

# FAMILY HEALTH HISTORY

July 2017

## Tip of the Month

If you are in a situation where you are meeting with a genetic counselor, perhaps for prenatal visit, one of the first parts of the visit will entail taking a complete family history. During this conversation, expect that the counselor will ask about whether you know of any relationships between related family members. Sharing of this information can help determine potential risks for a genetic disorder.

### Why is Marrying Family Members of Concern?

Marriage between family members is viewed quite differently between different cultures. While some cultures may view marriage between family members as socially unacceptable, it is considered routine or traditional in other cultures including the Amish community in the U.S., and in several Middle Eastern and Arab cultures. In some communities, marriages may be arranged between family members. Referred to as consanguinity (pronounced con-san-gwin-itee), it is defined as marriage between two individuals with a shared ancestor, typically between second cousins or closer. Another term often used to refer to this type of union is 'inbreeding.'

One major concern for consanguineous marriages is the increased risk of children born with a genetic disorder. This higher risk is due to the shared genetic background of family members, where genetic abnormalities are 'kept' within the family instead of diluted through marriages to individuals outside of the family. Recall that everyone has two versions of a gene, one inherited from their mother and one from their father. If a person carries one abnormal version of a gene and one normal one, the person may not develop the disease associated with that gene if it's "recessive" (meaning that one normal version is enough to allow the body to function normally). On the other hand, if the disease is "dominant," if either copy of the gene is abnormal, the person will develop the disease.

With recessive diseases, a person who has one abnormal copy is healthy and not affected

by the disease. In this case, they are considered a 'carrier', because they carry an abnormal version that they can pass on to their offspring. When marrying someone unrelated to you, the chance that you and your partner will both be carriers of the same abnormal gene is extremely low, so the likelihood that your children will develop the associated disease is very low (even if one of you is a carrier). On the other hand, the closer the relationship between parents (e.g., brother-sister versus second cousins), the higher the chance that both will be carriers of an abnormal gene, inherited from a shared relative. Therefore, their children are at increased risk of inheriting two abnormal versions of the gene (one from each parent) and developing the associated genetic condition.

How do you ask a patient if they are or have family members that are married to related individuals? Genetic counselors routinely ask about this during prenatal visits, particularly if there's a history of miscarriage or relatives affected with a rare disease. The counselor will likely say that this is a routine question before asking whether there's a chance that the patient and their partner may be related in any way. Some patients may be reluctant to discuss this information due to embarrassment, fear of stigmatization or acknowledgement of an illicit relationship. According to the National Conference of State Legislatures, 26 states have laws prohibiting marriage between first cousins. A handful of states do allow marriage between cousins; the state of Maine requires a visit with a genetic counselor prior to marriage so that the couple are aware of the risks.