



BY WILLIAM FALOON

SEPSIS: Is There Now a Cure?

This article has a lot of personal meaning because it reveals information that could have saved the lives of some of my family members...if only I had known about this sooner.

Here is what the **Centers for Disease Control and Prevention** reports on the impact of **sepsis**:¹

- About **250,000** Americans **die** from **sepsis** each year.
- More than **1.5 million** Americans get **sepsis** each year.
- **One in three** patients who **die** in a **hospital** have **sepsis**.

Despite these staggering numbers, most people have never heard of **sepsis**.

Sepsis is a complex syndrome characterized by oxidative damage, hyper-inflammation, immune dysfunction, poor tissue oxygenation, and hyper-coagulation, usually brought on by an infectious agent.^{2,3}

When susceptible persons are exposed to a **pathogen**, there can be an uncontrolled **inflammatory** response that disrupts organ function and blood flow.

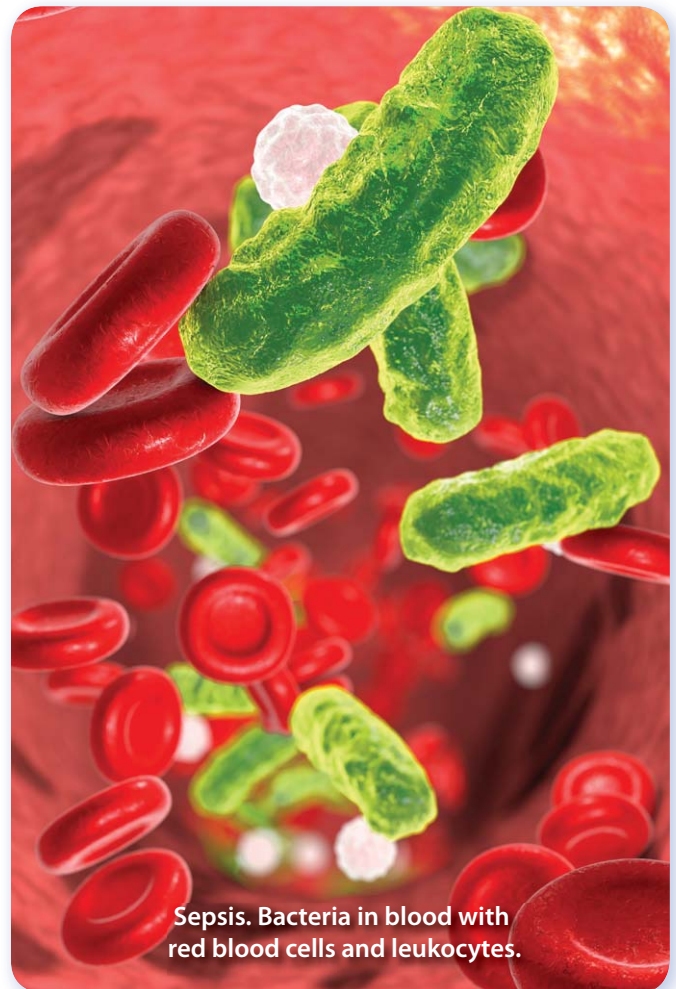
Instead of **targeting** the offending bacteria or virus, the immune system mounts **inflammatory** reactions that can result in circulatory collapse, multi-organ failure, and eventual death.

In a study published in **2017**, a group of 47 hospitalized **sepsis** patients were treated with intravenous **vitamin C**, **hydrocortisone**, and **vitamin B1**.

Compared to sepsis patients treated with conventional therapy, those receiving the **intravenous vitamins** and **hydrocortisone** had a striking **87%** reduced **mortality**.⁴

These impressive small-scale studies have ignited **eight** new **clinical trials** in **2018** that will use this three-prong approach, i.e., intravenous **vitamin C**, **vitamin B1**, and **hydrocortisone**.

As you're about to learn, this kind of approach to **sepsis treatment** was demonstrated **decades** ago. Millions may have needlessly succumbed because this therapy was overlooked by the medical establishment.



Sepsis. Bacteria in blood with red blood cells and leukocytes.

I recently came across a set of Power Point slides that one of our scientists presented in **1999**.

It described the staggering costs of hospitalized **sepsis** patients, along with better ways to treat **sepsis** that had been published in the **1990s**.

