Medical Conditions and “Red Flags”, Part 3

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Purpose and Objectives
Background
Medical Conditions:
- Diabetes
- Hepatitis
- Septicemia (Sepsis)
- Systemic Inflammatory Response Syndrome (SIRS)
Conclusion
References/Resources
Purpose and Objectives

Purpose:

1. Present common serious medical conditions found amongst participants in the Money Follows the Person program and identify “Red Flags.”
2. Increase the knowledge and skills of non-medical Transition Coordinators or Care Managers in order to educate participants and intervene early.

Objectives:

1. Identify ways for a Transition Coordinator (TC) to help enhance participant’s self-management of Diabetes.
2. Identify the different types of Hepatitis and steps that the TC can take to encourage participant’s to more fully understand the condition and proactively engage with their health care provider on management.
3. Define+increase understanding of Sepsis and the impact on participants with a known history.
4. Define+increase understanding of SIRS (Systemic Inflammatory Response Syndrome) and the impact on participants with a known history.
Chronic diseases and conditions—such as heart disease, stroke, cancer, diabetes, obesity, and arthritis—are among the most common, costly, and preventable of all health problems. (CDC, 2015)
Example:

- Diabetes
  - The *leading* cause of
    - Kidney failure
    - Lower limb amputations
    - Blindness

(CDC, 2011)
Background

MFP TRANSITIONED PARTICIPANTS
- Depression 57%
- Diabetes 54%
- COPD 36%
- Heart Failure 28%
- Kidney Disease 24%

DISENROLLED PARTICIPANTS: DEATH OR RE-INSTITUTIONALIZATION
- Heart Failure
- COPD
- Diabetes
- Dementia; Alzheimer’s Dementia
- Chronic Pain Management with opioids/narcotics

(Shelton, 2015)
So why is this important to the Transition Coordinator?

- Context of current chronic illnesses and past serious illnesses
- Knowledge
- Role effectiveness
- Participant benefits
Knowledge to guide participants behaviors.

Health risk behaviors = unhealthy behaviors one can change.

Four of these health risk behaviors

- lack of exercise or physical activity,
- poor nutrition,
- tobacco use, and
- drinking too much alcohol

cause much of the illness, suffering, and early death related to chronic diseases and conditions.
Diabetes

Diabetes, the most common disorder of the endocrine (hormone) system, occurs when blood sugar levels in the body consistently stay above normal. It affects more than 25 million people in the U.S. alone.

[Image of diabetes statistics]
(Some) Signs and Symptoms of Diabetes:

- Presence of ketones in the urine (ketones are a byproduct of the breakdown of muscle and fat that happens when there's not enough available insulin)
- Fatigue
- Irritability
- Slow-healing sores
- Frequent infections, such as gums or skin infections and vaginal infections
Causes of Diabetes:

Type 1: The exact cause of type 1 diabetes is unknown. Immune system activation. Combination of genetic susceptibility and environmental factors.
Causes of Diabetes:

Type 2:

- Cells become resistant to the action of insulin, and your pancreas is unable to make enough insulin to overcome this resistance.
- Exactly why this happens is uncertain.
Risk Factors of Diabetes:

Type 1:
- Family history.
- Race/ethnicity.
- Genetic marker-chromosomal abnormality.
- Dietary factors.
- Geography.
Medical Conditions and Red Flags, Part 3: DIABETES

- **Risk Factors of Diabetes:**
- **Type 2:**
  - Over weight.
  - Inactivity.
  - Family history.
  - Race.
  - Increasing Age.
  - Hx of Gestational diabetes.
  - Polycystic ovary syndrome.
  - High blood pressure.
  - Abnormal cholesterol and triglyceride levels.
Complications of Diabetes:

- Cardiovascular disease.
- Nerve damage (neuropathy).
- Kidney damage (nephropathy).
- Eye damage (retinopathy).
- Foot damage.
- Limb amputation.
- Skin conditions.
- Hearing impairment.
- Alzheimer's disease.
Management of Diabetes:

- Healthy eating.
- Physical activity.
- Blood sugar monitoring.
- Awareness of blood test results:
  - Hgb A1C or Glycosylated Hemoglobin
  - Medicines: Insulin; Oral Medications
- Transplantation
- Bariatric surgery??
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![Traffic Light Diagram]

**Diabetes Guide**

- **Red Light (Diabetes):** Non-fasting: 200 or above, Fasting: 126 or above
- **Orange Light (Prediabetes):** Non-fasting: 140-199, Fasting: 100-125
- **Green Light (Normal):** Non-fasting: 139 or below, Fasting: 99 or below

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- **Medications:** Different classes, work in different ways.

