

## STATISTICAL SIGNIFICANCE

*A safe and adequate blood supply is a critical requirement for modern medicine and public health. Advanced statistical analysis and modeling helps to achieve these important goals.*

### Keeping the Blood Supply Safe and Adequate

#### Why Is Blood Needed?

The demand for blood products is predicted to grow as the population ages and as more advanced medical procedures requiring blood products are developed and utilized. According to the 2007 Nationwide Blood Collection and Utilization Survey Report, the supply of blood exceeded the demand by about 1.2 million units in the United States. Statistical analysis of a variety of data sources helps us project the demand for blood and blood products to better gauge the adequacy of the blood supply. Statistical modeling is one tool that can help us understand how robust the blood system is in response to increases in demand or reductions in supply.

#### Safety and Transfusion-Transmitted Infectious Diseases

Several infectious diseases, such as human immunodeficiency virus (HIV), hepatitis B and hepatitis C viruses, and malaria can be transmitted via transfusion. Statistical analysis and modeling can help us understand and reduce the risks of transfusion-transmitted infections. These risks have been significantly reduced by testing donations and implementing other risk reduction and safety measures.

Photo of a *Plasmodium* sp. macrogametocyte was taken by Steven Glenn, CDC and is in the public domain (PHIL 5858).

#### Improving Public Health

Careful statistical analysis and modeling of the safety and adequacy of the blood supply improves public health and saves lives.

#### The Blood Supply: Who Donates Blood?

Advanced statistical analysis is used to understand who is likely to donate blood and who isn't. This helps us forecast how much blood will be available for transfusions and other purposes. Results from the analysis of the demographic characteristics of blood donors may be used to identify sub-populations that are currently less likely to donate blood in order to develop targeted outreach and education programs.



Photo of Robert Franke donating blood was taken by Michael Buslovich. It is available from WikiCommons and is in the public domain.