IS YOUR DOCTOR SMARTER THAN A 5TH GRADER?

Investigating the role of viral, fungal, and bacterial infections/exposures in the development and progression of cancer

The Pathogen-Cancer Connection

Viral, fungal, and bacterial pathogens **don't just coexist** with cancer—they **actively cooperate** with tumors.

These microscopic invaders form a lethal alliance in the tumor microenvironment to:

Fuel Growth
Accelerating tumor development

Promote Metastasis
Helping cancer spread

Resist Treatment
Creating protective barriers

ACHIEVED PRIMARILY THROUGH CHRONIC INFLAMMATION & IMMUNE EVASION

Fungal Infections: Candida Species

Candida is the most common fungal infection in cancer patients, including *C. albicans*, *C. tropicalis*, and *C. auris*.

Impact on Cancer

Produces **acetaldehyde**, a potent carcinogen that damages cellular DNA.

Promotes chronic inflammation via **Th17 cell-mediated immune responses**.

Creates a microenvironment that helps tumor cells spread, facilitating rapid **metastasis**.

The C. auris Threat

A significant multidrug-resistant threat in ICUs. High levels of Candida in gastrointestinal tumors are heavily associated with increased tumor gene activity and worse outcomes.

Sources: AccessMedicine; National Institutes of Health (.gov)

Fungal Infections: Aspergillus Species

Primary Threat: *A. fumigatus* and *A. flavus* are the most common invasive mold infections found in patients with hematologic malignancies (such as leukemia).

Lethal Impact: Invasive aspergillosis (IA) frequently causes severe pneumonia, resulting in staggering **mortality rates of 60-85%** in immunocompromised individuals.

Worsening Prognosis: These infections produce **aflatoxins** (potent liver carcinogens). Critically, they often force delays in chemotherapy cycles, leading to significantly worse overall cancer outcomes and further immune suppression.

FUNGAL INFECTIONS

3. Mucorales (Mucormycosis)

Causes mucormycosis, one of the most fulminant and fatal fungal infections in immunocompromised patients.

Impact on Cancer:

- Rapidly destroys tissue (angioinvasive mold)
- Often causes necrotic lesions in sinuses, lungs, or brain
- Particularly lethal in hematologic cancers
- High risk for patients on high-dose corticosteroids

Source: AccessHemOnc

4. Cryptococcus neoformans

A widely distributed opportunistic yeast, ranking as a critical priority fungal pathogen by the WHO.

Impact on Cancer:

- Causes life-threatening meningitis and pneumonia in weakened immune systems
- Exacerbates disease during cancer progression
- Facilitates tumor growth by helping tumor cells evade immune surveillance

Source: National Institutes of Health (.gov)

Fungal Infections: Pneumocystis & Fusarium

Pneumocystis jirovecii (PCP)

A serious, often fatal lung infection (pneumonia) that primarily targets patients with suppressed immune systems.

Poses a significant and critical threat to patients with leukemia, lymphoma, and those undergoing long-term steroid therapy.

Strongly associated with significantly worse clinical outcomes and disease progression in patients diagnosed with lung cancer.

Fusarium Species

A pervasive mold that causes devastating systemic disease (fusariosis), specifically observed in hematologic malignancies.

Aggressively invades blood vessels, triggering dangerous thrombosis (blood clotting) and severe tissue necrosis (death).

Often highly resistant to conventional antifungal treatments, complicating patient recovery and drastically reducing survival rates.

BACTERIAL INFECTIONS: H. PYLORI & STOMACH CANCER

Helicobacter pylori (H. pylori)

Classified as a **Class I carcinogen** by the World Health Organization.

Causes severe chronic gastric mucosal inflammation, atrophy, and metaplasia, leading directly to gastric cancer and MALT lymphoma.

Produces potent virulence factors like **CagA** and **VacA**, which disrupt cellular signaling pathways and interfere with vital DNA repair mechanisms.

Salmonella typhi

Causes persistent and chronic infection in the gallbladder, serving as a major risk factor for gallbladder cancer.

Releases specific bacterial toxins that cause direct DNA damage, actively creating a highly "tumor-promoting environment."

Redefining Cancer:

IS YOUR DOCTOR SMARTER THAN A 5TH GRADER?

