

Integrates Genetics and Genomics in Medical Practice

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Abstract

Genomic medicine, the field that integrates genetics and genomics into medical practice, has experienced remarkable advancements in recent years. As this discipline becomes increasingly integrated into healthcare systems worldwide, various rhetorical approaches have emerged in discussing its significance and implications. In this article, we will explore the rhetoric surrounding genomic medicine from three distinct angles: as an exceptional breakthrough, as an ordinary aspect of modern medicine, and as an ethical obligation. Each perspective sheds light on different facets of genomic medicine's role in shaping the future of healthcare. One of the prevailing rhetorical narratives surrounding genomic medicine portrays it as an exceptional, paradigm-shifting breakthrough in the field of healthcare. In this view, genomics is positioned as the cornerstone of a new era in medicine, offering revolutionary insights and transformative capabilities. Here are some key arguments and considerations within this rhetoric.

Keywords: Genomic medicine • Healthcare • Diagnosis • Medical practice

Introduction

Proponents of the exceptional view emphasize the precision and individualization that genomics enables in diagnosis and treatment. They argue that genomic information allows healthcare providers to tailor medical interventions with unparalleled accuracy. The exceptional rhetoric often highlights the development of groundbreaking therapies, such as gene editing and personalized cancer treatments. These therapies are seen as game-changers that have the potential to cure previously untreatable diseases. Supporters of this view point to the rapid pace of genomic research, emphasizing the ever-expanding knowledge base that informs medical practice. They argue that genomics is at the forefront of medical innovation. Genomic medicine offers hope for individuals with rare genetic disorders who may have spent years searching for a diagnosis and treatment. The exceptional view underscores the potential to provide answers and solutions for these patients. Genomics has the potential to transform public health by allowing for more precise disease prevention and intervention strategies. This view highlights genomics as a tool for reducing the burden of diseases at the population level. An alternative perspective on genomic medicine positions it as an integral, everyday component of modern healthcare. In this rhetoric, genomics is presented as part of the natural evolution of medical practice, much like other established diagnostic and therapeutic methods. Advocates for the ordinary perspective argue that genomics is being seamlessly integrated into clinical practice. It is seen as part of the continuum of medical technologies that have become standard tools for healthcare providers. Genomic screening and testing are viewed as routine components of preventive care [1].

Literature Review

This rhetoric suggests that genetic information is becoming as common and accessible as other medical tests. Medical education has adapted to

include genomics as a fundamental component of training. This reflects the view that genomic literacy is a basic competency for healthcare professionals. Genomic information is presented as a means of empowering patients to take a more active role in their healthcare decisions. Patients are encouraged to view genetic data as one part of their overall health profile. Genomic medicine is framed as an interdisciplinary field that collaborates with other medical specialties. It is not isolated but part of a larger medical ecosystem. The third perspective on genomic medicine frames it as an ethical obligation moral duty to advance healthcare for the betterment of society. In this rhetoric, genomics is presented as a means of addressing healthcare disparities, promoting equity and ensuring the responsible use of genetic information. Genomic medicine is viewed as a means of reducing health disparities and addressing inequalities in healthcare access. It is seen as a tool for ensuring that all individuals benefit from medical advancements. The ethical obligation perspective emphasizes the importance of informed consent and patient autonomy in genetic testing and data sharing. It calls for transparency and safeguards to protect individuals' rights. Genomic research is framed as a responsibility to conduct ethically and transparently. This rhetoric calls for rigorous ethical oversight to prevent misuse of genetic data. Advocates for this view argue that genomics has implications for global health, including infectious disease monitoring and response. It is presented as a means of addressing global health challenges [2].

Discussion

Ethical obligation rhetoric underscores the importance of educating the public about genomics and genetics. It argues that genetic literacy is a fundamental component of informed decision-making. While these three rhetorical perspectives exceptional, ordinary, and ethical obligation. Therapies like gene editing are positioned as exceptional breakthroughs, but they also raise ethical questions about responsible use and potential unintended consequences. Routine genetic screening in newborns or prenatal care can be considered an ordinary practice, but it is underpinned by ethical principles of informed consent and patient autonomy. Rapid genomic research is an exceptional feature of genomics, but it is driven by an ethical obligation to advance healthcare equitably and responsibly. Patient-centered care, which incorporates genomic information, is an ordinary practice, but it aligns with an ethical obligation to prioritize individual well-being. The rhetoric of genomic medicine as exceptional, ordinary and an ethical obligation reflects the dynamic and multifaceted nature of this rapidly evolving field. While each perspective offers unique insights, they are interconnected and together provide a comprehensive view of how genomics is shaping the present and future of healthcare. Genomic medicine has the potential to be both exceptional in its breakthroughs and ordinary in its integration into healthcare systems, all while

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adhering to ethical principles that prioritize equity, transparency, and patient well-being. This multifaceted rhetoric underscores the complexity and promise of genomics in the pursuit of improved health and well-being for all [3].

