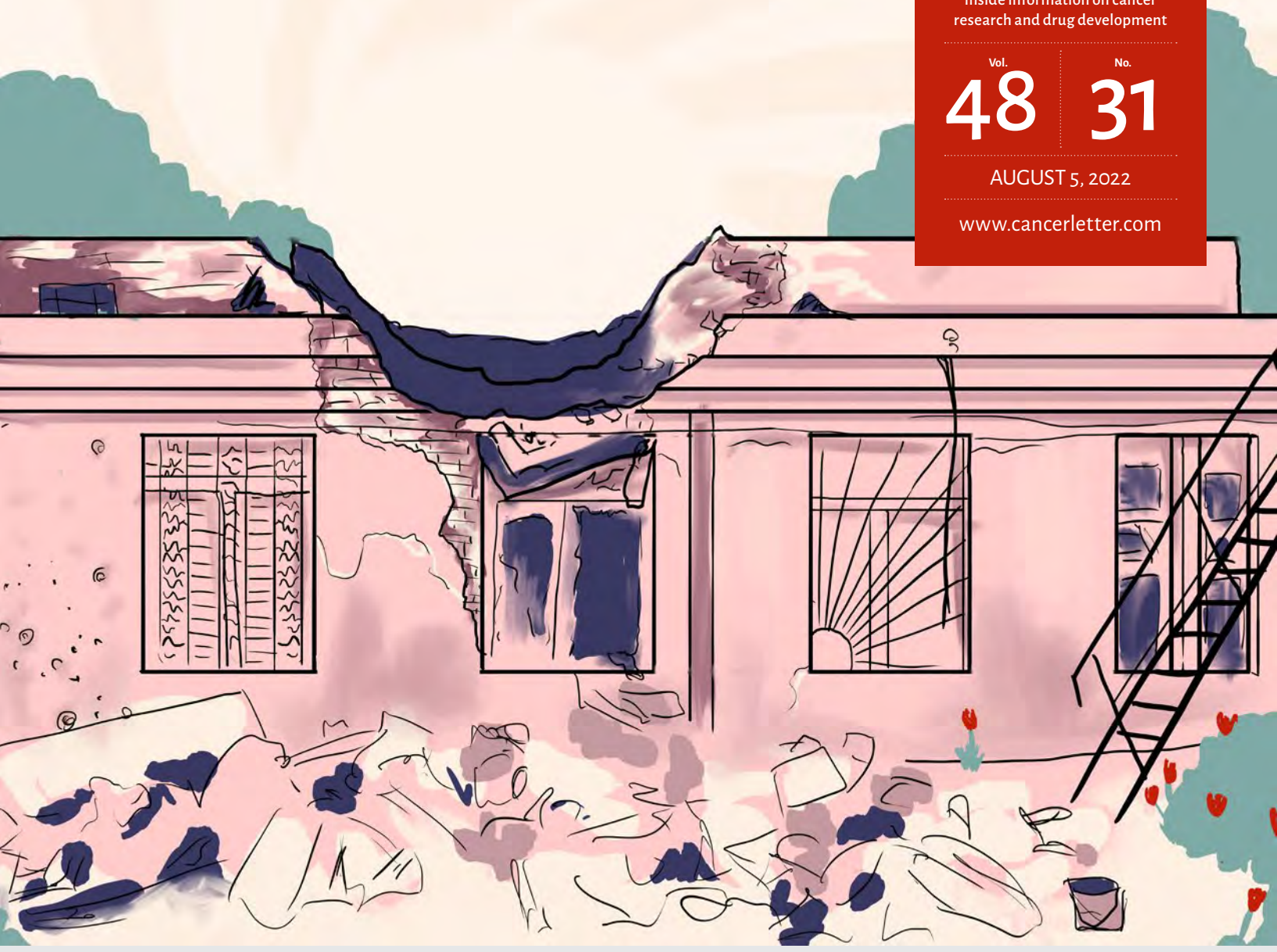

THREE WEEKS IN MARIUPOL; HOW DR. HANYCH KEPT HIS CANCER PATIENTS ALIVE AMID RUSSIA'S ATTACK

The roof of the Radiation Therapy Department of the Mariupol Municipal Interdistrict Regional Oncologic Dispensary, the parts that aren't caved in, looks like a sieve.

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In this issue

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Three weeks in Mariupol; How Dr. Hanych kept his cancer patients alive amid Russia's attack

By Paul Goldberg

The roof of the Radiation Therapy Department of the Mariupol Municipal Interdistrict Regional Oncologic Dispensary, the parts that aren't caved in, looks like a sieve.

Photos courtesy of Andrii Hanych

The windows, too, have been blown out by a missile launched by the same Russian plane that somewhat belatedly marked March 8, the International Women's Day, by dropping a bomb onto the courtyard of the Mariupol Maternity Hospital No. 3.

Someday, the pilot who dropped that bomb and released that missile onto what was obviously a massive hospital campus will face a war crimes tribunal. In that fantasy, the entire chain of command that ordered the attack will wear stripes and sit on a bench beside him.

If that day comes, Andrii Hanych, chief of the Radiation Oncology Department at the dispensary, will make an excellent witness for the prosecution. Hanych, 43, was inside that squat, shrapnel-pocked, single-story building, trying to keep 12 cancer patients alive amid falling bombs, whistling mortar shells, and wild volleys of fire unleashed by unhinged Russian tankists.

Cancer treatment in Mariupol became impossible as soon as the Russian invasion began on Feb. 24. Electricity went out within a couple of days. Gas was turned off soon thereafter. Sirens blasted on the first day, maybe two, but sirens don't work in the absence of electricity.

Besides, what use would anyone in Mariupol have for a siren? What can a siren accomplish in a city under attack? Help you realize that there is no safety?

The 12 cancer patients in Hanych's care had a range of malignancies: brain tumors, breast cancer, head and neck cancer, colon cancer, lung cancer.

They weren't Mariupol residents. They came from nearby villages and small towns. Advancing Russian troops deprived them of a place to return, and Hanych had no choice but to become their caretaker of last resort.

What remains of the Radiation Therapy Department of the Mariupol Municipal Interdistrict Regional Oncologic Dispensary.

This is the story of these patients, their long-haired, guitar-playing, poetry-writing doctor, and their struggle to stay alive amid some of the most shocking war crimes of the 21st century.

Today Hanych sees cancer patients in Khmelnytskiy, a city in western Ukraine, near the border with Poland. Here, Ukrainian is the language of the streets and places of business.

Living here, every now and then, Hanych needs to pause to allow his memory to produce the right word in Ukrainian, and inevitably, the missing word, or at least a passable substitute, announces itself. Hanych needs that pause, because Mariupol, the city where he was born, which he love-hated since adolescence, and where he practiced medicine for two decades, like much of Ukraine's east, went about its daily business in Russian.

Language, any language, is an amalgamation of nuance and historical baggage, especially in Ukraine, where for decades, and arguably centuries, Russia has been trying to strangle the native tongue. For centuries, Ukrainians—Hanych among them—fought back.

Born in Mariupol in 1978, Hanych went off to nearby Donetsk Medical University, returning to practice medicine in 2002. He was named head of the Radiation Therapy Department two years ago.

Hanych had a parallel career, heading the trade union that represents his hospital's workers. As part of collective bargaining, Hanych insisted that the employment contract be written in Ukrainian.

"For a moment, let's set aside the argument that documents should be drafted in the national language; I wasn't especially interested in the legal aspects of this," Hanych says. "I was mostly interested in demonstrating to my colleagues that they are a part of Ukraine."

This created no logistical problems. "Everyone read it, and if there was any discussion, it was about the details of the contract," Hanych says. "There were Russians present, but they knew Ukrainian well enough."

Hanych's grandfather, a peasant forcibly relocated from western Ukraine after his village, Lopushanka, was ceded to Poland, was Hanych's strongest link to the Ukrainian language, culture, and pride. The Ukrainian word for someone like him is *западенець*, pronounced *zapadenets*, a person from the west.

Lopushanka isn't far from Khmelnytskiy, the town where Hanych now finds himself.

"I wish I could have sat and talked with my grandfather some more," Hanych says. "That, alas, is no longer possible."

As a high school student, Hanych met two boys, who in 1993, two years after the dissolution of the USSR, held a series of open meetings focused on Ukrainian culture.

Since high school students, their peers, aren't known for sustained political activity, the meetings were sparsely attended. "Very few people came—maybe five, maybe ten. University students are a big social force, but these two were schoolboys," Hanych says. "I was impressed by their enthusiasm, their drive, their love for Ukraine, their knowledge of history."

An association between "blood" and identity is a sure path down a rabbit hole. Hanych is quick to point out that the boys' love for Ukraine was about history and culture. Roman was part Gypsy. Valerii's ancestry includes Germans and Russians.

Whenever conversation turned to replacing this 1962 LUCH-1 machine, Hanych suggested building a museum around it. It has been in use here since 1971.

The three became life-long friends.

Fast-forward to 2022. Roman, a member of the Territorial Defense Forces, was killed outside Mariupol seven weeks ago.

Valerii, was hit in the leg with a mortar shell fragment while escaping on foot from the burning Mariupol. It was Hanych who bandaged Valerii's wound.

As we talk, an air raid siren goes off, evidence that Russian rockets are able to reach Khmelnytskiy. Hanych shrugs it off. He has seen worse. We are speaking Russian, our only common language, and as we meander through literature, the conversation is starting to get more interesting than what you'd get at most bomb shelters.

The novel that shook up Hanych as an adolescent, "The Master and Margarita" is, quintessentially, the novel of Moscow. An interpretation of Goethe's "Faust," "The Master and Margarita" is a kind of novel that changes the world. An argument that its publication in 1965 put an end to state-mandated atheism can be easily defended.

This Cobalt-60F has been in use in Mariupol since 2008. As he left, Hanych hid his semi-acoustic guitar and a speaker inside its gantry.

Mikhail Bulgakov, its Kyiv-born author, also wrote "The White Guard," another novel, this one set in Kyiv. It, too, is outstanding. Yet, it's not the novel that shook up Hanych.

Hanych loves Russian bards, men and a few women, who at the height of the Khruschev and Brezhnev eras took acoustic guitars, and, defying censorship, sang their own poetry, often at home concerts. Some of this poetry was lyrical, but there were also songs of resistance.

Hanych admires Aleksandr Bashlachev, a poet who stands at the exact point where Russian bard poetry morphs into Russian rock & roll. Hanych wrote poetry and songs, too. His stuff is dark, and it's in Russian. In 2014, after the Russian invasion of Crimea and formation of puppet states in the east, Hanych stopped writing.

"I haven't written a single song since 2014, only because I don't want to write in Russian," Hanych says. "And, seriously, I suffer mightily from this." An analogous principle applies to speech. Every word uttered in Russian comes at the expense of a word not uttered in Ukrainian.

As Hanych speaks, I experience an urge to respond with twin assertions that Putin is not Russia and that the language is not at fault. I have enough sense to suppress that urge.

The absence of public protests in my former country provides compelling evidence that Putin is, in fact, Russia, in the same way that Hitler was the Third Reich and Stalin the USSR.

As for any plea of innocence of the Russian language, you need to be (1) an ignoramus, (2) a scoundrel, or (3) both, to deny that the Russian language has been a fearsome weapon in Russia's crusade to flatten Ukraine.

Concurrently, I resist the urge to apologize for the crimes of the country I left as an adolescent nearly 50 years ago, reminding myself that Hanych, as a doctor-poet, is not empowered to confer absolution.

The hospital complex, located in the center of Mariupol, sounds more like a tribe than an institution. Entire families have been working there for generations. Hanych's mother worked as a nurse at that hospital long before he joined the medical staff.

The equipment Hanych and his colleagues use to treat patients has been at the hospital for generations as well. LUCH-1, *luch* being the Russian word for a ray, is the oldest machine at the department.

Built in 1962, LUCH-1 looks rather like the Soviet space capsule that in 1960 spirited two lovely dogs, Belka and Strelka, into Earth's orbit. You don't have to be a radiation oncologist to appreciate its beauty.

There are other good points to that machine, one of them being that you can roll the patients on gurneys right under it. "You know, whenever a conversation would turn to retiring it and replacing it with a new machine, I suggested that we put it in a museum, or build a museum around it in Mariupol, so it would stay here," Hanych says. "I realize that this would be a difficult thing to make happen, but I nonetheless have warm feelings toward it."

There are three other machines: Rokus-AM, a newer device, made in Estonia and installed in Mariupol in 1997; a Soviet machine called HDR Agat-VU; and a Chinese machine called Cobalt-60F. The latter has been in use since 2008.

Cobalt-60F seems to be Hanych's favorite. "We installed motion and distance sensors to control the motion, improving the setup accuracy for patients undergoing radiotherapy treatment as a result," he says.

Cobalt machines are unable to generate the level of radiation required in modern cancer therapy, and it's unlikely in the extreme that you could find a single

functioning cobalt machine anywhere in the U.S.

To replace them with new-generation machines that require linear accelerators, you need a stable electric grid, reliable water supply, specially trained physicists, and a lot of money. Ukraine was in the process or replacing its stock of cobalt machines, installing 16 linear accelerators since 2014, with plans to install 20 more, but then the war began.

Months after Hanych's departure from Mariupol, a pro-Russian propaganda website would claim that Russian soldiers had found two explosive devices inside one of his machines. "The devices were placed under gamma radiation machines and rigged to be detonated remotely," the propagandists wrote. "Tragedy was averted only because nationalists were in a hurry."

This is, of course, crude nonsense, Hanych says, a dose of fake news in the propaganda war where hospitals are tagged as military targets and marauding Russian soldiers characterized as "internationalists," while Ukrainians resisting the invasion are portrayed as crazed, drug-addicted, dirty-bombing "nationalists" and "fascists."

Hanych says he could sense the war's approach well before the 2014 Russian invasion of Crimea and formation of separatist states in the east.

"Russian films and television portrayed Ukrainian characters as half-drunk or impudent—not in the most flattering light," Hanych says. "This was happening in feature films, in humor skits, in news shows."

Russian television and film were reaching Ukraine with no obstacles. The same stereotypes infected Ukrainian television as well. "I took offense when I saw that, but it seemed like many people either didn't notice it or accepted it as their due. Nobody seemed to object," Hanych says.

At the same time, Russia started staging "news" shows where pro-Putin pundits railed against Ukraine and the West. "Russia also had financial claims against Ukraine, asserting that Ukraine was diverting their natural gas, that it was sending poisoned candy, and so on, and so forth," Hanych says.

Defamatory television shows, Putin's threats, and dire warnings from Ukraine's president Volodymyr Zelenskyy notwithstanding, Hanych didn't foresee this year's war.

"On Feb. 22, I walked out of the hospital to take a stroll around the city. A reporter from Deutsche Welle came up to me and asked a simple question: 'If Putin indeed attacks, what will you do?' In other words, a very important question. And you know, at that time I was very confident. I thought we would take up rifles, throw Molotov cocktails at them—and we will defend ourselves. But, deep in my soul, I believed that we had been so well prepared for the attack that the attack will not take place. It's hard to believe, but I simply didn't foresee it."

On Feb. 24, when Russian troops did indeed pour into Ukraine, at least one respected talking head on Ukrainian television urged civilians to stay in place. "That day, I did not yet feel on my hide that the war would begin," Hanych says.

Russian artillery and aviation first struck the Left Bank of the Kalmius River that runs through Mariupol. Hanych's girlfriend, Ilona, lived on the Left Bank, near the Azovstal plant.

Hanych lived within a 10-minute walk from the hospital, in the city's center, on the Right Bank.

That day, Ilona called. "She told me that it had begun, that they have started to bomb her area. I suggested that she relocate to my apartment," Hanych says. "I confess, I couldn't imagine that this would drag on. I had confidence in our armed forces. Plus, on television they were emphasizing that there would be no Russian onslaught, because Russia would not be willing to deploy its entire military force against Ukraine."

> "As you turn around and look, you see the city, in its entirety, in the distance. We turn around, we look. It's a terrifying sight. We see smoke rise. Black smoke coming from many, many places. This is something I cannot put into words."
>
> – *Andrii Hanych*

As tanks rolled across Ukraine's borders, the television channels, to uphold optimism, broadcast instructions on making Molotov cocktails, also pointing out the optimal way to throw these fuel-filled bottles at tanks.

"On a picture, this is easily accomplished. In reality, it's complicated in the extreme. Impossible even," Hanych says.

Though he didn't believe the war would last long, out of an abundance of caution, Hanych suggested that those patients who could interrupt treatment should do so.

There were 50 patients receiving radiation therapy at his department before the war began. On Feb. 24, 13 patients remained. These were people who lived in distant villages and those who had to travel through territories that the Russians had overrun. On Feb. 25, family members came and picked up one more patient. Now, 12 remained.

Hanych gets another call from Ilona. The barrage on the Left Bank has intensified, she tells him. He suggests again that she move to his place. She will think about it, she says.

As the day wears on, the nurse, who also lives on the Left Bank, calls to report that she has no way to get to the hospital to work the night shift. Artillery is blasting, public transportation has stopped, and the Ukrainian army has set up roadblocks. No one is allowed to cross from the Left Bank to Mariupol's center.

"So, now my department has no one but me—just 12 patients and I. Of course, I decide immediately to stay there overnight," Hanych says. "Starting on Feb. 25, I stayed at the hospital at all times. I can't tell people, 'We are closing the place down, so go away wherever you can.' And, of course, fighting is intensifying in our part of the city, and Russian tanks are all around."

Electricity gets turned off on Feb. 26, silencing the sirens, making it impossible to use the hospital's cooking stoves, charge telephones, and get computer and television reception. Telephone calls stop. Newscasts stop. Is Ilona safe? Is his mother? His friends?

For a few days, Hanych makes trips to his apartment. There, he boils water on his gas stove, pours it into thermoses—he has two—and carries the hot water back to the hospital. Gas is turned off a day or so later.

The highrise building Hanych lives in is literally facing the emerging front line. Seeing bombardment intensify, he starts to worry that a shell or a bomb would hit his eighth-floor apartment.

Cautiously, he takes a walk home, to say goodbye to the place and to retrieve his three most prized possessions: his vintage Czechoslovakian-made, semi-acoustic, orange-colored Jolana guitar, a speaker, and a laptop computer.

Hanych's 1960s Czechoslovakian-made semi-acoustic guitar, now hidden inside a gantry of the Cobalt-60F machine.

Food is plentiful during the first days of the war. After electricity goes out, the nurses who live nearby bring over the contents of their freezers—meats mostly.

"The mentality of our people during the post-Soviet period, for whatever reason, requires filling freezers with large amounts or food and storing it for undetermined periods of time," Hanych says. "Presumably, it has something to do with food shortages that occurred in the 1990s. The roots could run deeper, too, to *Holodomor*, the man-made famine of the 1930s. Or perhaps it's genetic," Hanych hypothesizes.

"Whatever it is, it's a common practice among our people, which is to say it's considered normal. To make sure that all this meat wouldn't spoil after electricity went out, the nurses brought it to us."

Hanych and his patients adapt to making fires outdoors and cooking soups and stews. He uses the bonfire to boil snow, too.

"We became a cohesive team, all of us," Hanych says. "That is to say, our women patients peeled the potatoes and chopped them. The men made the bonfire. We had a clear distribution of duties. It wasn't regimented, of course. It was entirely voluntar."

"Did this situation feel reminiscent of an absurdist dystopia, perhaps a play by, say, Sartre?" I ask roughly two hours into our conversation. Redundantly, I clarify: Thirteen people—twelve cancer patients and their doctor—trapped in Mariupol, boiling soup on bonfires as the world explodes.

Hanych lets out a laugh.

"Yes, when you and I began this conversation, I had a fleeting thought that after all this is over, it would be interesting to write a book about what happened,

about the patients, the many details of what happened."

On the first evening after Hanych is reunited with his guitar, at dinner, he hooks the speaker to the hospital's generator and starts to play.

He plays something happy, staying away from his own songs, which are dark, in Russian, and not the kind of stuff you play to cancer patients whose treatment is interrupted by war.

The patients are enjoying the music.

"One of the patients, an old man with colon cancer, came up to me and said, 'You know, doctor, I enjoyed this so much that my tumor has dissolved,'" Hanych says.

Soon after Hanych and the patients settle in the department, one of the nurses determines that it's safer to stay at the hospital than at her apartment.

She moves in.

Her family, which moves to the department as well, includes her octogenarian mother, a retired nurse who spent her entire life working at the hospital. Hanych knew both women for much of his life.

While this family lives at the hospital, the front lines shift from their apartment building and toward the center of the city. After a while, it starts to look like it's safer for the nurse and her family to move back home.

Since the elderly woman has difficulty walking, her daughter asks to borrow the department's wheelchair, which Hanych bought in late 2021, after the wheels of the department's old, Soviet-era contraption refused to turn.

This wheelchair was borrowed by a former nurse and used in an impromptu burial of a passerby killed in the street in Mariupol.

The family promises to return the wheelchair and leaves.

Four or five hours go by, and finally the old woman's grandson shows up. He is visibly shaken, and the chair is covered in blood and bits of flesh.

"I concluded that something had happened to the old woman," Hanych says. "I liked her a lot. She spent her entire life working at our hospital. She worked with my mother, and she was still there when I came to work at the hospital. I thought something had happened to her, but it turned out that she got to the apartment without mishap.

"After they got her to the apartment, her grandson turned around to take the wheelchair back to the hospital. Along the way, he saw a young man get blown to bits in an explosion. Maybe it was a landmine, maybe something else.

"The young man's mother literally saw her son blown apart. She asked for help with gathering up the pieces of her son's body, loading them in the wheelchair, taking it all to the courtyard of an ordinary residential building for burial."