CLASS, Medication example:

- Sulfonylureas – glipizide, Glucotrol, glimepermid
- Biguanides - Metformin
- Meglitinides - Prandin, Starlix (hypoglycemia risk)
- Thiazolidinediones - Avandia, Actos (increases risk for heart failure)
- DPP-4 inhibitors – Januvia, Tradjenta (no risk for hypoglycemia)
- SGLT2 Inhibitors – Invokana, Farxiga (increases risk of UTI)
- Alpha-glucosidase inhibitors – Precose, Glycet
- Bile Acid Sequestrants - Welchol
Insulin:
- Rapid acting
- Regular or Short acting
- Intermediate acting
- Long acting
Medical Conditions and Red Flags, Part 3: DIABETES

Example:

![Graph showing insulin effect over time for different types of insulin: Rapid (Lispro, Aspart, Glulisine), Short (Regular), Intermediate (NPH), Long (Detemir), Long (Glargine).]
Medical Conditions and Red Flags, Part 3: DIABETES

- Insulin:

  - **Rapid acting:** begins to work about 15 minutes after injection, peaks in about 1 hour, and continues to work for 2 to 4 hours. Types: Insulin glulisine (Apidra), insulin lispro (Humalog), and insulin aspart (NovoLog)
Insulin

- **Regular or Short-Acting:** usually reaches the bloodstream within 30 minutes after injection, peaks anywhere from 2 to 3 hours after injection, and is effective for approximately 3 to 6 hours. Types: Humulin R, Novolin R
Insulin

Intermediate acting: generally reaches the bloodstream about 2 to 4 hours after injection, peaks 4 to 12 hours later, and is effective for about 12 to 18 hours. Types: NPH (Humulin N, Novolin N)
Insulin

- **Long-acting**: reaches the bloodstream several hours after injection and tends to lower glucose levels fairly evenly over a 24-hour period. Types: Insulin detemir (Levemir) and insulin glargine (Lantus)
Medical Conditions and Red Flags, Part 3: DIABETES

- Premixed insulin
- Insulin pens
Medical Conditions and Red Flags, Part 3: DIABETES

- Inhaled Insulin: Afrezza

Summary: Absorption of Inhaled Insulin
- Increased absorption
  - Active smoking
  - COPD
  - Albuterol
- Decreased absorption
  - Passive smoking
  - Smoking cessation (decreased toward normal)
  - Asthma
Medical Conditions and Red Flags, Part 3: DIABETES

- Other injectable medications:
  - Byetta
  - Bydureon
Medical Conditions and Red Flags, Part 3: DIABETES

**ASSUMPTION**
- Going on insulin means I’ve failed at taking care of my diabetes.
- Taking insulin puts me one step closer to the grave.
- Insulin injections hurt like the dickens.

**FACT**
- It is perfectly natural for many people with diabetes to eventually need insulin—especially those who have had diabetes for quite some time.
- Just the opposite! What puts people with diabetes at risk of serious health problems and death is uncontrolled blood sugar. By improving blood sugar control, insulin reduces these risks.
- Insulin is injected into the fat below the skin, where there are no nerve endings. Today’s insulin syringes and pen needles are so small and thin that most people feel no discomfort at all when giving their injections.
Medical Conditions and Red Flags, Part 3: DIABETES

ASSUMPTION
- Insulin will make me gain weight.
- Once I start taking insulin, I’ll be on it forever.

FACT
- Eating more calories than you burn is what makes you gain weight. If you get more exercise and eat less, you can lose weight even when taking insulin.
- Many people with type 2 diabetes are able to reduce or eliminate their need for insulin by adopting healthy lifestyle habits, losing weight, and using other newly-developed diabetes medications.
Medical Conditions and Red Flags, Part 3: DIABETES

ASSUMPTION

- I’ll never be able to give myself a shot.
- Insulin can make my blood sugar go too low.