Move forward **20 years** and virtually none of those published methods to save **sepsis** patients have been adopted into hospital practice.

Sepsis is a frustrating condition to offer suggestions for from the outside. That's because the septic patient is confined to a hospital, where the treating physician exerts dictatorial authority.

Over the past decades, we at **Life Extension®** have tried to assist sepsis patients' family members who request intravenous **vitamin C**, **thiamine**, and **glutathione**. The ICU physician's response is consistently "no" and the result too often is agonizing death of the patient.

There has been fierce hostility by many physicians against the use of **intravenous vitamins** in the hospital setting, despite persuasive evidence of efficacy. This prejudice may soon change.

How Sepsis Kills

Sepsis can strike at any age, but **elderly** people with compromised **immunity** are the most vulnerable.

Sepsis often arises from a **bacterial** infection that results in widespread blood clotting, abnormal immune and inflammatory responses, oxidative stress, and mitochondrial dysfunction.^{2,3}

As **inflammatory cytokines** destroy **endothelial** linings, blood abnormally **coagulates** and **organs** (lungs, kidneys, brain) lose **circulation**.

This can lead to a dangerous drop in **blood pressure** (septic shock) that results in patients **dying** from multisystem **organ failure**.⁵

Sepsis is the most **expensive** cause of **hospitalization** in the United States and contributes to **35%-56%** of all in-hospital deaths.^{6,7}

It's the primary reason that older people are admitted to **intensive care units** (ICU).

Lingering Effects of Sepsis

It used to be thought that if a patient could survive the **acute inflammatory** response and make it out of the hospital, they would slowly return to normal.

But that is not how it works. It turns out that more than **40%** of **sepsis** patients are readmitted to the hospital within 3 months after going home.⁸

This creates a chronic problem that becomes costlier and more dangerous as patients get weaker with each new septic-related attack.

Sepsis survivors are at increased risk of dying for months to years after the acute infection is cured.

Better initial and follow-up treatments are urgently needed.

Low Vitamin C in Sepsis Patients

A study published in **2017** looked at **vitamin C** plasma levels in **sepsis** patients.⁹

This study found overall that critically ill sepsis patients had low **vitamin C** levels with one-third having frank **vitamin C deficiency**.

Nearly **40%** of **septic shock** patients in this study were deficient in **vitamin C** compared to **25%** of non-septic patients.⁹ (Septic shock is severe sepsis that often precedes death.)

The doctors who conducted this study noted these low levels of **vitamin C** despite sepsis patients being given, on average, **125 mg** a day of **vitamin C** by mouth or IV.⁹



Readers of this magazine know a daily **vitamin C** dose of **125 mg** is trivial. Yet much of conventional medicine still views this as adequate.

This misconception is startling when considering hospitalized patients rapidly use up their **vitamin C** to suppress acute **oxidative reactions** brought on by sepsis-induced **inflammation**.

This is not the first study that identified **low vitamin C** levels in septic patients. This finding was uncovered more than 20 years earlier.^{10,11}

A 2018 published report titled “**Vitamin C: The next step in sepsis management?**” describes mechanisms through which **vitamin C** functions to suppress **inflammation** and **oxidation** while improving **blood flow** to organs.¹²

Despite making robust arguments for patients presenting with sepsis symptoms to be treated with vitamin C, the conclusions from this 2018 review paper were that “**further evidence is needed to support this in practice.**”¹²

When initially reading this, I wondered who the author thinks is going to **fund** future studies of a non-patentable therapy like **intravenous vitamin C**?

I was gratified to learn there are **eight** new clinical trials initiating this year (2018) that will study the effects of intravenous **vitamin C**, **thiamine**, and **hydrocortisone** in **sepsis** patients. Funding is coming largely from philanthropic donors.¹³

Hydrocortisone + Vitamin C = Synergy

The introduction to this editorial described a **2017** published study whereby **sepsis** patients were given intravenous **vitamin C**, **vita-**



min B1, and the anti-inflammatory drug **hydrocortisone**.