BACTERIAL INFECTIONS: COLORECTAL CANCER

Fusobacterium nucleatum

Found in the oral cavity, this bacterium becomes an opportunistic pathogen in the gut.

Prevalent in advanced-stage colorectal cancer. Its presence in esophageal and colorectal tumor tissues is linked to **shorter patient survival times**.

Enterotoxigenic Bacteroides fragilis (ETBF)

ETBF levels are significantly elevated in colorectal cancer (CRC) patients.

Promotes tumor growth through chronic inflammation (IL-17 and Th17-mediated responses) and the production of a **toxin that damages colonic tissue**.

Streptococcus bovis (S. bovis)

Infection with S. bovis biotype I is strongly linked with colorectal cancer development and bacteremia.

Often appears **years before a cancer diagnosis**, acting as an early warning sign of potential malignancy.

Parvimonas micra: The Hijacker

Oral-to-Gut Migration

Normally found in the oral cavity, this pathobiont migrates to the gut and becomes significantly enriched in patients with colorectal cancer (CRC).

Epigenetic Reprogramming

It directly alters DNA methylation patterns in human primary intestinal epithelial cells, effectively reprogramming them to support carcinogenesis.

Microbiome Hijacking

P. micra drastically alters the gut microbiota composition, "hijacking" other bacteria (like *Fusobacterium*) to create a cooperative, tumor-promoting environment.

Accelerated Tumor Growth

Through these synergistic mechanisms, it actively promotes tumor colonization and growth, leading to significantly worse prognoses for patients.

Scientific References:*Parvimonas micra* promotes colorectal tumorigenesis and is associated with prognosis (PMC9439953); Alteration of gut microbiota abundance along the adenoma-carcinoma sequence (PMC7439112).

Bacterial Infections: Oral & Lung Cancer

P. gingivalis

A primary pathogen in periodontal disease that can readily enter the bloodstream.

Found in high concentrations in oral and pancreatic cancer cells, it actively promotes oral carcinogenesis by directly transforming epithelial cells.

C. pneumoniae

Repeated or chronic exposure to Chlamydia antigens is strongly linked to lung cancer risk.

It sustains chronic inflammation and oxidative stress, creating an environment highly favorable to lung adenocarcinoma development.

M. tuberculosis

The bacterium responsible for causing tuberculosis.

Produces inflammatory cytokines that significantly enhance tumor formation, accelerate progression, and drive metastasis in lung adenocarcinoma.

ESKAPE Pathogens

Cancer patients are highly susceptible to secondary bacterial infections that complicate treatment.

These pathogens cause prolonged, fatal infections including sepsis, pneumonia, and bacteremia in compromised immune systems.

Pseudomonas aeruginosa

Frequently causes severe bloodstream infections in hematological malignancies and solid tumors.

Klebsiella pneumoniae

A leading cause of sepsis, pneumonia, and bacteremia in cancer patients with weakened immunity.

Acinetobacter baumannii

Known to cause fatal sepsis and severe respiratory infections in compromised immune systems.

Staphylococcus aureus

Releases enterotoxins that interfere with the host's innate immune response, complicating recovery.

Redefining Cancer:
IS YOUR DOCTOR SMARTER THAN A 5TH GRADER?

MECHANISMS: HOW BACTERIA WORSEN CANCER

Chronic Inflammation

Bacteria induce immune cells to produce reactive oxygen and nitrogen species (ROS/RNS) that damage DNA and promote tumor growth.

Biofilm Formation

Bacteria form thick protective barriers resistant to mechanical stress and antibiotics, facilitating long-term survival in the tumor microenvironment.

Genotoxin Release

Bacteria produce toxins like colibactin and cytolethal distending toxins (CDT) that cause direct DNA double-strand breaks.

Immune System Suppression

Pathogens can suppress the body's adaptive immune response, allowing tumors to evade immune detection and destruction.

Redefining Cancer:

IS YOUR DOCTOR SMARTER THAN A 5TH GRADER?

VIRAL INFECTIONS:

Respiratory & Reactivation

1. COVID-19 and Influenza

Acute respiratory infections can awaken dormant cancer cells by triggering massive inflammation and the release of inflammatory proteins like IL-6.