FACT

- Just about anyone, from age four to 104, can be taught to take an injection. There are special adaptive devices for those with poor dexterity, limited vision, or fear of sharp objects.
- While anyone who takes insulin can experience occasional bouts of low blood sugar, the chances are extremely small – especially with the new long-acting insulin products.
Insulin and other injected diabetes medications are meant to be delivered into the fat layer just under the skin.

Be sure to use a number of different spots within that body part. This is called “rotating” injection sites.

Injecting into the same spot too often can cause skin problems and can impair insulin absorption.
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- Insulin Vial
- Insulin Pen
- Insulin Pump

Dosage instructions are entered into the pump's small computer and the appropriate amount of insulin is then injected into the body in a calculated, controlled manner.
TC should coach participant’s to:

- Ask the doctor, nurse practitioner or pharmacist why this medication was recommended.
- Ask the diabetes educator to help you fit the medication routine into your daily schedule. Be sure to bring all medications or labels with you when you go to health appointments.
- Ask a family member/friend/PA to go with you to an appointment and take notes about any medication instructions. Or, ask someone to remind you to take your medications if you have difficulty remembering to take them.

  Check blood sugar as ordered: KNOW TARGET RANGE.
- Record results on a written log.
Problems that may occur in Diabetes:

- High blood sugar (hyperglycemia).
- Increased ketones in your urine (diabetic ketoacidosis).
- Hyperglycemic hyperosmolar nonketotic syndrome.
  - Uncontrolled->High blood sugars->Sugar in urine->Dehydration->Seizures/Coma->death
- Low blood sugar (hypoglycemia).
Medical Conditions and Red Flags, Part 3: DIABETES

- **Lifestyle in Diabetes:**

  Diabetes is a serious disease. Following your diabetes treatment plan takes round-the-clock commitment. Careful management of diabetes can reduce your risk of serious — even life-threatening — complications.

  - Make a commitment to managing your diabetes.
  - Choose healthy foods and maintain a healthy weight.
  - Make physical activity part of your daily routine.
  - Monitor blood sugars.
  - Take medications as prescribed.
Medical Conditions and Red Flags, Part 3: DIABETES

- **Lifestyle in Diabetes:**
  - Identify yourself.
  - Schedule a yearly physical and regular eye exams.
  - Keep your vaccinations up to date.
  - Pay attention to your feet, limbs, skin.
  - Keep your blood pressure and cholesterol under control.
  - Take care of your teeth.
  - If you smoke or use other types of tobacco, ask your doctor to help you quit.
  - If you drink alcohol, do so responsibly.
  - Take stress seriously; get enough sleep.
Medical Conditions and Red Flags, Part 3: DIABETES

- **Diabetes Education Classes**
  - American Association of Diabetes Educators
  - See reference list
  - https://www.diabeteseducator.org/patient-resources/find-a-diabetes-educator

- **Coping with Diabetes:**
  - Your health care provider may know of a local support group, or you can call the American Diabetes Association at 800-DIABETES
    - (800-342-2383)
Medical Conditions and Red Flags, Part 3: DIABETES

- Did you spot the red flags?
Take away:

- Diabetes is a chronic illness that can be managed in order to minimize the risk of complications.
- Become educated beyond the skills.
- Logging results and sharing with the physician/provider during appointments allows for a valuable assessment on how the individual is able to self-manage.
Hepatitis

- Inflammation of the liver.
- Can be self-limiting or can progress to fibrosis (scarring), cirrhosis or liver cancer.
- Hepatitis viruses are the most common cause of hepatitis.
- Other infections, toxic substances (e.g. alcohol, certain drugs), and autoimmune diseases can also cause hepatitis. (WHO, 2015)
There are 5 main hepatitis viruses, referred to as types A, B, C, D, E, G. (WHO, 2015)
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<th>HEPATITIS</th>
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<td>Types of</td>
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<td>Source of Virus</td>
<td>Feces</td>
<td>Blood; Blood derived body fluids</td>
<td>Blood; Blood derived body fluids</td>
<td>Blood; Blood derived body fluids</td>
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<td>Percutaneous or Permucosal</td>
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<td>Prevention</td>
<td>Pre- Post-exposure immunization</td>
<td>Pre- Post-exposure immunization</td>
<td>Blood donor screen; Modify risky behaviors</td>
<td>Pre- Post-exposure immunization; Modify risky behaviors</td>
<td>Ensure safe drinking water</td>
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Medical Conditions and Red Flags, Part 3: HEPATITIS

