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Infectious Diseases

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Preeti Jaggi, M.D., and Emily Sydnor Spivak, M.D., M.H.S.
Members, Society for Healthcare Epidemiology of America (SHEA)

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Chari A Cohen, Dr.P.H., M.P.H.
President, Hepatitis B Foundation

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The Growing Threat That **Superbugs Pose to Cancer Patients**

Infections are the second leading cause of death among people with cancer, trailing only the cancer itself.

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Antibiotics have played an instrumental role in cancer treatment for decades. Oncologists rely on antibiotics to both treat infections that occur in cancer patients and to reduce the risk of acquiring infections during and after chemotherapy, surgeries, bone marrow transplants, and other procedures.

However, antibiotics aren't guaranteed cures, as they once were, due to the rapid rise of antibiotic-resistant bacteria, often referred to as "superbugs." Superbugs are a global plague already associated with more than 4 million deaths annually. By 2050, they are expected to contribute to approximately 10 million deaths each year. For cancer patients, their families, and their medical teams, this is hugely problematic.

Hope for the future

While superbugs are a major challenge for people with cancer, there are actions that can beat back this scourge. It is imperative that hospitals and health systems continue investing in infection prevention and control practices. Small efforts, like handwashing, putting in place effective stewardship practices to ensure the appropriate use of antibiotics, and closely adhering to best practices for administering injectable medicines, inserting catheters, and taking blood draws can significantly reduce the risk of infection.

It's also crucial that we develop new and effective tools for diagnosing and treating infections. More than 1,500 therapeutic candidates are in clinical development against all types of cancer. However, when it comes to high-priority drug-resistant bacteria, fewer than 40 drugs are in clinical development, and the WHO has warned that "innovation is badly lacking" in the field. That is bad for everyone, especially cancer patients.

As such, we need to reassess how we value antibiotics, and we need policies that encourage investment to ensure appropriate and effective antibiotics are available to patients who need them.

Preventing Infections, Saving Lives: The Case for WGS in Hospitals

Going to a hospital for care, only to leave sicker than when you arrived, is a grim reality for many patients who contract bacterial infections in healthcare settings. Luckily, we have a powerful tool that can stop these infections in their tracks: whole genome sequencing (WGS).

WGS is a cutting-edge technology that allows scientists to analyze the DNA of microbes. By comparing microbial genomic sequences from different patients, hospitals can quickly detect when infections are spreading within their facilities. This means infection control teams — already present in every hospital — can act fast to stop outbreaks before they become widespread.

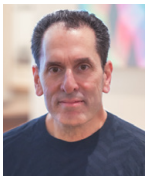
The impact of this technology cannot be overstated. Right now, hospitals rely on traditional infection control methods that miss up to 80% of transmission events. WGS changes that. It provides real-time data that helps hospitals identify exactly where and how infections are spreading.

Return on investment

Every time an infection spreads within a hospital, patients have to stay longer, leading to higher costs for healthcare providers and insurers. WGS could reduce hospital bed days by an estimated 2-3%, which equates to about 5 million fewer hospital days per year. This could result in $20 billion in savings annually and generate an economic boost worth $3 billion in GDP.

More importantly, WGS can help reduce human suffering. No patient should fear that a hospital visit will result in an infection that worsens their condition. With better infection tracking, we can cut down on preventable deaths and illnesses caused by hospital-acquired infections.

WGS is a scientific breakthrough and a practical solution to a major healthcare challenge. It offers a way to improve patient safety, reduce costs, and make hospitals more efficient. This is a perfect opportunity for the new administration to embrace a policy that benefits both the healthcare system and the economy.



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How Smarter Antibiotic Use Can **Protect Both People and the Planet**

When antibiotics are overused or improperly discarded, they can contribute to pollution and the development of antibiotic-resistant bacteria.

The medical community overwhelmingly agrees that climate change poses a direct threat to public health, and urgent action is needed to mitigate its impact. Alongside climate change, the World Health Organization has identified antibiotic resistance as one of the top global health threats.