The field of genomic medicine has captured the world's attention with its promises of personalized healthcare, targeted treatments, and transformative advancements in our understanding of human biology. The rhetoric surrounding genomic medicine can be seen from three distinct perspectives: as something exceptional, as an ordinary part of modern medicine, and as an ethical obligation. Each perspective offers a unique lens through which to view the potential, challenges, and responsibilities associated with this cutting-edge field. In this article, we will explore the rhetoric of genomic medicine from these three viewpoints and delve into the implications for healthcare, research, and society at large. The exceptional perspective on genomic medicine portrays it as a groundbreaking and revolutionary field that has the potential to redefine healthcare and our understanding of human genetics. Personalized Healthcare: Genomic medicine promises to provide treatments tailored to an individual's genetic makeup, revolutionizing patient care. By deciphering an individual's genetic code, healthcare providers can predict disease risks, select targeted therapies, and optimize treatment regimens. Through genomic screening and analysis, individuals can gain insights into their genetic predispositions to certain diseases. This allows for proactive disease prevention strategies, such as lifestyle modifications and early screenings, to reduce risk. Genomic medicine enables the development of precise and effective treatments for a wide range of diseases. By understanding the genetic underpinnings of illnesses, researchers can create therapies that target the root causes, improving outcomes and minimizing side effects [4].

The field of genomic medicine has led to significant scientific breakthroughs, including the Human Genome Project and the identification of numerous disease-associated genes. These advancements have expanded our knowledge of genetics and human biology. Genomic medicine has been particularly transformative for individuals with rare genetic disorders. It offers hope where there was previously few treatment options, as researchers can develop therapies specifically designed to address the underlying genetic mutations. From the perspective of it being ordinary, genomic medicine is seen as an integral and increasingly routine part of modern healthcare. Genomic medicine is becoming more integrated into routine clinical practice. Genetic testing, such as carrier screening for expectant parents or pharmacogenomic testing for drug selection, is increasingly commonplace. Genetic testing is used for diagnosing a wide range of conditions, from hereditary cancers to cardiovascular diseases. It is no longer reserved for rare diseases but has become an essential tool for identifying genetic components of common illnesses. Genomic information is used for preventive purposes, including identifying individuals at higher risk of conditions like heart disease, diabetes, or certain cancers. This allows for early interventions and tailored preventive strategies. Genomic information is accessible to patients, who can actively engage in their healthcare decisions. It fosters a sense of empowerment, as individuals gain insights into their genetic risks and can make informed choices about their health [5].

Genomic data, generated from routine genetic testing, contribute to ongoing research and innovation in healthcare. This iterative process fuels the development of new therapies and diagnostic tools. The perspective of genomic medicine as an ethical obligation highlights the moral imperative to harness the power of genetics for the betterment of society. Genomic medicine should be accessible to all, regardless of socioeconomic status or geographical location. Ensuring equitable access to genetic testing and treatments is seen as a fundamental ethical principle. The responsible use of genomic information requires informed consent processes that empower individuals to make autonomous decisions about genetic testing and participation in research. Ethical obligations include safeguarding the privacy and security of genetic data. Protecting individuals' genetic information from misuse or unauthorized access is paramount. Society has an ethical obligation to enact laws and policies that prevent genetic discrimination in areas such as employment, insurance, and access to healthcare. These measures protect individuals from discrimination based on their genetic information. Transparency in research and clinical practices ensures that individuals receive accurate and unbiased

information about the potential benefits, risks, and limitations of genomic medicine. The rhetoric of genomic medicine, whether exceptional, ordinary, or an ethical obligation, also presents several challenges and ethical dilemmas. As genetic data become more accessible, ensuring the privacy and security of this information is a constant challenge. Unauthorized access or misuse of genetic data could have serious consequences. Balancing the need for informed consent with the potential complexities of genetic information can be challenging. Individuals may struggle to understand the implications of genetic testing fully. Despite the ethical obligation to provide equitable access to genomic medicine, disparities in access and affordability persist, raising questions about social justice and fairness. While measures are in place to prevent genetic discrimination, challenges remain in enforcing these protections and addressing instances of discrimination [6].

Conclusion

Interpreting the clinical significance of genetic variants can be complex, leading to uncertainties in diagnosis and treatment decisions. The future of genomic medicine will likely be shaped by the convergence of these three perspectives. Genomic medicine will continue to integrate into routine clinical practice, with genetic testing becoming more commonplace for diagnosis, treatment selection, and preventive care. An ethical obligation to empower patients will drive patient-centered care, with individuals actively participating in their healthcare decisions based on genetic information. The ethical imperative to ensure equitable access to genomic medicine will lead to efforts to reduce disparities in access and affordability. Ongoing research and innovation in genomics will advance our understanding of genetic contributions to health and disease, leading to new therapies and interventions. Policymakers will play a pivotal role in shaping the ethical and legal framework surrounding genomic medicine, addressing issues such as privacy, discrimination, and informed consent. The rhetoric of genomic medicine, whether framed as exceptional, ordinary, or an ethical obligation, reflects the dynamic nature of this rapidly evolving field. Genomic medicine holds immense promise for personalized healthcare, disease prevention, and scientific discovery. However, it also presents complex ethical challenges related to privacy, equity, and informed consent. As genomic medicine continues to advance, it is crucial to strike a balance between harnessing its potential for the benefit of individuals and society while upholding ethical principles that ensure fairness, transparency, and respect for individual autonomy. Ultimately, the successful integration of genomics into healthcare will require ongoing dialogue and collaboration among healthcare providers, researchers, policymakers, and the public to navigate these ethical complexities effectively.

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Conflict of Interest

None.

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