

Transfusion Service Observations: Red Blood Cell Surname-Antibody Pairings

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TO THE EDITOR

The identification of red blood cell alloantibodies during type and screen procedures is a fairly common occurrence. Reported rates of alloimmunization discovered at type and screen in the United States hover between 2% and 3%.¹⁻³ The red cell antigens to which these antibodies form are often named to reference either the patient in which they originated or the discovering scientist. For example, the Duffy antigen (Fy^a) was first described in 1950 by Marie Cutbush during a hemolytic transfusion reaction workup of a London man named R. Duffy.⁴ The United States census data reveal that 16 common American last names correspond to International Society of Blood Transfusion blood group antigen systems: Lewis, Rodgers, Gill, Duffy, Kidd, Cartwright, Cromer, Colton, Kell, Diego, Scianna, Knops, Lutheran, Landsteiner, Wiener, and Raph.⁵ Of these, clinically significant antibodies against Lewis, Duffy, Kidd, Kell, and Diego are frequently seen in the hospital setting. We recently encountered an anti-Fy^a in a routine type and screen sample

for a patient with the surname Duffy. While the identification of Mr. Duffy's Duffy antibody seemed unlikely, was it?

Using reported alloantibody frequencies and census data, we sought to determine not only the probability of our own Patient Duffy's anti-Duffy but also the likelihood of encountering all 5 possible antithetical alloimmunization patterns (Figure). Calculations were done with the assumptions that the surname frequency reported in the US census data is similarly represented in a patient population requiring type and screen testing, that each patient has an equivalent risk to develop any given alloantibody, and that these 2 events are independent.

As demonstrated in the Figure, a Patient Lewis presenting with a Lewis alloantibody should be the most frequently encountered eponymous occurrence, followed by Duffy, Kidd, Kell, and Diego, respectively. Given our hospital's approximate annual type and screen volume of 20,000 and a 1 in 5 million likelihood of occurrence, encountering the eponymous alloantibody in our patient Duffy was, in fact, a rare event.

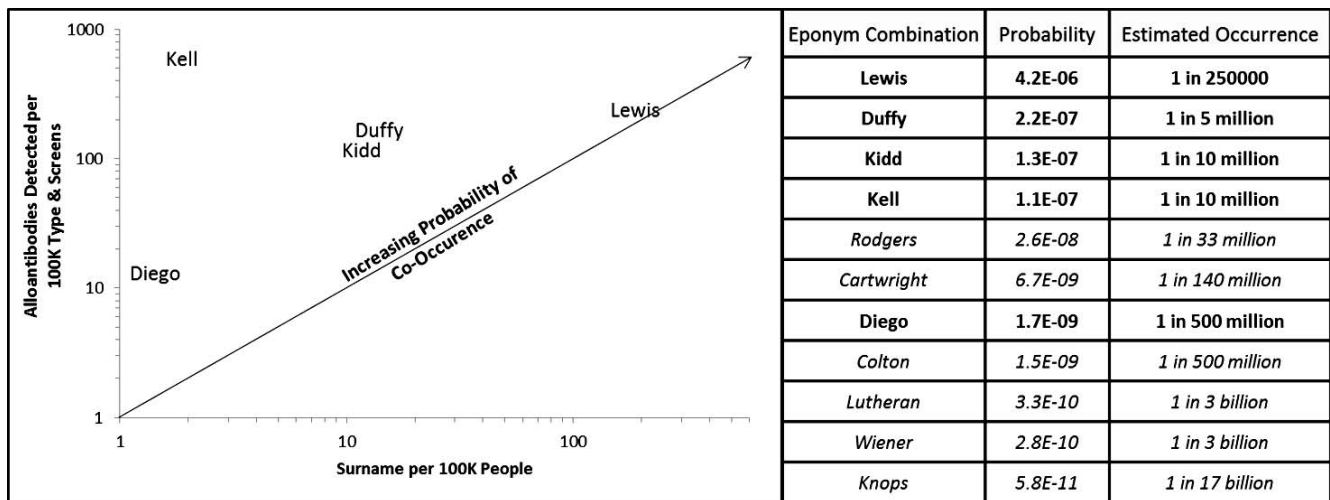


Figure. Graph: Incidence of 5 common surnames per 100,000 people plotted against eponymous alloantibody identification rates in type and screens. Table: Calculated probability and chance of occurrence of a patient surname matching an eponymous alloantibody identified on the individual's type and screen. Italicized surnames/alloantibodies denote alloimmunization rates reported in some, but not all 3, cited references.¹⁻³

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