This study showed only **four of 47 (8.5%) septic** patients treated with these **vitamins (+ hydrocortisone)** died compared to **19 of 47 (40.4%)** of historic controls. This represents a remarkable **87%** reduction in mortality.⁴

In this 2017 study, the **Sepsis-Related Organ Failure Assessment** score decreased in **all** patients in the **treatment** group (vitamins + hydrocortisone). None of these treated patients developed progressive **organ failure**.⁴

Patients in the **treatment** group were weaned off a class of drug used to support **blood pressure** (vasopressors) **18 hours** after starting the **vitamins + hydrocortisone** protocol.

Control patients, on the other hand, needed these blood pressure-boosting **drugs** for about **54 hours**...three times longer than the group treated with intravenous **vitamins + hydrocortisone**.⁴

(Vasopressors constrict blood vessels and thereby boost dangerously low blood pressure.)

Why Hydrocortisone + Vitamins Are Effective

The same researchers who showed remarkable survival improvements (**87%** better) in human sepsis patients sought to clarify why **vitamin C + hydrocortisone** was so effective in their study.

These researchers pursued answers by identifying lethal pathologies of **sepsis** including **endothelial dysfunction** and **capillary leakage**.¹⁴

Using endothelial cells from **human lungs**, the researchers were able to identify how **vitamin C** and **hydrocortisone** together enable robust protective effects against **inflammatory** damage to vascular cells.

This finding showed that **vitamin C** or **hydrocortisone** alone was not satisfactory. But when combined before or after **inflammation** was induced, **vitamin C + hydrocortisone** demonstrated a dramatic reversal of loss of vascular barrier function, i.e., capillary permeability.

The ability of **vitamin C** to protect against **capillary leakage**

should not be surprising since that is a critical role this nutrient plays in a healthy body.

Death by **scurvy** (severe vitamin C deficiency) often comes from massive internal bleeding as the scurvy victim's vasculature can no longer contain blood volume.¹⁵

A paper published in **2017** describes prior studies in animal and experimental models of sepsis, which demonstrate the ability of **vitamin C** to protect against **microvascular dysfunction** caused by the kind of **systemic inflammation** that occurs in **sepsis**.¹⁶

Pioneering ICU Doctor Defies the Critics

If you happen to reside anywhere near Norfolk, Virginia, and require hospitalization, you may want to enroll as a patient of **Dr. Paul Marik** at Sentara Norfolk General Hospital.

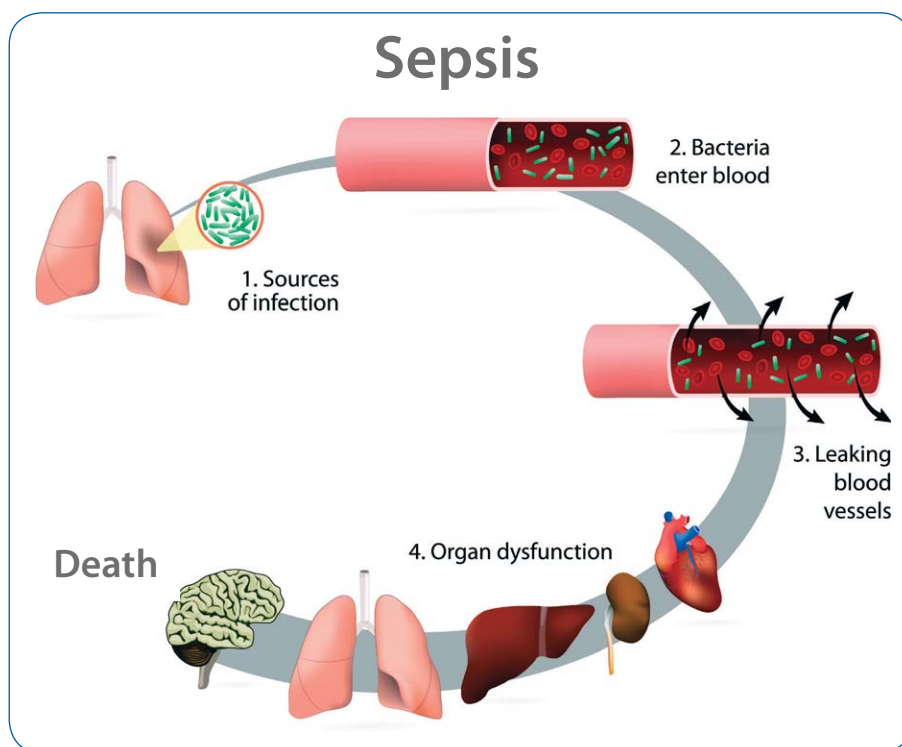
Dr. Marik has incorporated **intravenous vitamins + hydrocortisone** therapy into routine treatment of **sepsis**. Patients threatened with death are instead leaving the hospital alive within days.