Antibiotics are essential for treating bacterial infections, but their overuse and improper disposal contribute to environmental contamination and the spread of antimicrobial resistance. As resistant bacteria become more common, infections become harder to treat, putting lives at risk and straining healthcare systems.

Addressing antibiotic overuse is not just a medical issue — it's also an environmental one, requiring greater awareness and action. Healthcare institutions and professional societies like the Society for Healthcare Epidemiology of America (SHEA) have a responsibility to lead efforts in reducing unnecessary antibiotic use and improving disposal practices to mitigate these risks.

How antibiotics contribute to environmental waste

Antibiotics make their way into the environment through multiple channels, including pharmaceutical manufacturing, hospital wastewater, and improper disposal by patients and healthcare facilities. In 2022, the single-use waste from unnecessary outpatient antibiotic prescriptions in the United States generated an estimated 1,887 metric tons of CO_2-equivalent emissions — the same as driving a gasoline-powered car 194 times around the Earth's equator.

Additionally, a study found that over 90% of community pharmacists reported dispensing extra liquid amoxicillin beyond what was needed due to packaging constraints and prescribing practices. Much of this excess medication ends up in the trash or is poured down the drain, allowing antibiotics to seep into water systems, where they contribute to contamination and the development of antibiotic-resistant bacteria.

Solutions for a sustainable approach to antibiotic use

A growing number of strategies are being implemented to help reduce the environmental impact of antibiotics. One approach is ensuring that antibiotics are prescribed only when necessary, as reducing unnecessary prescriptions helps limit the amount of medication that enters the environment. Proper disposal methods also help minimize contamination and reduce the amount of waste generated. Instead of flushing unused antibiotics or throwing them in the household trash, many pharmacies and healthcare facilities offer take-back programs for safe disposal.

Many people may not realize that the way antibiotics are used and disposed of can have lasting effects on the environment. By increasing awareness, individuals and communities can help protect both public health and the planet.

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The World's First Anti-Cancer Vaccine: A Proven Weapon Against a Serious Disease

Since the hepatitis B virus is a human carcinogen, the hep B vaccine is the world's first anti-cancer vaccine.

Why get vaccinated against hepatitis B? Simply put, it's a stealthy virus responsible for a silent, global epidemic. Chronic hepatitis B infection shows no symptoms until a person becomes seriously ill. Plus, if someone is infected with hepatitis B and doesn't get treated, the disease often leads to cirrhosis and, ultimately, liver cancer, which is one of the deadliest cancers.

Worldwide, almost 300 million people are living with a chronic hep B infection. It's the world's leading cause of liver cancer and is a preventable virus that kills more than 1 million people each year. In the United States, about 2.4 million are living with hepatitis B, and liver cancer kills about 30,000 Americans annually.

The world's first anti-cancer vaccine

The hep B virus is the second-leading known human carcinogen, after tobacco, because it leads to so many cancer deaths. This means that the hep B vaccine is the world's first anti-cancer vaccine.

The hep B vaccine is considered one of the safest and most effective vaccines ever produced, and it has been studied rigorously for many decades. Over 1 billion doses of the hep B vaccine have been given worldwide, preventing over 38 million deaths in the past 40 years. In the United States, before infants were routinely given the hep B vaccine at birth, nearly 18,000 children a year were infected. Since universal infant vaccination began in the early 1990s, childhood and adolescent hep B infections in the country have dropped by 98%. That's a lot of children protected and lives saved!

> We're hopeful that our country is on the path to **eliminating viral hepatitis by 2030**.

Another key consideration is testing. Of the 2.4 million people in the United States who are chronically infected, only 25% of them know it. Without diagnosis and proper treatment, those with chronic hepatitis B are at significantly increased risk of cirrhosis and liver cancer. Plus, U.S. hepatitis B cases have been rising in recent years, up 11% between 2014 and 2018.

Anyone who is not protected can get a hep B infection. Recent data shows that over half of all newly infected people in the United States have no known risk factors. In the U.S. Centers for Disease Control and Prevention's new testing guidelines issued in 2024, the agency said that everyone 18 and older should be tested for hep B during their routine blood work.

