Patients + research = result!

The role of patients and their interest groups in biomedical research • *by Alastair Kent*

Patient support groups and the individuals and families who belong to them are amongst the keenest advocates for biomedical research. It is not difficult to see why. Finding that you, your child or another close member of your family has a genetic disorder automatically makes you a member of a 'club' that you did not ask to join, that you are desperate to leave, but, as things stand at present, from which you cannot escape. Despite the incredible progress in our understanding of genetics and inherited diseases in recent years, it is sadly still the case that most genetic disorders remain incurable. The consequences for those affected and their families are dire. In too many cases they face the prospect of chronic illness, progressive disability and sometimes premature death for themselves or for their loved ones.

There is a way out of this 'club', but it is only through research. By understanding what has gone wrong and by effectively and appropriately applying this knowledge, we can build a bridge across the chasm between where families are now and where they would like to be—free of the anxiety that an inherited disorder creates. Historically, the outlook for patients suffering from a genetic disorder as well as their families has generally been pretty bleak, especially if the condition is rare. Too often, the birth of an affected child marks the start of a long search for an explanation and an understanding of the situation into which the family has been thrust, usually while helplessly watching the child suffer. Unlike patients with common disorders, where there is a degree of community support and local medical professionals who can offer explanations and some form of treatment, those with rare conditions are often isolated. Most people are aware that asthma sufferers sometimes have breathing problems, but how many know the symptoms of Laurence-Moon-Bardet-Biedl syndrome?

This isolation means that families with the same genetic disorders often seek out one another. The initial motivation may be social support—the relief that comes from being able to say to someone 'You

know how it is' and to hear 'Yes, I've been there too.' This can quickly lead to sharing practical help and advice on management and care. Sooner or later, coping turns into a desire for change, and the idea of stimulating research into a possible cure begins to take shape. Like a snowball rolling down a hill, this idea

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grows and gathers momentum until it becomes unstoppable. Once the notion of 'getting some research done' has taken hold, patient groups often turn their thoughts to fundraising to finance the necessary research. This has become a very important trend in biomedical research, which has grown in some countries into a funding stream that matches, or has even overtaken, government and other public sources of money for basic research.

In 2002, medical research charities in the UK are poised to spend more than £570 million (€880 million) on biomedical research of one kind or another. A substantial part of this money will be spent on genetics or related topics and at least £150 million will have been raised directly from the public or through donations in the private sector. Similarly, patient groups in other European countries raise money for 'their' cause by using a wide variety of ingenious techniques to get their message across. For example, every year the French Muscular Dystrophy Group raises many tens of millions of Euros through the nationally televised 'Genethon', and there are many other examples of the zeal and the commitment of patient groups when it comes to raising money in support of research.

Of course, the involvement of patient groups in genetic research does not end once they have generated the cash. The business of 'doing research' would be immeasurably more difficult, if not impossible, without the active participation of patients and their families. Previously, their role in clinical research was perhaps

rather passive—scientists or clinicians would present research proposals to charities and support groups but then these would often be peer-reviewed by scientific advisory committees and the decision to fund them or not would be made with little or no reference to the views of those directly affected—until the time came to recruit them to provide samples or clinical information necessary for the research. Of course, this model is something of a caricature, drawn to make a point. Nevertheless, it has sufficient truth in it to be recognisable by many, and some elements still have considerable validity.

But there is a clear need to evaluate whether research proposals are adequate for the patients, especially if money is short. Vice versa, plentiful funding should not be used as a justification for throwing money at a problem in an uncritical way. Consequently, patient groups have become more sophisticated over time and have learned to value the knowledge and expertise they have acquired—often through bitter experience. This has led them to engage with researchers on a more equal basis, having an input into the 'what' and 'how' of research.

For instance, patient groups for neuromuscular disorders found that their funding was sometimes not being used to their best advantage. To address this problem, a number of national societies agreed to establish and fund the European Neuro Muscular Centre (ENMC) in The Netherlands, where research teams interested in the same condition meet and debate issues of shared concern—for example to establish common biological and clinical criteria for diagnosis and to decide on the most promising research strategies. Initially, this was viewed with some suspicion—people would be keen to learn what others thought, but less eager to share their own ideas—but the synergy created by the experience of participating soon overcame those suspicions, and to date well over 100 workshops on different disorders have been held, resulting in substantial progress in research.