**Hepatitis A Facts**

1. Is a viral infection of the liver spread when faecal matter enters the mouth.

2. May last several weeks and can be debilitating but most people recover completely.

3. Preventable with careful hand washing, keeping toilets and bathrooms clean, avoiding infected water sources.

**Symptoms Include**
- Nausea
- Vomiting

**Spread By**
- Direct contact
- Food & beverages
- Cups & spoons
- And any other objects handled by the infected person
Medical Conditions and Red Flags, Part 3: HEPATITIS

Prevent Hepatitis A: Get vaccinated before you travel
Preventing and Managing Hepatitis B

- Vaccinate all children starting at birth and people at high risk of hepatitis B virus infection, including:
  - People with multiple sexual partners
  - Men who have sex with men
  - Household and sexual contacts of people with chronic hepatitis B
  - People 19 to 59 years of age with diabetes
  - People on dialysis
  - Test people at risk for hepatitis B infection.

- For patients with chronic hepatitis B infection:
  - Counsel on avoiding alcohol and preventing transmission to others.
  - Vaccinate against hepatitis A.
  - Monitor for progression of liver disease.
  - Refer patients who have active chronic hepatitis B infection, other liver disease, or a serious comorbidity to a specialist.
Medical Conditions and Red Flags, Part 3: HEPATITIS
Hepatitis D

- Hepatitis D is a liver disease caused by the hepatitis D virus (HDV)
- It is a defective virus that needs the hepatitis B virus to exist
Hepatitis E (HEV)

Hepatitis E virus (HEV) is similar to HAV in terms of disease, and mainly occurs in Asia where it is transmitted by contaminated water.
Hepatitis G: Hepatitis G virus (HGV, also termed GBV-C) was recently discovered and resembles HCV, but more closely, the flaviviruses; the virus and its effects are under investigation, and its role in causing disease in humans is unclear.
Risk Factors:

People who are most at risk for developing viral hepatitis are:
- Workers in the health care professions
- Asians and Pacific Islanders
- Sewage and water treatment workers
- People with multiple sexual partners
- Intravenous drug users
- HIV patients
- People with hemophilia who receive blood clotting factors
Medical Conditions and Red Flags, Part 3: HEPATITIS

- **Signs and Symptoms:**

  - The period of time between exposure to hepatitis and the onset of the illness is called the incubation period.

  - The incubation period varies depending on the specific hepatitis virus.
    - Hepatitis A virus has an incubation period of about 15 to 45 days;
    - Hepatitis B virus from 45 to 160 days, and
    - Hepatitis C virus from about 2 weeks to 6 months.
Medical Conditions and Red Flags, Part 3: HEPATITIS

- **Signs and Symptoms:**
  - the most common are flu-like symptoms including:
    - Loss of appetite
    - Nausea
    - Vomiting
    - Fever
    - Weakness
    - Tiredness
    - Aching in the abdomen

- **Less common symptoms include:**
  - Dark urine
  - Light-colored stools
  - Fever
  - Jaundice (a yellow appearance to the skin and white portion of the eyes)
Chronic Viral hepatitis:

Patients infected with HBV and HCV can develop chronic hepatitis.

hepatitis that lasts longer than 6 months.

can lead to the development over time of extensive liver scarring (cirrhosis), liver failure, and liver cancer. Liver failure from chronic hepatitis C infection is the most common reason for liver transplantation in the U.S.
Chronic Viral hepatitis:

Chronic hepatitis Patients with chronic viral hepatitis can transmit the infection to others with blood or body fluids (for example, sharing needles, sexually, and infrequently by organ donation) as well as infrequently by transmission from mother to newborn.
Symptoms and Physical Findings:

Diagnosis of **acute** viral hepatitis often is easy, but diagnosis of **chronic** hepatitis can be difficult.
- Requires learning the individual's history, signs, and symptoms.

