In biomedical research, it is important to share data (obtaining larger sample size or enriching the observations) in order to accelerate discoveries. This is necessary to expedite pattern recognition related to relatively rare events or conditions, such as complications from invasive procedures, adverse events associated with new medications, association of disease with a rare gene variant, and many others. Privacy has been a major hurdle in making use of data to conduct studies as inappropriate sharing of information might put patients' confidential personal information at risk. I will introduce novel methods to mitigate the privacy risks in sharing and analyzing data.