

# Families, Learning Disabilities & Genetics

A report for participants in this study, which was funded by  
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## **Background**

Everyone who took part in this the Family study was part of a family with boys or men with a Learning, or Intellectual Disability that did not have a known cause or diagnosis. They had already become part of the GOLD study (**G**enetics of **L**earning **D**isabilities), which was looking for new genetic causes of learning disabilities. The aim of our 'family' study was to understand people's experiences of taking part in the genetic research study. We wanted to identify the most important issues for different family members and to report this information back to professionals working in both genetics and intellectual disability.

One of the first things we found when talking to you was that most of you have your own words for describing the disabilities in your family. In the research, professional, medical and social care world the term used most often is Intellectual Disability or ID and that is the term we will use in this report.

### **What has the GOLD study found?**

Families were invited to become part of the GOLD study because males in different branches of a family were affected with ID, and the branches were related through women in the family. This pattern of inherited condition is called X-linked which means that it looks as though any faulty gene might be on the X-chromosome. More than 400 families were recruited to the GOLD study. The research team has studied the whole of the X chromosome in 208 of these families. For each of these 208 families, about 700 genes were investigated. In addition they have investigated a few particular genes in a much larger set of families. They have identified more than 10 new genes during the study and also found the cause of ID in more than 50 families worldwide. Unfortunately, they have not identified the cause of ID in all of the families they have recruited but they are continuing to work on the samples.

### **Who took part in the Family Study?**

Only families from the UK and Ireland took part in our study. We have interviewed 120 individuals from 55 families (37 extended families). Eighty-nine individuals had either donated a blood sample to the GOLD study or been part of the consent process for an affected person. Blood samples had not been needed from the remaining 31 relatives, although they all had some interest in any result from the genetic study, if one was to become available. All families had at least two male relatives with ID.

## **What have we found?**

The main focus of our study was to explore your experiences of being part of a genetic research study. However, to understand your responses, we also asked questions about other aspects of your lives including how the disability came to be recognised, family communication, and especially about aspects of living with and caring for family members with intellectual disability. These issues will all be raised with professionals but in this report we are going to talk about aspects related to the genetics study.

## **Why had families agreed to take part in genetic research?**

Families took part in the research for two main reasons, a) to get information for themselves and b) to be able to give other family members that information so they could make reproductive choices. At the time we first spoke to individuals, everyone in the families welcomed genetic research. They reported that anything that fostered knowledge and understanding was a good thing. There was an overwhelming desire to get a diagnosis and to be able to give the condition that affected their relative a label. Most people knew this would make little practical difference to the affected family members, although a few people felt it might help them to access better services (for example, educational help).

Families saw the availability of genetic testing as positive because it would enable their family members to choose whether or not to have boys with ID in the future. This testing is only possible when a faulty gene associated with ID has been identified in a family. Even those who said they would *never* want to use such a test for themselves thought it should be available so that others could use it should they so wish. For many people this was their primary motive for being part of the GOLD study. Although parents loved their sons and did all they could to provide the best possible care, they found life was very hard and did not wish their daughters or other female relatives to have the same sort of life.

Many of you were surprised at how you were expected to give more formal consent to be part of the GOLD study. Although you all knew it was 'research', the process seemed to be very much like what happened within the normal care you had received while doctors were trying to find out the cause of the problem in your family.

## **How did families feel when nothing was found in their sample during the GOLD Study?**

Most people said they were "disappointed" when asked how they felt when the GOLD study failed to identify anything in their DNA sample. Although they had known this was what was likely to happen, they had been very optimistic that something would be found for their family. Most of those who had given blood would want any remaining blood and DNA samples to be used for further research and said they did not expect to be asked to give consent again. People did, however, wish to be kept informed about what was happening with the genetic research or if anything of interest was found in future.

Many of the people who had received no results from the GOLD study were unsure about where they or their relatives should go in the future for further advice about their family history of ID, for example if a young woman in the family becomes pregnant in a few years time. We have written something about this for you on page 6 below.

## **What happened for families when something was found in their sample during the GOLD study?**

Although people were very pleased that something had been found they were not always happy with the way that the information was fed back to them and, in particular, with the delays at various stages. Early on in the study, it appeared to us that everyone who was waiting for a result was waiting patiently; they understood that it might take a long time or that a result might never become available. But once the GOLD study team or a clinician contacted anyone, to say that there *might* be a result, people changed and they became very anxious to get information immediately. This sense of urgency was particularly marked in families with young women who could be carriers.

## **Why was there a delay?**

When a research team thinks they have found a new gene mutation there are many steps they have to follow before they can be sure that it is a 'real' finding. First, they have to confirm their findings on a new sample of DNA. The researchers may have a different sample in storage, or they may need to contact you again to take a new blood sample. Once the finding is confirmed the researchers have to publish it in a scientific journal. This may be online or in a paper copy. Before the paper is published, the work is independently reviewed by other experts in the field. Until this has happened the finding is not counted as proven. However, before publication, families may be asked if

pictures of their relatives and information about the family can be used in the paper. So the family knows that there is information about them but they cannot access it for themselves and use it.

Even after publication there may be a delay before a clinical appointment can be arranged. At this stage the family has to move from being part of research back into the NHS for testing under clinical conditions. The research team can inform either the family directly and/or their clinicians and testing will take place via the standard NHS process usually with referral to a local geneticist through a GP.