We're hopeful that our country is on the path to eliminating viral hepatitis by 2030, which is a goal set by the World Health Organization and one embraced by the Hepatitis B Foundation. Combined with the CDC recommendation for universal vaccination for all adults ages 19-59, the new screening guidelines are a significant step toward preventing new infections and helping diagnose those who have hep B, so that they can begin treatment to prevent liver cancer.

Treating hepatitis B

Curing hepatitis B remains a tough challenge because the virus embeds its genetic material into liver cells unlike any other known pathogen. Despite more than 60 years of research, there is still no cure for hepatitis B. However, in the past two decades, effective treatments have become available.

Current antiviral therapies can dramatically reduce the viral load in the blood to nearly undetectable levels. This not only helps manage symptoms but also significantly lowers the risk of liver cancer.

Many scientists worldwide are actively working to develop new and improved hepatitis B treatments with the ultimate goal of finding a cure. In the meantime, the Hepatitis B Foundation has numerous resources for people living with hepatitis B, as well as for healthcare providers and scientists.

WRITTEN BY
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A Path to a Healthier Future With **Chronic Hepatitis B Virus Infection**

Aligos Therapeutics is a clinical-stage biotechnology company focused on improving patient outcomes through best-in-class therapies for liver and viral diseases. The company is dedicated to educating patients, providers, and others on new findings in chronic hepatitis B virus (HBV) infection.

Chronic HBV infection is the most common viral infection in the world with nearly 300 million carriers worldwide and 1.5 million new infections each year. Complications from chronic HBV infection include scarring and inflammation of the liver, liver failure, and liver cancer, which collectively resulted in approximately 1.1 million deaths in 2022, according to the World Health Organization.

HBV has powerful effects on infected patients, including suppression of the immune system, and even integration of the viral DNA into the patient's chromosomes. These processes work collectively to damage healthy livers and promote cancer.

Standard of care

The primary goal of therapy is to slow the progression to end-stage liver disease and liver cancer. Studies have demonstrated that reducing HBV DNA in the blood to undetectable levels is associated with normalization of liver tests, slowing of liver damage, and lowers the risk of developing liver cancer. Current therapy with nucleoside analogs for chronic HBV infection is life-long treatment and does not eliminate the virus in a meaningful number of patients.

Long-term treatment can lower the amount of HBV DNA in systemic circulation, resulting in improvements in long-term disease outcomes, but virological relapse is common when treatment is stopped. In addition, certain patients continue to progress to liver disease while on treatment.

In recent years, the importance of treating all patients, even those with asymptomatic disease, has been gaining prominence. The reason for this change is that all patients, regardless of disease state, can progress to liver failure and even liver cancer. Moreover, recent studies have demonstrated that while patients treated with nucleoside analogs have a reduced risk, they can still progress to end-stage liver disease and liver cancer.

Next-generation treatment options

Progress has been made with new modalities to treat this insidious disease that can have a greater impact on disease outcomes. Some of these new modalities include blocking HBV gene expression with RNA therapeutics, immune-activators, and molecules targeting the viral capsid, which results in inhibition of multiple steps of the HBV lifecycle (capsid assembly modulators (CAMs)).

CAMs are a new class of drugs that affect the HBV lifecycle differently than the currently approved drugs by acting on multiple steps that the virus uses to replicate and integrate its DNA into an infected individual's genome. By blocking these key processes, CAMs have the potential to reduce HBV DNA integration and viral secretion, which may translate to clinical benefit for patients. Several CAM candidates are now being tested in clinical studies.

In early clinical testing, some of these candidates appear to show the potential for more rapid and complete viral suppression when compared to previously reported results for nucleoside analogs. Additionally, this class of next-generation CAMs also suggest suppression of viral markers that have been associated with patient immune suppression.

Ongoing testing will further explore these findings and determine the potential role of these next-generation therapies for the treatment of chronic HBV infection, including reductions of viral integration events.

Written by **Aligos Therapeutics, Inc.**

To learn more, please visit **www.aligos.com** or email **info@aligos.com**

ALIGOS THERAPEUTICS

I Was Given a 1% Chance of Surviving the Flu. Today, I Administer Flu Vaccines.

