Promoting multi-stakeholder education to support access to gene therapy

Pfizer

Alliance for Regenerative Medicine

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Multi-stakeholder education

The importance of multi-stakeholder education

Genetic medicine offers potentially long-term, transformative benefits for patients with rare genetic diseases by eliminating the need for ongoing therapies or reducing the burden of frequent disease management[1,2].

Gene therapy is a technique that can treat a disease by modifying or manipulating the expression of an individual's genes[3]. Since there are many possible ways to modify genes, a range of approaches to gene therapy can be used[4]. For example, gene transfer is the addition of a working gene that provides a target cell with instructions to produce more of a needed protein. Vectors, such as modified viruses, can deliver this working gene to the cell's nucleus. Gene editing is a different method that corrects pieces of deoxyribonucleic acid (DNA) by changing or deleting information within an individual's gene. Finally, with gene silencing, delivered genetic material can prevent or inhibit the activity of a gene already present in a target cell.

The inherent complexity of gene therapy and its various approaches requires extensive knowledge, and translation into clinical practice can be challenging. Although most people believe in the potential of gene therapy to bring about positive societal impacts and improve care for numerous diseases[5], the complexities and nuances of these technologies are often not fully known to all stakeholders[6].

Bridging this knowledge gap through multi-stakeholder education may support a greater understanding of gene therapy[6]. In particular, it can promote informed funding decisions by decision makers, a better understanding of the risk/benefit profile for patients and increased acceptance and uptake by clinicians.

Roundtable participants highlighted the need for multi-stakeholder education to equip decision makers, patients, and clinicians with a shared understanding of the promises and complexities of gene therapies.

To better understand how to enhance multi-stakeholder education for gene therapy, areas of focus for educational initiatives are identified for each stakeholder group below, followed by an outline of opportunities and best practices that emerged from the roundtable discussions.

Stakeholder Insights 1: Decision Makers

Decision makers' level of knowledge can impact funding and treatment access decisions. In particular, there is limited familiarity with the science behind gene therapies and their long-term efficacy and safety profiles. As discussed in the roundtable, a critical challenge for ensuring sufficient familiarity lies in the nature of gene therapy research studies being limited to small cohorts, and thus having limited data that can provide a basis for decision-making.

This limited availability of information expressed in policy-relevant terms[7] highlights the need for supportive evidence tailored to the diverse expertise of different decision-makers.

Several promising opportunities to enhance gene therapy education for decision-makers were discussed, drawing on examples from established best practices.

Gene therapy education should start with a basic understanding of the diseases it aims to treat, which are currently rare disorders, as 80% of rare conditions are genetic[8]. Education can subsequently be tailored to the diverse needs of various types of decision makers, including policymakers, health-technology assessment (HTA) bodies and payers, to adequately inform their decision-making. Below are potential focal points, but to optimize the development of tailored resources, decision-makers should be surveyed to better understand what would be most useful for each group.

Policymakers are likely to require a holistic and comprehensive perspective on gene therapy so they can decide which policies are needed to facilitate equitable patient access to effective care and treatment. This entails understanding the disease burden (i.e., how many of their constituents have that particular disease), basic scientific information, ethical considerations, and the economic impact that various care models or treatments can have on health systems and society.

For **HTA bodies**, a deeper understanding of the different types of gene therapies, the nature of the diseases they target, and the current treatment pathway may be most useful. This information is essential for accurately assessing the direct and indirect long-term benefits and value of gene therapies. Accurate assessments can further be supported by an understanding of the inherent challenges associated with gene therapy evidence generation, such as the necessity of single-arm trials, the small number of patients involved in clinical trials, and the uncertainties around long-term outcomes.

For **payers**, achieving alignment and consensus on what constitutes valid and sufficient evidence for gene therapy reimbursement may be the priority. This involves recognizing the challenges in gene therapy evidence generation and establishing clarity on the acceptable level of evidential uncertainty.

In terms of how information is provided, stakeholders (e.g., industry, scientific societies, patient organizations, advocacy groups) are currently often working independently, but collective efforts amongst them to support education for decision-makers can be more impactful. Close collaboration between stakeholders can enable resource-sharing and leverage combined expertise to amplify messaging and reach, ensuring decision-makers receive comprehensive and multifaceted information on gene therapies.

Such communication can come in various forms. Regularly scheduled communication, such as periodic briefings and meetings tailored to the information needs of specific audiences, is a practical and effective approach.

Additionally, leveraging diverse communication channels such as email updates or workshops can broaden outreach and cater to varied information preferences.

Providing sufficient information for stakeholders can better enable patient access to promising innovative therapies. For example, it can support informed planning sessions between HTA bodies and manufacturers ahead of new therapy submissions, to effectively identify how to meet evidence requirements within the challenges gene therapies face.

