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Women's health depends on a lifetime
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Women and Anemia

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Answers for life.

Women and Anemia

Anemia is a global public-health problem, affecting both developing and developed countries, with major consequences for human health as well as social and economic development. It occurs at all stages of life but is more prevalent in pregnant women and young children. Iron deficiency anemia (IDA) is considered to be among the most important contributing factors to the global burden of disease.¹



What Is Anemia?²

Anemia is a condition that develops when the blood lacks enough healthy red blood cells, hemoglobin, or both. Hemoglobin is a component of red blood cells that binds oxygen. If someone has too few or abnormal red blood cells, or if hemoglobin is abnormal or low, the cells in his or her body will not get enough oxygen. Symptoms of anemia, such as fatigue, occur because organs aren't receiving sufficient oxygen to function properly.

Anemia is the most common blood condition in the U.S., affecting about 3.5 million Americans. Women and

people with chronic diseases are at increased risk of anemia. Important factors to remember are:

- Certain forms of anemia are hereditary, and infants may be affected from the time of birth.
- Women in the childbearing years are particularly susceptible to iron deficiency anemia because of blood loss from menstruation and increased blood-supply demands during pregnancy.
- Older adults also may have a greater risk of developing anemia because of poor diet and other medical conditions.

Global Burden of Anemia³

- Two billion people—over 30% of the world's population—are anemic, many due to iron deficiency. In resource-poor areas, anemia is frequently exacerbated by infectious diseases.
- In developing countries, every second pregnant woman and about 40% of preschool children are estimated to be anemic.
- Anemia contributes to 20% of all maternal deaths.



There are many types of anemia; their causes and treatments are all very different. Iron-deficiency anemia, the most common type, is very treatable with diet changes and iron supplements. Some forms of anemia—like the anemia that develops during pregnancy—are even considered normal. However, some types of anemia may present lifelong health problems.

Iron Deficiency Anemia

Iron deficiency anemia (IDA) is a common anemia caused by insufficient dietary intake and absorption of iron and/or iron loss from bleeding, which can be from a variety of sources, such as intestinal, uterine, or from the urinary tract.⁴

Iron deficiency causes approximately half of all anemia cases worldwide and affects women more often than men.

Symptoms

Because iron deficiency tends to develop slowly, adaptation occurs, and the disease often goes unrecognized for some time, even years; patients often adapt to the systemic effects that anemia causes. As anemia gets worse, symptoms may include:²

- Fatigue
- Anxiety
- Dizziness
- Irritability
- Headaches
- Pale skin
- Shortness of breath
- Difficulty concentrating

Risk Factors

- Women whose menstrual cycles are heavy
- Women who are pregnant or breastfeeding or have recently given birth
- People who have undergone major surgery or physical trauma
- People with gastrointestinal (GI) diseases such as celiac disease, inflammatory bowel diseases such as ulcerative colitis, or Crohn's disease
- People with peptic ulcer disease
- People who have undergone bariatric procedures, especially gastric bypass operations
- Vegetarians, vegans, and other people whose diets do not include iron-rich foods (iron from vegetables, even those that are iron-rich, is not absorbed as well as iron from meat, poultry, and fish)
- Women aged 50 and above, due to GI bleeding, duodenal, and gastric ulcers, or GI cancer

Pernicious Anemia

Pernicious anemia, a form of megaloblastic anemia, is a rare disorder in which the body does not absorb enough vitamin B12 from the digestive tract, resulting in inadequate production of red blood cells. It is also referred to as vitamin B12-deficient anemia.

Symptoms

Direct symptoms of pernicious anemia are due to a lack of red blood cells, which are vital in carrying oxygen to the cells of the body. Symptoms can include:

- Pale skin
- Shortness of breath
- Fatigue
- Dizziness

- Headache
- Cold hands and feet
- Heart palpitations
- Chest pain

There may also be symptoms that are due to a lack of vitamin B12. Untreated vitamin B12 deficiency can affect the nervous system and result in permanent nerve damage. Symptoms can include:

- Numbness and tingling in the hands and feet
- Difficulty walking
- Confusion
- Memory loss
- Dementia

Risk Factors⁵

Pernicious anemia is more common in people of Northern European and African descent than in other ethnic groups. Older people are also at a higher risk for this condition. You are at a higher risk for pernicious anemia if you have:

- Family history of the condition
- Had part or all of your stomach or small intestine surgically removed
- Intestinal diseases or other disorders that may prevent your body from properly absorbing vitamin B12; examples include Crohn's disease, intestinal infections, and HIV.
- Medications that prevent your body from properly absorbing vitamin B12 (some antibiotics and certain seizure medicines)

Siemens Solutions for Anemia Testing

	ADVIA Centaur® Systems	ADVIA® Chemistry Systems	Dimension® RxL Max®/ Xpand® Plus Systems	Dimension® EXL™ 200 Systems	Dimension Vista® Systems	IMMULITE® Systems	Other Siemens Systems
EPO						•†	
Ferritin	•	•	•	•	•	•	•
Folate	•			•*	•	•	
Hemopexin					•		•
Homocysteine	•				•	•	•
Iron		•	•	•	•		
RBC folate	•					•	
Soluble transferrin receptor (sTfR)					•		•
Total iron-binding capacity (TIBC)		•	•	•	•		
Vitamin B12	•			•*	•	•	
CBC							•
Reticulocyte count							•

† Not available for sale in the U.S.

* Under development

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Megaloblastic Anemia

Megaloblastic anemia is caused by incomplete formation of the red blood cells, resulting in large numbers of immature and incompletely developed cells. These red blood cells do not function like healthy red blood cells and crowd out the healthy cells, causing anemia. Since these cells are underdeveloped, they also have a short life expectancy.⁵

Symptoms⁶

Symptoms may vary among individuals, but common symptoms include:

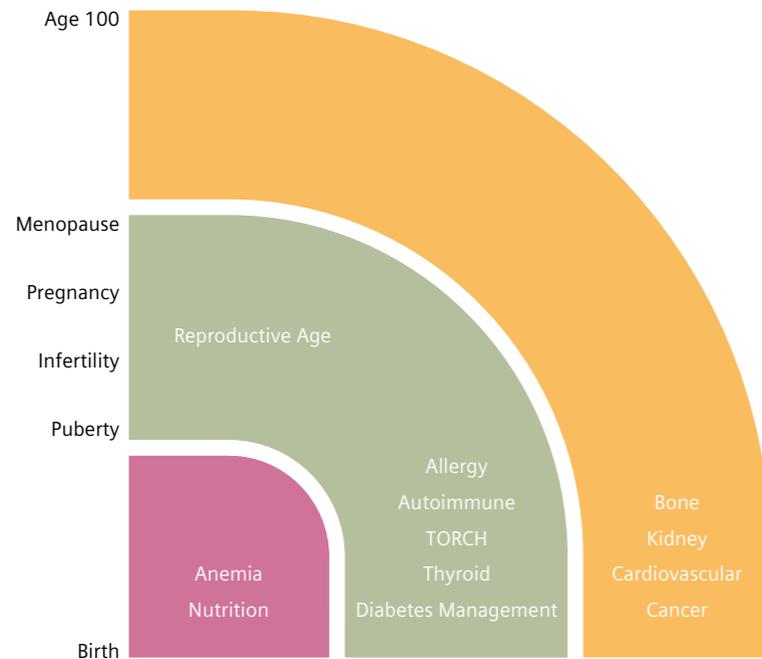
- Fatigue
- Muscle weakness
- Loss of appetite/weight loss
- Diarrhea
- Nausea
- Fast heartbeat
- Smooth or tender tongue
- Tingling in hands and feet

Risk Factors⁶

Megaloblastic anemia is usually caused by a deficiency of folic acid or vitamin B12. Other less common causes are:

- Alcohol abuse
- Certain inherited disorders
- Drugs that affect DNA, such as chemotherapy drugs
- Leukemia
- Myelodysplastic syndrome
- Myelofibrosis
- The anticonvulsant drug phenytoin (Dilantin)

Women's Lifetime Health Continuum



Caring for Women with Anemia

Reducing the burden of anemic disorders in women includes understanding risk factors, making rapid, accurate diagnoses when symptoms occur, implementing appropriate therapies, and monitoring treatment. Since anemia is usually detected through routine blood tests, laboratory diagnostic testing plays an integral role in caring for women throughout the continuum of anemia treatment.

As an integrated diagnostics company, Siemens' comprehensive solutions include risk assessment and early prevention, diagnosis, therapy, and aftercare. In addition, our solutions in healthcare information technology support the exchange of data for informed decisions.

Your results. Her lifetime.

Empowering you to advance the health and vitality of women throughout the continuum of life.