



TRIMETHOPRIM/SULFAMETHOXAZOLE

(TMP/SMX, Bactrim, Septra, Cotrimoxazole)

WHAT IS TMP/SMX?

TMP/SMX is combination of two antibiotic drugs: trimethoprim and sulfamethoxazole. It is also known as cotrimoxazole. It is sold as Bactrim (manufactured by Roche) or Septra (by Monarch Pharmaceuticals). TMP/SMX is sold under many other names in different parts of the world.

Antibiotics fight infections caused by bacteria. TMP/SMX is also used to fight some infections caused by protozoa, and some opportunistic infections in people with HIV.

WHY DO PEOPLE WITH HIV TAKE TMP/SMX?

TMP/SMX is used for many bacterial infections. It is effective and inexpensive. Adding TMP/SMX to antiretroviral therapy reduces death in the first 60 weeks of treatment by 35%. This is based on an African study reported in 2010. Unfortunately, up to one third of the people who take TMP/SMX get an allergic reaction.

Many germs live in our bodies or are common in our surroundings. A healthy immune system can fight them off or keep them under control. However, HIV infection can weaken the immune system. Infections that take advantage of weakened immune defenses are called "opportunistic infections." People with advanced HIV disease can get opportunistic infections. See Fact Sheet 500 for more information on opportunistic infections.

One opportunistic infection in people with HIV is PCP. This stands for *pneumocystis pneumonia*, which affects the lungs. See Fact Sheet 515 for more information on PCP. People who have a CD4 cell count of less than 200 may develop PCP.

TMP/SMX is the first choice to treat or prevent PCP. If your CD4 cell count is below 200, ask your health care provider if you should be taking TMP/SMX or another drug to prevent PCP.

Another opportunistic infection is toxoplasmosis (toxo), which affects the brain. See Fact Sheet 517 for more information on toxo. People who have a CD4 cell count of less than 100 may

develop toxo. TMP/SMX is sometimes used to treat or prevent cases of toxo.

Some people are allergic to TMP/SMX. Be sure to tell your health care provider if you are allergic to sulfa drugs or antibiotics. People who are anemic should not use TMP/SMX. Taking TMP/SMX during pregnancy may increase the risk of birth defects. Women who are pregnant or breastfeeding should avoid taking it if possible. Also let your health care provider know if you have liver disease, kidney disease, or a shortage of the enzyme glucose-6-phosphate dehydrogenase (G6PD).

WHAT ABOUT DRUG RESISTANCE?

Whenever you take medication, be sure to take all of the prescribed doses. Many people stop if they feel better. This is not a good idea. If the drug doesn't kill all of the germs, they might change (mutate) so that they can survive even when you are taking medications. When this happens, the drug will stop working. This is called "developing resistance" to the drug.

For example, if you are taking TMP/SMX to fight PCP and you miss too many doses, the PCP in your body could develop resistance to TMP/SMX. Then you would have to take a different drug or combination of drugs to fight it.

HOW IS TMP/SMX TAKEN?

TMP/SMX is available in tablets that contain 80 milligrams (mg) of trimethoprim and 400 mg of sulfamethoxazole. There is also a "double strength" tablet with 160 mg of trimethoprim and 800 mg of sulfamethoxazole. The dose you take depends on the type of infection you are trying to treat or prevent.

The treatment continues as long as your CD4 cell count is low enough for you to develop toxo or PCP.

TMP/SMX is generally taken with food, but the single-strength tablets can be taken with or without food. Drink plenty of water when taking TMP/SMX.

WHAT ARE THE SIDE EFFECTS?

HIV infection causes higher rates of TMP/SMX side effects. People who have

taken TMP/SMX before often have more side effects.

The main side effects of TMP/SMX are nausea, vomiting, loss of appetite, and allergic skin reactions (rashes). The skin rashes can be fairly common. TMP/SMX can cause Stevens-Johnson syndrome, a very serious skin rash.

TMP/SMX can also cause neutropenia, a low level of neutrophils. These are white blood cells that fight bacterial infections. HIV infection can also cause neutropenia.

Some health care providers use a "desensitization" procedure with patients who get an allergic reaction. Starting with a very low dose of TMP/SMX that does not cause an allergic reaction, they gradually increase the dose to the full amount. Vitamin C may help in cases of allergic reactions to Bactrim. Another option is to use the drug Dapsone (see fact sheet 533).

TMP/SMX can also make you sensitive to sunlight. If this occurs, use sun block on your skin and/or wear sunglasses.

Tell your health care provider if your skin gets pale or yellowish, or you get a sore throat, fever, or rash, even after a few weeks of taking TMP/SMX. These might indicate a serious drug reaction.

HOW DOES TMP/SMX REACT WITH OTHER DRUGS?

TMP/SMX is mostly processed by the kidneys. It does not interact very much with drugs that use the liver, including most antiretroviral drugs used to fight HIV. However, TMP/SMX interacts with several other types of drugs, including some blood thinners, pills to lower blood sugar, seizure medications, and water pills. **Be sure your health care provider knows about all the medications you are taking.**

The risk of developing anemia is higher if you take TMP/SMX at the same time as other drugs that can cause it, such as **AZT (Retrovir, see fact sheet 411)**.

The risk of developing neutropenia is higher if you take TMP/SMX at the same time as other drugs that can cause it, such as **AZT** or **ganciclovir**.

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