Chronic hepatitis due to HBV and HCV often have no symptoms or only mild nonspecific symptoms.
- Jaundice until the liver damage is far advanced.
- Can remain undiagnosed for years to decades.
Blood Tests:
There are three types of blood tests for evaluating patients with hepatitis:

- liver enzymes,
- antibodies to the hepatitis viruses, and
- viral proteins or genetic material (viral DNA or RNA).
Liver enzymes:

- called aminotransferases.
- Aspartate aminotransferase (AST or SGOT) and alanine aminotransferase (ALT or SGPT).
- Normally are contained within liver cells.
- If the liver is injured (as in viral hepatitis), the liver cells spill the enzymes into the blood, raising the enzyme levels in the blood and signaling that the liver is damaged.
Viral antibodies:

Antibodies are proteins produced by white blood cells that attack invaders such as bacteria and viruses.

Antibodies against the hepatitis A, B, and C viruses usually can be detected in the blood within weeks of infection, and the antibodies remain detectable in the blood for decades thereafter.
Examples of tests for viral antibodies are:

- anti-HAV (hepatitis A antibody)
- antibody to hepatitis B core, an antibody directed against the inner core material of the virus (core antigen)
- antibody to hepatitis B surface, an antibody directed against the outer surface envelope of the virus (surface antigen)
- antibody to hepatitis B e, an antibody directed against the genetic material of the virus (e antigen)
- hepatitis C antibody, the antibody against the C virus
Viral proteins and genetic material:
Examples of tests for viral proteins and genetic material are:

- hepatitis B surface antigen
- hepatitis B DNA
- hepatitis B e antigen
- hepatitis C RNA
Treatment of acute viral hepatitis and chronic viral hepatitis are different.

- Acute viral hepatitis involves resting, relieving symptoms and maintaining adequate intake of fluids.
- Chronic viral hepatitis involves medications to eradicate the virus and taking measures to prevent further liver damage.
Acute HBV is not treated with antiviral drugs.

Acute HCV - though rarely diagnosed - can be treated with several of the drugs used for treating chronic HCV.

Treatment of HCV is recommended primarily for the 80% of patients who do not eradicate the virus early.

Treatment results in clearing of the virus in the majority of patients.
Treatment of chronic infection with Hepatitis B and Hepatitis C usually involves medication or combinations of medications to eradicate the virus. Doctors believe that in properly selected patients, successful eradication of the viruses can stop progressive damage to the liver and prevent the development of cirrhosis, liver failure, and liver cancer.

Alcohol aggravates liver damage in chronic hepatitis, and can cause more rapid progression to cirrhosis. Therefore, patients with chronic hepatitis should stop drinking alcohol. Smoking cigarettes also can aggravate liver disease and should be stopped.
Medical Conditions and Red Flags, Part 3: HEPATITIS

- Chronic Hepatitis B medications:
  - injectable alpha interferons
  - oral lamivudine (*Epivir*)
  - oral adefovir (*Hepsera*)
  - oral entecavir (*Baraclude*)
  - oral telbivudine (*Tyzeka*)
  - oral tenofovir (*Viread*)
Medical Conditions and Red Flags, Part 3: HEPATITIS

- **Chronic Hepatitis C Medications:**
  - injectable alpha interferons (Pegasys)
  - oral ribavirin (*Rebetol, Copegus*)
  - oral boceprevir (*Victrelis*)
  - simeprevir (*Olysio*)
  - oral sofosbuvir (*Sovaldi*)
  - oral simeprevir (*Olysio*)
  - oral daclatasvir (Daklinza)
  - oral ledipasvir/sofosbuvir (Harvoni)
  - oral ombitasvir/paritaprevir/ritonavir (*Technivie*)
  - oral ombitasvir/paritaprevir/ritonavir/dasabuvir (Viekira Pak)
Medical Conditions and Red Flags, Part 3: HEPATITIS
Medical Conditions and Red Flags, Part 3: HEPATITIS

- Prevention:

Sources: Centers for Disease Control and Prevention, World Health Organization, World Hepatitis Alliance
Prevention: Avoid exposure to viruses:
- Another individual’s blood (exposure to dirty needles)
- semen (unprotected sex), and
- other bodily secretions and waste (stool, vomit) will help prevent the spread of all of these viruses.
Vaccinations:

Hepatitis A

Two hepatitis A vaccines are available in the US, hepatitis A vaccine (Havrix, Vaqta). Both contain inactive (killed) hepatitis A virus.