Local media are reporting on Dr. Marik's "**miracle juice**," quoting an ICU nurse:¹⁸

"We started having patient after patient have these remarkable results...They'd be at death's door and, 24 to 48 hours later, they had turned around. We have seen patients walk out of here we didn't think would leave."

Critics state that full blown clinical trials involving large numbers of septic patients are required to prove this therapy is really working.

Dr. Marik agrees, but initially noted it may be difficult to **fund**



large studies because it uses a **drug** (hydrocortisone) and **vitamins** that have been on the market for decades. Dr. Marik was quoted earlier this year:¹⁸

"We are curing (sepsis) for \$60. No one will make any money off it."

The good news is that new studies using this protocol are being launched this year, despite there being no blockbuster new drug involved.

Our Correspondence with Dr. Marik

In response to these incredible findings, we reached out to **Dr. Marik** to see how his protocol was working in large numbers of hospitalized sepsis patients.

He replied that over **700** American patients have now been treated with consistent response.

He stated there was no evidence of side effects in thousands of patients treated around the world using his protocol of **intravenous vitamin C, thiamine** and **hydrocortisone**.

When asked if additional nutrients or drugs might provide greater benefits, Dr. Marik replied:

"I believe that our current combo is safe, cheap and very effective...so it's difficult to beat this."

He went on to state that there are **three** new clinical trials using his protocol underway or about to begin in the United States and another **five** around the world are beginning.

With **250,000** Americans perishing each year from sepsis, I am gratified to learn that this protocol of **intravenous vitamins + hydrocortisone** is being studied and may soon be incorporated into standard medical practice.

Example of Cynicism in Year 2018

In response to successful case histories published in 2017, a review of the science behind **intravenous vitamin C** in **sepsis** treatment was published in 2018.¹²

While acknowledging the beneficial mechanisms and findings of efficacy of **intravenous vitamin C**, the concluding remarks of this 2018 review were:

“Further research is required to prove its value in treatment.”¹²

This conclusion did not surprise me, because it is similar to virtually *every* other study showing remarkable benefits against sepsis, but insisting that “more” research is needed.

With hundreds of thousands of Americans likely to die from **sepsis** this year,²³ and robust data indicating that large numbers can

be saved, it is beyond cruel to deny a septic patient the option of intravenous **vitamin C**, **thiamine** plus **hydrocortisone**.

Economics of Sepsis Treatment

The annual cost of treating sepsis in the United States is **\$23 billion**.²⁴ Sepsis treatment is a huge revenue driver for hospitals.

Patients who present or contract sepsis are confined to the ICU for days, weeks or months, often on ventilators and receiving multiple IVs.

Hospitals can bill Medicare and insurance companies hundreds of thousands of dollars for each septic patient.

There is now a way for people with symptoms that indicate sepsis to potentially prevent it, possibly utilizing intravenous **vitamin C** and **thiamine** in outpatient infusion centers.

Even if one is contracting the flu or other infections/trauma, these nutrients may help protect against short- and long-term tissue damage inflicted by **inflammation-induced** oxidative stress, while improving **immune** responses.

For those who develop sepsis, Dr. Marik’s protocol of intravenous **vitamin C**, **thiamine** plus **hydrocortisone** may enable most to leave the hospital in days instead of lingering at death’s door for agonizing periods.

With **Medicare**, **Medicaid** and **private insurers** so financially stressed, this represents a unique opportunity to significantly slash the healthcare cost burden.

How to Avoid Becoming a Sepsis Casualty

Anyone over **age 60** is likely to suffer some degree of **immune senescence** leading to higher septic risk. Sepsis can strike people of any age, however, including neonates.