Sometime before the war, Hanych and a friend, a surgeon, got into an argument about how Mariupol residents would behave if a war were to break out.

"I said that social contract in the city would dissolve within two weeks. Social contract governs relationships between people, everything we are used to," Hanych says. "I was mistaken. Social contract vanished within five days.

"Soon after the war began, I noted that the number of stores that stood in ruins greatly exceeded the number of residential buildings reduced to rubble. This was, of course, in the beginning, before the near-complete destruction of the city.

"I was unable to comprehend that my fellow Mariupol citizens would engage in marauding. I could, perhaps, understand why someone might break into a food store. You must eat; that's complicated. But what about items that cannot help you in the least?

"I saw a group of young men carry an enormous plasma television. I have no idea where they had stolen it, but they were carrying it. In the middle of a street, the screen cracks, so they set it down right there and kept walking as though nothing had happened.

"I saw someone who had broken into a perfume store carry perfume in two big bags. You might think, here we are, in the middle of a war, why do you need such an amount of perfume?

"With my own eyes, I saw a man break into a furniture store and attempt to carry out a cabinet with a sink. This was just one man, alone, and the cabinet was big and heavy. He had busted out the storefront window, and he was trying to move that cabinet out. It was a remarkably difficult spectacle to observe.

"I saw a video recently. It was shot in Mariupol. It shows one of these marauders break into a sporting goods store and grab a soccer ball. Meanwhile, the store owner is screaming at him, with all proper obscenities, something to the effect of 'Why do you need a soccer ball now? Are you an idiot?'"

The patients and their doctor spend the first few nights in hospital beds. Then Hanych realizes that it would make more sense to use infusion chairs instead.

"They are less comfortable, but more convenient. You can move them around easily," he says. "If there is bombing on the side of the kitchen, you roll them to the opposite side.

"Bombing occurs chaotically. If you hear a plane, you can't predict where the bombing would occur," Hanych says. "Aviation is a scary thing. I think even people with significant military experience would agree."

When the war began, Hanych believed that the Russians would refrain from bombing the hospital complex, which is so prominently located in the center of the city. That illusion was shattered around March 1, when a missile took out a transformer station that was contiguous to the Radiation Therapy Department, literally next to Hanych and his patients.

The Russians showed no hesitation to fire at a hospital, and, day by day, it would get worse. "I am just amazed by what happened to these people, what made this kind of conduct possible," Hanych says.

The explosion that takes out the transformer blows out the windows and damages a wall. Fortunately, the medical oncology clinic was undergoing renovation, and building supplies, including sheets of plywood, plastic, and bags of plaster and cement, are left piled up inside the building.

Hanych and his patients cover up the holes, but it becomes obvious that the hospital complex isn't as safe a place as he initially believed. "If they drop one bomb, you know they will drop another," Hanych says. "When you realize that, all your illusions vanish."

As the front moves closer, Hanych offers to arrange to transport his patients to a safer place.

Meanwhile, in early March, the main cancer hospital on campus is transformed into a wartime hospital. Three surgeons who used to treat cancer now move to the hospital to take care of the wounded.

"Believe me, these are people far more heroic than I am," Hanych says. "There were some soldiers getting treated, but there were also children, women, grandmothers. The idea that a civilian is hurt by a bomb is absolutely the most difficult concept to comprehend."

At the hospital, Hanych asks members of the military to help evacuate his patients. Indeed, a much larger evacuation is in the works. Other civilians, including patients and families of employees, are taking shelter in the cellars beneath the hospital.

As buses pull up to pick up his patients, Hanych asks the soldiers where the patients would be taken, forgetting that soldiers receive special training not to answer questions that begin with the word "where."

Hanych returns to the now vacant Radiation Therapy Department.

Hanych's patients didn't leave on an empty stomach. The bonfire outside the Radiation Therapy Department building still smolders from preparation of that morning's meal.

His obligation to the patents has been fulfilled, and now there is some puttering to be done.

It's March 9, early afternoon.

The patients have been gone for a bit more than two hours. Hanych starts to pick up the firewood. It can rain here in March, or it can snow. It's best to keep your firewood covered—or indoors. Hanych's right hand is on the door handle, his left holds up a modest-sized armful of firewood.

When you hear an airplane, you look up. Luckily, most of them will fly by, toward someone else, possibly. This one is up high, above the clouds. There is nothing to react to, no reason to worry, unless the sound of the airplane engines morphs into a hiss, mechanical yet snake-like.

Just like the sound Hanych now begins to hear. If you've heard the sound a missile makes, you'll recognize it. You know also that the louder it gets, the greater the likelihood that it's coming for you.

He opens the door.

What do you do? Drop to the ground, run outside, run toward the safest place in the building—the vault? He breaks into a sprint toward the vault, seeing impact as it occurs, in real time, the roof giving way, windows buckling, cardboard ceiling tiles aloft in mad hurricane formations. As he runs, he knows that a rocket has hit, hit hard, someplace close, on the opposite side of the wall, this wall.

But there is something else, another sound, impact of a different sort, much deeper, a sound that screams catastrophe. It comes from the outside, also nearby. By now, Hanych has heard many a rocket, but this, whatever it is, is of another order of magnitude. He hasn't heard anything like it in the past, even here, even in Mariupol, even in the midst of this madness.

Hanych has reached the steel door of the vault. He will close it now, he will spend the rest of the day and the night here. It's possible that he has suffered a concussion, but how bad? That will become evident tomorrow.

What was it, that hellish other blast? He will go out, he will investigate—tomorrow, if there is such a thing as tomorrow.

The morning of March 10 does arrive. Venturing out, not quite 50 meters away, in the courtyard, Hanych sees a crater 5 meters deep. The windows on much of the hospital campus are blown out by the blast.

The same Russian plane that released a missile into the Department of Radiation Therapy had dropped a bomb that landed in close proximity of Maternity Hospital No. 3, separated from Hanych's department only by a flimsy fence. This bombing produced one of the war's most horrific scenes.

Hanych sorts through his obligations. Should he stay? Sometimes believes he has to. There is radioactive material at the department, enough of it for someone—separatists or the FSB—to fashion a dirty bomb, explode it, and blame Ukrainians. He wants to find Ilona, his mother, his friends. Is any one of the people dear to him left alive? There is no way to know.

Meanwhile, the front moves closer.

"I wasn't thinking about leaving at first, but shooting intensified day by day, mortars whistled every minute. You pray that they fly by, but then you realize that if they fly by you, they may hit someone else. Then Russian tanks started to appear," Hanych says.

One Russian tank roars through the streets all night, shooting wildly at no discernible targets.

"I have no idea what they could have been shooting at," Hanych says.

Bravado of the early days of the invasion seems absurd now: "After I actually saw Russian tanks and watched them shoot, I had the urge to ask the people who gave us cheerful instructions on making Molotov cocktails, pointing out the part of the tank to aim at, to give us a demonstration of how it's done in the real world."

Much later, Hanych would learn that Ilona was evacuated into Russia, then made her way to Germany, where she now lives. His mother, too, took the same evacuation route and is also in Germany.

The front line continues to shift toward the hospital.

One day, the head nurse at his department knocks on the door. As bad as this is, her apartment is in a more dangerous spot. Her family moves in as well.

During the ensuing week, Hanych spends more time in the vault. The night of March 15 seems particularly ominous, yet he still resists the idea of leaving.

Just in case, Hanych hides the semi-acoustic Jolana and the speaker inside the gantry of the Cobalt-60F machine. He may leave at some point. He may return at some later point. He loves that orange guitar.

In the morning of March 16, Hanych's friend Valerii shows up, saying something like, "Dude, let's go—it's time."

"He was, of course, absolutely right, but I resisted, saying, 'I can't, I won't,' until the head nurse, who was staying at the department, told me to get out. She stayed behind," Hanych said.

Hanych reaches out to one of the cancer surgeons—Eduard. The surgeon agrees that it's time to go, but he needs to get his wife—Oksana—and his son—Stanislav, a young oncologist at the dispensary.

Valerii, too, needs to get his girlfriend—Tatiana.

The six agree to meet at the Radiation Therapy Department within an hour. There is no easy way out of the city. They will walk west, beneath the limestone cliffs of the Azov Sea until they reach the Ukrainian-held zone.

Twenty kilometers would be a good first-day goal, they decide, but they get as far as the colonnade of the Mariupol Chamber Philharmonic, about 500 meters from the hospital, when they encounter a barrage of mortar fire.

The philharmonic has a bomb shelter. They duck in.

Mortar fire subsides 15 minutes later. As they resume the journey, about 20 me-

ters out, they hear more mortar fire. A shell explodes nearby. It's so close that Valerii pushes Tatiana to the ground and covers her with his body. A one-centimeter fragment lodges in his calf.

They return to the philharmonic's shelter and bandage the wound. There is no sign of fracture or arterial damage. He is able to put weight on the wounded right leg, he says. For the time being, the fragment will have to stay where it is.

Luckily, with injuries of this sort, pain takes a day to set in. By then, they will be out of the city, God willing.

"Before you get to the sea and take the trail that leads west, you must pass through a hefty part of Mariupol. Seeing flames rise above multistory buildings, seeing entire street blocks in ruins, causes unspeakable pain," Hanych says.

"As you turn around and look, you see the city, in its entirety, in the distance. We turn around, we look. It's a terrifying sight. We see smoke rise. Black smoke coming from many, many places. This is something I cannot put into words."

In 1997, Hanych wrote a poem and set it to music:

В этом городе

В этом городе славном,
Горящем огнями,
Я хожу по проспектам
И смеюсь, день за днями.

В этом городе, странном,
И в день и в ночи,
Я умру, слава Богу....
Лечи – не лечи....

В этом городе страшном,
С дождями и венами наперевес
Я хотел прыгнуть к солнцу.
Но дальше чем крыша, я не долез.

В этом городе славном,
С широкими дорогами,
С высокими домами.
Мне тебя не сыскать...
До свидания....

In this city

In this city of splendor,
Where streets drown in lights,
I traverse the wide boulevards
And cannot help but laugh.

In this city of strangeness,
In daylight or at night.
Death will find me, God willing...
You can treat me—or not.

In this city of horrors
That exposes its veins,
I tried reaching the cosmos,
But couldn't get past the roof.

In this city of splendor,
Where buildings reach high,
Where roads are straight...
You will no longer be found...
Goodbye.

Mariupol, its wharfs, its steelworks is now behind Hanych and his comrades as they trudge westward beneath the limestone cliffs of Azov Sea.

"A certain euphoria set in. It's a very interesting feeling. Because suddenly, finally, you hear shots, you hear explosions, but they are coming from elsewhere. It's not happening next to you," Hanych says. "This feeling, it comes from realization that a new life is beginning. You don't know what kind of new life it will be, but some new life, probably, beginning. None of us know where we are going. None of us know what's going on in Ukraine. Has Kyiv fallen?

"Nothing is known. Absolutely nothing, just an indescribable euphoria, an apocalyptic euphoria.

"Do you know the painting, 'Soft Construction with Boiled Beans (Premonition of Civil War)'? Salvador Dali, if I am not mistaken? It's not the painting itself that matters, but the title, a premonition of the unknown.

> I wasn't thinking about leaving at first, but shooting intensified day by day, mortars whistled every minute. You pray that they fly by, but then you realize that if they fly by you, they may hit someone else. Then Russian tanks started to appear.
>
> – *Andrii Hanych*

"We are unable to begin to fathom what lies ahead."

As Andrii, Valerii, Tatiana, Eduard, Oksana, and Stanislav stride along the deserted beach, a Russian plane is transporting ordnance that will be dropped on the Donetsk Regional Drama Theater in Mariupol.

As many as 600 people, children among them, will die in that rubble, and another item will be added to the list of Russia's crimes against humanity.

GUEST EDITORIAL

How you can help Ukrainian oncology practitioners fight two evils: cancer and war

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Chief medical officer, National Cancer Institute of Ukraine; President, Ukrainian Society of Medical Oncology, Kyiv, Ukraine

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Roman Kowalchuk, MD
Mayo Clinic, Rochester, MN

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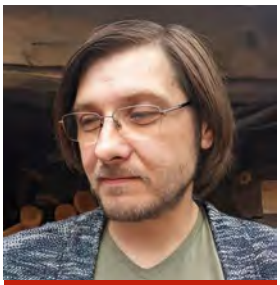
Deputy chief of surgery, Lviv Regional Cancer Center, Lviv, Ukraine



Andrii Hanych, MD
Chief, Radiation Oncology Department, Mariupol Oncological Dispensary, Mariupol, Ukraine

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Associate professor, University of Sydney, Sydney, Australia

Can you imagine, as a radiation oncologist, you have to shelter your patients in a Co-60 vault to protect them from missiles, provide them with water by melting snow, feed them, keep them warm by using a backup power generator, and evacuate them just two hours before the missile destroys the radiation oncology department?

What if, as a radiation therapist, you volunteer to live in the radiation oncology department 24/7 to scan wounded patients using a CT simulator?

Imagine, as a medical oncologist in the busy cancer center, treating double the usual volume of patients—and continuing to receive calls from patients from the train stations, requesting appointments to resume their chemotherapy treatment as their houses were bombed and they had to flee to a safer area with no belongings.

Can you imagine, as a nurse caring for cancer patients, worrying about your mom you could not connect with for three weeks, knowing that she is living in the basement, without water, heat, electricity in a constantly shelled area?

Imagine performing a surgery while worrying about your son and husband, who are fighting against the Russian invaders.

That's not some dystopian novel. That's the horrifying reality Ukrainian cancer practitioners are living through right now. And that's because, in the 21st century, Russia decided to start the imperialistic full-scale invasion of Ukraine.

The Russian invasion of Ukraine, on Feb. 22, 2022, started an absolute horror of destruction and chaos for everyone in its path, killing tens of thousands of civilians—including many children.

Many more have been wounded, and approximately a quarter of the population of Ukraine is displaced as of July 8—that's 5.5 million as refugees in Europe, and 6.3 million as internally displaced due to the war.[1]

The Russian army is obliterating Ukrainian cities, targeting civilian infrastructure with missiles, deliberately damaging and destroying hospitals and clinics, in violation of the Article IV of Geneva Convention.[2]

According to Ukraine's Minister of Health, Viktor Liashko, during the 100 days of war, more than 600 healthcare facilities sustained damages, 105 of which were rendered beyond repair. In addition, the Russian army deliberately targeted and damaged around 450 pharmacies and 200 ambulances.[3]

Even if the war stopped today, the inflicted damage to the healthcare infrastructure will last for years to come without world's continuing support.

How can you help?

A team of oncology practitioners in the U.S. and Australia organized Help Ukraine Group (HUG) to connect with cancer care providers in Ukraine and establish a feedback loop of determining the need and providing support for the need.

We interviewed Dr. Andriy Beznosenko, chief medical officer of the National Cancer Institute in Kyiv and the president of the Ukrainian Society of Medical Oncology.[4,5]

"There is an acute need for chemotherapy medications and disposable medical devices. The supply chains became disrupted by the war, and the hospital is running out of medication," said Dr. Beznosenko.

Many medical warehouses were destroyed or are unavailable due to logistical issues, airports are not operational, many bridges and highways damaged. Tender agreements are challenging to procure during the war. Disposable devices and chemotherapy medications are needed in almost every radiotherapy center.

Ruslan Zelinskyi, the president of the Ukrainian Association of Medical Physicists, and Oleksandr Sakharenko, counsel of Aretera Public Affairs, collected the data on the radiotherapy needs.

HUG members petitioned the vendors to donate devices and successfully applied for a Union for International Cancer Control (UICC) Solidarity Fund grant to pay for devices that were not donated.[6]

Ukrainians are grateful to Orfit and CIVCO for donating the radiotherapy devices. The first shipments of radiotherapy immobilization devices have already been delivered to busy cancer centers in Ukraine.

Dr. Beznosenko has collected the list of pharmaceutical needs from all the cancer centers in Ukraine. HUG members shared the list with ECO/ESMO/ASCO with a call to run the "Support Ukraine" fundraiser with their membership and the industry to provide help for Ukraine in the time of war.

Ukraine, a country of 44 million population, has only three PET/CT scanners, all in Kyiv—with only two of them functioning after the war broke out—so the patients from all over Ukraine have to risk their lives and travel to Kyiv for a diagnostic or follow-up CT scan.

Many patients just abandon the scan altogether. According to the European Association of Nuclear Medicine, there should be at least one PET/CT scanner per 1.5-2 million people, which would translate into 22 scanners for Ukraine.

In an effort to reduce oncologic morbidity and mortality as a result of the war, Dr. Beznosenko and Dr. Oleh Duda,

Image 1: Mariupol oncological dispensary hit by the missile two hours after the patients evacuated. The fate of the Co-60 source is unknown.
Image 2,3,4: Damage to Kharkiv Regional Oncology Center.

deputy chief of surgery at Lviv Regional Cancer Center, are calling on PET/CT scanner and cyclotron vendors to donate at least one PET/CT and cyclotron to the Lviv cancer center.

Upon Dr. Beznosenko's request, HUG members are organizing training opportunities in the U.S., Canada, and Australia for the Ukrainian female physicians of various oncology specialties (radiation oncologists, medical oncologists, surgeons, anesthesiologists, pathologists) and medical physicists. These training opportunities are offered to female doctors, because Ukrainian men between the recruitment age of 18-60 years old are not allowed to leave the country.

Please contact the authors if your institution is willing to provide funding for a visiting scholarship. Nelya Melnitchouk, through her 501(c)(3) non-profit organization, Global Medical Knowledge Alliance (GMKA),[7] has created a fundraiser to help collect funds to cover the travel and initial expenses for Ukrainian female physicians and physicists.[8]

Ukraine needs help in modernizing the training for radiation oncologists and medical physicists, as professional training in Ukraine is based on Co-60 technology, but more and more centers have transitioned to modern Intensity Modulated Radiation Therapy (IMRT), and the modern radiotherapy machines are either installed or waiting to be installed.

We are grateful to Elekta and Varian for organizing free online training courses for Ukrainians to help them transition to the modern therapy on the recently purchased equipment. HUG members are also creating educational materials for transitioning from 3D radiotherapy to IMRT and are grateful to Rayos Contra Cancer for donating training videos for us to translate.[9]

We call on professional organizations and cancer care institutions to help fund the training opportunities for Ukrainian oncology professionals.

A team of Stanford medical and computer science students led by Solomiia Savchuk has created a TeleHelp Ukraine initiative to provide remote medical advice and mental health support for Ukrainians in Ukraine and Poland with the help of American doctors-volunteers and the team of interpreters.

HUG members are grateful to MIM Software Inc. for proving a free software license to host a MIM cloud DICOM repository for medical images from Ukrainian patients that further inform the video consultations.

This telemedicine effort urgently needs physicians of various specialties, including oncologists.[10]

We are grateful to Limbus AI Inc. for providing free licenses for automatic contouring software and RADformation for donating automatic 3D-planning, automatic contouring, secondary plan check, secondary MU calculation to Ukrainian cancer centers, which will facilitate streamlining the radiotherapy treatment planning workflow.

We call on all oncology vendors to provide their support, donate equipment and software, enhance support for equipment maintenance and service, and provide training. Ukrainians are

grateful to all the vendors currently supporting Ukraine.

The Ukrainian cancer care system has been severely damaged by the Russian invasion, and it will take years to recover, even if the war were to stop today. It's imperative that the effective cancer recovery plan in Ukraine is guided by precise coordination between governing bodies, professional organizations, patient organizations, multidisciplinary professionals, and industry.[11]

But all these efforts start with individuals, and individual power and will of Ukrainians to fight for their cancer patients is truly inspiring. You don't have to be Ukrainian to help Ukraine, you just need to be human. Think about how you can help Ukraine today.

We are humanity of almost 8 billion: together we are strong, we can come together as a community and help the Ukrainian oncology professionals to be victorious over two evils: cancer and war.

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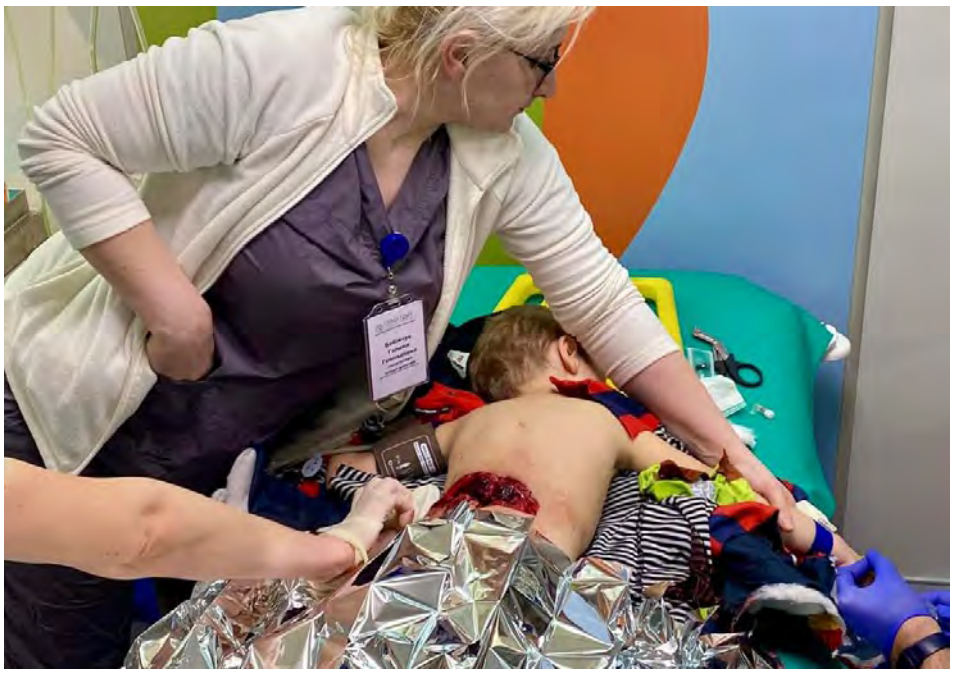
Left: OKHMATDYT's Simulation CT is used for diagnostic purposes. CT scan of a wounded patient, who died of his wounds. Right: Bohdana Bachynska, of OKHMATDYT's, treated a five-year-old boy who had a large wound on his back. Asked whether he was in pain, the boy responded: "I am holding on despite the pain."