Madi Allen was a healthy 12-year-old when the flu landed her in the hospital and nearly took her life. She still suffers long-term side effects but is living her life and working in healthcare.

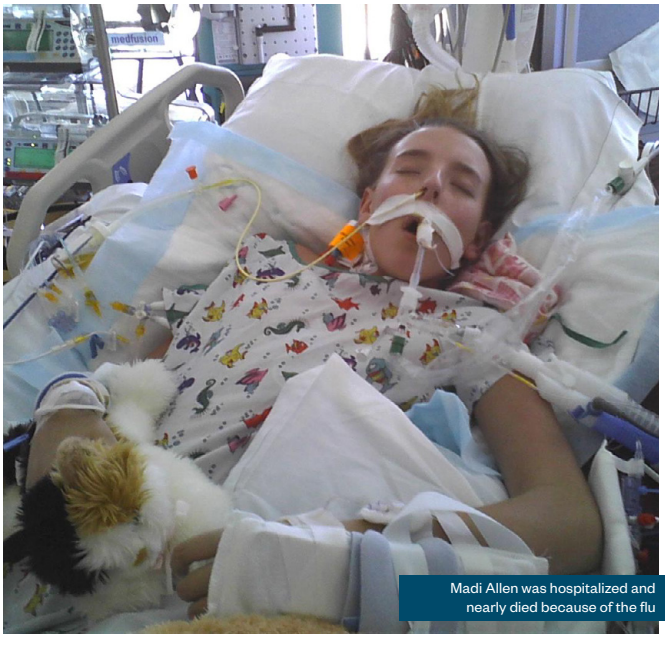
I was 12 years old when I nearly died from complications from the flu. I don't remember much from that time, but what I do remember is being told they needed to intubate me so I could rest. I woke up five weeks later.

At that time, they had to put me on life support because my organs were shutting down. The doctors told my parents I had a 1% chance of survival. I spent two weeks on life support and another three weeks on a ventilator. It took me a total of 93 days before I was able to leave the hospital, and still, to this day, I live with the impact of that one case of the flu.

I suffer from lung disease, chronic cough, and asthma, and I undergo daily vest treatments. A few years ago, I had a large portion of my lung removed. This situation is ongoing and will continue for the rest of my life.

I'm now a medical assistant in a pulmonary clinic, where I help raise awareness of the importance of annual flu vaccinations. It is so important that people remember that getting a flu vaccine is not just about you; it's about the people around you. Remember, the flu does not discriminate. Please get your flu shot. It's not too late.

Written by **Madi Allen, Volunteer, Families Fighting Flu**



Madi Allen was hospitalized and nearly died because of the flu

Could Bird Flu Become the Next Pandemic?

With the ongoing spread of bird flu, tracking the virus has been even more challenging since we are in the middle of our annual influenza season.

The U.S. Centers for Disease Control and Prevention has reported 70 cases of individuals infected by the H5N1 virus (more commonly known as "bird flu") as of March 2025. With the ongoing spread of the virus in animals and sporadic transmission to humans, including the first human death reported recently, tracking the virus has been made even more challenging since we are in the middle of our annual influenza season.

This year, like years past, we expect to see hundreds of thousands of hospitalizations — and sadly, several thousand deaths — from seasonal influenza. So, what makes less than 100 human cases of H5N1 influenza so worrying? Unlike other H5 viruses — which have existed around the world for nearly two decades — this virus infects mammals easily, giving pause to scientists who are concerned it could spread more easily to humans. Almost all human cases have been found in people who have had close exposure to infected animals, but a few cases have no such links, raising concerns about how close we might be to human-to-human spread.

> For the common seasonal influenza viruses, **getting vaccinated is still the most effective way to prevent illness**.

The other factor is bird flu's similarity to seasonal influenza. If a bird flu pandemic started during flu season, we could have dozens of bird flu cases hiding in plain sight among millions of influenza cases during the early days of the pandemic, and the overlap in symptoms would make it difficult to monitor.