Best practices

American Society of Gene + Cell Therapy

The American Society of Cell and Gene Therapy (ASGCT) sends a monthly educational newsletter to Legislative Staff in the United States (US), which receives high interest levels amongst policymakers and staff members.

The content they provide comes from their patient information website and is communicated specifically for audiences who may not have a scientific background.

ASGCT conducts congressional briefings, providing information on several diseases and detailing how policymakers can support access to new treatments.

For example, in 2019, they co-hosted a congressional briefing on sickle cell disease (SCD), highlighting how policymakers can support SCD screening, treatment development, and patient access to new therapies[9].

European Alliance for Transformative Therapies

The TRANSFORM MEP Interest group brings together Members of the European Parliament (MEPs) committed to supporting access to CGTs with the aim of informing and educating decision makers who shape policy and legislative frameworks[10].

The interest group organizes events targeted at decision makers. For example, in October 2023 they hosted a conference titled: "Countdown to EU elections: How can policymakers secure the promise of advanced therapies for patients over the next 6 months?"

policy connect

Policy Connect is a cross-party think tank based in the United Kingdom that brings together parliamentarians and government to shape public policy. Policy connects focuses on several policy areas including health.

The think tank organized an event related to CGTs in July 2021 titled "The Future of Medicine? Policymakers debate Cell and Gene Therapy", which aimed to raise awareness of the barriers and opportunities associated with these new treatments among policy makers[11].

Stakeholder Insights 2: Patients

The complex landscape of gene therapy information can pose a significant challenge for patients seeking to manage their conditions effectively. Access to reliable sources enables patients to make sufficiently informed decisions and become active participants in their healthcare journey[12]. In contrast, inadequate information may often lead to feelings of resignation and fear[13].

Despite healthcare professionals (HCPs) being patients' most common and trusted source of information[14], patients often seek additional information from alternative sources. In this process, they may face difficulties judging the reliability of information and distinguishing between credible and non-credible sources, which can result in misinformation[15]. In particular, the internet has become a prominent source of health-related material, exposing patients to a high volume of potentially misleading information[16]. Additionally, differing education levels, health literacy disparities and language barriers can present additional obstacles for patients trying to find reliable information[17].

This lack of adequate information may result in patient optimism not being based on a comprehensive understanding of gene therapy or the patient's eligibility requirements for treatment.

The provision of clear information and education is particularly relevant in the context of shared decision-making in which HCPs and patients jointly reach treatment decisions[18]. Patients must understand both the promise and the realities of gene therapies to weigh the associated risks and benefits appropriately and make informed decisions about their treatment. This is particularly important because many of the gene therapy approaches are currently one-time treatments, which may limit future therapy options.

The scarcity of accessible and reliable resources that address differing patient knowledge levels and offer a balanced perspective on gene therapies can negatively impact informed patient decisions and therapy uptake.

As highlighted by roundtable participants, basic and tailored educational programs are needed to provide a clear and accurate understanding of gene therapy fundamentals for patients, including potential risks and benefits.

> **Several promising opportunities to improve patient education were discussed in the roundtable, drawing on examples from established best practices.**

Gene therapy education for patients and caregivers can be supported through accessible educational programs, delivered through diverse channels on different topics. This can help patients and caregivers better understand important aspects of gene therapy, including how it works, diagnosis and treatment, and eligibility.

Such programs can be designed and delivered by various stakeholders, such as scientific societies, patient organizations, research consortia, industry, or collaborations.

Best practices

ASGCT offers an online patient education program to provide accurate and reliable information to patients on gene therapy and the challenges associated with the diagnosis and treatment of genetic diseases[19].

The program covers various aspects, including an overview of how gene therapy works for specific diseases and guidance for patients navigating the diagnosis and treatment process.

The Alliance for Regenerative Medicines (ARM), together with member patient organizations and academic centers, has organized educational activities targeting patient organizations and scientific societies. For example, in June 2024, they organized a session[20] to:

- *Discuss the upcoming Joint Clinical Assessment (JCA) for advanced therapy medicinal products (ATMPs), including gene therapies, which aims to harmonize the evaluation of clinical benefit Europe through a single HTA assessment.*
- *Engage stakeholders on the challenges surrounding the JCA and their impact on patient access and the ATMP ecosystem.*

The National Organization for Rare Disorders (NORD), in collaboration with ASGCT, hosted a webinar for patients and caregivers on the basics and different approaches to gene therapy[21].

The agenda of the webinar included several topics, such as:

- *Understanding the basics: an introduction to key gene therapy concepts, the different types of gene therapy, and the role of viral vectors and protein production.*
- *Landscape of gene therapy: a review of gene therapy research and development to understand the challenges and growth within the field.*

Parent Project Muscular Dystrophy (PPMD) launched a gene therapy hub to provide patients and their families with reliable resources for understanding the basics of gene therapy and navigating through clinical trials and results[22].