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GUEST EDITORIAL

Cancer research beset by a Gordian Knot of problems

Turn him to any cause of policy,
The Gordian Knot of it he will unloose,
Familiar as his garter

—Shakespeare, Henry V, Act 1 Scene 1

By Wafik S. El-Deiry, MD, PhD, FACP
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Director, Cancer Center at Brown University;
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Attending physician, hematology/oncology, LCI, Mencoff Family University Professor,
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It's been a hot summer all over the world, but our work doesn't stop as our problems need solutions.

There's a war in Ukraine, we are continuing this summer to work with colleagues in the U.S. from Ukraine to help Ukrainian physicians and scientists find opportunities, and we're emerging out of a COVID pandemic that may always be with us, according to some sources.

Academic oncology forges ahead with numerous challenges, but a new day lies ahead.

There are champions for the importance of cancer research and care in the White House in President Joe Biden and First Lady Dr. Jill Biden, a respected new leader Dr. Monica Bertagnolli on the way to direct the NCI, a re-energized ACS with Dr. Karen Knudsen, important cancer research and advocacy initiatives by AACR through amazing leadership by Drs. Margaret Foti, David Tuveson, Lisa Coussens, Phil Greenberg, and others, and ASCO's role in education, invigorating the oncology workforce, and bringing forward practice-changing advances.

I'll get right to the point as what I'm going to say won't surprise many, but the problems just aren't going away. This makes me ask whether the problems are bigger than all of us combined?

Maybe they are, but a constellation of factors above makes me hopeful that we can at least try to chip away at some root causes to make progress.

What are the major problems facing our field in the summer of 2022?

The basic and clinical research enterprise is stymied at many levels, includ-

ing insufficient funding and too much bureaucracy.

Clinical care faces increasing challenges from poorly functional electronic records that's three-decades-(plus) into clinical use (I wrote about this five years ago, but nothing has changed), interference from insurers, health systems that are led by business people looking for revenue, far less than optimal working relationships with pharmaceutical companies, over-regulation by IRB's, IACUC's, COI committees, and risk-averse administrators and lawyers who have infiltrated academia and academic medicine.

Passwords and IT have not made our lives better in any area of biomedical science or clinical practice.

Some, including me, may be suffering from Chronic Password Fatigue Syndrome (CPFS would be the acronym). Scientific publishing, peer review and paywalls are a very problematic area that contributes to disparities around the world, among other disparities in research and clinical oncology that I have previously pointed out. Irreproducibility of scientific results has gotten lots of attention, although real solutions have yet to address the problem.

As one thinks about how we got here, it helps to have lived through the evolution and to have a foot in both medicine and science. Actually, more than a foot. What follows is opinion but maybe it will help connect some dots.

In the mid- to late-1990s, HIPAA privacy rules came on the scene, due to efforts by Hillary Clinton and others. Having completed medical school in Miami, medicine and oncology training at Johns Hopkins, and having started a faculty position at University of Pennsylvania before HIPAA, I can assure anyone reading this that there was no major deluge of privacy violations.

There were some anecdotes where some nosy people looked at health records of celebrities, and there was some concern by the early- to mid-1990's that genetic information may be used against people who would be discriminated against by employers or insurance companies. But there has been a law against genetic discrimination, and it's a good law, separate from HIPAA. Hillary meant well, but no one anticipated the downside of HIPAA.

HIPAA has ruined medical research. For what reason?

A big problem has been obstruction of biomedical research due to restricted access to medical records and prohibitions against data sharing. Before HIPAA, any faculty, fellow, resident, medical student, or other researcher could access any medical record at their institution for research with much less burdensome regulatory oversight.

Researchers are not rogue criminals out to spread confidential information about people's private lives. Physicians and scientists are professionals who have dedicated decades of their lives and talents to serve others, and are capable, as they have for centuries, of professional conduct and of maintaining confidentiality as appropriate. They are the people who study and discover patterns at our hospitals, laboratories and universities, and they are exactly whom we need to empower to help save lives.

The lack of easy access to clinical records (or clinical specimens) has led many to give up, and has led to a gigantic problem where a lot of research is simply not being done, or, when done, it is extremely difficult and inefficient.

Much data is now in big databases owned by companies with restricted access. There's a lot of politics (a whole lot) of who has access to what data and when. HIPAA has not prevented numerous data breaches.

Also, I have not read about someone's privacy being actively violated by researchers and how that led to anyone being harmed. I'm not suggesting we get rid of HIPAA, but only to recognize the negative impact its purportedly needed protections have led to.

Insurance companies have come between physicians and patients.

There is a sacred, thousands-of-years-old, bond and relationship between physicians and patients. This has been disturbed in recent years to a point of violating that relationship. Practice guidelines and money to be saved to increase profits are part of the equation, good or bad.

Guidelines are great, but they are "guidelines."

This brings up a question about where the "art of medicine" and the judgement of individual physicians will be over the next few decades and what will the role of physicians be?

I have felt for years that AI has been far from prime time for replacing oncologists, and would argue and hope on ethical grounds that no algorithm ever makes life-death decisions in the absence of personal and compassionate physician presence.

There are impressive things AI can do, and here's an example with AlphaFold that represents a valuable resource.

So, we stay open-mined about exactly how it helps or may help.

I'd love to read more about what the experts, who are colleagues, are saying about the impact of AI on research, but it's behind a paywall.

Administrators have had a profound effect on the practice of medicine in recent decades. as they, too, have invaded and, in many settings, now make the rules. It is well documented that there are at least 10x administrators versus physicians within health systems and academia now as there were a few decades ago.

How has this helped?

It has increased costs and has not improved mortality or life expectancy in the United States. It has also led to vast increases in regulatory burdens at the institutional level with overreach by IRBs, COI committees and expectations of physicians.

Quality of life and salaries for physicians have not been a major contributor to health care costs as some might imagine. Another impact has been on morale and job satisfaction. Action should be taken to address the need for salaries to be more competitive at academic centers and hospitals to attract faculty and staff who move to industry.

This is important for clinical research infrastructure and clinical trial offices where I've seen turnover and instability at multiple institutions.

The funding issue for biomedical research has been very problematic.

With the exception of those who have career funding from HHMI, Ludwig, intramural programs at NIH, or support from SU2C, the rest of academia depends on grant support from the government (e.g. NIH, DoD, CDC), private foundations, industry or philanthropy.

The government NIH paylines have been more or less flat for 20 years. I've lived (and suffered) through it, and have also seen and led several study sections from the review side.

Most of what I know is very well known, including that grants between the 10th and 20th percentile are indistinguishable from the top 10% of grants; and on any given day with a different review group, the opinions could be reversed.

Industry funds what's of interest to industry's profits and business development plans, not necessarily what is the most logical, reasonable, or needed experimentation to advance the field. Some important scientific questions will simply not be funded by industry.

> The lack of easy access to clinical records (or clinical specimens) has led many to give up, and has led to a gigantic problem where a lot of research is simply not being done, or, when done, it is extremely difficult and inefficient.

There has been more money from the government, but it was for the most part used to impact programs other than the investigator-initiated NIH R01 grant that has been the engine of discovery for many decades.

It is acknowledged that there has been a larger pool of applicants for NIH R01 grants, but it is worth arguing that there should have been a better plan to deal with the consequences of the NIH budget doubling that occurred 20 years ago.

Everyone knows we need discovery for translation. Without fundamental discoveries there is no pipeline of new drugs or innovative clinical trials. The limited funding has affected new investigators, trainees, mid-career as well as senior investigators. For the older generation, it's pretty safe to say that no one expected that viability in science would mean spending enormous amounts of time writing grants—most of which never get funded.

We grew up in the "publish or perish" environment and that seemed to be the major challenge. The HHMI model I experienced earlier in my career supports research programs of investigators, which frees them to focus on making scientific advances and provides them with the resources to do so.

Unfortunately, that is a very exclusive club, and, sadly, other billionaires of our time have not followed in the footsteps of Howard Hughes.

What is the role of government?

Is it to support special projects and interests and/or to support the workforce? Is government responsible for the whole workforce? What about universities? Should certain activities be more for the intramural NIH program that can do things no one else can do? How has that evolved over time?

Whose responsibility is it to make sure the investment in careers and those who have dedicated their lives with decades of experience ultimately doesn't end up going to waste when they leave for other careers or retire after being fed up with medicine and science?

There is a lot of me-too drug development going on. It interests me to see

how cyclin-dependent kinase inhibitors have been used to treat breast cancer since drug approvals going back seven or more years ago and after decades of study where it is clear the class of drugs was not uniquely discovered for breast cancer.

With thousands of trials combining immune checkpoint therapy with everything else, there is a point of diminishing returns, loss of innovation and lack of human subjects/patients who could be enrolled in other perhaps more innovative trials.

But there is big money to be made with approved CDK inhibitors or immunotherapy, and for the latter, maybe some of the Kaplan-Meier curves can be bent with some of the combinations under study.

But wouldn't more predictive biology help prioritize those numerous 'early phase' trials that have flooded clinical trial portfolios and become incredibly complex, often with numerous treatment arms and hundreds of patients each?

Why have most clinical trials now come under the control of pharmaceutical industry, where investigators at sites in the U.S. or abroad enroll patients, and very few people know what's going on? Academia is where the trials are conducted, but the trials emerge from industry to serve industry.

Industry has its priorities and doesn't support science to the extent one would expect for the several orders of magnitude more of resources versus what is available in academia. It is somewhat shocking what was recently reported in *JAMA Oncology* that over 90% of individual clinical trial participant data from among the most common cancer medicine (nivolumab, pembrolizumab, pomalidomide) were "not eligible" for sharing.

Why have things come to this point in terms of how our national cancer research agenda is prioritized and how the research is conducted?

I think a major problem is lack of real accountability for how our national resources have been and are being deployed to address the cancer problem.

I remind you of what ACS disseminated a couple of years ago, that ~50% of cancers are preventable by lifestyle, vaccinations, screening, and early detection.

Of course, we need to address disparities and get people to stop smoking. A lot of progress has been made and is celebrated. But many have also already died, as my colleague Dr. Jas Ahluwalia just point out in an article entitled "Nicotine is not the devil, cigarettes are."

But where did the advances come from? Where does the credit go? Do we need billions of dollars and new entities to do what is obvious to detect cancer early, when it's curable in most cases, or to prevent cancer altogether by adopting existing recommendations?

Does progress, the credit for which is possibly usurped, justify a snowball effect of more big science and special interests while the basic discovery engine atrophies away? Does everything or most things going forward need to involve big data and big science?

Has little science failed us? Why has the NIH payline remained mostly flat for the last two decades and made my life very difficult and the lives of so many of my colleagues so difficult as well?

I've been watching resources being siphoned to so many programs at an unbelievable level for many years now.

Who is minding the store, and objectively assessing the fruits of the national investment and tax dollars? Why isn't there more money in the system with President Biden in office?

And why is ARPA-H external to NCI?

Why? Why aren't the resources for cancer research under the NCI director's authority and vision? Why would anyone think reinventing a new system will do any good?

It brings to mind that we always spend more money and achieve less; healthcare is a great example. Why does my CTEP Investigator ID keep expiring? Don't we have better, more important work to do?

With regard to science, technology, tools and capabilities (things we can do because we can), should cell line research be deemed obsolete and replaced with 3-D cultures, organoids, PDX models or other expensive transgenics?

Should old technologies be abandoned and replaced by more expensive new technologies? Are we looking at a future of solid-state science where everything is exported to companies that own technologies (developed in academia)?

Will academic labs of the future be able to make innovative discoveries in the tradition of the last century? Will single cell profiling in the tumor microenvironment or from blood improve patient survival? Will universal germline testing in colorectal or other cancer improve outcomes?

Should we have a gigantic database that has everything in it with multi-dimensional analysis capabilities? What will the quality of the data be, will we learn things we would have never dreamed of, and will they impact meaningfully on patients' lives or public health in general?

Listening to a White House webinar moderated by John Dickson on July 26, where Catharine Young, senior director of policy for the Biden Cancer Initiative spoke, it was interesting to learn more about the national Cancer Moonshot and Cancer Cabinet priorities and directions including reducing mortality from cancer by 50% over the next 25 years and improving quality of life for patients and caregivers.

I think reducing mortality by 50% should be achievable if we just follow current ACS recommendations for cancer screening, diet, exercise, avoiding tobacco, alcohol, use of vaccination to prevent HPV and avoid choices that lead to infections with other viruses that cause cancer.

Why should that take 25 years and cost billions?

Shouldn't we spend more on discovery science to fuel the pipeline of new strategies and therapeutics?

The White House Moonshot strategy described by Catharine Young has five priority areas to accelerate solutions, including:

1. Closing the screening gap where 10 million screenings were missed due to COVID,
2. Studying and addressing environmental and toxic exposures with involvement from EPA
3. Reducing the impact of preventable cancers such as liver cancer from Hepatitis C,
4. Accelerating cutting-edge research through the pipeline with focus on rare cancers, childhood cancers and the deadliest cancers, and
5. Better support for patients and caregivers.

More details can be found here.

These are great goals, and certainly states, including Rhode Island, where the Legorreta Cancer Center and Brown University are located, and where we have higher rates of a number of cancers, stand to benefit from more focus on environmental and toxic exposures as possible underlying causes.

The priorities highlight lifestyle factors, such as diet and nutrition, physical activity, smoking cessation or avoiding other exposures that contribute to the burden of cancer, which is good, but really shouldn't cost more billions of dollars or take such resources away from discovery research.

Implementation science is promising, but why isn't medical care executing on what is already or should be standard of care?

The moonshot goals and Cancer Cabinet priorities focused on research do not highlight the central role and importance of fundamental discoveries across the spectrum of cancer as hundreds of diseases.

There is an emphasis on precision therapies, which, of course, is very important and an emphasis on the deadliest cancers is important. I would say all malignant cancers are deadly, and for a national agenda we can't pick and choose. Studying different populations is very important as is delivering treatment innovations to all.

All cancer research should strive for that as agreed upon, just like we now have a focus on scientific rigor, reproducibility, and biological variables in all NIH funded research. It is time, however, to address the burden of many unfunded across-the-board mandates, and those that will come in the future.

This is particularly important when cost of living has gone up while the magnitude of a modular budget has not changed in decades. I have previously suggested considering an Earth Shot Program.

Disparities are a major problem, and some in the field have publicly condemned AAMC recommendations and anticipated actions in medical education curricula.

I disagree with those views. I think there needs to be a balance, because both biological and social determinants of health are relevant to clinical outcomes and patient mortality.

Maybe instead of arguing that we need to choose between learning about mRNA or history of oppression, perhaps medical education should last longer and maybe include more didactics and research requirements in biology, environment and disparities.

There is a responsibility to prioritize our national investments in cancer research, but also a need for accountability at the level of those investments, by those who are not conflicted. We know what real impact looks like and it should be straightforward to trace it back to its origins and to specific investments.

Some things shouldn't cost as much as they seem to be costing.

This is not to diminish the great importance or acuteness of the societal problems, but we can certainly learn from other countries and be smarter with execution.

There is waste and there are also missed opportunities to gain back funds from government-funded research that gets commercialized. Some would say that much has been invested already and why haven't we made more progress.

An answer is that cancer is complex and that much progress has been made, but there are also many challenges outlined

in this article, including waste of time and money, as to why more progress hasn't been or isn't being done.

> For the older generation, it's pretty safe to say that no one expected that viability in science would mean spending enormous amounts of time writing grants most of which never get funded.

Where do great impactful (towards human health) discoveries come from? Historically, work in biochemistry, lower organisms such as worms, flies, yeast, viruses, and bacteria revolutionized our knowledge.

In some ways, we have gotten so far away from that with big science and big data.

Pure basic science for the sake of science without expectation of translation has not been a failure. My view is to support innovative science while always thinking about translational opportunities.

Collaboration is great to solve difficult scientific and societal problems when the collaborators bring meaningful substance to the table. Forcing collaboration or feeling good that the answer is we would solve problems if we just got the scientists to collaborate is not the answer.

This comment should not be taken out of context, because collaboration can be very impactful. There are many mandates these days, and grand programs that allocate major resources away from the mainstream scientific community that are not evidence-based as far as likelihood to deliver and solve real problems.

Power and politics are at play here when one sees who the beneficiaries are of various national awards involving big science. And maybe that's just how it is and something good will come of it, but as decades go by, one has to revisit accountability as cycles repeat themselves.

A new day lies ahead—if we find ways to address long-standing challenges that have made things worse. Reforms are needed.

Accountability in use of resources is needed, and more grassroots, as well as leadership input, into prioritization.

Workforce issues go beyond how any specific research projects are supported.

It's high time we pay attention to support of scientific careers, physician-scientist careers and academic clinician researchers and educators. Salary support and protected time for academic careers has to be addressed by institutions and at a society/government level.

I have said that physicians, scientists, and especially practicing physician-scientists, should be valued more and helped by everyone in the system to achieve goals that benefit society.

How the Gordian Knot of current problems is addressed will surely impact on the makeup of our workforce in the future, who will undertake the noble profession, and the pace of impact on science and our community.

Perhaps ancient Greece has some solutions.

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GUEST EDITORIAL

Patient navigation improves outcomes and addresses health equity across the cancer continuum

Research shows that cancer patients who receive navigation have improved survival, access to advanced care like clinical trials, and services like genetic testing and palliative care. Navigation often results in increased screening and patients receiving treatment sooner, resulting in improved quality of life and more cancer-free days.

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Patient navigation drives sustainable solutions

For more than 30 years, the American Cancer Society has been a leader in establishing patient navigation as a path to ensuring access to quality care.

In the cancer care setting, patient navigation refers to individualized assistance offered to patients, families, and caregivers to help traverse the complex healthcare system and address logistical, financial, and other barriers.

Such a personalized, high-touch approach facilitates timely access to quality health and psychosocial care from pre-diagnosis through all phases of the cancer experience.[1] This impact crosses all geographies where care is provided.

For example, in the inpatient setting, research has shown that navigation programs decrease hospitalizations and intensive care unit admissions and improve timely diagnostic follow-up. In the outpatient setting, patient navigation increases scheduled appointment arrivals, adherence to recommended cancer screening, and the likelihood that treatment is initiated within 30 to 60 days from diagnosis. This impact is realized across all populations, as navigation is proven to help eliminate health disparities and improve health equity in cancer care.[2]

To underscore the American Cancer Society's commitment to ensuring everyone has a fair and just opportunity to prevent, find, treat and survive cancer, last week, we awarded $4.2 million in multi-year grants for patient navigation programs to the following 14 health systems:

- HIMA San Pablo Oncologico-Caguas, Caguas, Puerto Rico
- University of North Carolina at Chapel Hill, Chapel Hill, North Carolina
- VCU Massey Cancer Center, Richmond, Virginia
- The University of New Mexico Comprehensive Cancer Center, Albuquerque, New Mexico
- The University of Alabama Birmingham, Birmingham, Alabama
- Harris Health System, Houston, Texas
- Boston Medical Center, Boston, Massachusetts
- Montefiore Einstein Cancer Center, Bronx, New York
- Fred Hutchinson Cancer Center, Seattle, Washington
- City of Hope, Los Angeles, California
- The University of Chicago, Chicago, Illinois
- Rush University Medical Center, Chicago, Illinois
- Huntsman Cancer Institute at the University of Utah, Salt Lake City, Utah
- The University of Colorado Denver, Aurora, Colorado

Each health system selected will receive $300,000 to invest in the creation or enhancement of oncology patient navigation services with a particular focus on sustainability of efforts beyond the funded period and equitable access to care for cancer patients and their families.

Patient navigation reduces health inequities

Barriers to equitable access to prevention and treatment and challenges in delivering appropriate care coordination stand in the way of achieving equity in cancer care and delivering high-quality care to all people with cancer. Notable advances in cancer prevention, cancer screening, and the development of effective cancer treatments have contributed to improved outcomes for many populations of patients with cancer.[3]

However, the benefits of these advances are not shared equally, and significant disparities persist in cancer outcomes by race/ethnicity, socioeconomic status, sexual orientation, gender identity and geography.[4,5]

The main drivers of differences in cancer survival are not related to biology; instead, they derive from structural barriers to accessing care and overt documented differences in the delivery of evidence-based care.[6,7,8]

Patient navigation can facilitate improved health care access and quality for underserved populations through advocacy and care coordination. It can also help to address deep-rooted issues related to distrust in providers and the health system that often leads to avoidance of health problems and noncompliance with treatment recommendations.

By addressing many of the disparities associated with language and cultural differences and barriers and connecting people with similar lived experiences, patient navigators can foster trust and empowerment within the communities they serve. We are committed to supporting hospitals and health systems in advancing high-quality cancer care to treat underrepresented populations.

We are grateful to the funders of this initiative—Janssen Pharmaceutical Companies of Johnson & Johnson, Bristol Myers Squibb and Daiichi Sankyo. They share our commitment to sustainable models of oncology patient navigation.

Last month the American Cancer Society's National Navigation Roundtable (NNRT) published a new supplement on the role navigation plays in improving patient outcomes. Launched in 2017, the NNRT is a coalition of over 100 member organizations and individuals dedicated to achieving health equity and access to quality care across the cancer continuum through effective patient navigation.

