



The case for screening the population for high-risk inherited conditions

Did you know that certain genetic conditions including hereditary breast and ovarian cancer syndrome, Lynch syndrome, and familial hypercholesterolemia, can be mitigated or even prevented from developing into disease when detected early? These three conditions, known as [Centers for Disease Control and Prevention \(CDC\) Tier 1 conditions](#), are common and easily missed during routine medical care – but data from more than 60,000 Healthy Nevada Project participants shows that at-risk carriers can easily be identified by a simple genetic screening.

Thanks to all of our participants, we were able to release three major research findings of the Healthy Nevada Project (HNP) on CDC Tier 1 conditions [in the journal *Nature Medicine*](#).

Each participant who joins the HNP receives CDC Tier 1 genetic screening, which identifies carriers of these three genetic conditions. Hereditary breast and ovarian cancer syndrome, Lynch syndrome, and familial hypercholesterolemia are ***dominant inherited conditions*** that when detected early and prior to disease onset, have much better outcomes than when disease presents itself and treatment is the only option.

What is a dominant inherited condition?

Your chromosomes work in pairs, and are inherited from your biological parents: 23 from your mother, and 23 from your father. Dominant inheritance implies that one copy of an abnormal gene from either your mother or father can cause disease. The three CDC Tier 1 conditions in our studies are examples of diseases that are dominant inherited conditions.

Three important findings from Healthy Nevada Project participants strengthen the case for screening larger populations. First, [data from our Healthy Nevada Project](#) and [other studies around the country](#) have demonstrated that the CDC Tier 1 conditions are relatively common, affecting about 1 in 75 individuals. Second, we demonstrated that in the course of normal care, we miss as many as 90 percent of CDC Tier 1 genetic conditions. Third, we showed that individuals with these conditions had a nearly 30-year disease acceleration, meaning that individuals with the inherited condition risk developing the underlying disease almost 30 years earlier than those who do not have the inherited risk.

1 in 75

Lives impacted to date through return of actionable results across 3 conditions (CDCT1)



Familial hypercholesterolemia (~1 in 260)



Lynch syndrome (~1 in 340)



Hereditary breast and ovarian cancer (~1 in 150)

90%

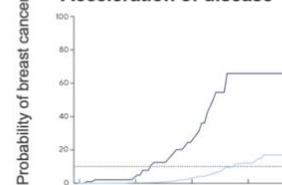
Would not have been detected in medical practice



- < 20% had any documented suspicion of inherited genetic disease in EMR
- Upon follow-up, 25% had family history of relevant disease
- 22% of carriers had manifested disease, with median age of first presentation at age 59 (HBOC), 60 (LS), 63 (FH)

30 year

Acceleration of disease



- Genetic carriers for HBOC and LS have acceleration of disease presentation vs. non-carriers
- Current screening guidelines are inadequate to identify at-risk individuals (based on age and family history alone)

These findings underscore the benefits of screening a larger population for CDC Tier 1 conditions and why we are committed to do so.