The hub includes resources such as:

- *Overview of gene therapy basics in Duchene Muscular Dystrophy (DMD) and a video series exploring different topics in gene therapy.*
- *Information about the latest developments in gene therapy for DMD, eligibility and access to existing therapies.*
- *A platform to navigate through clinical trials that are currently enrolling or expected to begin enrollment.*

Stakeholder Insights 3: Clinicians

Although many clinicians have a positive attitude toward gene therapy, their exposure to specific details and intricacies may be limited due to the novelty of these treatments[23]. Firstly, clinicians may not have sufficient information on gene therapy. For example, a survey of 84 physicians involved in the care of people with haemophilia worldwide highlighted that more than 50% of them would need education on topics such as safety, eligibility, and clinical trial results[24]. Additionally, a lack of sufficient information may amplify concerns around long-term outcomes, safety, and efficacy of gene therapies, which can result in some clinicians opting for alternative, more established therapies instead[25].

This approach and the provision of inconsistent or conflicting information may lead to patient frustration[6].

Evidence-based education on clinical trial results, patient eligibility and safety considerations is essential to prepare clinicians for the integration of gene therapies into clinical practice[26]. It is particularly important for primary care physicians and frontline practitioners to have specialized education on diagnostics, genetic sequencing, and the necessity for timely treatment initiation to help address diagnosis delays[26]. Their limited time can make it difficult to get the appropriate information to clinicians[26], so pragmatic approaches are necessary.

Several promising opportunities to develop educational programs for clinicians were discussed in the roundtable, drawing on examples from established best practices.

A number of organizations have existing examples of educational models for clinicians (e.g., ASGCT). In other instances, institutions have implemented educational activities to improve the diagnosis of genetic disorders and access to available treatments for those conditions.

To ensure an efficient use of resources, such models and activities could be leveraged as trusted examples to expand and/or adapt gene therapy education for clinicians.

Best practices

The European Association for Hemophilia and Allied Disorders (EAHAD) established a working group in 2019 to provide information to HCPs on practical and safety-related aspects of gene therapy[27].

Their latest webinars include:

- *19 October 2023: Relevance of anti- adeno-associated viruses antibody testing in hemophilia gene therapy*
- *16 March 2023: Liver health and gene therapy - what you need to know*

Translational Research in Europe for the Assessment and Treatment of Neuromuscular Disease (TREAT-NMD) is a global organization that brings together experts in the field of neuromuscular disorders, including leading specialists, patient groups and industry representatives. The organization has been delivering educational masterclass programs since 2015, contributing to the education of 1000+ HCPs, researchers and health providers[28]. Masterclasses aim to provide updated information on diagnosis, standards of care and new therapies, and allow participants to network and share best practices.

ASGCT has collaborated with the Muhimbili University of Health and Allied Sciences to create a course providing essential knowledge and skills to educate medical students on the latest developments in clinical gene therapy[29].

The topics covered include the genetics of human disorders, an overview of gene therapy, and the role of patient advocacy groups and international partnerships in promoting access to novel therapies.

The Australian Health Genomics Policy Framework is dedicated to enhancing the genomics literacy and proficiency of the healthcare workforce by[30]:

- *Creating, delivering and continuously updating education, training, and skills.*
- *Building the capacity and promoting access to a skilled genomic workforce through planning at the national level.*
- *Facilitating partnerships and networks that support knowledge sharing.*

Evidence-based information from reliable sources can prepare clinicians for the integration of gene therapies into the current treatment paradigm, enabling them to appropriately guide and educate patients. Contextual considerations are essential in tailoring education, ensuring that efforts are adapted to clinicians' gene therapy experience and according to their specialty and disease area.

As suggested in the roundtable, two distinct types of educational materials or activities can be developed. The first should be geared toward clinicians with limited gene therapy experience who may have concerns about these treatments.

The second type should focus on expanding more experienced clinicians' knowledge and confidence.

Additionally, continuous and regular education is crucial for healthcare professionals. As new therapies emerge, it is vital to update educational resources to ensure that clinicians stay informed and are equipped to identify patients who are eligible for gene therapy. Since clinicians are required to obtain Continuing Medical Education (CME) points to maintain their license, there is an opportunity to implement educational initiatives focused on gene therapies within the CME framework.

American Society of Gene + Cell Therapy

ASGCT and NORD delivered a two-part virtual CME program, to explain the potential of gene-based treatment approaches, which is available to view on demand[31].

Some of the topics covered include gene transfer, editing, silencing and RNA based approaches as well as implications for patient management following gene therapy administration.

The opportunities and best practice examples discussed here highlight that multi-stakeholder education is both feasible and valuable. Such education can provide a common basis for decision makers, patients, and clinicians to understand the promises and complexities of gene therapies.

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