- For adults, two doses of the vaccine are recommended.
- After the first dose, protective antibodies develop in 70% of vaccine recipients within 2 weeks, and almost 100% of recipients by 4 weeks.
- After two doses of the hepatitis A vaccine, immunity against hepatitis A infection is believed to last for many years.
Individuals at increased risk of acquiring **Hepatitis A** are:

- Travelers to countries where hepatitis A is common
- Men who have sex with men
- Illegal drug users (either injection or non-injection drug use)
- Researchers working with hepatitis A or with primates that are susceptible to infection with hepatitis A
- Patients with clotting factor disorders who are receiving clotting factor concentrates that can transmit hepatitis A
Vaccination Hep B

- For active vaccination, a harmless hepatitis B antigen is given to stimulate the body's immune system to produce protective antibodies against the surface antigen of hepatitis B.

- Vaccines that are currently available in the U.S. are made (synthesized) using recombinant DNA technology (joining DNA segments). These recombinant hepatitis B vaccines, hepatitis B vaccine (Energix-B and Recombivax-HB) are constructed to contain only that part of the surface antigen that is very potent in stimulating the immune system to produce antibodies.

- The vaccine contains no viral component other than the surface antigen, and therefore, cannot cause HBV infections.

- Hepatitis B vaccines should be given in three doses with the second dose 1 to 2 months after the first dose, and the third dose 4 to 6 months after the first dose.

- For the best results, the vaccinations should be given in the deltoid (shoulder) muscles and not in the buttocks.
Hep B Vaccination recommended for:
- All infants
- Adolescents under 18 years of age who did not receive hepatitis B vaccine as infants
- People occupationally exposed to blood or body fluids
- Residents and staff of institutions for the developmentally disabled
- Patients receiving kidney hemodialysis
- People who with hemophilia and other patients receiving clotting factor concentrates
- Household contacts and sexual partners of patients infected with hepatitis B chronically
- Travelers who will spend more than 6 months in regions with high rates of hepatitis B infection
- Injection drug users and their sexual partners
- Men who have sex with men, men or women with multiple sex partners, or recent infection with a sexually transmitted infection
- Inmates of long-term correctional facilities
Vaccination Hep C and Hep D:

- Currently no vaccine for hepatitis C.
- No vaccine for hepatitis D is available. However, HBV vaccine can prevent an individual not infected with HBV from contracting hepatitis D because hepatitis D virus requires live HBV to replicate in the body.
Medical Conditions and Red Flags, Part 3: HEPATITIS

- Prognosis:
  - for most patients is good but varies.
    - For example, those patients who develop [chronic hepatitis](#) have a worse prognosis because of the potential to develop cirrhosis, liver failure, liver cancer ([hepatocellular carcinoma](#)), and occasionally death.
  - Symptoms of viral hepatitis such as fatigue, poor appetite, nausea, and jaundice usually subside in several weeks to months, without any specific treatment.
  - In fact, virtually all patients with acute infection with HAV and most adults (greater than 95%) with acute HBV recover completely.
Complete recovery from viral hepatitis means that:
- the hepatitis virus has been completely eliminated from the liver by the body's immune system,
- the inflammation in the liver subsides,
- the patient develops immunity to future infection with the same virus, and the patient cannot transmit the infection to others.

Unfortunately, not all patients with viral hepatitis recover completely.
- Five percent of patients with acute HBV infection and about 60% of patients with acute HCV infection develop chronic hepatitis.
- Patients (about 0.5% to 1%) that develop fulminant hepatitis have about an 80% fatality rate.
- Chronic HCV infections are the leading cause for liver transplants.
Medical Conditions and Red Flags, Part 3: HEPATITIS

- Did you spot the red flags?
Take away:

- Be knowledgeable
  - If + history of hepatitis- Get More Information;
  - Talk with provider; ask about blood tests and results.
- Know the risk factors; Modify.
- Obtain vaccinations.
What is Septicemia (Sepsis)?

Sepsis is the body’s overwhelming and life-threatening response to infection which can lead to tissue damage, organ failure, and death.

It is difficult to predict, diagnose, and treat.

Patients who develop sepsis have an increased risk of complications and death and face higher healthcare costs and longer treatment.

