HUNTINGTON'S DISEASE BACKGROUND

Early signs of the disease vary greatly from person to person. A common observation is that the earlier the symptoms appear, the faster the disease progresses. Family members may first notice that the individual experiences mood swings or becomes uncharacteristically irritable, apathetic, passive, depressed, or angry. These symptoms may lessen as the disease progresses or, in some individuals, may continue and include hostile outbursts or deep bouts of depression.

HD may affect the individual's judgment, memory, and other cognitive functions. Early signs might include having trouble driving, learning new things, remembering a fact, answering a question, or making a decision. Some may even display changes in handwriting. As the disease progresses, concentration on intellectual tasks becomes increasingly difficult.
In some individuals, the disease may begin with uncontrolled movements in the fingers, feet, face, or trunk. These movements -- which are signs of chorea -- often intensify when the person is anxious. HD can also begin with mild clumsiness or problems with balance. Other persons develop choreic movements later on as the disease progresses. They may stumble or appear uncoordinated. Chorea often creates serious problems with walking, increasing the likelihood of falls.

The disease can progress to the point where speech is slurred and vital functions, such as swallowing, eating, speaking, and especially walking, continue to decline. Some individuals are unable to recognize others. Many, however, remain aware of their environment and are able to express emotions.

Folksinger Woody Guthrie, who died of the disease, was first thought to be an alcoholic and later schizophrenic, before he was properly diagnosed. The arrival of the gene in the New World can be traced to the 17th century. It is believed that symptoms of the disorder may have been responsible for charges made against some persons of consorting with the devil and of being witches. In 1630, three men whose families had been persecuted for witchcraft immigrated to America. One of the men settled in East Hampton, Long Island, New York. It is one of them who was described in a paper first reporting the disease.

The gene for Huntington's Disease (HD) is dominant. If a person has the gene, that person will have the disease. The average age of onset is 40, though there is a wide range. The illness is progressive, with no remission, and is always fatal. Persons with the disease usually live about 20 years after first showing symptoms. It has recently been found that HD is caused by a mutation that brings about an increase in the number of repeats of three nucleotide bases, CAG, found at the end of the number 4 chromosome.

The normal version of the HD gene has between 11 and 34 copies of CAG. The mutation which causes Huntington's increases the number of repeats to 37 or more. The HD repeat size rarely stays the same from one generation to the next and tends to increase. When passed on from fathers the increase is sometimes dramatic. Small increases, or sometimes decreases, have been seen when transmitted from mothers. There seems to be some relationship between the number of CAG repeats and the age at which the disease first appears. When there are more than 52 repeats, age of onset is usually much younger than the forties. One child who was diagnosed by age 3 had 86 copies of the repeat. Most persons with adult onset HD have between 37 and 52 repeats. In a few cases of new mutations to HD, repeats between 33 and 38 units have been identified. These people are unaffected, but the risk for HD in their children or grandchildren may be increased. The exact size range of repeats has not been definitely established, so repeats between 31 and 39 are considered uncertain.

adapted from: http://www.accessexcellence.org/AE/AEC/AEF/1995/martin_testing.html