
Points to Consider Regarding the Efficacy and Safety of Embryo Selection through Polygenic Risk Score Assessment: An Analytical Statement

Description



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The utilization of polygenic risk score assessment in embryo selection is a pressing topic that commands earnest thought and investigation. Amidst the widespread debate, the authoritative Social, Ethical and Legal Issues Committee of the prestigious American College of Medical Genetics and Genomics (ACMG) has ventured forth with a newly contrived Points to Consider statement, with an earnest aim to augment the understanding of both healthcare professionals and patients regarding the probity, safety and practical application of preimplantation genetic testing for polygenic disorders (PGT-P).

A publication delineating, "Clinical Utility of Polygenic Risk Scores for Embryo Selection: A Points to Consider Statement of the American College of Medical Genetics and Genomics (ACMG)," has been showcased in the distinguished realm of genetic science titled, *Genetics in Medicine*.

At present, a select few commercial laboratories proffer PGT-P as an avant-garde methodology for prospective parents to meticulously screen for prevalent disorders, encompassing diabetes, cardiovascular



disease, and specific types of cancer. Despite its growing popularity, a limited number of scientifically sound studies testify to the validity of this method; none to date have embarked on a comprehensive assessment of its clinical utility.

Theresa A. Grebe, MD, FACMG, the preeminent lead author of the study, has highlighted the obstacles that have thus far impeded the path of PGT-P. "To deliver reliable counsel to our patients regarding the safety and efficacy of this test, we diligently undertook a pervasive analysis of PGT-P."

The brand-new ACMG Points to Consider statement outlines the current state of research centered around polygenic risk scores (PRS), and also explicitly lays out the pros and cons of PRS testing, the challenging aspects of in vitro fertilization that impact PGT in the setting of embryo selection, plus the hurdles encumbering the application of PRS data developed in adults to the area of embryo selection.

The collective authors jointly advise the implementation of further meticulous research and longitudinal studies preceding the responsible offering of PRS analysis for embryo screening. The risks harbored by PRS to the potential parent or future offspring currently outweigh any perceived benefits. This eminent team of researchers also propose that an inclusive group of stakeholders confront PGT-P's more comprehensive social, ethical, and regulatory issues.

ACMG President, Susan Klugman, avers, "It remains vital that any novel testing modality possesses clinical utility, inflicts no harm to patients and follows ethical principles diligently."

Unveiling the new tool, preimplantation genetic testing for polygenic disease risk, requires in vitro fertilization, and is proposed as an aid for embryo selection. "At this juncture in time, PGT-P is not recommended for clinical application, necessitating continuous research and societal guidelines," cautions ACMG.

More Information:

Clinical Utility of Polygenic Risk Scores for Embryo Selection: A Points to Consider statement of the American College of Medical Genetics and Genomics (ACMG), *Genetics in Medicine* (2024). [DOI: 10.1016/j.gim.2023.101052](https://doi.org/10.1016/j.gim.2023.101052)

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Vocabulary List:

1. **Polygenic** // (adjective): Relating to or determined by several genes.
2. **Embryo** // (noun): An early stage of development of a multicellular organism.
3. **Genomics** // (noun): The branch of molecular biology concerned with the structure, function, evolution, and mapping of genomes.
4. **Preimplantation** // (adjective): Occurring before implantation in the uterus.
5. **Validity** // (noun): The quality of being logically or factually sound; effectiveness.
6. **Comprehensive** // (adjective): Complete; including all or nearly all elements or aspects of something.

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. Which term refers to the rapid increase or spread of something?



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- Option: A) Proximate
Option: B) Affliction
Option: C) Proliferation
Option: D) Devastating
2. What are medications used to lower a fever called?
Option: A) Antipyretics
Option: B) Exacerbated
Option: C) Meningitis
Option: D) Polygenic
3. Which field of science involves the study of genes and their functions?
Option: A) Proximate
Option: B) Genomics
Option: C) Prescriptions
Option: D) Infamous
4. Which term means possibly or potentially?
Option: A) Conceivably
Option: B) Influx
Option: C) Coined
Option: D) Haemorrhage
5. What type of trait is influenced by multiple genes?
Option: A) Malicious
Option: B) Polygenic
Option: C) Validity
Option: D) Devastating
6. Which term means to spread or disperse something widely?
Option: A) Disseminate
Option: B) Anticipatory
Option: C) Malicious
Option: D) Comprehensive
7. What is a developing human or animal called in the early stages of growth?
Option: A) Infamous
Option: B) Embryo
Option: C) Interaction
Option: D) Malicious
8. Which term refers to a sudden arrival or increase of something?
Option: A) Devastating



- Option: B) Meningitis
- Option: C) Influx
- Option: D) Prophylactic

9. Which term indicates a desire to harm others or see them suffer?

- Option: A) Anticipatory
- Option: B) Malicious
- Option: C) Gamut
- Option: D) Haemorrhage

10. Which term means necessary and important as a part of the whole?

- Option: A) Convulated
- Option: B) Integral
- Option: C) Validity
- Option: D) Meningitis

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. The lack of rain _____ the drought situation in the region.
12. After the doctor's diagnosis he wrote several _____ for the patient.
13. The accident victim suffered severe internal _____ and required immediate medical attention.
14. The textbook provided a _____ overview of the history of ancient civilizations.
15. The doctor advised taking a _____ medication before traveling to the malaria-prone region.
16. The criminal became _____ for his notorious acts in the city.
17. The earthquake had a _____ impact on the entire community.
18. He spread _____ rumors about his colleague to tarnish her reputation.
19. The legal document was so _____ that it took hours to decipher its meaning.



20. The cause of the mysterious illness remained _____ despite numerous tests.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The two events happened at the same time and can be considered .
22. The experiment's results were questioned due to concerns about the of the data.
23. The cause of the fire was determined to be faulty wiring in the building.
24. Her excitement and nervousness before the job interview were due to her anxiety.
25. The term "global warming" was officially by scientist Wallace Smith in the 1970s.
26. The film festival showcased a of cinematic genres from around the world.
27. Height is an example of a trait influenced by multiple genes.
28. Her role as a teacher allows her to knowledge and inspire a love of learning in her students.
29. Doctors prescribe to reduce fever and alleviate symptoms of the flu.
30. Before traveling to a malaria-infested region it is advisable to take measures like using mosquito nets.

Answer

Multiple Choice: 1. C) Proliferation 2. A) Antipyretics 3. B) Genomics 4. A) Conceivably 5. B) Polygenic
6. A) Disseminate 7. B) Embryo 8. C) Influx 9. B) Malicious 10. B) Integral

Gap-Fill: 11. exacerbated 12. prescriptions 13. haemorrhage 14. comprehensive 15. prophylactic 16.
infamous 17. devastating 18. malicious 19. convoluted 20. intracable

Matching sentence: 1. concurrent 2. validity 3. proximate 4. anticipatory 5. coined 6. gamut 7. polygenic
8. disseminate 9. antipyretics 10. prophylactic

CATEGORY

1. Health - LEVEL6

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