INTRODUCTION

About 4.5 million patients get blood transfusions each year in the United States. Transfusion side effects, including respiratory and circulatory reactions, are often hard to specifically ascribe to transfusion and can sometimes be deadly. Scientists at the U.S. Food and Drug Administration (FDA) in the Office of the Commissioner and Center for Veterinary Medicine wanted to research methods that could be used to proactively monitor electronic health records (EHR) to discover new safety concerns by reviewing historical EHR data to identify previously unascribed types of reactions for further investigation. Booz Allen worked with the scientists to examine more than 20,000 past transfusion cases identified in the MIMIC-III database of historical critical care admissions in a teaching hospital. Applying advanced natural language processing methods to unstructured clinicians' notes within EHRs, our team of data scientists helped them quickly glean valuable information about actual and possible transfusion reactions, paving the way to a much faster, more direct way of discovering side effects, improving clinical care, and saving lives.

THE CHALLENGE

An FDA core mission is to protect patients from harm by ensuring that medical (N)1.3 (o)-1 (n)7.1 (i)7.4 (n)3.3 (f)-5.3 (e)-11.7 (c)-35.9 (ti)1.6 (o)-1.4 (u)12 (s s)2