2. Hepatitis B (HBV) and Hepatitis C (HCV)

Chronic infection is a leading cause of liver cancer. In patients already diagnosed, these viruses worsen the prognosis and actively accelerate tumor progression.

3. Epstein-Barr Virus (EBV)

Remains in the body for life and is linked to several lymphomas and nasopharyngeal cancer. Reactivation of latent EBV makes these cancers significantly more aggressive.

Viral Infections: Immunosuppression & Oncomodulation

Human Immunodeficiency Virus (HIV)

While not a direct cause of cancer, HIV severely **weakens the immune system**, rendering the body less capable of fighting off other oncoviruses. This increases the risk and worsens outcomes for Kaposi sarcoma and lymphomas.

Cytomegalovirus (CMV)

Acts as a potent **"oncomodulator,"** actively enhancing the malignancy of existing tumors without directly transforming cells. CMV infection in patients with glioblastoma (brain cancer) is strongly associated with a much poorer prognosis.

Human Papillomavirus (HPV)

High-risk strains are directly responsible for nearly all **cervical cancers** and many anal and throat cancers. Persistent HPV infection drives aggressive cellular transformation and promotes rapid tumor progression.

Pathogen Cooperation

ACTIVE COLLABORATION, NOT JUST COEXISTENCE

Viruses, bacteria, and fungi don't just passively exist alongside cancer. They **actively cooperate** with tumor cells to create a hospitable environment for malignancy.

Key Mechanisms of Cooperation:

Reshaping the Tumor Microenvironment (TME): Pathogens modulate the TME, creating chronic inflammatory states that act as "fertilizer" for tumor growth.

Immune Evasion: Microbes help tumors hide. They suppress the host's adaptive immune response, allowing cancer cells to escape detection and destruction.

Metabolic Advantages: Microbial metabolites can directly fuel tumor metabolism, providing necessary nutrients and energy for rapid proliferation.

Cross-Kingdom Synergy: Bacteria and fungi interact metabolically with each other, altering the microbiome structure to indirectly drive tumorigenesis.

Sources: "The tumor microbiome in cancer progression" (PMC12261620); "Microbiota in cancer" (Nature, 2025); "Unraveling the Fungi–Cancer Connection" (Science, 2024).

Redefining Cancer:

IS YOUR DOCTOR SMARTER THAN A 5TH GRADER?

COVID-19 & Epstein-Barr Virus: The Dangerous Duo

The Reactivation Threat

COVID-19 infection acts as a massive trigger, awakening latent Epstein-Barr Virus (EBV) from its dormant state, **regardless of vaccination status**.

The Dual Threat Mechanism

Immunological Dysregulation: The combined viral assault severely disrupts immune surveillance.

Persistent Inflammation: Creates a chronic inflammatory state that serves as "fuel" for tumor progression.

Increased Cancer Risk: Reactivated EBV directly promotes oncogenic (cancer-causing) pathways, particularly in lymphomas.

> **Clinical Impact:** Early EBV reactivation is now known to predict the onset of Long COVID and can trigger severe autoimmune responses, drastically complicating the cancer recovery journey.

Redefining Cancer:

IS YOUR DOCTOR SMARTER THAN A 5TH GRADER?

The Tests Your Doctor Won't Order

Your doctor will likely **scoff at you** if you ask for proper comprehensive testing to investigate the root causes and cooperating pathogens fueling your cancer.
Despite their immense clinical value, these are the tests you need:

1. Proper HHV6 Panel

Immunosciences Labs Premiere test #2022 (Detects vital viral reactivation)

2. Comprehensive Gastrointestinal Panel

GI Effects Comprehensive Stool Test from Genova Labs (Identifs gut dysbiosis and pathogens)

3. Advanced Nutritional Evaluation

NutrEval Urine and Plasma from Genova Labs (Maps metabolic function and deficiencies)

Why This Matters

Understanding viral, fungal, and bacterial infections in cancer is **not alternative medicine—it's biology.**

The tumor microenvironment is an ecosystem, and pathogens are **active participants**.

IGNORING THEM IS LIKE FIGHTING A WAR WITHOUT KNOWING ALL YOUR ENEMIES.