CDC is working to increase sepsis awareness and improve treatment among the public, healthcare providers, and healthcare facilities. (CDC, 2016)
Medical Conditions and Red Flags, Part 3: Septicemia (Sepsis)

- Septic Shock
- Sepsis can occur even after a minor infection.
- Sepsis is dangerous and can be DEADLY.
- Over 1 million cases of sepsis occur each year and up to half of the people who get sepsis will die.
Medical Conditions and Red Flags, Part 3: Septicemia (*Sepsis*)

- *Sepsis*
Medical Conditions and Red Flags, Part 3: Septicemia (Sepsis)

- Sepsis

**SYMPTOMS OF SEPSIS**

- Shivering, fever, or very cold
- Extreme pain or general discomfort (“worst ever”)
- Pale or discolored skin
- Sleepy, difficult to rouse, confused
- “I feel like I might die”
- Short of breath

Watch for a combination of these symptoms. If you suspect sepsis, CALL 911 or go to a hospital and say, “I AM CONCERNED ABOUT SEPSIS.”
Medical Conditions and Red Flags, Part 3: Septicemia (Sepsis)

Sepsis at a Glance

Sepsis is when the body reacts to infection—whether bacterial, viral, fungal, or even parasitic—with an "overwhelming and life-threatening" systemic inflammatory response. It can afflict anyone with any infection.

**IT CAUSES A LOT OF DEATHS**

3rd Leading Cause of Death

1. Heart disease  
2. Cancer  
3. Sepsis

Source: Eckhauser et al.; CDC.

Contributes to 1 in every 2 to 3 hospital deaths

Source: Liu et al.

**IT CAN PROGRESS QUICKLY**

Septic shock:

7.6% drop in chance of survival each hour until antimicrobials are begun

Source: Kumar et al.

For more information, see Sepsis: Combating the Hidden Colossus
Medical Conditions and Red Flags, Part 3: Septicemia (Sepsis)

- Progression:

![Diagram showing the progression of sepsis signals](image-url)
Prevention

Sepsis is difficult to diagnose and treat.

1. Get vaccinated against the flu, pneumonia, and any other infections that could lead to sepsis. Talk to your doctor for more information.

2. Prevent infections that can lead to sepsis by:
   • Cleaning scrapes and wounds
   • Practicing good hygiene (e.g., hand washing, bathing regularly)

3. If you have an infection, look for signs like: fever, chills, rapid breathing and heart rate, rash, confusion, and disorientation.

www.cdc.gov/sepsis
Medical Conditions and Red Flags, Part 3: Septicemia (Sepsis)

- If you have an infection, look for signs like: fever, chills, rapid breathing and heart rate, rash, confusion, and disorientation.

What should you do?

- Seek immediate medical treatment if you have signs of sepsis following an infection.
Stages/Types of Sepsis:
- a three-stage syndrome:
  - SEPSIS causes fever, rapid heart rate/breathing, and an increased white blood cell count. If you have an infection, even a minor sign or symptom can indicate sepsis, and you should seek medical treatment immediately.
  - SEVERE SEPSIS is when there are also signs and symptoms which indicate an organ may be failing. Immediate hospital treatment is required.
  - SEPTIC SHOCK is when you have severe sepsis, plus extremely low blood pressure that doesn’t respond to fluid replacement. Immediate hospital treatment is required.
Life after Sepsis:

- There are more than 1.4 MILLION sepsis survivors every year in the United States.
- Many survivors are left with LIFE-CHANGING challenges.
Life after Sepsis:

What are the first steps in recovery?

- Rehabilitation usually starts in the hospital by slowly helping you to move around and look after yourself: bathing, sitting up, standing, walking, taking yourself to the restroom, etc.
- The purpose of rehabilitation is to restore you back to your previous level of health or as close to it as possible.
- Begin your rehabilitation by building up your activities slowly, and rest when you are tired.
Post-Sepsis Recovery: Need time to recover; this was Life Threatening!

- Potential Residual/Lingering Symptoms:
  - General to extreme weakness and fatigue
  - Breathlessness
  - General body pains or aches
  - Difficulty moving around
  - Difficulty sleeping
  - Weight loss, lack of appetite, food not tasting normal
  - Dry and itchy skin that may peel
  - Brittle nails
  - Hair loss
Promote Ongoing Recovery:

- Set small, achievable goals for yourself each week, such as taking a bath, dressing yourself, or walking up the stairs
- Rest and rebuild your strength
- Talk about what you are feeling to family and friends
- Record your thoughts, struggles, and milestones in a journal
- Learn about sepsis to understand what happened
- Ask your family to fill in any gaps you may have in your memory about what happened to you
- Eat a balanced diet
- Exercise if you feel up to it
- Make a list of questions to ask your doctor when you go for a check up
Are there any long-term effects of sepsis?