Elsewhere, the UK's Alzheimer's Society largely followed the traditional model outlined above with a scientific and

medical panel that peer-reviewed research grant applications. More recently, the society has set up a parallel panel, whose membership is drawn from the families of those affected by the disease. This panel also reviews grant applications and has a say as to which are funded. They do not comment on the scientific adequacy of the methodology

resources devoted to it. This ensures that the outcomes of research are taken up and developed into the products and services that will benefit those who need them and that governments and national health care systems make them available and reimbursable.

This last role has an even more important aspect in the form of campaigning for

would probably have weeded us out long ago. But when taken together they represent a vast source of human illness and suffering. Until very recently the reason why these diseases occurred was a mystery—a curse or the action of some malevolent deity in the pantheon perhaps. Only now are we beginning to understand why these diseases emerged and why they cast such a dire fate upon those afflicted.

For the families affected by these conditions, this increasing understanding is a light at the end of a long dark tunnel. Developments in research that have resulted in new therapies—recombinant clotting factors for haemophilia, enzyme replacement therapies for metabolic disorders and, more recently, a successful gene therapy for children with X-SCID immune failure—are all a source of hope. The achievement of patient groups in placing these issues on the agenda, engaging researchers in their issues, generating the funding to support them, persuading industry to take on product development and in convincing governments of paying for the treatments as they emerge should not be underestimated.

Of course, we are only at the beginning of this great adventure. Realising the potential of the human genome will take many years and unimaginable amounts of money. But the benefits will be commensurate and we will surely realise them more quickly if we work together to harness our creativity, our competitiveness, our compassion and our capacity in pursuit of the goal of freeing an increasing number of families from the threat of inherited diseases.

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proposed, but rather focus on the nature of the topic being investigated, its salience to the experience of living with Alzheimer's and the needs of patients as well as those who care for them. Applicants must write their proposals in a way that can be understood by the members of this lay panel and must be able to make their case before them if need be. Initially a challenging notion, those who have been through this process felt that having to explain what you actually want to do and justify it to those on whose behalf you are working in a lucid and jargon-free way, which does not allow you to hide in the long grass of arcane scientific language, has proved to be a welcome discipline, which many now embrace with enthusiasm. Indeed, the model of a consultative panel of lay experts has also been adopted by the British Human Genetics Commission—the UK Government's advisory body on genetic issues—and is being used to great effect on public policy matters.

An approach based on a partnership between all the stakeholders in the research process can yield additional benefits. Through sharing their experience and organising themselves, patient groups have become a valuable data bank of samples, including DNA, cells and tissues, as well as information on the natural history of a condition and its impact on the daily lives of those affected. Patient groups also often act as co-managers of research projects. In this way, they serve as advisors and watchdogs, ensuring that the real interests of those affected are protected and that the funding is put to the best use. Additionally, their active engagement has allowed them to act as pressure groups on government and other funding agencies to raise the profile of biomedical research and increase the

changes in the law. Clearly, the support of patient groups for desired or proposed changes can be uniquely powerful and is more likely to gain public endorsement in a way that those in academia or industry may not be able to achieve. Even if they make the same arguments with equal vigour, the latter groups may be seen as having a vested interest in ways that clearly do not apply to patient group advocates.

The introduction of the Orphan Medicinal Product Regulations in the EU is a good example of the power of patient groups in lobbying. For many years, there was a demand in Europe for regulations parallel to those in the USA, which have provided an important stimulus for the development of many products for the treatment of diseases that were otherwise economically unattractive for the private sector. But it was the support from patient groups, who 'fronted' the campaign, that eventually helped to push these through the Commission and the European Parliament. These regulations were adopted just 2 years ago, with statutory representation for patients on the Orphan Medicinal Products Committee at the European Agency for the Evaluation of Medicinal Products. This March, the committee approved its 100th orphan designation and there is a substantial queue of applications in the pipeline, which demonstrates the importance of this initiative as a means of promoting the transfer of basic research into new products for the diagnosis and treatment of rare disorders.

Since the first *Homo sapiens* stood up on its back legs and emerged into the bright sunlight of the African Rift Valley, we have been plagued by thousands of different genetic diseases. Fortunately, most of these are rare—otherwise evolution

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