> Patient navigation can facilitate improved health care access and quality for underserved populations through advocacy and care coordination.

Collectively, the roundtable disseminates best practices and works on key issues that enhance the navigation field. The free supplement can be accessed here and learn more about the NNRT here.

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GUEST EDITORIAL

Getting back to where we once belonged

An argument for restoring creative spirit in science

Jonathan Chernoff, MD, PhD
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The scene opens with a group of four musicians sitting on couches around a table in a studio. One of them is strumming aimlessly on his guitar, trying out various chords in sequences. Some of it sounds okay, even pleasant; other parts don't work and are discarded.

Gradually, fragments of a vaguely familiar tune begin to emerge, scraps of a melody, but it's not clear yet if this exercise will lead anywhere.

The lead musician begins adding a singsong patter to his chords, mumbling something about a man named Jo-Jo, who apparently has a home in Tucson, Arizona. The chord changes gradually become more definitive, and a second guitar adds a recognizable riff, driving ever closer towards... something.

Then, over a period of just a few minutes, we hear it coalesce and take on the final shape of the song as we know it today. What we have just witnessed is the genesis of the classic Beatles' tune "Get Back," pulled from the air in the ultimate magic act of making something from nothing.

To my mind, the process of musical creation, as depicted in the recent film documentary "Get Back," bears more than a passing resemblance to a lab meeting at its best: the whirling exchange of half-formed ideas; the false starts and dead ends; the trial balloons that float for a moment and are then deflated, only to be refilled and rise again; the reformulations and clarifying edits that push ideas along, remix, and meld them to their final form.

The process from notion to completion can take hours, days, months, years, or even whole careers.

Usually, the core group is small, Beatles-sized small, bringing in backing musicians as needed, maybe the scientific equivalent of a skilled keyboardist or a horn player, depending on the nature of the project. As in any creative enterprise that requires deep effort, relations between the teammates aren't always harmonious, and personal issues must sometimes be worked through before meaningful progress can be made.

The melodies of the Beatles' tunes are famously catchy and memorable, but it is the resolution of harmonies, the complex and often unexpected progressions from dissonance to consonance,

that gives their greatest works their unique color and interest. This aspect is also true of scientific research.

We start with a dissonant observation, something that doesn't quite fit—Why does our tailored drug not kill the targeted cancer cell? What triggers a dormant tumor cell to awaken after decades of slumber? How is it that metastatic cells home to one tissue and not another?—and we attempt to resolve it through a well-modulated series of experiments.

When it works, the process is beautiful to behold, a reminder of why one chose to become a scientist in the first place. When it fails, well, that can be instructive, too, and ideally leads to better ideas and more predictive models.

So, why doesn't it happen more often? Why does research so often seem plodding rather than flying? Have we, the cancer research community, acting with the best of intentions, inadvertently engineered a system that discourages creativity?

One development that has sapped the creative spirit from cancer research is an overzealous faith in the power of large-scale collaboration.

The animating idea seems to be that greedy, egocentric scientists hoard precious data that properly belong to the public, and if only they could be compelled to share these taxpayer-funded findings, we'd get cancer cures more quickly.

There is a seductive, gut-level logic to this premise, as it simultaneously skewers diva-ish science superstars and explains why most metastatic tumors still can't be cured despite a 50-year war on cancer. However, if collaboration were an unalloyed good, then adding the Rolling Stones to the Beatles would produce hot licks, when we know it would in fact produce a hot mess.

Put another way, for all the virtues of the 1980's "We Are the World" supergroup, making great music was not among them. It may seem unsatisfying and counterintuitive, but even the most idealistic scientists are motivated at least in part by a zeal to compete, to reach an answer before one's rivals, to be recognized as a rock star.

Getting elected to the National Academy of Sciences is akin to getting elected to the Rock & Roll Hall of Fame (and probably much easier, if we go by raw numbers), and for some researchers that is motivation enough.

But it is important to remember that the way to get famous in the cancer research world is by making discoveries that matter, a goal that perfectly aligns with the mission of the NCI and the interests of the public.

One might almost invoke a version of the invisible hand—investigators pursuing their own goals for their own reasons, within the limits of propriety and the law—as a guarantor of getting the best science at the least cost to the public. To paraphrase Adam Smith, it is not from the benevolence of the chemist, the gene jock, or the microscopist that we expect our cures, but from their regard to their own interest.

Team science isn't inherently bad. In fact, cancer research has always been a team sport, and successful solo acts are exceedingly rare. It's just that the size of the team matters, and bigger isn't always better.

Many of the most remarkable discoveries have come from individual, sometimes quite small labs working alone or in small-scale collaborations. With genuine respect to NCI's national RAS Initiative, whose work I greatly admire, the single most exciting idea for a RAS therapeutic emerged from Kevan Shokat's group, a traditional (albeit HHMI-funded) academic laboratory. Similarly, gene editing methods, which

> The process of musical creation, as depicted in the recent film documentary "Get Back," bears more than a passing resemblance to a lab meeting at its best.

might one day enable us to repair mutant cancer-driving genes, came out of a small number of what were then mid-sized laboratories that competed as much as they collaborated.

Team size and the need for collaborators will naturally be related to the job at hand. Methods to sequence DNA were discovered by Sanger and by Gilbert and their small groups in the mid- 1970s, but it took a veritable global village of collaborating academic groups, in ferocious rivalry with Venter's private venture, to sequence the human genome.

A similar discovery-to-engineering arc describes the journey from the small-scale development of rocketry by Goddard in the 1920s to NASA's massive efforts some forty years later—the literal moonshot—that serves, for better or worse, as the defining metaphor for President Biden's recent efforts to speed cures for cancer.

But, if the fundamental work that underpins these advances usually comes from small teams, is there an optimal size?

In the business world, this issue has been much studied. We have, for example, the Bezos Rule, which states that any group that needs to be fed by more than two pizzas is too large to be effective.

Similarly, Brooks' law declares that adding new team members to a late software project will make it even later. And then there is Price's Law, which asserts that half the output of a team is produced by the square root of the number of its members.

The consensus of these and similar anecdotes and studies is that the optimal group size for research projects is about seven, plus or minus three. Luckily for scientists, this is just about the number of staff that a principal investigator can expect to fund with two R01 (or equivalent) grants.

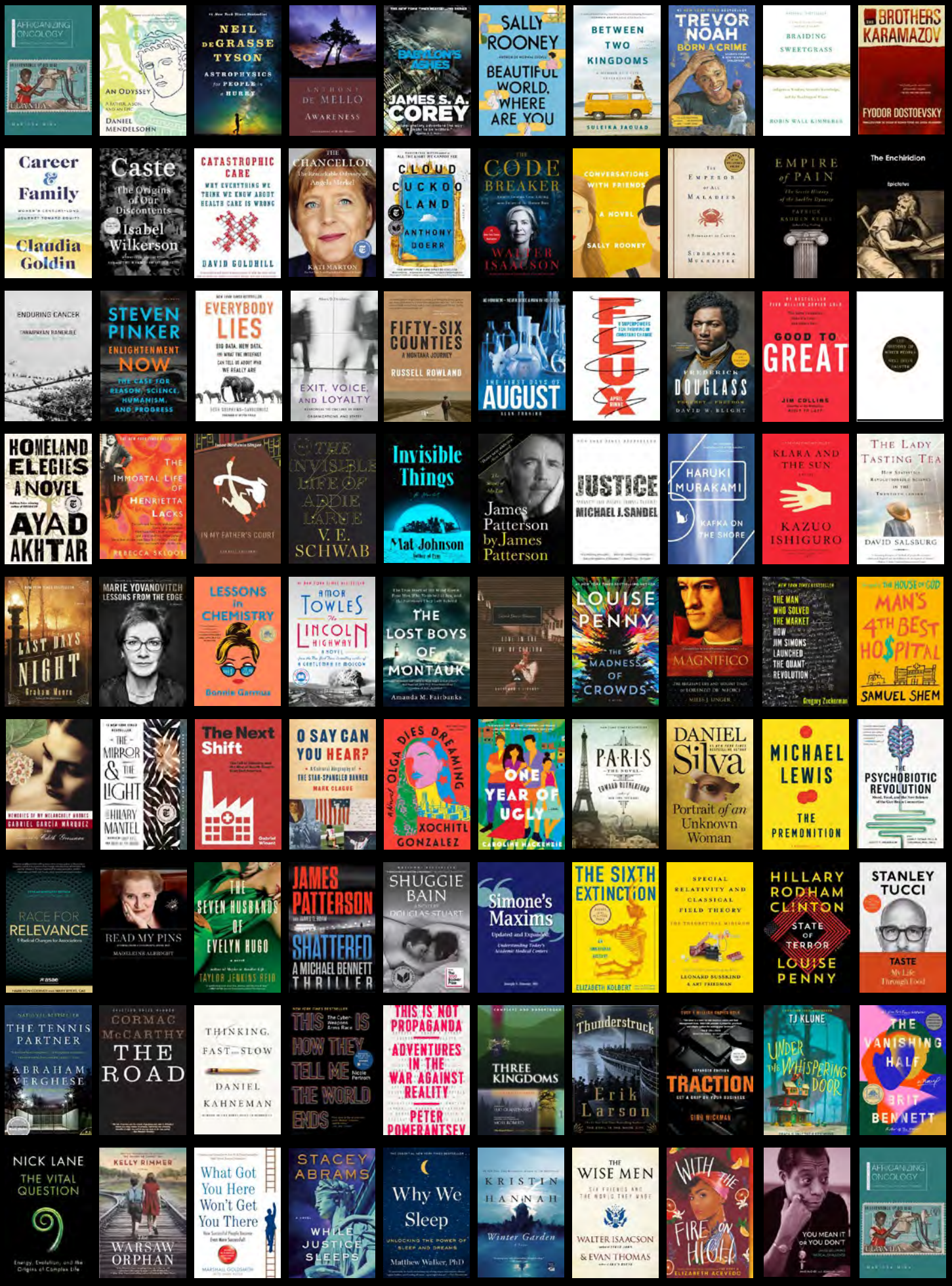
As several of the NIH's own reports have shown, once things exceed this size, communications become more difficult and the 'bang for the buck' starts to decline.

Barely a decade separated the Beatles of the Hamburg cellar clubs from the Beatles of the London rooftop session, and afterwards, the music they made alone was never as good as the music they had made together. It required a certain time and a certain place.

The creative process is a delicate thing, subject to special conditions that are hard to produce and, once lost, even harder to reproduce. Genius can't be directed from above any more than a record company executive can order up a number-one single by fiat.

What is missing from academic cancer centers today is the equivalent of open session time for its researchers, where a lab group can occupy itself doing what it was meant to do and what it does best: testing the limits of knowledge, relatively free from distraction.

Is it too much to hope that we can get back to that era, or create a new one that adopts its best features?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SALLY ROONEY
BEAUTIFUL WORLD, WHERE ARE YOU
BETWEEN TWO KINGDOMS
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BORN A CRIME
BRAIDING SWEETGRASS
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KLARA AND THE SUN
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YOU MEAN IT OR YOU DON'T
AHHGANIZING ONCOLOGY
UGANDA

BOOK REVIEW

What are you reading in 2022?

By Katie Goldberg

Is 2022 the year of thrillers? Statistics? Thrillers about statistics?

For the third year in a row, *The Cancer Letter* has asked a diverse panel of clinicians, basic scientists, early-career faculty, and regulators to tell us what they are reading.

The Cancer Letter's summer reading list, now an August tradition, began in 2020, when, in the midst of a deadly pandemic and significant political unrest, the reading list seemed to be trying to answer the question: "What the hell is going on?" (*The Cancer Letter*, Aug. 6, 2020)

A year later, the focus shifted: the reading list was dominated by stories of personal and professional growth, the challenge of becoming a better leader, and deeper explorations of systemic racism in the U.S. (*The Cancer Letter*, Aug. 6, 2021).

Where are we now in 2022? A rigorous statistician may accuse us of overinterpreting the data, but it seems that 2022 is a good year for escaping into a good book. We see thrillers, memoirs, histories, literary fiction, scientific literature, books about business—and a cookbook.

Surrounded by war, Yuliya Nogovitsyna, program director of Tabletochki Charity Foundation, a Kyiv-based charitable organization that took part in evacuating children with cancer from Ukraine (*The Cancer Letter*, April 15, 2022), turned to a familiar writer: Sally Rooney.

"Why? I have no idea," she said. "At the times of uncertainty and changes, it was very comforting to see the familiar name of Sally Rooney. I did not want any discoveries or unexpected things. The old acquaintance was good enough."

Arguably, the backdrop of the war in Ukraine has prompted others to turn to books about other conflicts.

Jeannine Brant, executive director of clinical science and innovation at City of Hope, and president of the Oncology Nursing Society, who recommended two novels about World War II, said those books share a central theme: "overcoming adversity and the power of the human spirit."

Ned Sharpless, former NCI director, recommended Haruki Murakami's *Kafka on the Shore*, a novel set partially against the backdrop of World War II.

"Don't expect all the details to click into place at the end, and don't expect any of it to really make sense, but the evocative images of the book stick in your mind a long time, in a dream-like and good way," Sharpless said.

Thomas Curran, senior vice president, executive director, and chief scientific officer of Children's Mercy Research Institute, went down a rabbit-hole of hypertension-inducing contemporary political books, but none of them figure on the list of books he would recommend.

"I read a host of 'tell-all' political books this year," he said. "I wouldn't recommend any, unless your low blood pressure needs a boost, but I can summarize, so you don't have to read them: No matter how bad you thought things were over the past several years, they were far worse!"

Instead, Curran recommends three books that were "more enjoyable to read," including *Shuggie Bain* by Douglas Stuart, which he advises is best enjoyed "with a wee dram on the side."

Thrillers figure prominently on the reading list this year. For Electra Paskett, the Marion N. Rowley Professor of Cancer Research at the Ohio State University

College of Medicine, this comes down to a professional interest:

"As an epidemiologist, I am trained to solve puzzles and look for connections," said Paskett, also director of the Division of Cancer Prevention and Control in the Department of Internal Medicine at OSU College of Medicine. "Since I have been reading for pleasure I can say my go-to books are mystery, whodunit, spy, and thriller types—good guys ending the threat of death."

Apologies to Daniel Silva and James Patterson, Paskett's favorite authors: cancer, she said, is "the ultimate 'bad guy.'"

Julie Gralow, chief medical officer and executive vice president of the American Society of Clinical Oncology, shares Paskett's affinity for whodunit. Gralow recommends *State of Terror* by Louise Penny and Hillary Rodham Clinton, and said, "Louise Penny is one of my favorite mystery writers and I recommend anything by her."

Penny, a Canadian critically-acclaimed mystery author, was recommended three times. (Last year, Isabel Wilkerson and Barack Obama showed up multiple times on the list.)

"Penny's work often teases out thought-provoking psychological insights anyone might find relatable as her characters expose their imperfections resulting in tortured life decisions," said Rea Blakey, associate director of external outreach and engagement at the FDA Oncology Center of Excellence.

The most-recommended Louise Penny novel on this year's reading list is *The Madness of Crowds*.

"This book takes us into the life choices of a statistics professor fomenting a repulsive agenda using the strategy of delusion of the masses," Blakey said.

Banu Symington, medical director of Sweetwater Regional Cancer Center, also recommended *The Madness of Crowds*.

"The psychological thriller that is *The Madness of Crowds* centers on the aftereffects of the COVID pandemic," she said, "including the normalization of the concept of sacrificing the aged and the disabled to save the world—a frightening reprise of some of Hitler's abhorrent ideas, which we have heard voiced by some extremists among us."

Jonathan Chernoff, director of Fox Chase Cancer Center, proposed two lists of book recommendations: his real list and an aspirational one.

"All of the books on the real list, in one way or another, deal with the effects of the past on the present and future," he said. "What we do matters not only for us now, but for those who follow us."

Chernoff's aspirational list is filled with books he read in years past that he believes are "more what a cancer center director 'should' be reading," he said.

"These books deal with the many imperfections in our society and various attempts to make things better."

An editorial by Chernoff appears on page 27.

Those looking for recommendations for scientific literature or books that grapple with the giant abstract problems of the world will find no shortage of diverse options on this summer's reading list, including global warming, Big Data, and astrophysics.

Sharpless has words of advice to those who may pick up *Special Relativity and Classical Field Theory: The Theoretical Minimum* by Leonard Susskind and Art Friedman, one of the books he recommends:

> Most importantly for a cancer scientist, thinking about hard math allows you to feel a bit smug the next time some jerk statistician tells you that you don't really understand p-values (but keep this smug superiority to yourself, as antagonizing the stats people only makes it worse for everybody).

Rea Blakey

Associate director, external outreach and engagement, FDA Oncology Center of Excellence; Leader, OCE Project Community and "National Black Family Cancer Awareness Week" initiative; Committee member, OCE Diversity, Equity, Inclusion and Accessibility

- *Portrait of an Unknown Woman*, by Daniel Silva
- *The Madness of Crowds* (*Chief Inspector Gamache* series), by Louise Penny
- *The Immortal Life of Henrietta Lacks*, by Rebecca Skloot

My summer reading recommendations are steeped in fiction offerings. I consider reading as a time to escape after consuming too much "news" and witnessing unending social ills, domestic and global.

Portrait of an Unknown Woman—The opportunity to ramble through the streets of venerable European cities while track-

ing down the world's greatest art forgeries and those masterful geniuses who create them, while never having to board an international flight, is irresistible to me.

The Madness of Crowds—My favorite murder mystery book series follows Louise Penny's lead character Armand Gamache, head of homicide at the Sûreté Du Québec. Penny's work often teases out thought-provoking psychological insights anyone might find relatable, as her characters expose their imperfections resulting in tortured life decisions. This book takes us into the life choices of a statistics professor fomenting a repulsive agenda using the strategy of delusion of the masses.

The Immortal Life of Henrietta Lacks—This recommendation for a non-fiction, historical biography written by a journalist is to remind us of the "why." The price one disadvantaged family pays for the scientific discovery known as HeLa cells results in multi-generational trauma. I've had the honor of meeting some of Henrietta Lacks' descendants—no one should endure what this family sacrificed. Let's keep humanity at the forefront of cancer treatment and all medical care.

Jeannine M. Brant, PhD, APRN, AOCN

Executive director of clinical science and innovation, City of Hope; President, Oncology Nursing Society

- *Fifty-Six Counties: A Montana Journey*, by Russell Rowland
- *Winter Garden*, by Kristin Hannah
- *The Warsaw Orphan: A WWII Novel*, by Kelly Rimmer
- *Race for Relevance: 5 Radical Changes for Associations*, by Harrison Coerver and Mary Byers

Fifty-Six Counties is all about the beautiful place I call home—Montana. I was born and raised in Montana, and it is a magical and amazing place! Montana has 56 counties, each with its own people and culture. Most counties are remote and isolated and yet have a unique personality of their own. If you want to dive into Montana's rich history and diverse areas, this is a great read for you.

While I'm an eclectic reader, my go-to reads for the summer and beach are World War II historical fiction. My uncle was killed in World War II in Bologna, Italy, just a week before the war ended. My father often talked about this great loss, and I became interested in World War II from an early age.

Winter Garden is the story of a woman who grew up in Leningrad during World War II, lives through a traumatic experience, and then lives with her trapped trauma, which finally surfaces later in life.

The Warsaw Orphan takes place in the Jewish ghetto and focuses on a young man whose family is taken to a prison camp while he escapes this fate.

Both provide a glimpse into World War II life in different places—Poland and Russia—and both are about overcoming adversity and the power of the human spirit.

In addition to my fun reads, I often have a non-fiction book on my nightstand for personal and professional growth. *Race for Relevance* is a great read for anyone who serves on a nonprofit board of directors. It takes a bold look at how to move associations forward, so they remain relevant to the mission and members they serve. As the Oncology Nursing Society president, this was my professional growth book of the year. It opened my mind up to a forward-thinking direction for ONS.

Andrew E. Chapman, DO

Executive vice president of oncology services, Jefferson Health; Enterprise director, Sidney Kimmel Cancer Center; Professor of medical oncology, Co-director, Jefferson Senior Adult Oncology Center

- *Thunderstruck*, by Erik Larson
- *The Last Days of Night*, by Graham Moore
- *Code Breaker: Jennifer Doudna, Gene Editing, and the Future of the Human Race*, by Walter Isaacson

Arguably my favorite author, Erik Larson tells the true story surrounding Marconi's development of the wireless. Larsen's uncanny way of bringing history to life makes his novels simply remarkable IMO.

The Last Days of Night—This brilliant account of historic fiction bringing together JP Morgan, Thomas Edison, George Westinghouse, and Nikola Tesla, and the rights to the light bulb. A really fun escape into history.

Code Breaker will likely be on many lists. I have just started this book about the discovery/development of CRISPR technology and the moral questions that followed.

Jonathan Chernoff, MD, PhD

Director, Fox Chase Cancer Center; Stanley P. Reimann Chair in Oncology Research

The real list:

- *In My Father's Court*, by Isaac Bashevis Singer
- *"Haya Aviv BaAretz" ("It was Spring in the Land")*, by Zevi Scharfstein
- *Cloud Cuckoo Land*, by Anthony Doerr
- *An Odyssey: A Father, A Son, and an Epic*, by Daniel Mendelsohn
- A bunch of *New Yorkers*

The aspirational list:

- *The History of White People*, by Nell Irvin Painter
- *The Perfectionists: How Precision Engineers Created the Modern World*, by Simon Winchester
- *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*, by Albert O. Herschman
- *The Enchiridion*, by Epictetus
- A bunch of *Science* and *Nature* magazines

There is a real list and an aspirational one. I've often wondered, when I see these lists in *The New York Times Book Review*, whether the featured authors are telling the literal truth or engaging in a form of virtue signaling.