Within this study we found that the process differed across different families. Sometimes the research team notified the family and it was left to the family to make an appointment with a GP to ask for a referral to a clinical geneticist. Sometimes the research team notified the local clinical geneticist and s/he contacted the family with an appointment. And at other times, the research team contacted the family's clinical geneticist and an appointment or visit was arranged directly. There is usually no fast track for people coming back to clinic after a period of being part of research. So unless the research team and clinical team overlap, or there is a long serving geneticist with a special interest, then there is often substantial delay and the need to get to know a new specialist in the local genetics department. All of this leads to frustration and dissatisfaction. Once families were 'back in the system' there appeared to be few difficulties although sometimes there was a further delay waiting for test results.

### **What people have done since receiving a result and how do they feel about the results?**

Where there were young women in the families, most were tested. Some women now know they are carriers and some that they are not. For both groups there are difficult emotions, but all of those we spoke to were relieved to be able to have the test and know what they face with regards having children. Other families without young women reported feeling let down by the lack of impact that the diagnosis had on them, especially if the diagnosis did not give any more information about the prognosis for their son. However, in other families a confirmed diagnosis has led to changed prognoses or enabled better provision of respite care. There can also be an unwanted emotional impact to confirming that the condition is genetic and that it has come through women in the family. Although families talked about knowing this before receiving the

results, some women said the certainty of the genetic diagnosis made them feel guilty.

### **How do family members tell others?**

The *GOLD* research team tended to leave it to one person to tell other family members of any findings. Individuals varied in how comfortable they were in acting as messenger to the rest of the family. For those with good and close relationships it appeared easy for them to share the (written) information they were given. For others it could be more difficult, especially if there were relatives who were more distant or if there had been family disagreements. In these cases there were some individuals who did not receive the genetic information that they might need.

### **What are the practical difficulties to ensure long term follow up is possible?**

Most of *GOLD* study participants were very keen to be kept informed about any future developments. However, there is a difficulty in maintaining contact. Even in our small study a number of people moved house and only some of those informed us. While we had the resources to try to locate people this is not always possible and for research that may take many years, this is clearly a problem.

### **What were the important lessons we learnt from the family study?**

The people who took part in our study were in favour of genetic research. They had wanted the *GOLD* study to happen and had been very happy to be part of it. However, we cannot assume that all families feel the same.

Many of you were surprised at how you were expected to give more formal consent to be part of the *GOLD* study. The study was so like your previous clinical care that extra consent seemed unnecessary.

The participants want the research to continue until it provides information that is useful for them, their families and families in general, and most people wanted blood and DNA samples to be kept for future use.

It is sometimes difficult when individuals who have been part of a research study have to move back into normal clinical services. There may be difficulties in communication between the researchers and people in the genetics clinic and

this was particularly the case where clinically important results had been found. The way in which these results are fed back to research participants is important and there is a need to try and find better ways of doing it with fewer frustrating delays.

### **Where should you go in the future for advice?**

Anyone wanting advice about their chances of having a child with a learning disability should ask their GP to make them an appointment with the local genetics service. It is important that the geneticist knows that you or members of your family have been part of the GOLD study in the past, so that they can find out if anything more has been found. As work is still going on, and will continue for some time, new information may come to light that could be important. Keep any correspondence you have about the GOLD study. Even this leaflet might be useful. Most importantly, don't give up! Go back to the geneticist if you or anyone in your family is reaching the point when they might need to make a decision about having children.

### **How have we told professionals about our findings?**

As a result of both the GOLD study and The Family Study there have been a number of articles published in journals and books. We have also given talks and lectures to different organisations. We responded to the Human Genetics Commission consultation on 'Choosing the future: Genetics and reproductive decision-making' using information that you had given us. More recently we commented on how the Mental Capacity Act should be put into practice. In particular, based on what we have learnt from your families, we were able to comment on the part of the act that is concerned with consent for research participation.

### **And finally ...**

... we would like to say a big thank you to everyone who took part. We enjoyed meeting you all and are very grateful for the time you spent with us. The family study is now officially over, although we will still be writing some more papers for professionals. If you or your family have any questions about this report then you can email Helen at [hes11@cam.ac.uk](mailto:hes11@cam.ac.uk) or write to her at the address on the front of this report. But if you need any further information about genetics or the GOLD study, then you should contact your GP or geneticist.

Thank you again

Helen Statham and Maggie Ponder

## Further sources of information

At the time of writing the GOLD study website is still live

<http://goldstudy.cimr.cam.ac.uk/>.

A lot of the information is not relevant now but there are links to some published papers about genes that have been found on the 'News' link

<http://goldstudy.cimr.cam.ac.uk/news.htm>

You can get general information about genetics and conditions that affect families from:

### **The Genetic Interest Group**

[www.gig.org.uk](http://www.gig.org.uk)

Telephone; 020 7704 3141

Email: [mail@gig.org.uk](mailto:mail@gig.org.uk)

### **Contact a Family**

[www.cafamily.org.uk](http://www.cafamily.org.uk)

Telephone; 0808 808 3555

Email: [helpline@cafamily.org.uk](mailto:helpline@cafamily.org.uk)

### **SWAN (Syndromes Without a Name)**

<http://www.undiagnosed.org.uk/aboutus.htm>

Telephone: 01922 701234

Email: [info@undiagnosed.org.uk](mailto:info@undiagnosed.org.uk)

All web links checked on 11<sup>th</sup> May 2009