THE BOTTOM LINE

If your doctor dismisses infections as irrelevant to cancer, they're not smarter than a 5th grader—they're ignoring decades of peer-reviewed research.

You deserve better.

Take control. Ask questions. Demand testing.

KNOWLEDGE IS POWER.
QUESTIONS ARE WEAPONS.

YOUR HEALTH IS WORTH FIGHTING FOR.

STAGE 4 TO NO MORE

Ryan Luelf's Story

THE CRISIS

2018: A Major Lymphoma Recurrence

Ryan was in a Los Angeles hospital.
Doctors delivered the devastating news: **he wasn't leaving.**

Hospice was being called.

He texted me, asking if we could talk. He shared something terrifying:

"My cancer is advancing so fast,
you can physically see it move."

THE DIAGNOSIS

I thought **"no way, this isn't how Lymphoma operates."**

After asking questions and checking medical references, I was positive he had contracted a serious bacterial infection.

The hospital agreed to the antibiotic.

RYAN WAS RELEASED THE NEXT DAY.

THE STATE OF THINGS

Ryan was 5'11", weighing just 118 pounds.

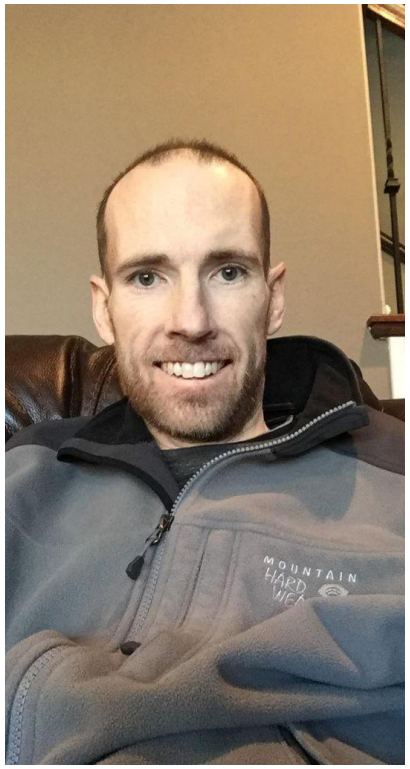
Severely swollen belly.

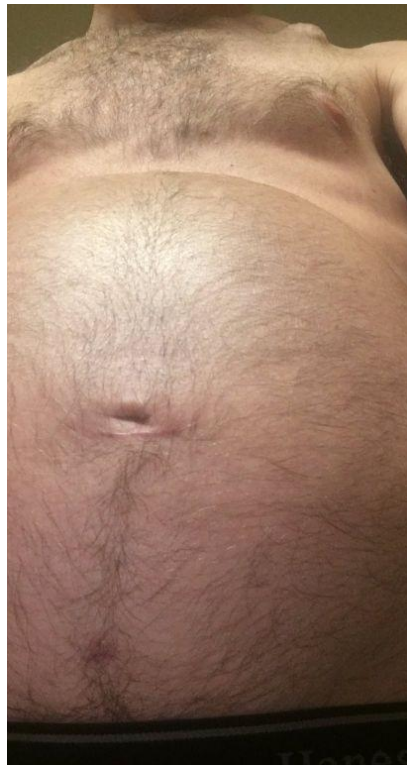
Liver enlarged by 50%.

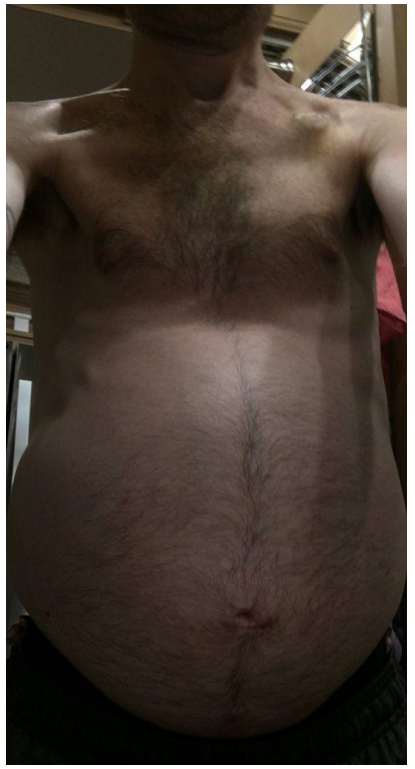
Couldn't breathe properly.