In general, I have a mixed pile of magazines and books on my nightstand, and engage with about five at a time.

All of the books on the real list, in one way or another, deal with the effects of the past on the present and future. What we do matters not only for us now, but for those who follow us. At first glance, this idea seems obvious and even trite, but the links between the two can be subtle and unexpected. To me, it means that one should always be mindful of history and one's personal role in creating it.

It was Spring in the Land—The author was my maternal grandfather and the founder of Shilo Publishing house, which still exists. My brothers and I are laboriously translating his autobiography from Hebrew to English. We're on Chapter 15 now, which deals with the Russian Revolution in 1905, as seen by the Jewish Community in Berdyansk.

The aspirational/inspirational list is more what a cancer center director "should" be reading. In fact, I did read these books, but it was a year or more ago.

These books deal with the many imperfections in our society and various attempts to make things better. Some involve betterments in technologies, such as the rise of precision machining and the many changes that wrought, but most deal with betterments in people and how we can build a more just world.

The History of White People—This book takes a deep dive into the concept of whiteness, and is essential reading for anyone interested in DEI.

The Enchiridion—During the worst of the Fox Chase sale period, I bought twenty copies of this book on Stoic philosophy and handed it out to all my chief lieutenants. My own copy is dog-eared, with many underlined passages.

Li C. Cheung, PhD

Earl Stadtman Investigator, Biostatistics Branch, Division of Cancer Epidemiology and Genetics, National Cancer Institute

- *This is How They Tell Me the World Ends: The Cyberweapons Arms Race*, By Nicole Pelroth
- *Three Kingdoms, a Historical Novel*, attributed to Luo Guanzhong, translated with notes by Moss Roberts
- *The Lady Tasting Tea: How Statistics Revolutionized Science In The Twentieth Century*, By David Salsburg

This is How They Tell Me the World Ends is a detailed, well-researched history of the origins and growth of cyberweapons told in a compelling, fast-paced style. You'll never look at your information security refresher course the same way.

Three Kingdoms: A Historical Novel—My favorite English translation of the 14th century Chinese classic set in the turbulent end of the Han dynasty and the Three Kingdoms period (169-280 AD). The story draws you in from its opening lines: "The empire, long divided, must unite; long united, must divide. Thus it has ever been." This particular translation is filled with interesting footnotes by Professor Moss Roberts on historical tidbits and how the story has evolved over time to meet the political agenda of the ruling dynasty/party.

The Lady Tasting Tea—A fascinating history of the men and women who had pivotal roles in the development of modern statistics. This account details their theories and its origins and their personalities and rivalries: from R. A. Fisher, who developed hypothesis testing to test a lady's claim at a tea party that she could differentiate if the milk was poured into the tea or if the tea was poured into milk, to W. S. Gossett, who developed the Student's t-distribution because he wanted to make a better beer.

Thomas Curran, PhD

Senior vice president, executive director, chief scientific officer, Children's Mercy Research Institute; Donald J. Hall Eminent Scholar in Pediatric Research, Children's Mercy Kansas City; Professor, Department of Pediatrics, KUMC School of Medicine; Professor, Department of Cancer Biology, University of Kansas School of Medicine; Adjunct professor of biomedical sciences, Kansas City University

- *Klara and the Sun*, by Kazuo Ishiguro
- *Man's 4th Best Hospital*, by Samuel Shem
- *Shuggie Bain*, by Douglas Stuart

I read a host of "tell-all" political books this year (had time to kill—thank you pandemic), but none were particularly well written. I wouldn't recommend any, unless your low blood pressure needs a boost, but I can summarize, so you don't have to read them: No matter how bad you thought things were over the past several years, they were far worse!

So, let's move on to things that were more enjoyable to read.

Klara and the Sun—Kazuo Ishiguro, master of the English language, adopts the dispassionate voice of Klara, an "Artificial Friend," whose detailed insights into the characters she encounters reveals aspects of the human condition and the nature of love. As we increasingly embrace technology, and artificial intelligence makes inroads into healthcare, the perspective of this synthetic intelligence plays out very effectively.

Klara illuminates many disconcerting features of the near-future world she inhabits and raises profound questions about the impact of technology on society as her story unfolds. The common themes in Ishiguro's work of memory, time, and deception, are evident as layers of meaning are shed in a deceptively simple prose.

Man's 4th Best Hospital—Erv Epstein, MD, recommended *Man's 4th Best Hospital* to me for a summer read. He explained that it is a sequel to *House of God*, the well-known right-of-passage book for medical students in the early 80's. Since I was never a medical student, I also read *House of God* by way of background. The author Samuel Shem (ask Paul Goldberg what this means), is the *nom-de-plume* of Stephen Bergman, MD, PhD, who is currently clinical professor of medicine and psychiatry at NYU Grossman School of Medicine.

[**Editor's note:** "Shem'' means "name" in Hebrew.]

The hilarious *House of God* is a little dated now, no cell phones or electronic medical records included, terribly raunchy, definitely sexist, and by today's standards, remarkably politically incorrect, but it is a rip-roaring read.

Man's 4th Best Hospital revisits the previous characters now they are somewhat more mature and in responsible positions. The sledgehammer wit of the author is applied very effectively to financially-driven healthcare organizations (isn't that all of them?) and

electronic medical record systems. The familiar protagonists take up arms against the system to make medicine more humane again. There are several moments of recognition "*Yes! It is just like that*" throughout the book, which takes a more serious perspective than its predecessor, with a decidedly less raunchy tone and, dare I say it, a more mature perspective. It won't provide you with a summer escape from your day job, but guaranteed, you will recognize aspects of the thinly disguised "BUDDIES"—a friendly healthcare corporate enterprise that runs the hospital—and "HEAL (healthy electronic assistance link)"—the EHR system who's only saving grace is that it trumps EPIC.

Shuggie Bain—Growing up in a tiny rural village in Scotland, I was unaware that my working-class dialect was not exactly the Queen's English. Although in later life, because of the need to be able to order a sandwich in a London café, I completely reprogrammed my speech patterns, I was rather chuffed (British for quite pleased), to be asked by a friend to join his book club discussion of *Shuggie Bain*, a debut novel from a new Scottish writer, so I could validate the context of the book and provide occasional translations of the Glaswegian vernacular.

I had already read the book, heralded as a breakthrough first novel, and was completely blown away, but, just in case, I came to the event armed with a bottle of single malt, complemented with several bags of authentic UK Walkers salt and vinegar crisps. The discussions warmed as the evening progressed and the whisky lubricated an authentic delve into a world not too distant from my childhood.

Shuggie (a common derivative of Hugh in Scotland) was born into a world he did not fit. Not a true autobiography, the novel is informed by Douglas Stuart's lived experiences. The overarching theme is love for his mother, an alcoholic, and the alienation of Shuggie, a gay boy with a strong predilection for fashion, growing up in a casually violent society, rife with the impact of poverty and addiction. It turned out to be a bit too close to the bone for me. Not the alcoholism, the sexual orientation, and perhaps not the abject poverty, but the alienation was spot on. This is a universal theme, and it is very accessible to those not unfortunate enough to grow up in the working-class Scottish society of the era.

I can attest that the characters are firmly based, the language is authentic and the humor characteristic of the population. Shuggie dreams of attending hairdressing college, Douglas Stuart became a leading fashion designer and now an award-winning author, and against all odds I became a scientist. We all share a history as well as respect and passion for the different. Worth a read, with a wee dram on the side.

Csaba L. Dégi, PhD, MSW

Executive secretary, International Psycho-Oncology Society;
Board member, European Cancer Organisation;
Associate professor with habilitation and researcher, Faculty of Sociology and Social Work, Babes - Bolyai University, Cluj-Napoca, Romania

- *Why We Sleep: Unlocking the Power of Sleep and Dreams*, by Matthew Walker, PhD
- *The Psychobiotic Revolution: Mood, Food, and the New Science of the Gut-Brain Connection*, by Scott C. Anderson, with John F. Cryan, PhD, & Ted Dinan, MD, PhD
- *Everybody Lies: Big Data, New Data, and What the Internet Can Tell Us About Who We Really Are*, by Seth Stephens-Davidowitz
- *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress*, by Steven Pinker
- *Astrophysics for People in a Hurry*, by Neil deGrasse Tyson

Integrative cancer care is one of the most personalized approaches to assisting people affected by various tumors, and it is frequently based on cutting-edge science. Sleep is important for maintaining our physical and mental health, and it may turn out to be our future partner in mood regulation, along with the emerging psychobiotic insight.

> "Did I bring up bibliotherapy?"
>
> *– Csaba L. Dégi*

Psychosocial needs are so personal and sensitive that people will sometimes lie just to get attention, support, and affection. Big data has been used successfully in oncology for earlier screening and better treatment. Why not use it to help our cancer patients and their loved ones with their psychosocial needs as well?

And, yes, beating cancer cells and distress requires a lot of guts filled with a positive outlook to the future. Okay, maybe not all the way to the edge of the universe, but I couldn't help but recommend astrophysics to everyone, particularly cancer survivors.

Did I bring up bibliotherapy?

Don Dizon, MD

Director, Pelvic Malignancies Program, Lifespan Cancer Institute;
Head of community outreach and engagement, The Cancer Center at Brown University;
Director of medical oncology, Rhode Island Hospital

- *Taste: My Life Through Food*, by Stanley Tucci

I became obsessed with Stanley Tucci: Searching for Italy on CNN and the more I got to know his story, including his own cancer journey, I wanted to learn more, so I started reading his autobiography/recipe collection, *Taste*. It's witty and reminiscent of my own life growing up on Guam in a way—traditions traveled from the old country to the new, life told by food. I find it witty and comforting.

Qi Dong, MD, MBA

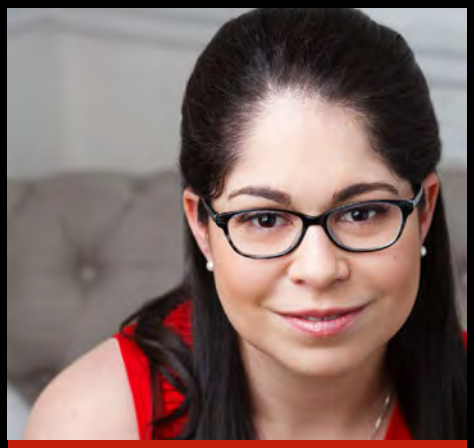
Medical director, Takeda Oncology

- *The Lincoln Highway*, by Amor Towles
- *The Emperor of All Maladies: A Biography of Cancer*, by Siddhartha Mukherjee

I'm reading *The Lincoln Highway* by Amor Towles, who is also the bestselling author of *A Gentleman in Moscow* and *Rules of Civility*. In this elegantly written story, Towles leads us on a journey with two brothers from the heartland of America heading out to California in the hope of finding their mother, who abandoned them eight years ago. Their adventure was full of nostalgia of the 1950s and showed us how nonlinear and unpredictable our lives could be.

The book I just finished was the Pulitzer Prize winner, *The Emperor of All Maladies* by Siddhartha Mukherjee. As a physician-scientist and an award-winning science writer, Mukherjee presented us with a well-narrated history of cancer, from the primordial record thousands of years ago to the modern battles to control and defeat this mortal enemy in the 20th-century. Through human dramas and scientific facts, this book documents the heavy tolls cancer has inflicted on individuals and society, as well the relentless efforts to tame it.

Deborah Doroshow, MD, PhD



Assistant professor of medicine, Tisch Cancer Institute, Icahn School of Medicine at Mount Sinai

- *Empire of Pain: The Secret History Of The Sackler Dynasty*, by Patrick Radden Keefe
- *The Invisible Life of Addie LaRue*, by V.E. Schwab

Empire of Pain—While the general outlines of how the Sackler family played a central role in addicting thousands of Americans to opiates are well known by many, Keefe's book length expansion of his 2017 New Yorker story is worth the (long) read. Keefe's narrative style is quick moving and incisive. More than just a history of the opioid epidemic in the United States, *Empire of Pain* is a rich history of drug discovery and regulation, of Jewish life in early 20th-century America, and of the fraught balance between power and responsibility.

The Invisible Life of Addie LaRue—What if no one who met you could remember a thing; your existence limited entirely to the here and now? This wide-ranging novel is the story of a girl trapped

by the limitations of 18th century French society who makes a deal with the devil for freedom from societal expectations and demands. While freedom comes with immortality, it also comes with a catch—she is destined to be forgotten by all whom she meets within moments of leaving their sights. How she makes meaning of her life over the next several centuries and fights the complex bargain that has shaped her life is both touching and terrifying.

Narjust Florez, MD

Associate director, The Cancer Care Equity Program; Thoracic oncologist, Lowe Center For Thoracic Oncology, Dana-Farber Cancer Institute

- *Love in the Time of Cholera*, by Gabriel García Márquez
- *Memories of My Melancholy Whores*, by Gabriel García Márquez

I am re-reading *Love in the Time of Cholera* and *Memories of My Melancholy Whores* by Gabriel García Márquez.

I read these books when I was still back home in Venezuela and the Dominican Republic. With the pandemic and the isolation associated with it, I have missed home more than usual; rereading these books has brought some of that home feeling I miss.

Also, it's always a good time for a complicated love story, and the question remains—was Florentino Ariza in love with Fermina or was he in love with the fact of being in love?

Julie Gralow, MD

Chief medical officer, Executive vice president, American Society of Clinical Oncology

- *Lessons from the Edge: A Memoir*, by Marie Yovanovich
- *Lessons in Chemistry*, by Bonnie Garmus
- *While Justice Sleeps*, by Stacey Abrams
- *State of Terror*, by Louise Penny and Hillary Rodham Clinton
- *The Lincoln Highway*, by Amor Towles
- *One Year of Ugly*, by Caroline Mackenzie

Following the 2022 Russian invasion of Ukraine, I picked up *Lessons from the Edge*, a memoir by Marie Yovanovich, the former U.S. ambassador to Ukraine who was recalled from her post in 2019 in a series of events that led to the first impeachment hearings of the prior administration.

Given my global oncology work in Ukraine and throughout Eastern Europe and Central Asia, it was particularly interesting to hear her insights and perspective as a career diplomat in the region as they related to events I witnessed much more peripherally. Yovanovich served in the U.S. foreign service mostly in the former Soviet Union, including Moscow and Kyiv, before becoming U.S. ambassador to Kyrgyzstan, Armenia, and eventually Ukraine in 2016. She observed firsthand Vladimir Putin's rise to power in Russia and his aggressive, domineering approach to neighboring countries.

Her perspectives on the initial days of the presidency of Ukraine's Volodymyr Zelenskyy and the U.S. politics that led to her recall as ambassador were particularly enlightening. The book gives an interesting perspective on recent political history as it relates to the current crisis in the region. I was inspired by Yovanovich's career dedicated to public service, her commitment to defending democracy in the U.S. and abroad, and her success in the foreign service despite being an introvert and female.

Lessons in Chemistry by Bonnie Garmus is a witty and humorous novel that also makes you think. The principal character is a resourceful female chemist in the 1960s surrounded by an all-male team at a research institute in California with a view of gender equality typical of mid-20th century America. Her career takes a turn when she unexpectedly becomes the star of a popular TV cooking show where she isn't just teaching women to cook, she's daring them to change the status quo.

The novel focuses on serious themes including misogyny, feminism, family, and self-worth, but it's also funny and full of hope and charm. The story's themes speak to my passions for science, cooking, and gender equality, and there's even a great dog character! It's a reminder of how far we've come,

but, as exemplified by recent Supreme Court events, how far we still have to go.

I like to read mysteries for relaxation during travel and vacations, sometimes listening to them on books-on-tape during a long drive. Two entertaining political thrillers I've read/listened to this year are *While Justice Sleeps* by Stacey Abrams and *State of Terror* by Louise Penny and Hillary Rodham Clinton.

While Justice Sleeps offers numerous plot twists and turns after a young Supreme Court law clerk is suddenly thrust into the middle of a controversial court case involving conspiracies, politics, and corruption. *State of Terror* is the story of a newly appointed Secretary of State (a former political rival of the new president—sound familiar?) as she deals with a series of terrorist attacks involving nuclear weapons, the volatile politics of Pakistan, Afghanistan and Iran, and even the Russian mob. Louise Penny is one of my favorite mystery writers and I recommend anything by her (especially her *Chief Inspector Armand Gamache* series set in the Quebec village of Three Pines)—teaming up with Hillary Clinton added a fun twist.

I was excited to dive into *The Lincoln Highway* by Amor Towles since I loved the author's prior book, *A Gentleman in Moscow*. It did not disappoint. The story is an epic 10 day quest set in mid-1950's America that follows four boys who set out to travel the country in search of adventure and a fresh start, complete with train-hopping, car-stealing, and trouble originating from both good and bad intentions. It's remarkable storytelling, complete with unexpected twists, unforgettable action, and great character development. Although almost 600 pages, it's fast-paced and ended way too quickly!

On my upcoming reading line-up is *One Year of Ugly* by Caroline Mackenzie. I like to read novels related to my travels, and I'm invited to speak at the Caribbean Association for Hematology and Oncology annual meeting in Port of Spain, Trinidad in October. *One Year of Ugly* is about a family fleeing Venezuela to find peace, and ending up in Trinidad and in debt to a local criminal called Ugly. Without the funds to pay him off, Ugly has the family do his bidding until the debt is settled. The reviews say it's "an addictive read that is laugh-out-loud funny." I'll let you know if I agree after I return from Trinidad!

Clifford A. Hudis, MD

CEO, American Society of Clinical Oncology;
Executive vice chair, Conquer Cancer Foundation;
Chair, CancerLinQ

- *The Lost Boys of Montauk: The True Story of the Wind Blown, Four Men Who Vanished at Sea, and the Survivors They Left Behind*, by Amanda M. Fairbanks
- *Homeland Elegies*, by Ayad Akhatar
- *The Road*, by Cormac McCarthy
- *Between Two Kingdoms: A Memoir of a Life Interrupted*, by Suleika Jaouad

The last year has been full of starts and stops and my reading has reflected this. As we first returned to (outdoor) restaurant dining in the spring of 2021, a friend brought me *The Lost Boys of Montauk*, by Amanda M. Fairbanks. This is a true story of four young men from widely disparate walks of life who found themselves together on an ill-fated commercial fishing boat on the east end of Long Island and were lost in a famous nor'easter of March, 1984.

Not the first, nor last, to lose their lives this way, the story about the impact this event had on a place we know and regularly visit was interesting, relevant, and at the same time, far removed from everything else I do professionally and personally. It has nothing to do with oncology!

My book club read *Homeland Elegies* by Ayad Akhatar last year. Twenty years beyond 9/11—a searing memory for all of us in different ways—this book starts with that wrenching moment and then repeatedly twists and turns over the concepts of "otherness" and assimilation through a series of stories that are true (or "true-ish"?) and that together make up a novel (or is it autobiography?). The lines are blurred, but it successfully conveys the awkward and inconsistent feelings of belonging and not belonging that come from being an outsider in America.

More recently I finally read *The Road*, Cormac McCarthy's story of survival after some never-defined extinction level event that has left most of the American South an ash-covered, burned-out wasteland. The paradox is that this is a story of hope and redemption and familial love and devotion set in an apocalypse. The last time I shared my recent reads I included *The Dog Stars* and the relationship between that and *The Road* (and COVID?) is not lost on me. But the point is, there is a way forward and good reason for optimism.

Finally, I have included one oncology relevant book, also shared by the same friend who gave me *The Lost Boys of Montauk*. This one was *Between Two*

Kingdoms, Suleika Jaouad's telling of her journey between wellness and disease and back again (a few times) as she was treated for leukemia in New York. Some will know her as the author of *Life, Interrupted* for *The New York Times*, written as she was going through treatment. This book extends and deepens that exploration and is truly informative and engaging from beginning to end.

> The lines are blurred, but it successfully conveys the awkward and inconsistent feelings of belonging and not belonging that come from being an outsider in America.
>
> – *Clifford A. Hudis*

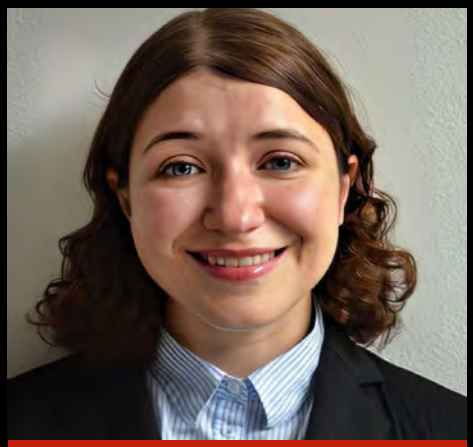
Arif Kamal, MD, MBA

Chief patient officer, American Cancer Society

- *What Got You Here Won't Get You There*, by Marshall Goldsmith

It's a classic, but one I like to read during the summer for professional renewal.

Darya Kizub, MD



Hematology/oncology fellow, MD Anderson Cancer Center

- *Olga Dies Dreaming*, by Xochitl Gonzalez
- *The Brothers Karamazov*, by Fyodor Dostoevsky

A close-knit Puerto-Rican family living in Brooklyn that reminded me of my own Ukrainian family (complete with frequent lively celebrations, dancing, and delicious food; fraught relationships with siblings, cousins, and parents, who nevertheless were there for each other when it truly mattered; and dark secrets that bring relief rather than destruction when they are finally revealed) navigate the fallout after Hurricane Maria with grace and good humor. To me, this was a story of hope and resilience, particularly for the protagonist, Olga, who manages to find and restore herself even as her work, love life, and family relationships descend into chaos.