Many people who survive sepsis recover completely and their lives return to normal. However, older people, people who have suffered more severe sepsis and those treated in an intensive care unit are at greatest risk of long-term problems, including suffering from post-sepsis syndrome.
Medical Conditions and Red Flags, Part 3: SEPSIS

- Did you spot the red flags?
Take away:

- Sepsis is life-threatening.
- Requires acute care.
- In presence of possible or confirmed infection, activate 911 if fever, chills, rapid/shallow breathing, rapid heart rate, confusion and/or disorientation develops.
- Recovery is lengthy after the acute illness is brought under control.
What is SIRS?

SIRS is a clinical response to a non-specific insult which may be either infectious or non-infectious in etiology. When evaluating a patient with SIRS, a careful history, physical and laboratory evaluation is critical for identifying the cause and will impact initial therapy. Initiation of antibiotic therapy, if indicated, should be discontinued if a non-infectious etiology is found.
SIRS is defined as 2 or more of the following:

1. Fever >38°C (100.4 F) or < 36°C (<96.8 F)
2. Heart rate >90 beats per minute
3. Respiratory rate >20 breaths per minute (or blood test PaCO2 <32 mm Hg)
4. Abnormal white blood cell count (>12,000/mm³ or <4,000/mm³ or >10% bands)
Medical Conditions and Red Flags, Part 3: Systemic Inflammatory Response Syndrome

- Acute.
- Often is diagnosed simultaneously with Sepsis. Know the presenting symptoms of Sepsis: fever, chills, rapid breathing and heartrate, rash, confusion, and disorientation.
- Requires hospitalization.
- Life-threatening.
- Complicated to diagnose.
- Early recognition leads to quicker initiation of treatment and decreased risk of death.
Medical Conditions and Red Flags, Part 3: Systemic Inflammatory Response Syndrome

- Treatment: no drug of choice for the treatment of SIRS.
- Medications target specific diagnosis, preexisting comorbidities and prophylaxis regimens for prevention of complications.
- Acute Medical care includes:
  - prompt initiation of pertinent laboratory testing
  - imaging studies after obtaining a history and performing a physical examination.
  - Hypotensive patients should receive adequate resuscitation with intravenous fluids and if still hypotensive, vasopressor agents should be administered with carefully hemodynamic monitoring.
  - Adequate intravenous access and often require 2 large bore IV’s or a central venous catheter.
Medical Conditions and Red Flags, Part 3: Systemic Inflammatory Response Syndrome

- Did you spot the red flags?
Take away:

- SIRS overlaps with Sepsis.
- Life-threatening; Acute care immediately.
Conclusion

Listen To Your Red Flags...
They're Trying To Tell You Something
References: General


References: General


References: Diabetes

- Patient Diabetes Resources: Handouts include information on health eating during holidays, diabetes and exercise, Understanding hypoglycemia, etc.
  https://www.diabeteseducator.org/patient-resources/tip-sheets-and-handouts
- http://www.joslin.org/newly-diagnosed.html
  - Link with lots of info from the Joslin Diabetes Center
References: Hepatitis

- WHO. Hepatitis. 
  http://www.who.int/features/qa/76/en/

- CDC. Hepatitis. 
  http://www.cdc.gov/hepatitis/

  http://www.medicinenet.com/viral_hepatitis/article.htm
Centers for Disease Control and Prevention (CDC)—CDC works 24/7 protecting America’s health, safety and security. Whether diseases start at home or abroad, are curable or preventable, chronic or acute, stem from human error or deliberate attack, CDC is committed to responding to America’s most pressing health challenges. cdc.gov/sepsis


Cleveland Clinic: https://my.clevelandclinic.org/health/diseases_conditions/hic_SepsisSepsisAlliance®—Created to raise sepsis awareness among both the general public and healthcare professionals.

Sepsis Alliance offers information on a variety of sepsis-related topics. Visit sepsis.org/library to view the complete series of titles. sepsis.org
References: SIRS

- http://www.antimicrobe.org/e20.asp
Medical Conditions and “Red Flags”, Part 3

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