# D.R.E.S.S. Syndrome Quick Facts

## WHAT IS DRESS?
The name Drug Reaction with Eosinophilia and Systemic Symptoms was introduced in 1996 but was first identified as an illness in 1959. It is also referred to as DIHS (Drug Induced Hypersensitivity Syndrome).

It is a progressive condition and one of several unpredictable and extremely serious severe adverse drug reactions along with Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN).

## WHO IS AT RISK?
Anyone, at any age, that takes any medication is susceptible to DRESS. There are currently over 50 known drugs that have caused DRESS, and the list is growing. Recently, a genetic predisposition to DRESS has been identified for certain drugs, specifically, allopurinol and abacavir and nevirapine. More research needs to be done to identify other gene to drug relationships. While poorly reported, DRESS is estimated to occur between 1 in 1,000 and 1 in 10,000 drug exposures with a mortality rate of 10 to 20%.

## WHAT CAUSES THE DISEASE?
Advances are underway in understanding the complexity of how DRESS Syndrome occurs. We do know there are three common factors; genetic predisposition, defect in drug metabolization and a triggering factor mostly a viral infection.

## SYMPTOMS
First signs of DRESS are delayed, starting typically two weeks or later after drug initiation. Because it is a progressive condition, symptoms appear through the course of the illness and not always at once.

- Fever
- Rash usually starting on upper trunk or face
- Edema (swelling of face and body)
- Multi-systemic involvement, very often includes the liver and also can affect kidneys, lungs and heart and other organs and the thyroid.
- Pharyngitis (sore throat)
- Exfoliative dermatitis (peeling off of skin)

## CLINICAL AND LABORATORY FINDINGS
Blood abnormalities occurring at various points in the course of illness may include atypical lymphocytes and eosinophilia. Also elevated liver enzymes, lymphopenia and hemophagocytic syndrome. HHV-6 viral reactivation, when properly tested, may be found in the blood usually two weeks after onset of symptoms.
**HHV-6 VIRAL IMPLICATION**

Human herpesvirus 6 has been shown to play an important role in DRESS. This virus, which lays dormant in almost everyone, has been demonstrated to reactivate in over 50% of DRESS patients. Those with viral reactivation tend to have a more severe illness with a longer and more complicated course including organ failure.

**DIAGNOSIS AND TREATMENT**

Most important is identifying and discontinuing the offending drug. However, DRESS is tricky in that it can continue to get worse even after stopping the drug. It is imperative to diagnose DRESS quickly and follow up with proper testing. Due to the progressive nature of the illness, certain conditions like eosinophilia and HHV-6 reactivation may not show up initially in blood test. Retesting for these at the right time could make a significant difference in diagnosis and treatment.

Well-defined criteria has been developed to aid in a scoring system for diagnosis.

Treatment will vary based on confirmation of symptoms but may include oral steroids, IVIG and antivirals.

**COMPLICATIONS**

Seemingly successful, initial treatment of symptoms are not necessarily an indication that the patient is home free. Many complications of DRESS can develop later, including:

- Dangerous flares during steroid taper
- Myocarditis
- Autoimmune disorders: Type 1 diabetes and thyroiditis

**DRUGS THAT CAN CAUSE DRESS**

Anticonvulsants: phenytoin, carbamazepine, phenobarbital
Antibiotics: minocycline, sulfamethoxazole and trimethoprim (bactrim) linezolid, doxycycline
Antidepressants: desipramine, amitriptyline
Antivirals: abacavir, telaprevir, zalciabine
ACE inhibitors: enalapril
Beta blockers: atenolol
Sulfasalazine
NSAIDs
Also: lamotrigine, allopurinal, modafnil, dapsone, vancomycin, olanzapine, nevirapine, ranitidine, azathioprine, dobutamine, pyrazinamide.
(List is not comprehensive.)