tivation to quit. Additionally, the focus of health care systems could shift to those with a high risk of lung cancer, neglecting others. The authors argue that public health systems should instead encourage smoking cessation uniformly.

Despite these potential risks, research on smoking and smoking-related diseases could still be justified if it gives fundamental insights or shows applicability beyond smoking. At this point, the authors conclude that current researchers fail to make this clear. Therefore, the burden of proof lies with researchers, who should be willing to make clear that research on the genetics of smoking, with its inherent limitations, is in the public interest.

Comments

This article raises some essential questions about genetics research on smoking. It suggests that current findings concerning the genotypes modulating smoking and lung cancer risk cannot materialize their postulated benefits and, equally important, that genetic testing of smoking behavior and lung cancer may do more harm than good. The optimistic vision on genetically based prevention should therefore be critically examined in order to prioritize research funding.

However, several of the risks of genetic testing described in this article are, although sometimes quite likely, hypothetical. More conclusive evidence on the behavioral and psychological effects of genetic risk information on individuals, health systems and community is necessary. This information would not only be valuable for genetics research on smoking but could be generalized to other genetic topics, such as lifestyle and diabetes mellitus type 2.

Nevertheless, this article shows a crucial point in prioritizing research topics: investigating a subject without the potential benefits first being likely and second exceeding the likely harms of genetic testing is not in the interest of public health. In the case of smoking, investigating high-risk genotypes for smoking-induced lung cancer while the use of tobacco is an obvious risk for everyone can hardly be justified. Careful scrutiny of research topics on genetics and smoking in relation to public health seems recommended.

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Science Communication in Transition: Genomics Hype, Public Engagement, Education and Commercialization Pressures

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Greater Public Engagement in Science Policy

Now that the scientific grandiloquence about the endless possibilities of the Human Genome Project (HGP) seems to be fading, it is time for a realistic and open communication with the public in order to maintain their faith in science.

During the final session of the two-day workshop 'Genetic Diversity and Science Communication' in Toronto in April 2006, several topics were addressed. One of the topics was the overblown rhetoric of the HGP which was promulgated by a complex set of actors: not only scientists, the media and the public, but also commercial interests of biomedical journals and companies as well as the genomics, ethics, law and social science communities and politicians have played their part. The hype endangers the gains in public engagement and public trust in biomedical research. Meanwhile, studies show a supportive attitude of the public towards biomedical research, even in Europe. Despite the recent hype surrounding the HGP, the public has kept 'calm heads'. An international trend is evolving to accomplish a greater public engagement in science policy. Several initiatives were presented to give the public a greater voice and create more facilities to collaborate with scientists and other stakeholders. However, engaging the public implies the presumption that the public is willing and able to engage. This cannot be achieved without a prominent place for science in education and high quality of teachers. Moreover, public engagement should only operate on the macro level because on a smaller scale, where science is still far from having a societal impact, the significance is difficult to assess.

Comments

Rapidly developing science provides us with as much promises as dilemmas. A multitude of options evolve that are enclosed firmly in a social context which postulates broad public participation.

It is indeed encouraging that the majority of the public supports genetic research. The EC polling study shows that 52% of the people believe that biotechnology will improve their quality of life [1]. However, true engagement cannot exist without public awareness and understanding. For awareness and understanding to develop, one needs the right knowledge. Several studies show that the knowledge of the public concerning genetic issues shows room for improvement. In the Netherlands, the need for science communication has been recognized long ago, both by parent and patient organizations, organizations of citizens and by research institutes such as the genomics centers of excellence. A strong tradition has been built towards more interaction and participation of the public. Initiatives have unfolded in several domains. For example, www.bogi.nl is a website for primary school children about heredity, www.watisgenomics.nl addresses college students, traveling DNA labs are visiting high schools and 'National Genetics Dialogue' is an initiative to stimulate public participation in policy making.

The challenge is to aim for a good balance between 'bottom-up' and 'top-down' policies in science communication. That is, starting at a young age, providing the public with knowledge and learning skills, so that later on in life they can use this scientific literacy to speak up with a powerful voice.

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