Could only take 12 oz of fluid per day.

Doctors gave him days to live.







THE DECISION

Ryan and his wife talked with me until 2:30 AM about every moment of their medical journey. We made sense out of the chaos.

The kids were sent home to Oklahoma. Ryan asked to hire me for my undivided attention.

Ryan invited me to stand in the gap, advocate for him, and find a solution.

Doctors warned me to brace for his imminent death.
I refused to heed the warning.

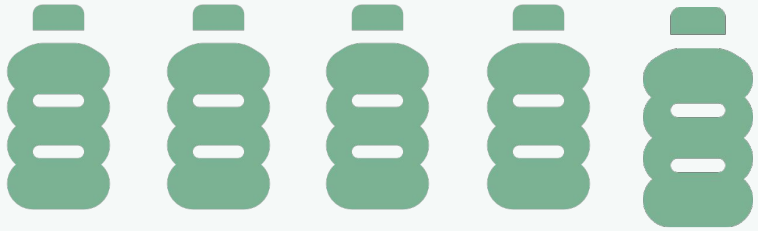
THE TREATMENT

Ryan couldn't breathe. We headed to the hospital and had them drain **4.5 LITERS** off his abdomen.

I suspected there was a **viral infection** as well. We got a prescription and started that first full day.

We powered forward.

WHAT 4.5 LITERS LOOKS LIKE

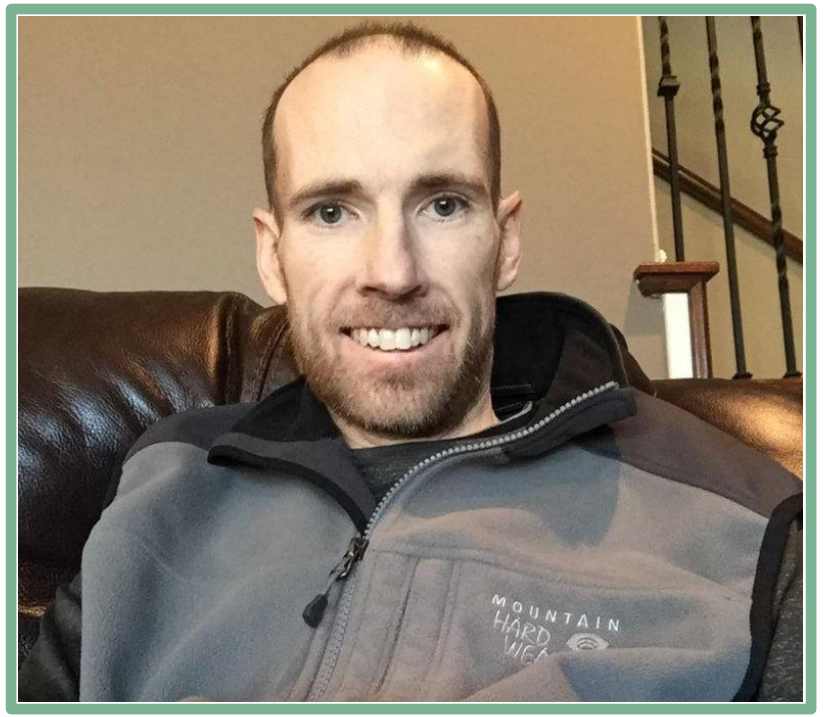


Almost 10 pounds of excess fluid that was compressing his lungs and vital organs.

Redefining Cancer:

The Science Of Healing

THE TRANSFORMATION



BEFORE

Sick, 118 lbs

AFTER

Healthy, Thriving

Ryan and his wife celebrated another child and recently moved to Ecuador.

From hospice to thriving.

HOW YOU CAN GET HELP

If you need strong support and guidance, you don't have to pay **$22,500**.

Visit www.RedefiningCancer.com/theo

We'll schedule a video call. If you're a good fit, there are two options:

1) I can help you build you a battle plan

2) Join your team in a meaningful way

This is not a call for advice. This is a call to explore makeing a serious decision.