The Russian-language collection of Fyodor Dostoevsky's works has been gathering dust ever since I purchased it in a bookshop in the center of old Kyiv during my last visit there in the fall of 2017. I finished *The Brothers Karamazov* in less than a week, while sick with COVID during ASCO, because I could not find the energy to do anything else. I reached for it looking for an escape and for reassurance that there is more to Russian culture and people than the destruction and pain the Russian invasion brought to my homeland.

As in Dostoevsky's other works, *The Brothers Karamazov* manages to encompass an entire world: the meaning of love in romance and family with its power to heal and to destroy; the juxtaposition between the logic of atheism and the light and mystery of Eastern Orthodox church; the entrapment and pain of poverty; the cruelty, dysfunction, and ignorance of high society and the judicial system; forgiveness, even of the unforgivable; rumblings of discontent that later exploded in a revolution; and a murder mystery with a surprise ending. I found what I was looking for in Alyosha Karamazov's compassion toward everyone he met and his ability to draw out the best parts of every human being.

Karen E. Knudsen, MBA, PhD

Chief executive officer, American Cancer Society, American Cancer Society Cancer Action Network

- *Good to Great: Why Some Companies Make the Leap...And Others Don't*, by Jim Collins
- *Thinking, Fast And Slow*, by Daniel Kahneman
- *Babylon's Ashes* (*The Expanse* series), by James S. A. Corey

I have been revisiting a few books that I really enjoyed back in business school, including *Good to Great*, by Jim Collins. This is a business classic, with examples of corporate leadership successes and failures that still resonate today.

Alongside the above I have been rereading *Thinking Fast and Slow*, for many of the same reasons.

Finally, for pure entertainment, I am joining my husband Brian and our youngest son Liam in reading *The Expanse* science fiction series by James Corey. They are both way ahead of me... I am on book six (*Babylon's Ashes*), which is really terrific. The entire series is truly wonderful and has much applicability to global challenges in the present day.

Wendy Law, PhD

Associate director of administration, Fred Hutch/University of Washington/ Seattle Children's Cancer Consortium; Associate vice president of Cancer Consortium Programs, Fred Hutchinson Cancer Center

- *Braiding Sweetgrass*, by Robin Wall Kimmerer

Braiding Sweetgrass, by Robin Wall Kimmerer, made an impression on me. A lot of biomedical science that we do is very reductionist. This book was a reminder that taking into account the ecosystem is extremely important, as well as the relationship of organisms with one another. It is something that we are relearning in the context of the tumor microenvironment and during the COVID-19 pandemic.

This book also is a great example of why diversity is important in the scientific endeavor. Dr. Kimmerer is an enrolled member of the Citizen Potawatomi Nation. Her family and tribe have given her another perspective on ecology that she has integrated with and used to challenge the perspectives of ecology as taught and described by western/ European-centric academic traditions.

Science is stronger when weighed and tested by multiple perspectives.

Thomas J. Lynch Jr., MD

President and director, Raisbeck Endowed Chair, Fred Hutchinson Cancer Center

- *Diseases Desperate—the story of E. Donnall Thomas and the development of bone marrow transplantation*, by Frederick Appelbaum

I am now reading the final draft of Fred Appelbaum's book, *Diseases Desperate*, to be published next year by Mayo Clinic Press.

Alice Mims, MD, MSCR

Acute leukemia clinical section head; Associate professor, division of hematology, The Ohio State University Comprehensive Cancer Center

- *The Vanishing Half*, by Brit Bennett
- *The Seven Husbands of Evelyn Hugo*, by Taylor Jenkins Reid
- *The Invisible Life of Addie LaRue*, by V.E. Schwab
- *Under the Whispering Door*, by TJ Klune

I grew up in a family of readers and my mom and two sisters continue to share book recommendations between the four of us as a way to stay connected despite busy lives and distance. Typically, my go-to reads are fictional to help relax and escape pressure from work and the abundance of outside stressors these days. The following are

some of my favorite books that I've been fortunate to come across over the past few months.

The Vanishing Half by Brit Bennett and *The Seven Husbands of Evelyn Hugo* by Taylor Jenkins Reid are both fantastic works of historical fiction that cover topics of discrimination, identity struggles and self-acceptance, though from very different characters.

The Vanishing Half spans the lives of identical twin sisters who run away from a rural, Black, southern town together in the 1950s, but separate and live extraordinarily different lives as they both reinvent themselves in different ways.

The Seven Husbands of Evelyn Hugo is told from the perspective of an aging Hollywood star who is entering the twilight of her life and career and is finally ready to share her secrets with the world. I do not want to give too much away for the plots of either book, but both were enlightening for me to read novels written from the perspective of fictional characters of historically marginalized communities in the 20th century.

The Invisible Life of Addie LaRue by V.E. Schwab is a novel that follows a young French peasant from the 1700s who makes a deal to escape a forced marriage and ordinary life. She becomes immortal, but is cursed to be forgotten by everyone she meets. Over time however, she learns how to leave her mark on the world in different ways.

This was a thought-provoking book for me, as many of us made career choices in the field of oncology to make impactful changes to benefit our patients and the field as a whole. However, it sometimes becomes lost that the importance of legacy is the benefit it leaves for others, as opposed to getting caught up in the self-recognition.

Lastly, I just finished reading *Under the Whispering Door* by TJ Klune, which is a beautiful fictionalization of what happens after we die and the transition—with the deceased themselves going through all the stages of grief for the life they have left behind. This book was even more meaningful when I learned that the author wrote this to personally cope with grief after the loss of a loved one. As oncologists, we deal with death on a regular basis and this book was a lovely version to reflect upon when considering personal loss.

Brenda Nevidjon, MSN, RN

Chief executive officer, Oncology Nursing Society

- *Paris: The Novel*, by Edward Rutherfurd
- *The Premonition: A Pandemic Story*, by Michael Lewis

Paris: The Novel—Edward Rutherfurd is the author of numerous historical novels, but this is the first of his I have read. For anyone who loves Paris, he takes us through a journey from the 1200s through 1968 weaving history through the intersecting, generational stories of three families. Initially, I found that jumping centuries each chapter was challenging on my e-book, but in fact, the stories of each chapter stood alone. His descriptions of iconic Paris neighborhoods, institutions, and real historical figures show how they developed, were built, and led the country. Certainly, having been to Paris helped me visualize many of the scenes he described, but it is not a prerequisite to have been to Paris to feel the beauty and vibrancy of the city.

The Premonition: A Pandemic Story—I saw a promotion that began, "Michael Lewis's taut and brilliant nonfiction thriller..." and thought, why not? Science, public health, and politics, and the people who populated those domains were the cornerstones of his book. This turned out to be a great beach read because of his style of nonfiction writing.

Yuliya Nogovitsyna, MA, LLM, PhD

Program director, Tabletochki Charity Foundation

- *Conversations with Friends*, by Sally Rooney
- *Beautiful World, Where Are You?*, by Sally Rooney

When the war started, it was not possible to read anything but the breaking news in the Telegram channels. But then I switched off all the news—I have enough war in my life—it is in the air, it is inside us.

> War or not war, this hunger is with you. And as long as it is so, it is better to feel that you are among *Normal People*, having *Conversations with Friends* and waiting for the *Beautiful World* to come

– Yuliya Nogovitsyna

I resumed reading in June. Two books which I've read since then are both by Sally Rooney—*Conversations with Friends* and *Beautiful World, Where are You*.

Why? I have no idea. I read *Normal People* last year. I would not say that I was enchanted or fascinated by the book. But it was something that I could discuss with my friends. And when in June I visited a bookstore with my children to buy new books for them, I swiftly looked through the fiction shelves, and, at the times of uncertainty and changes, it was very comforting to see the familiar name of Sally Rooney. I did not want any discoveries or unexpected things. The old acquaintance was good enough.

And I was not disappointed. Yes, Rooney's books make you frustrated—people avoid happiness there. While the U.S. Declaration of Independence proclaims an unalienable right for Pursuit of Happiness, the Irish Constitution must have the unalienable right for Happiness Redemption, I guess. (I am not a native speaker and do not know how this sounds to an English-speaking ear. I've made it up by analogy with Shawshank Redemption).

And still I feel so much in common with Rooney's characters when it goes about intimacy, sex, dialogues, self-injury (in my case, self-exhaustion) to overcome the emotional pain and hunger for love.

War or not war, this hunger is with you. And as long as it is so, it is better to feel that you are among *Normal People*, having *Conversations with Friends* and waiting for the *Beautiful World* to come.

Ben Ho Park, MD, PhD

Director, Vanderbilt-Ingram Cancer Center;
Cornelius Abernathy Craig Chair, Professor of Medicine, Division of Hematology/Oncology, Vanderbilt University Medical Center

- *Simone's Maxims*, by Joseph V. Simone

I've always been a huge fan of "Simone's Maxims" and only recently learned of the book, which I'm beginning to read this summer. This is especially poignant for me starting as the new VICC director this summer (as of July 1).

[**Editor's note:** This book is available as a free download from the Cancer History Project]

Electra D. Paskett, PhD

Marion N. Rowley Professor of Cancer Research;
Director, Division of Cancer Prevention and Control, Department of Internal Medicine, Ohio State University College of Medicine;
Professor, Division of Epidemiology, OSU College of Public Health;
Associate director for population sciences and community outreach, Ohio State University Comprehensive Cancer Center — James;
Founding director, Center for Cancer Health Equity, OSU

- *Portrait of an Unknown Woman*, by Daniel Silva
- *James Patterson by James Patterson: The Stories of My Life*, by James Patterson
- *Shattered* (Michael Bennett series), by James Patterson and James O. Borne

Colonel Mustard in the dining room with a knife. Who does not forget that from the greatest whodunit game, Clue? As an epidemiologist, I am trained to solve puzzles and look for connections; since I have been reading for pleasure I can say my go-to books are mystery,

whodunit, spy, and thriller types—good guys ending the threat of death.

As a cancer researcher, this applies to my passion, which is to figure out strategies and solutions to the thorny problem of who gets cancer and why and how to prevent cancer—in other words to end cancer—the ultimate "bad guy."

My favorite authors are Daniel Silva and James Patterson. I have read all the books in some of their best series. James Patterson: *Women's Murder Club, Alex Cross*, and *Michael Bennett*; Daniel Silva: *Gabriel Allon*; and David Baldacci: *Amos Decker*. I particularly love the *Gabriel Allon* series, not only for the spy stories but also for the settings, as each novel takes me across the globe. From Venice to London to Israel and to Washington, D.C., and back again.

The main character is also an art restorer, and so, there is a little art history in each book. The characters are recurring, and I have grown to love them over the years. The plot moves so fast in every book and is so intriguing. I cannot stop reading! That is a must for books I read—fast and captivating. There is always a twist at the end to look forward to. This summer the latest book in the series, number 22, is out—*Portrait of an Unknown Woman*! I am in the middle of it, and it is as intriguing as ever!

Extra exciting for me was that I got to see James Patterson in person last month at the library, here in Columbus. He is very funny and entertaining. I bought his new book, *James Patterson by James Patterson*, so that will be another book for the summer. It is special since he autographed it for me.

And a new Michael Bennett book is out, *Shattered*. I love that series as there is some comedy with the main character's large and diverse family! The only problem is that I desperately need some beach time to read everything in my library!

Peter WT Pisters, MD, MHCM

President,
The University of Texas MD Anderson Cancer Center

- *The Chancellor: The Remarkable Odyssey of Angela Merkel*, by Kati Marton
- *The Tennis Partner*, by Abraham Verghese
- *The Wise Men: Six Friends and the World They Made*, by Walter Isaacson and Evan Thomas
- *Born a Crime: Stories from a South African Childhood*, by Trevor Noah

The Chancellor—A detailed look at the personal and professional journey of a very private stateswoman, Chancellor Merkel: her journey as a pastor's daughter, a physicist, and her entry into politics after the fall of the Berlin Wall.

The Tennis Partner—A terrific story of a physician who flees a failing marriage and relocates to El Paso, Texas, hoping to start over as part of the medical staff at a county hospital. He meets a medical student recovering from drug addiction, and the two new friends begin playing tennis in a manner that builds a deep and meaningful bond between them.

The Wise Men—Another amazing read from Walter Isaacson and Evan Thomas about the six Americans who shaped the world after World War II.

Born a Crime—Trevor Noah's spellbinding account of his journey from apartheid South Africa to the desk of The Daily Show. This account brings the reality of apartheid to life like nothing else I have read.

Suresh Ramalingam, MD

Executive director, Winship Cancer Institute of Emory University;
Associate vice president for cancer, Woodruff Health Sciences Center;
Roberto C. Goizueta Distinguished Chair for Cancer Research;
Professor, Department of Hematology and Medical Oncology, Emory University School of Medicine;
Editor-in-chief, Cancer

- *Caste: The Origins of Our Discontents*, By Isabel Wilkerson

"We would like to believe that we would have taken the more difficult path of standing up against injustice in defense of the outcast," Wilkerson writes.

Yet for centuries, injustice against African Americans has been unveiled in a relentless manner in this country. The author

provides a compelling analysis comparing racism in America to the caste system that is prevalent in other parts of the world such as India and Nazi Germany.

Through extensive personal research and conversations with scholars from around the world, the author describes the foundational pillars that keep the caste system alive. She describes how the rights of one group have been systematically deprived to maintain a caste hierarchy that stops at nothing to maintain its "order."

Taking the readers through this line of reasoning, she makes it easy to understand recent events such as the elections of 2016, legislations on voting rights, and violence and police brutality against minorities. The solution to this crisis of humanity, she argues, is not mere empathy; rather "radical empathy" which requires us to see and connect with the humanity of the person in front of us.

This book is sure to make one undertake deep introspection to determine one's own views and actions to develop a more just world order.

Pavan R. Reddy, MD

Deputy director, University of Michigan Rogel Cancer Center; Chief, Division of Hematology/Oncology, Frances and Victor Ginsberg Professor of Hematology/Oncology, University of Michigan Medical School

- *Magnifico: The Brilliant Life and Violent Times of Lorenzo de' Medici*, by Miles J. Unger
- *The Vital Question: Energy, Evolution, and the Origins of Complex Life*, by Nick Lane
- *Justice: What's the Right Thing to Do?* By Michael J. Sandel

I'm currently reading Miles Unger's book on the life of Lorenzo Medici (just finished a fifth of the book at this time).

Two most recent books before the one I am currently reading are:

Nick Lane's *The Vital Question*. A really cool book that talks about the evolution of complexity of life—seen from the view of energy generation.

And I reread Michael Sandel's book *Justice: what is the right thing to do?* I had read it some years back. A dazzling book in my opinion—philosophical but entertaining, deep without being arcane.

Goli Samimi, PhD, MPH

Program director, Breast and Gynecologic Cancer Research Group, Division of Cancer Prevention, National Cancer Institute

- *Why We Sleep: Unlocking the Power of Sleep and Dreams*, by Matthew Walker, PhD

While I usually prefer reading women-centric novels in my free time, *Why We Sleep* was recommended by a friend who knows that I often struggle with insomnia. Matthew Walker is a neuroscientist who conducts a deep dive on the importance of sleep in both a scientific and humorous manner.

He discusses the importance of sleep through evolution and through one's lifespan, and gives anecdotes on how both good quality sleep and lack of quality of sleep affect our lives at different ages. He also provides practical advice for helping readers achieve more/better sleep. Because we read so much scientific literature for our careers, I always appreciate when scientific text that I read for recreation is infused with creativity and humor to make it more palatable.

Robin W. Scheffler, PhD, MPhil

Associate professor of science, technology, and society, Massachusetts Institute of Technology

- *The Mirror and the Light*, by Hilary Mantel

- *Africanizing Oncology: Creativity, Crisis, and Cancer in Uganda*, by Marissa Mika

- *Enduring Cancer: Life, Death, and Diagnosis in Delhi & Marissa Mika, Africanizing Oncology: Creativity, Crisis, and Cancer in Uganda*, by Dwai Banerjee

- *The Next Shift: The Fall of Industry and the Rise of Health Care in Rust Belt America*, by Gabriel Winant

The Mirror and the Light—I've enjoyed all three books in this trilogy, of which this is the third entry. It's a pleasure to follow Mantel's language and the way she builds a sprawling and winding narrative around Thomas Cromwell's quest for vengeance and the court of Henry the Eighth—I really feel a sense of being transported out of time while I'm reading her work!

Enduring Cancer and *Africanizing Oncology*—I'll admit that as a historian of cancer I find it hard to know when my professional reading ends and my personal reading begins. These are two stunning books that draw on ethnographic observation to illuminate the very different ways that cancer shows itself outside the United States. They highlight the resilience and resourcefulness that patients and doctors show seeking and providing care in unjust conditions, and suggest new ways that we can think about the pursuit of health overall.

The Next Shift—I have spent most of my adulthood in and around communities in the midst of transformation from industrial manufacturing to medicine. I see these landscapes differently after reading *The Next Shift*. Winant's book provides a lucid study of this process of urban transformation in Pittsburgh, showing how health care and deindustrialization are interwoven with each other and the consequences this has for how we should approach urban and economic inequality.

Norman E. Sharpless, MD

Former director, National Cancer Institute, Former acting commissioner, Food and Drug Administration

- *The Man Who Solved the Market: How Jim Simons Launched the Quant Revolution*, by Gregory Zuckerman

- *Kafka on the Shore*, by Haruki Murakami

- *Special Relativity and Classical Field Theory: The Theoretical Minimum*, by Leonard Susskind and Art Friedman

The Man Who Solved the Market—I spoke to the author, a former WSJ reporter, when he was researching his more recent book on COVID vaccines, and found him so interesting that I decided to read this earlier book of his. A lot of the book is about Jim Simons, the world's richest mathematician, and his buddies at Renaissance Capital, the first really successful Quant Hedge Fund. But I think anyone interested in cancer research today will enjoy this history, as it really is the story of the first, highly successful application of what we now call "Machine Learning" in American life.

All these problems about AI/ML that American Biomedical Research struggles with today were encountered decades ago by the first Wall Street quants. For example, some recent quotes on the topic I heard on the NIH campus about AI are: "it may work but it's a *black box*," "do you have to *understand* it to use it," "should it be *explainable*," "what happens if the *training data are lousy*," etc. But actually, these issues are pretty old now, and this group developed practical solutions to these problems some time ago, thereby allowing them to make truly disgraceful amounts of money off ML.

The sums involved are so vast that the inventors have aggressively tried to keep their methods a secret, but clearly they have figured out some of these things. The book moves along quickly and also features some interesting characters: Simons himself, the husband of former FDA Commissioner Peggy Hamburg, and the original and perhaps most historically important mega-billionaire.

It also asks the important question of whether these Quant funds do anything good in the world, beyond just enriching their investors? One opinion here is supplied by one of the successful Quants: he concludes that the fund significantly profits by taking advantage of "rich dentists" (i.e. amateur investors dabbling in the market).

Kafka on the Shore—Murakami is not for everyone, but I like his imaginative surrealist novels that move quickly around in time and place. His works are hard to describe, but are full of delightful details and wondrous events. This story bounces between a runaway in modern Japan who is escaping something while looking for something, and a young boy from the World War II era that is mysteriously injured and decades later grows to an aged simpleton that can talk to cats. Don't expect all the details to click into place at the end, and don't expect any of it to really make sense, but the evocative

images of the book stick in your mind a long time, in a dream-like and good way.

Special Relativity and Classical Field Theory—If you like math, this *Theoretical Minimum* series is good. Susskind is a Stanford physicist that teaches lots of undergrads, and decided to try to make things like Lagrangian and quantum mechanics more accessible in this series of three short-ish books, co-written with non-experts. The one on relativity and field theory is last in the series, and perhaps the hardest, but not too hard

> Most importantly for a cancer scientist, thinking about hard math allows you to feel a bit smug the next time some jerk statistician tells you that you don't really understand p-values (but keep this smug superiority to yourself, as antagonizing the stats people only makes it worse for everybody).
>
> *– Norman E. Sharpless*

if you remember some college calculus and are willing to work through the provided problems and examples slowly. There are also lots of YouTube videos (including lectures by Susskind himself) to fill in the least clear parts.

I think it is an important means of brain anti-aging to do some challenging math from time to time, and understanding physics helps to make sense of the frequent new discoveries emanating from the Large Hadron Collider, LIGO, etc. Most importantly for a cancer scientist, thinking about hard math allows you to feel a bit smug the next time some jerk statistician tells you that you don't really understand p-values (but keep this smug superiority to yourself, as antagonizing the stats people only makes it worse for everybody).

Harpreet Singh, MD

Director, Division of Oncology 2, FDA Oncology Center of Excellence

- *Career and Family: Women's Century-Long Journey Toward Equity*, by Claudia Goldin
- *Empire of Pain: The Secret History Of The Sackler Dynasty*, by Patrick Radden Keefe

Career and Family—This is an evidence-based read that walks us through five distinct cohorts of women over the course of the 20th century, women who differ in terms of career, job, marriage and children based on years of graduation.

The book explores the pay gap between men and women and how it widens over time as only one partner can have what the author terms the "greedy" career, while the other often opts for more flexibility and stable hours. I have become more interested in the concept of balance, career and family since having children (my daughter just turned 4 and my son Is 10 months old) and this book helps add a data-driven perspective. It also makes me appreciate my career at the FDA.

I have been able to grow and develop professionally while also growing my family and maintaining some sense of work life balance. I have realized that there are seasons in life, and my current season is super intense with tiny kids and a super active career. I am grateful for the opportunities I have, and I also recognize that women before me are now passing me the baton, so that I can have a full and rewarding professional and personal life.