In reviewing Dr. Marik’s sepsis protocol that is now being studied in several clinical trials, an **intravenous dosage** protocol administered in the hospital might consist of:

- **Vitamin C: 1.5 grams** (administered as an infusion over 30 to 60 minutes) every six hours for four days or until ICU discharge;
- **Thiamine: 200 mg** every 12 hours for four days or until ICU discharge;
- **Hydrocortisone: 50 mg** every six hours for seven days or until ICU discharge, followed by a taper over three days.

New Definitions of Sepsis

Recognizing that cases of sepsis are being **underreported** and **undertreated**, an article published by the **American Medical Association** proposed new definitions as follows:¹⁷

- **Sepsis** should be defined as life-threatening organ dysfunction caused by a dysregulated host response to infection.
- **Septic shock** should be defined as a subset of sepsis in which particularly profound circulatory, cellular, and metabolic abnormalities are associated with a greater risk of mortality than with sepsis alone.

These new definitions may assist physicians in recognizing sepsis signs and symptoms before irreversible **inflammatory/oxidative** damage occurs, along with loss of **organ function** and needless deaths.

But for too many people, progressive treatments (such as high-dose intravenous antioxidants) for sepsis are delayed or not even instituted before the patient “**expires**.”

Symptoms of Sepsis

The clinical presentation of sepsis is highly variable depending on a wide range of clinically relevant factors.³

Common sites of primary infection are respiratory, genital/urinary, gastrointestinal, skin, and soft tissue.

Fever is often the first manifestation of sepsis, with pneumonia being one of the most common presentations leading to sepsis.

Early initiation of therapy decreases in-hospital mortality. Some early indicators of sepsis include:²⁵

- Fever
- Hypothermia (lower than normal body temperature)
- Heart rate >90 beats per minute
- Fast respiratory rate
- Altered mental status (confusion/coma)
- Edema (swelling)
- High blood glucose (without diabetes)

Since some of these symptoms might indicate a flu virus or other infection, it might make sense for people developing these symptoms to load up on oral **antioxidant nutrients**, or ideally, go to a local infusion center for **intravenous** administration of vitamin C, vitamin B1, and possibly glutathione.

The physician at the infusion center may also determine if a **50 mg** dose of **hydrocortisone** is warranted.

Prompt treatment might enable one to avoid a hospital setting, assuming symptoms are mild.

If sepsis occurs while in a hospital, one's choices may be more limited.

My suggestion for **Life Extension** supporters is to call local hospitals and your doctor and inquire if progressive sepsis

protocols (such as intravenous vitamin C, thiamine and hydrocortisone therapy) will be administered on request.

Hospitals (or physicians with hospital privileges) that agree to use this protocol might be the place to go if hospitalization is needed, or if sepsis symptoms occur.



Vitamin C for Non-Bacterial Sepsis

While **bacterial** infection underlies most sepsis cases, it can also manifest from **viral** (influenza) infections and **trauma** (including wounds inflicted by surgery).

A case report published in **2017** described a 20-year-old girl with **acute respiratory distress syndrome** treated with **high-dose intravenous vitamin C**.¹⁹

The vitamin C was initiated because the girl appeared on the verge of death from **septic shock**.

The most common risk factor for acute respiratory distress syndrome is sepsis.²⁰⁻²²

When respiratory support with **mechanical ventilation** failed, extracorporeal membrane oxygenation (providing oxygen directly into blood circulated outside the body) was initiated in a desperate attempt to save this young girl.

After 12 hours on **extracorporeal membrane oxygenation**, her doctors went further by administering **intravenous vitamin C**.

The doctors report that infusing **high-dose intravenous vitamin C** into this young girl resulted in "**rapid resolution of lung injury**" with no evidence of any lung damage just one month later.¹⁹

Not all septic patients this far advanced are as fortunate.

With **250,000** Americans perishing each year from sepsis,¹ we eagerly await results from **clinical trials** that will study the effects of intravenous **vitamin C**, **thiamine** and **hydrocortisone** on large numbers of **sepsis** patients.

My only regret is that these approaches were not implemented 20 years sooner, as data from the **mid-1990s** indicated a high degree of probable efficacy.

When winter approaches, one might want to bump up their oral **vitamin C** intake by a few thousand milligrams based on consistent data that **sepsis patients** often present with what we consider severe **vitamin C** deficiencies.

For longer life,



William Faloon, Co-Founder
Life Extension Buyers Club

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