Next generation medicine: Will the people who most need gene therapy and geneediting tools have access to them?

The next generation of advanced genetic therapies raises profound medical and ethical issues that must be thrashed out to ensure the game-changing technology benefits patients and society, a group of world-leading experts has warned.

Medicines based on powerful gene editing tools will begin to transform the treatment of blood disorders, conditions affecting the heart, eyes and muscles, and potentially even neurodegenerative diseases before the end of the decade, but the cost will put them out of the reach of many patients.

Trials of gene editing in embryos will probably follow, researchers say, and while the procedure has limited clinical applications, some fear fertility clinics could embrace the technology and offer gene editing services that fuel "a new kind of techno-eugenics".

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The experts, who range from geneticists and public health researchers to bioethicists and philosophers, expect a wave of gene editing therapies to reach clinics in the next five years or so. These will correct disease-causing mutations in patients' tissues and organs and become more sophisticated as researchers work out how to make multiple edits at once and reach difficult areas such as parts of the brain affected by neurodegenerative disease.

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