Empire of Pain—I binge-watched Dopesick on Hulu during maternity leave. *Empire of Pain* is a more linear depiction of the Sackler family narrative from valium to opioids. I am looking forward to reading this on my beach vacation! I am intrigued by the interplay of family, power, greed, and in this case the devastating consequences of the opioid epidemic.

As a physician I learned that pain was the 6th vital sign, and I recall hospital quality surveys often included patient satisfaction information that incorporated pain control. This entire system was built on a false understanding of the power of opioids and their addictive properties. I also love the HBO series Succession, and I have heard that there are certainly parallels between the Sackler infighting and the fictional Roy family.

Carolyn Starrett, MBA

Chief executive officer, Flatiron Health

- *Awareness: Conversations with the Masters*, by Anthony De Mello
- *Flux: 8 Superpowers for Thriving in Constant Change*, by April Rinne
- *Catastrophic Care: Why Everything We Think We Know about Health Care Is Wrong*, by David Goldhill

Awareness is an eye-opening reflection on our connection to ourselves written by Anthony De Mello, one of the great Eastern/Western spirituality thinkers. It helped me internalize the truth that I possess everything I need to be happy and fulfilled—and that the choices I am making are what drive my quality of life and success realizing my purpose. It's been life changing in helping me see and then respond to people and situations differently. I highly recommend listening to his self-narrated version on Audible.

In *Flux*, Rinne explains mindset shifts that can help leaders adapt and thrive when faced with unprecedented change and uncertainty. Her insights and the eight superpowers she identifies helped me to crystallize something that I've seen over and over again throughout my life—how we react to and whether we can embrace change is one of the biggest predictors of successful leaders. And there's been no time like the last few years to stress test this belief! What's great about *Flux* is that it offers language to describe these skills. And the lessons are equally valuable for work and for life. A great complement to *Awareness*.

Catastrophic Care—I also recently reread Goldhill's excellent, now almost decade-old assessment of the fundamental challenges in the American healthcare system and the powerful effects incentives have on players across the ecosystem. It's such a pivotal and important window into why we do what we do in health care and why we make the same mistakes over and over again—prioritizing care and short-term interventions over long-term health and sustainability. A must read for anyone working in health care.

Banu E. Symington, MD

Medical director, Sweetwater Regional Cancer Center, Memorial Hospital of Sweetwater County, WY

- *The Sixth Extinction: An Unnatural History*, by Elizabeth Kolbert
- *Read My Pins: Stories from a Diplomat's Jewel Box*, by Madeleine Albright
- *The Madness of Crowds* (*Chief Inspector Gamache* series), by Louise Penny
- *The Lincoln Highway*, by Amor Towles

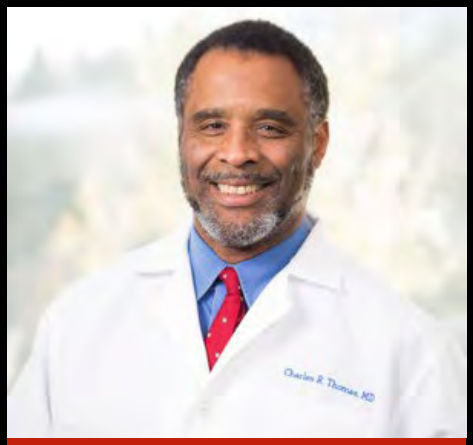
The Sixth Extinction has educated and scared me about the synergistic acceleration of climate change. For example, glaciers have protected the earth by cooling the temperature and by entrapping significant amounts of carbon. Thus, the melting of glaciers due to climate change contributes to further global warming in two different ways. First by raising the temperature. Second by releasing trapped carbon into the atmosphere. Many downstream effects of global warming have more than additive adverse effects on the climate that will soon be irreversible.

Read My Pins—Who knew that this jewelry-lover was communicating to world leaders based on the selection of brooch she affixed to her collar? It made me want to review videos of her past meetings and read the hidden messages.

The psychological thriller that is *The Madness of Crowds* centers on the aftereffects of the COVID pandemic, including the normalization of the concept of sacrificing the aged and the disabled to save the world—a frightening reprise of some of Hitler's abhorrent ideas, which we have heard voiced by some extremists among us. Luckily, the book ends with redemption. The good guy wins and we choose not to sacrifice the weaker amongst us.

The Lincoln Highway—This long but well written book felt like a modern day Iliad, with heroes, villains, adventures, misadventures, and self-sacrifice in 1950s America.

Charles R. Thomas, Jr., MD



Chief, Section of Radiation Oncology, Professor of medicine, Geisel School of Medicine, Associate director for diversity, equity and inclusion, Dartmouth-Hitchcock's Norris Cotton Cancer Center; Professor and chair emeritus, Department of Radiation Medicine, Oregon Health & Science University School of Medicine

- *The First Days of August*, by Alan Froning
- *You Mean It or You Don't: James Baldwin's Radical Challenge*, by Jamie McGhee and Adam Hollowell
- *Traction: Get a Grip on Your Business*, by Gino Wickman

> I have been reading it in the corridor where we have been hiding during air raids in Kyiv.
>
> – *Nataliia Verovkina*

Nataliia Verovkina, MD, PhD

Medical oncologist, research fellow, Research and scientific department of chemotherapy of solid tumors, National Cancer Institute, Kyiv, Ukraine

- *This is Not Propaganda: Adventures in the War Against Reality*, by Peter Pomerantsev

The book that has made a deep impression on me is Peter Pomerantsev's book *This is Not Propaganda*. I started to read it on March 8, 2022 and finished it on March 10 in Kyiv. I have been reading it in the corridor where we have been hiding during air raids in Kyiv. "When information is a weapon, everyone is at war," was written in the annotation for the book. It is twice harder when war comes to your home threatening you here and now. In my opinion, it is one of the most critical and one of the most objective books describing the reality.

I would like to add to the list of my favorite books. Top ten:

1. *My Family and Other Animals*, by Gerald Durrell
2. *Murder in Byzantium*, by Julia Kristeva
3. *Illness as Metaphor*, by Susan Sontag
4. *The Volcano Lover*, by Susan Sontag
5. *The Gospel According to Jesus Christ* and *Cain*, by José Saramago
6. *The Name of the Rose* and *Foucault's Pendulum*, by Umberto Eco
7. *Profession*, by Isaac Asimov
8. *Diamond Age*, by Neal Stephenson
9. Contemporary short stories by Alice Munro
10. *La Maison de Papier*, by Françoise Malle-Joris

Robert A. Winn, MD

Director and Lipman Chair in Oncology, VCU Massey Cancer Center, Senior associate dean for cancer innovation, Professor of pulmonary disease and critical care medicine, VCU School of Medicine

- *With The Fire On High*, by Elizabeth Acevedo
- *Invisible Things*, by Mat Johnson
- *O Say Can You Hear? A Cultural Biography of "The Star-Spangled Banner"*, by Mark Clague
- *Frederick Douglass: Prophet of Freedom*, by David W. Blight

IN THE ARCHIVES

CANCER HISTORY PROJECT

DeVita, Marks, Zubrod: Oral histories with the people who shaped the NCA

In August, the Cancer History Project is highlighting oral histories, and is continuing to conduct oral histories with people who have made important contributions to oncology—along with patients who have shared their stories with us.

These stories are featured on the Cancer History Project podcast, and can also be found here.

If there is someone at your institution who we should speak with, email us at admin@cancerhistoryproject.com.

National Cancer Act oral histories

The following oral histories are available as transcripts of interviews conducted from 1995 through 1999 by NIH as part of the National Cancer Act Oral History project. They have been made available through the Cancer History Project by NCI. These stories and others can be found at our NCA Oral History tag.

- Norman Anderson, MD
  Interview conducted Feb. 25, 1995

  Norman Anderson worked on centrifuge development at Oak Ridge National Laboratory. Interview was conducted by Carl G. Baker, former director of NCI.

- Carl G. Baker, MD
  Interview conducted Nov. 20, 1996

  Carl Baker joined NCI as a fellow in 1949 and later became Associate Director of Program.

- Calvin B. Baldwin, Jr.
  Interview conducted Dec. 31, 1997

  Calvin B. Baldwin, Jr. was an executive officer at NCI during the 1970s and an Associate Director for Administration at the NIH. He describes his experiences working at the NCI and background on the War on Cancer.

- Nathaniel Berlin, MD
  Interview conducted June 30, 1997

  Nathaniel Berlin, an experimental hematologist, joined NCI in 1956 as Head of the Metabolism Service in the General Medicine Branch and held that position until 1966, when he became Chief of NCI's Metabolism Branch until 1971.

- Vincent T. DeVita, Jr., MD
  Interview conducted June 5, 1997

  Vincent T. DeVita, Jr. was Director of the NCI from July 9, 1980 to Sept. 1, 1988. The interview was conducted by Gretchen A. Case at DeVita's office at the Yale Cancer Center as part of the NCI Oral History Project.

- Paul Marks, MD
  Interview conducted July 14, 1999

  This interview with Paul Marks concentrates on the creation of the National Cancer Program, established by the 1972 National Cancer Act. The interview was conducted by Gretchen Case in the Office of Marks at Memorial Sloan-Kettering.

- J. Palmer Saunders, MD
  Interview conducted July 22, 1998

  J. Palmer Saunders was the director of the Division of Cancer Research, Resources and Centers at NCI.

- John L. Ziegler, MD
  Interview conducted Aug. 4, 1998

  John L. Ziegler pioneered new treatments for Burkitt's lymphoma among children in Africa and worked on Kaposi's sarcoma during the early AIDS epidemic.

- C. Gordon Zubrod, MD
  Interviews conducted May 27, 1997 and June 27, 1997

  Charles Gordon Zubrod, an oncologist at NCI who became Head of the Division of Cancer Treatment in 1956 and Scientific Director in 1961, introduced the use of platinum-containing compounds (cisplatin) in chemotherapy. Zubrod was one of the recipients of the 1972 Albert Lasker Awards. Zubrod's memoir is available here.

Cancer History Project podcast

The Cancer History Project launched a podcast this February, and is available anywhere you listen to podcasts.

Latest episode: Jerry Yates on building a cancer center in a rural environment—Vermont
July 29, 2022

Spotify | Apple podcasts | Google podcasts | Radio Public | Stitcher

Top 10 episodes:

1. Odunsi, Pisters, Platanias, and Ulrich: How immigrating to the U.S. shaped their perspectives on oncology
   April 22, 2022

2. Jerome Yates: "We were like the Rodney Dangerfields of medicine in the late '60s."
   April 15, 2022

3. Panel: Knudsen, Hudis, Hughes-Halbert, Leader, Willman propose action plan on health equity
   May 13, 2022

4. Tim Wendel on the "Cancer Cowboys" and getting to know the ALGB
   March 18, 2022

5. Bill Haney on the making of "Jim Allison: Breakthrough"
   May 20, 2022

6. Harold Freeman, father of patient navigation, on cutting the cancer out of Harlem
   Feb. 11, 2022

7. Dave Boule confronted polycythemia vera with an accountant's consistency
   June 17, 2022

8. How Beth Carner went from six weeks left to live with stage 4 colon cancer to complete remission
   June 10, 2022

9. Black History Month panel: "We need to talk about justice"
   Feb. 25, 2022

10. Edith Mitchell on her path from Tennessee farm to becoming a cancer doctor and brigadier general
    Feb. 18, 2022

Contributor podcasts

- Cancer Answers: Vince DeVita on the history of chemotherapy
  By Yale Cancer Center

In a recording of Cancer Answers: The History of Chemotherapy, from July 6, 2008, Ed Chu interviews Vince DeVita about the history of chemotherapy.

The following is an excerpt of the conversation between Chu and DeVita:

DeVita: There is an Egyptian papyrus that actually talks about using topical chemicals, herbs, and extracts of herbs and so forth. So you can go as far back as you want, but it was really not until around the mid 1930s that people began to think you could realistically use chemicals for cancer. The first major screening program was started in around 1935, but frankly, the date that people use for the birth of chemotherapy is 1943, and it was here at Yale.

Based on experiences in World War I and then an accident in World War II with mustard gas, data showed that people who died had an atrophy of their bone marrow and their lymph nodes disappeared. It was then thought that maybe they would be useful chemicals for treating a group of diseases called lymphoma, or cancers of the lymph nodes. Alfred Gilman, here at Yale, and Gustaf Lindskog, who was a thoracic surgeon at that time, used an animal model of lymphoma and screened these chemicals. They found that it actually worked and so they convinced Lindskog, who had a patient who was having trouble breathing because of a large tumor mass in their neck, to let them test it.

This was before the FDA was involved in these things, and they got a very dramatic response that started the whole interest in cancer chemotherapy. That paper was not published until 1946 because of the secrecy of the war gas program, but it is generally regarded as the beginning of human cancer chemotherapy.

The Uromigos Podcast: The Legends of GU Oncology

Brian Rini and Thomas Powles are documenting genitourinary oncology history in a series on the Uromigos Podcast. A story about their efforts appears here.

- Larry Einhorn
- Phil Kantoff
- Maha Hussain
- Nick Vogelzang
- Dean Bajorin

The Your Stories Podcast: By Conquer Cancer, the ASCO Foundation

The Your Stories Podcast, produced by Conquer Cancer, the ASCO Foundation, features candid conversations between patients with cancer, their family and friends, doctors, and researchers.

- Undaunted Dreams: Podcast Interview with Brenda Brody and Stacey White
- Learning What We Don't Know: Podcast Interview with Don Dizon and NFN Scout
- Connected to Conquer: Podcast Interview with Brenda Brody and Sherri Malone

Contributor spotlight: Sarah Cannon

- Sarah Cannon Research Institute Founders Feature: John Hainsworth & Anthony Greco
  By Sarah Cannon Research Institute | Aug. 4, 2022

Beyond chemotherapy, patients had very few treatment options to fight cancer until the mid-1990s. At the time, patients could only access clinical trials in academic settings and there were only a small number of patients participating in research, almost all of whom had been heavily pre-treated. With the majority of people facing cancer seeking treatments through their local community programs, access to trial options was limited and so was the progress being made to identify better therapies.

Two academic research leaders, Anthony Greco and John Hainsworth, had a solution: start a research program in the community, where more people could access more trial options. In 1993, they formed what is now known as Sarah Cannon Research Institute, with the backing of HCA Healthcare and Tennessee Oncology. Many doubted that forming this type of research program would work, but nearly 30 years later, the team at Sarah Cannon has demonstrated that it has and continues to make an impact by serving patients in the community.

This column features the latest posts to the Cancer History Project by our growing list of contributors.

The Cancer History Project is a free, web-based, collaborative resource intended to mark the 50th anniversary of the National Cancer Act and designed to continue in perpetuity. The objective is to assemble a robust collection of historical documents and make them freely available.

Access to the Cancer History Project is open to the public at CancerHistoryProject.com. You can also follow us on Twitter at @CancerHistProj, or follow our podcast.

Is your institution a contributor to the Cancer History Project? Eligible institutions include cancer centers, advocacy groups, professional societies, pharmaceutical companies, and key organizations in oncology.

To apply to become a contributor, please contact admin@cancerhistoryproject.com.

IN BRIEF

Wistar receives $5M merit extension award from NCI

The Wistar Institute's Ellen and Ronald Caplan Cancer Center received a merit extension award totaling more than $5 million from NCI.

Wistar is the first NCI-designated basic cancer center in the nation to receive NCI's merit extension, which extends

its Cancer Center Support Grant for two additional years.

Wistar is the fifth NCI-designated Cancer Centers to earn the distinction.

Wistar's Ellen and Ronald Caplan Cancer Center focuses on research for cancer prevention, diagnosis, and therapy, and the Cancer Center Support Grant facilitates the institute's ability to merge basic, translational, and disease-relevant research.

Having received an "exceptional" rating in its past two, consecutive CCSG renewal applications, and maintained exceptional research progress, institutional commitment, and leadership, the merit extension application was approved by NCI.

With the merit extension, the Ellen and Ronald Caplan Cancer Center intends to continue the initiatives of its 2019 CCSG and expand on programmatic initiatives launched by the Institute's Bold Science // Global Impact five-year strategic plan.

Wistar's Ellen and Ronald Caplan Cancer Center has three scientific research programs: the Gene Expression and Regulation Program; the Immunology, Microenvironment and Metastasis Program; and the Molecular and Cellular Oncogenesis Program.

RTOG Foundation establishes four new committees; names committee leaders

RTOG Foundation has created four new committees to streamline the group's research efforts towards its goal of improving survival and quality of life outcomes for adults with cancer.

These committees include the Research Committee, Governance Committee, Membership Committee, and Communications Committee.

Stuart Wong was named chair of the RTOG Foundation Governance Committee. Wong is the director of the Center for Disease Prevention Research and professor of medicine in the Division of Hematology Oncology, Department of Medicine at the Medical College of Wisconsin. He is also a member of NCI's Head and Neck Steering Committee. Wong is principal investigator for the NCTN Lead Academic Participating Site (LAPS) grant at the Medical College of Wisconsin. Wong is also vice chair of the Head and Neck Cancer Committee for NRG Oncology. In his role as chair of the Governance Committee, Wong will help with the oversight to the ongoing organizational activities within RTOG Foundation and ensure that all efforts are aligned with the organization's research mission.

Mark Mishra was named co-chair of the RTOG Foundation Research Committee. Mishra is an associate professor of radiation oncology at the University of Maryland School of Medicine and associate director of the Marlene and Stewart Greenebaum Comprehensive Cancer Center's Network Program.

He is also director of the Department of Radiation Oncology Clinical Research Program at the University of Maryland Medical System and is the vice chair of the Greenebaum Comprehensive Cancer Center's Clinical Research Committee. His work focuses on tumors of the central nervous system and genitourinary tract, as well as breast cancer. Mishra received the American Society of Radiation Oncology Comparative Effectiveness Grant and is the Comparative Effectiveness co-chair for the recently activated NRG-BN009 and NRG-CC009 phase III clinical trials.

He is also a member of the NRG Oncology Brain Tumor Committee. Mishra' also received the 2021 NCI Cancer Clinical Investigator Team Leadership Award.

Edwin Posadas was named co-chair of the RTOG Foundation Research Committee. Posadas is the director of the Experimental Therapeutics Program and the medical director of the Urologic Oncology Program at the Samuel Oschin Comprehensive Cancer Institute at Cedars-Sinai Medical Center.

Posadas is working to define the function of the protein FYN, circulating tumor cells, and immune cells in prostate cancer, with the goal of applying his basic science findings to the development of new therapies and diagnostic tools that will directly benefit men with advanced prostate cancer.

Mishra and Posadas will provide supervision and guidance to RTOG Foundation's research program as the leaders of the Research Committee. The Committee will be in control of driving the group's protocol portfolio.

Seth A. Rosenthal was named chair of the RTOG Foundation Membership Committee. Rosenthal is a radiation oncologist at Sutter Health in Roseville, CA and has been a RTOG/NRG investigator for over 30 years. He is a member of the NRG Oncology Genitourinary Cancer Core Committee and the RTOG Foundation Board of Directors.

Additionally, he was the co-principal Investigator of phase III RTOG/NRG Oncology clinical trials 9902 and 0521, which examined novel treatment approaches for men with high-risk prostate cancer. As chair, Rosenthal will guide the Membership Committee in their efforts to establish processes around RTOG Foundation members to and expand the reach of the organization's network.

Kristin Higgins was named chair of the RTOG Foundation Communications Committee. Higgins is an associate professor in the Department of Radiation Oncology at Emory University School of Medicine and is medical director of radiation oncology of the Emory Clinic at Winship Cancer Institute's Clifton campus location.

She is a member of the NRG Oncology Board of Directors and a member of the NRG Oncology's Lung Cancer Core Committee, Communications Committee, Research Strategy Committee and Protocol Operations Management Committee.

Higgins is also principal investigator of the NRG Oncology/Alliance NRG-LU005 trial testing the addition of atezolizumab to chemoradiation in patients with limited-stage small cell lung cancer that recently reached its patient accrual goal. In her role as chair, Higgins intends to increase engagement within RTOG Foundation's research community and develop communications channels to meet the needs of the group.

Nine oncology practices certified through ASCO Patient-Centered Cancer Care Certification pilot

Nine outpatient oncology group practices have achieved certification through the new American Society of Clinical Oncology Patient-Centered Cancer Care Certification pilot.

The ASCO Certification Program awarded certification to the first group of participants, including: Cancer & Hematology Centers of Western Michigan, Central Georgia Cancer Care, Hematology-Oncology Associates of CNY, Jefferson Health-Sidney Kimmel Cancer Center, Tennessee Oncology, The Center for Cancer and Blood Disorders, Nebraska Hematology-Oncology, PC, New England Cancer Specialists, and Memorial Cancer Institute.

"This first round of certifications is a major milestone for the success of this pilot, as it demonstrates that this new model for patient-centered cancer care delivery is achievable for all oncology practices, regardless of their practice setting," Lori J. Pierce, chair of the Board of the Association for Clinical Oncology, said in a statement.

The pilot includes 88 cancer care sites and nearly 500 oncologists from 12 participating practice groups and health systems. All pilot participants are on track to meet the standards and achieve certification in the coming months.

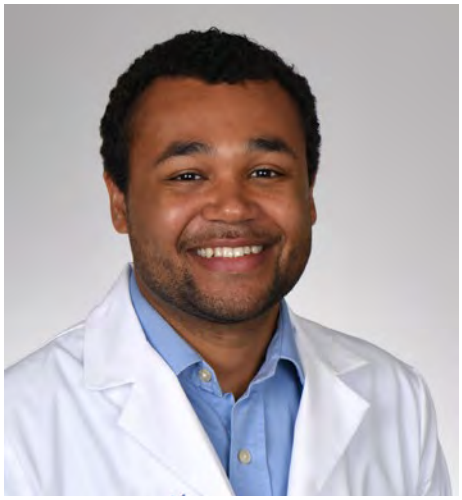
Certification is based on adherence to the Oncology Medical Home Standards: a single set of comprehensive, expert-backed standards for patient-centered care delivery, published by ASCO and the Community Oncology Alliance.

