

# iTRANSFUSEFACTSHEET

all about blood

SPECIAL CHRISTMAS 2010 EDITION

## I NEED TO KNOW IF RUDOLPH CAN DONATE

SANTA'S NAUGHTIEST LITTLE HELPER

### If Rudolph were human could he be a blood donor?

Firstly Rudolph would be advised that as part of the aircrew (along with Dasher and Dancer, Prancer and Vixen, Comet and Cupid, and Donner and Blitzen) on Santa's sleigh, he should not donate more than 24 hours before flying or operating heavy machinery. So Rudolph would have to donate before 23 December. The same advice would apply to Santa.

### What about travel deferrals?

Travel deferrals might also cause some impediments to Rudolph being able to donate after his Christmas trip. Fortunately, variant Creutzfeldt-Jacob Disease is not an issue as he lives at the North Pole, and has spent only part of a day each year between 1980 and 1996 in the UK so he could still be a potential donor. However, Rudolph does travel through areas where Malaria is endemic. Rudolph's visits to nearby Greenland and contact with other reindeers that did not always play nicely may pose a rabies risk from a bite. So potentially Rudolph may be eligible to be a plasma donor only.

### Could his diet affect his ability to donate?

Rudolph is a vegetarian and so his diet may increase his risk of iron deficiency, but he could still be a potential donor.

### His nose is shiny and red. Is he healthy enough to donate?

Depends on why it is so red. There are two possible explanations:

1. Rudolph has a bioluminescence nose. This is most likely, or
2. Rudolph has a nasty skin infection.

### What is bioluminescence?

Setting Rudolph apart from all the other reindeer is that between the layers of skin on his nose are luciferin (a light-producing substance) and luciferase (an enzyme that



catalyzes the light-producing reaction). This is called bioluminescence. Rudolph's nose, like all reindeer, has a larger number of blood vessels to warm incoming air and so lots of oxygen gets breathed in right near his light-producing organ, providing enough reactions for long, intensely shiny bursts of light. He is OK to donate on this score.

### Does the Blood Service use luminescence?

Yes, luminescent principles are used in some testing. In serological testing for Hepatitis B antigens chemi-luminescence is used. Immunofluorescence is used for antibody testing by Tissue typing. Generally, the brighter the response, the stronger the antibody.

### What if the shiny red nose is due to infection?

This is unlikely. He would feel ill and make extensive travel unlikely. The glowing nose could be due to having a cold which would mean he could not donate till he was better. Or it could be because of a parasite, bacterial or



### PACKFACT

Rudolph's travel is tracked using new technology. Check it out at [www.noradsanta.org](http://www.noradsanta.org)

fungal infection from digging through snow to get to lichens and moss underneath. In this case, an active infection with broken skin would also render Rudolph unable to donate. So, the Blood Service will have to rely on lots of wonderful Santa's helpers over Christmas to ensure we have sufficient blood components for those who need them.

The information contained in this fact sheet is not intended to be medical or professional advice. The disclaimer found at [transfusion.com.au](http://transfusion.com.au) applies to this fact sheet.

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