There is good news amid these concerns. For the common seasonal influenza viruses, getting vaccinated is still the most effective, safe, and easy way to prevent illness. This is especially important for people at increased risk for influenza, including young children, older adults, pregnant women, and those with chronic health conditions. For these individuals, getting vaccinated must be an integral part of their annual health plan.

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The Breakthrough COVID and Flu Test
Connecting Consumers With Follow-Up Care

It's always a good time to be ready to test your family for influenza A & B and COVID-19. The Centers for Disease Control and Prevention (CDC) estimates that there have been at least 20 million flu illnesses this season and 5.1 to 9.5 million cases of COVID-19.

Image courtesy of Biolabs International

An innovative over-the-counter test is helping efficiently diagnose cases of COVID and Flu A and B, while also empowering users to follow up on the result with a healthcare provider. The test, SpeedySwab™ Rapid COVID-19 + FLU A&B Antigen Self-Test, is considered a testing breakthrough because it can test for multiple illnesses and promote follow-up care.

The upcoming app enables the user to take a picture of the test result, which is then verified with AI. The app then provides resources to the user to schedule an appointment with a healthcare professional and get any necessary prescriptions.

The non-prescription home test, which has Emergency Use Authorization from the Food and Drug Administration (FDA), uses self-collected anterior nasal swab samples from individuals 14 years or older, or nasal swab samples from individuals 2 years or older.

Manufactured by Watmind USA™, this test is exclusively distributed by Biolabs International LLC.

Accuracy

SpeedySwab™ is one of the most accurate combined COVID, Flu A, and Flu B tests on the market, with a COVID clinical sensitivity of 92.5%, a Flu A clinical sensitivity of 82.9%, and a Flu B clinical sensitivity of 90%, according to data available on the FDA's website.

"I care about the accuracy of the product that I'm presenting to my clients and our citizens," said Biolabs president Gino Ajodani. "I'm honored to have this type of accuracy in our hands with SpeedySwab™."

Expanded testing

Just like the name would imply, SpeedySwab™ delivers results quickly.

"Our result is coming back mostly in about 10 minutes. We say 15 minutes, but it shows up quite a bit quicker than that." Ajodani said. "And our lines are incredibly solid. There is no second guessing."

As a leader in medical testing supplies, Biolabs International is excited to be growing. SpeedySwab™ kits are available now at over 100 retailers across the United States, including Walgreens, Kroger, BevMo, and Amazon.

Ajodani also shared that as part of their mission to offer expanded testing access and options, they have selected 2San LLC, a global distributor of innovative and easy-to-use diagnostics, to further expand distribution of the SpeedySwab™ COVID-19 + Flu A&B Self-Test beyond Biolabs' current distribution model to ensure consumers have readily available access to this combination diagnostic solution.

SpeedySwab™, in collaboration with Biolabs International LLC, has been updated and improved. The vertical improved packaging allows SpeedySwab™ to take up less shelf space while clearly displaying the contents of the package. This packaging also incorporates an integrated tube holder to improve the testing experience for the user, and upcoming packaging will proudly display the American flag, indicating that assembly now takes place in the United States, creating more domestic jobs and fortifying domestic supply chains of these critical diagnostic tools.

These test kits are available in different kit sizes, ranging from a single pack, two pack, and four pack, and have an 18-month shelf life to ensure it can be used when you need it. Biolabs International's partner, Watmind USA™, is in the process of completing FDA 510k approval, which may result in a 21-month expiration date extension.

What's next for Biolabs International?

Through a strategic partnership spanning the previous 2 years, BioLabs International and Safe Health Systems Inc. are revolutionizing clinical studies by reducing costs and timelines, enabling new diagnostics to reach the market faster and more efficiently while creating U.S. jobs. The first of its kind DCT approach, facilitates borderless recruitment and at-home participation, ensuring study results reflect real-world use cases. By eliminating the inefficiencies and costs of traditional CROs and IRBs brick-and-mortar sites, the DCT platform delivers faster, more affordable ways to bring new tests to market while ramping up U.S. manufacturing and assembly.

Written by **Kristen Castillo**

INTERVIEW WITH
Gino Ajodani
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