The ASCO-COA Oncology Medical Home Standards focus on seven domains of cancer care, including: patient engagement; availability and access to care; evidence-based medicine; equitable and comprehensive team-based care; quality improvement; goals of care, palliative, and end-of-life care discussions; and chemotherapy safety.

To achieve certification, practices needed to meet a total of 17 care delivery standards and 22 chemotherapy safety standards, for a total of 39 standards.

The pilot is slated to end in summer 2023.

Nicholas Shungu named associate director for DEI at MUSC Hollings



Nicholas Shungu was named associate director for diversity, equity, and inclusion at MUSC Hollings Cancer Center.

He will be focused on equity in patient care, research, education and staff recruitment.

"For me, as a primary care doctor, I wish that researchers had the foresight to prioritize the population that we know experiences worse outcomes. That would be an example of looking at things with an equity lens—making sure that a population that we know faces disparate outcomes is adequately or even overrepresented in studies," Shungu said in a statement.

The MUSC College of Medicine is one of the most diverse medical colleges outside of historically black colleges and universities. Shungu hopes to encourage more underrepresented students to continue their training through residencies at MUSC Health.

Shungu will also focus on MUSC's growth throughout the state, through new hospitals and expanded partnerships.

Shungu began his new role on July 1.

Ju Dong Yang named medical director of the Liver Cancer Program Cedars-Sinai Cancer Center

Ju Dong Yang was named medical director of the Liver Cancer Program at Cedars-Sinai Cancer Center.

Ju Dong Yang is a liver cancer clinician-researcher who studies epidemiology, health disparities and outcomes, and biomarkers. His work focuses on early detection of liver cancer.

As medical director, Yang will continue to address liver cancer and non-alcoholic fatty liver disease in high-risk populations.

Yang intends to establish a multidisciplinary clinic that allows patients to receive care from multiple specialty providers at one location, increase the number of clinical trials of liver cancer treatments, and investigate biomarkers that will help predict treatment outcomes.

Yang will also begin community-based education initiatives that will better facilitate the accrual of clinical trials.

Yang has completed fellowships in gastroenterology, hepatology, and transplant hepatology. He holds a master's degree in clinical and translational research from the Mayo Clinic.

Nithya Cherukuru named assistant professor at Fox Chase

Nithya Cherukuru was named assistant professor in the Section of Psychiatry at Fox Chase Cancer Center.

Previously, Cherukuru worked at the University of Maryland School of Medicine as a consult and liaison psychiatry fellow.

Cherukuru has taught at Eastern Virginia Medical School and the University of Maryland School of Medicine.

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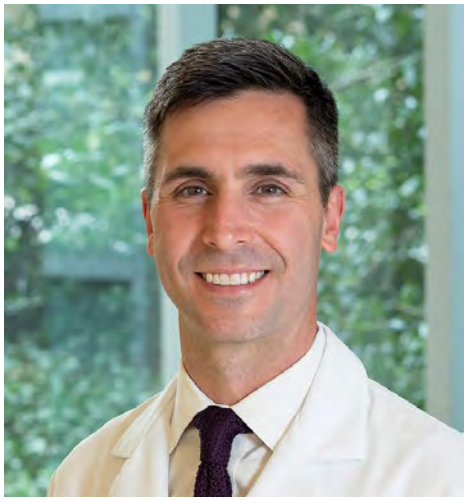
Malorie K. Simons named assistant professor at Fox Chase

Malorie K. Simons was named assistant professor in the Department of Gastroenterology at Fox Chase Cancer Center.

Previously, Simons completed a gastroenterology fellowship at Johns Hopkins Medicine, where she was chief fellow from 2020 to 2021.

Adam Walchak named assistant professor at Fox Chase



Adam Walchak was named assistant professor in the Department of Surgical Oncology, where he will work in the Division of Plastic and Reconstructive Surgery at Fox Chase Cancer Center.

Previously, Walchak was a plastic and hand surgeon at Associates in Plastic Surgery in Media, Pennsylvania.

During a 2012 mission trip to Retalyehu, Guatemala, Walchak repaired various facial defects with Rotaplast International, and on a similar mission trip to Chengde, China, in 2008. Locally, Walchak has worked at the Chinatown Clinic as a medical assistant serving recent Asian immigrants and as a math tutor for inner-city youth at Chamonix Equestrian Center.

City of Hope receives $7M to study interventions for lung cancer in older adults

City of Hope received nearly $7 million from the Patient-Centered Outcomes Research Institute to study how physical activity affects older adults undergoing lung cancer surgery.

The funding was awarded to Dan Raz, co-director of City of Hope's Lung Cancer and Thoracic Oncology Program and an associate professor in the Division of Thoracic Surgery, and Virginia Sun, associate professor in the departments of Population Sciences and Surgery.

"Although we have made a lot of progress to improve recovery from lung cancer surgery with minimally invasive techniques, lung surgery can still be difficult to recover from, particularly for some older adults," Raz said in a statement. "This study tests a personalized walking and lower extremity strengthening program that is delivered by telephone before and after surgery. Family caregivers are also empowered to motivate and walk with their loved ones undergoing lung surgery as part of this intervention. We think this will help older adults recover more quickly and become more active even after the study is over."

The five-year, multi-center, randomized trial through the SWOG Cancer Research Network will test which strategy is best for improving surgical recovery care for this older population.

Previous studies of physical activity before and after lung surgery have focused largely on one size fits all interventions. This study tests a personalized intervention to improve recovery for older adults with lung cancer.

The study, "Perioperative Physical Activity in Older Adults Undergoing Lung Cancer Surgery," is part of PCORI's Healthy Aging: Optimizing Physical and Mental Functioning Across the Continuum initiative.

Baylor researchers receive five-year, $5.5M NCI grant for liver cancer risk factors and prevention research

Researchers at Baylor College of Medicine have received a five-year, $5.5 million-plus grant from NCI for research on liver cancer risk factors and prevention, with the goal of reducing the burden of liver cancer in patients with metabolic dysfunction.

The study will consist of three independent but conceptually related research projects led by a multidisciplinary team at Baylor with collaborators from Harvard University, including experts in

basic science, epidemiology, human genetics and metabolic dysfunction.

Hashem El-Serag is principal investigator of the study and chair of the Margaret M. and Albert B. Department of Medicine and professor in the section of gastroenterology and hepatology at Baylor.

The research will use data from metabolic dysfunction-associated fatty liver disease patients in the Texas Hepatocellular Carcinoma Consortium, a large multisite prospective cohort study funded by the Cancer Prevention and Research Institute of Texas to reduce the burden and mortality of liver cancer in Texas.

The first project will analyze the role of genetic, metabolic and lifestyle factors in the development of liver cancer. Researchers will identify genetic and metabolic biomarkers that when combined with lifestyle factors such as obesity and alcohol use, can assist in risk stratification.

The second project will examine whether medications currently in use for diabetes treatment, including metformin, statins and glitazones, are associated with a reduced risk of developing liver cancer and could act as preventative treatments. The researchers, led by Fasiha Kanwal,

professor of medicine and section chief of gastroenterology and hepatology at Baylor, also will examine the genetic factors that contribute to differences in response to prevention medication.

The third project will examine the long-term benefits, harms and costs of different liver cancer prevention measures among patients with metabolic dysfunction. Researchers will compare the benefits of different levels of screening and surveillance and assess which patients could benefit from preventative treatments.

The grant also will fund a data and analysis core to support data management and statistical analyses and a biospecimen and biomarker development core that will assist in collection and analysis of DNA samples.

FUNDING OPPORTUNITIES

Thermo Fisher Scientific opens Oncomine Clinical Research Grant call for submissions; latest awardees announced

Thermo Fisher Scientific is accepting submissions for the fifth round of the Oncomine Clinical Research Grant program.
The program supports clinical and translational research that advances the use of genomic testing to unlock the promise of precision medicine for more cancer patients.

The program awards independent clinical research teams with financial support worth up to $200,000 in reagents and general funding. Since its introduction in 2020, the Oncomine Clinical Research Grant program has provided support to more than 20 research projects across 11 countries in areas including hematology-oncology, immuno-oncology, liquid biopsy, and gene fusion detection.

Grant applications are open through Sept. 26, 2022. For more information on the Oncomine Clinical Research Grant Program and how to submit proposals, click here.

Following the last call for proposals in the spring, the following researchers and projects have been selected as the latest grant recipients:

- Matias Avila, University of Navarra, Pamplona, Spain: "Mutational Analysis of Bile cfDNA for the Early Diagnosis of Biliopancreatic Tumors"
- Wendy Erber, The University of Western Australia, Crawley, Australia: "Genomic Profiling and Disease Monitoring Using Plasma Cell-Free DNA in Acute Myeloid Leukemia"
- Xiuning Le, Anderson Cancer Center: "ctDNA Analysis to Understand Resistance and Response to Osimertinib Ramucirumab Combination Therapy in EGFR Mutant Non-Small Cell Lung Cancer"
- Nir Peled, Shaare Zedek Medical Center, Jerusalem, Israel: "Liquid Biopsy in Suspected Lung Cancer Solitary Pulmonary Nodules"

DoD Peer Reviewed Cancer Research Program anticipated funding opportunities for the 2022 fiscal year

The Department of Defense Peer Reviewed Cancer Research Program anticipates several funding opportunities for FY22.

The FY22 Defense Appropriations Act provides funding for the Peer Reviewed Cancer Research Program. The managing agent for the anticipated funding opportunities is the Congressionally Directed Medical Research Programs at the U.S. Army Medical Research and Development Command.

The FY22 PRCRP appropriation will provide funds for research into cancers not addressed in the other CDMRP cancer programs.

The FY22 PRCRP funding opportunity announcements for the following award mechanisms will be posted on the Grants.gov website.

Pre-application and application deadlines will be available when the announcements are released.

To be considered for funding, applications for the FY22 PRCRP must address at least one of the FY22 PRCRP topic areas as directed by Congress. Research applications in the areas of breast, kidney, lung, prostate, pancreatic, ovarian, and rare cancer or melanoma are prohibited and will not be accepted.

The FY22 PRCRP topic areas are:

- Bladder cancer
- Blood cancers
- Brain cancer
- Colorectal cancer
- Endometrial cancer
- Esophageal cancer
- Germ cell cancers
- Liver cancer
- Lymphoma
- Mesothelioma
- Metastatic cancer
- Myeloma
- Neuroblastoma
- Pediatric, adolescent, and young adult cancers
- Pediatric brain tumors
- Sarcoma
- Stomach cancer
- Thyroid cancer
- Von Hippel-Lindau syndrome malignancies (excluding cancers of the kidney and pancreas)

The FY22 PRCRP requires all applications to address at least one of the following Military Health Focus Areas:

- Environmental/exposure risk factors associated with cancer
- Gaps in cancer research that may affect mission readiness:
  - Gaps in cancer prevention, early detection/diagnosis, prognosis, and/or treatment that may affect the general population but have a particularly profound impact on the health and well-being of military Service Members, Veterans, and their beneficiaries
  - Gaps in quality of life and/or survivorship that may affect the general population but have a particularly profound impact on the health and well-being of military Service Members, Veterans, and their beneficiaries

The PRCRP has developed a strategy to address multiple issues in cancer research over the spectrum of different cancer topics considered for funding. These overarching challenges are critical gaps in cancer research, care, and/or patient outcomes that, if addressed, will advance the mission readiness of U.S. military members affected by cancer and will improve quality of life by decreasing the burden of cancer on service members, their families, veterans, and the American public. The PRCRP Overarching Challenges can be found here.

Information about specific funding opportunities anticipated for FY22, including their award mechanisms, eligibility criteria, key elements, and funding amounts, can be found here.

The Cancer Letter is taking a publication break. We will return on Sept. 9.

THE CLINICAL CANCER LETTER

CLINICAL ROUNDUP

Subcutaneous formulation of Tecentriq demonstrates positive phase III results

The phase III IMscin001 study evaluating a subcutaneous formulation of Tecentriq (atezolizumab) showed non-inferior levels of Tecentriq in the blood, when injected subcutaneously, compared with intravenous infusion. Tecentriq is sponsored by Genentech.

The study included cancer immunotherapy-naïve patients with locally advanced or metastatic NSCLC for whom prior platinum therapy has failed.

The safety profile of the subcutaneous formulation was consistent with that of IV Tecentriq.

Subcutaneous administration would reduce the time patients spend receiving treatment from 30-60 minutes with IV infusion to only 3-8 minutes.

Genentech will share detailed findings of the IMscin001 study at an upcoming medical meeting and submit them for regulatory approval to health authorities globally, including FDA and European Medicines Agency.

Thermo Fisher introduces assays for MRD detection in myeloid malignancies

Thermo Fisher Scientific has launched a next-generation sequencing-based assay for research in myeloid measurable residual disease.

As the first NGS-based tests to support both DNA and RNA input, the Ion Torrent Oncomine Myeloid MRD Assays (RUO) provide a comprehensive and highly sensitive MRD assessment from blood and bone marrow samples.

Current MRD detection methods do not evaluate individual mutations or can track a limited number at once. Thermo Fisher's Myeloid MRD Assay has been designed to enable simultaneous testing and identification of more than 90% of common AML mutations and fusions, providing insights to guide the future of clinical applications, standards and drug development.

"MRD can help predict potential relapse in cancer patients but is not widely used for patients with AML due to lack of accurate, reproducible tests," Luca Quagliata, global head of medical affairs at Thermo Fisher Scientific, said in a statement. "With the Myeloid MRD Assay, laboratories may perform comprehensive MRD analysis of mutations in myeloid samples to inform future clinical options. We are also working with the Foundation for the National Institutes of Health Biomarkers Consortium as they assess future requirements for validation and standardization of MRD as a biomarker."

The Myeloid MRD Assay enables sensitive variant detection as low as 0.05% allele frequency for key DNA mutations in 33 genes and evaluation of more than 900 isoforms in 43 RNA fusion driver genes including many targets for which there are no established assays to-date. The end-to-end workflow delivers results in as little as two days with an integrated informatics pipeline and reporting tool that can help to minimize user hands-on time and speed up time to results.

DRUGS & TARGETS

Lynparza approved by the EC as adjuvant treatment for high-risk breast cancer

Lynparza (olaparib) was approved by the European Commission as monotherapy or in combination with endocrine therapy for the adjuvant treatment of adult patients with germline BRCA1/2 mutations (gBRCAm), who have HER2-negative, high-risk, early-stage breast cancer previously treated with neoadjuvant or adjuvant chemotherapy.

The drug is sponsored by AstraZeneca and Merck.

This approval was based on results from the phase III OlympiA trial and the recommendation for approval by the European Medicine Agency's Committee for Medicinal Products for Human Use.

The results were published in *The New England Journal of Medicine* in June 2021.

In OlympiA, Lynparza demonstrated an improvement in invasive disease-free survival, reducing the risk of invasive breast cancer recurrences, new cancers, or death by 42% versus placebo.

Lynparza also demonstrated an improvement in overall survival, reducing the risk of death by 32% versus placebo.

The safety and tolerability profile of Lynparza in this trial was in line with that observed in prior clinical trials. Approximately 10% of patients who received Lynparza discontinued treatment due to an AR.

"Lynparza as adjuvant treatment can significantly reduce the risk of disease recurrence and death, reinforcing the importance of conducting germline BRCA testing as soon as possible after diagnosis," Eliav Barr, senior vice president, head of global clinical development and chief medical officer, Merck Research Laboratories, said in a statement.

In March 2022, Lynparza was approved in the U.S. for the adjuvant treatment of patients with gBRCAm, HER2-negative high-risk early breast cancer based on results from the OlympiA trial. Lynparza is also approved in Japan and several other countries.

The OlympiA trial is led by the Breast International Group in partnership with the Frontier Science & Technology Research Foundation, NRG Oncology, the U.S. National Cancer Institute, AstraZeneca and Merck.

Lynparza is a poly adenosine diphosphate-ribose polymerase inhibitor and the first targeted treatment to potentially exploit DNA damage response (DDR) pathway deficiencies, such as BRCA mutations, to preferentially kill cancer cells.

Inhibition of PARP with Lynparza leads to the trapping of PARP bound to DNA single-strand breaks, stalling of replication forks, their collapse and the generation of DNA double-strand breaks and cancer cell death.

Lynparza is being tested in a range of tumor types with defects and dependencies in the DDR.

Complete prescribing information can be found here. The medication guide can be found here.

MD Anderson and TransCode Therapeutics collaborate to advance RNA therapies

The University of Texas MD Anderson Cancer Center and TransCode Therapeutics Inc. form an alliance to advance TransCode's pipeline of RNA-targeted oncology therapeutic and diagnostic candidates.

TransCode and MD Anderson scientists will collaborate on preclinical studies to further validate TransCode's therapeutic and diagnostic candidates.

The results of these studies will inform future clinical trials with these agents, including trials to be led at MD Anderson.

"We can now examine how regulatory RNAs affect signaling, both spatially and temporally, at the single-cell level in tumor cells, immune cells and stem cells—all critical for tumor progression, relapse and immune evasion," principal investigator Sendurai Mani, professor of translational molecular pathology at MD Anderson, said in a statement. "Our goals in collaborating with TransCode are to gain a deeper understanding of RNA-targeted therapies and to bring innovative new treatment options to our patients."

The collaboration has the potential to inform multiple clinical programs in TransCode's pipeline, starting with its lead therapeutic candidate, TTX-MC138, which is designed to treat multiple metastatic cancers.

Future clinical trials will be designed and led by Vivek Subbiah, associate professor of investigational cancer therapeutics at MD Anderson.

Prior to a phase I clinical trial, TTX-MC138 is scheduled to enter a first-in-human phase 0 clinical trial designed to demonstrate its delivery to metastatic lesions in patients with advanced solid tumors.

Poseida, Roche to collaborate on allogeneic CAR T-cell therapies for hematologic malignancies

Poseida Therapeutics Inc. entered into a collaboration and license agreement with Roche to develop allogeneic CAR T-cell therapies directed to hematologic malignancies.

Poseida will receive $110 million upfront and could receive up to $110 million in near-term milestones and other payments in the next several years. In addition, Poseida is eligible to receive research, development, launch, and net sales milestones and other payments potentially up to $6 billion, as well as sales royalties.

Roche will receive from Poseida exclusive rights or options to develop and commercialize a number of allogeneic CAR T programs in Poseida's portfolio that are directed to hematologic malignancies.

These include: P-BCMA-ALLO1, an allogeneic CAR T for the treatment of multiple myeloma and for which a phase I study is underway; and P-CD19CD20-ALLO1, an allogeneic dual CAR-T for the treatment of B-cell malignancies with an IND expected in 2023.

The global collaboration covers the research and development of multiple existing and novel off-the-shelf cell therapies against targets in multiple myeloma, B-cell lymphomas and other hematologic indications.

Poseida and Roche will also collaborate in a research program to create and develop next-generation features and improvements for allogeneic CAR T therapies, from which they would jointly develop additional allogeneic CAR-T product candidates.

For a subset of the Poseida portfolio programs licensed or optioned to Roche and the parties' future collaboration programs, Poseida will conduct the phase I studies and manufacture clinical materials before transitioning the programs to Roche for further development and commercialization.

"Using our proprietary technologies and manufacturing process including our booster molecule, we have the potential to develop and manufacture a product with high levels of stem cell memory T cells, which are correlated with potent antitumor efficacy in the clinic, at a scale that can potentially reach more patients and enable broad commercial use," Devon J. Shedlock, chief scientific officer of cell therapy at Poseida, said in a statement.

The agreement is subject to clearance under the Hart-Scott-Rodino Antitrust Improvements Act.

NCI TRIALS

NCI Trials for August 2022

The National Cancer Institute approved the following clinical research studies last month.

For further information, contact the principal investigator listed.

Phase II - NRG-HN010
A Controlled, Randomized Phase II Trial of Docetaxel Plus Trastuzumab Versus Ado-Trastuzumab Emtansine for Recurrent, Metastatic, or Treatment-Naïve, Unresectable HER2-Positive Salivary Gland Cancer

NRG Oncology
Ho, Alan Loh
(646) 608-3774

Phase II - S1900F
A Randomized Phase II Study of Carboplatin and Pemetrexed with or Without Selpercatinib (LY3527723) in Participants with Non-Squamous RET Fusion-Positive Stage IV Non-Small Cell Lung Cancer and Progression of Disease on Prior RET Directed Therapy (Lung-MAP Sub-Study)

SWOG
Gray, Jhanelle E.
(813) 745-6895

Phase III - AMC-114
A Phase III, Randomized, Open-Label, Non-Inferiority Study of Paclitaxel and Pegylated Liposomal Doxorubicin for Treatment of HIV-Related Kaposi Sarcoma in Resource-Limited Settings

AIDS Malignancy Consortium
Krown, Susan E.
44-793-518-3920

Phase III - NRG-CC010
A Phase III Trial Of The Impact Of Sentinel Lymph Node Mapping On Patient Reported Lower Extremity Limb Dysfunction In Endometrial Cancer

NRG Oncology
Tanner, Edward J.
(312) 472-0120

Phase Pilot - PEPN22P1
A Pharmacokinetic Study of VinCRISTine in Infants Dosed According to BSA-Banded Infant Dosing Tables and Older Children Dosed by Traditional BSA Methods

Pediatric Early Phase Clinical Trial Network
Blauel, Emily
(267) 254-2851