FIGURE 3 PRECISION MEDICINE

Patients diagnosed with cancer

Factors contributing to the uniqueness of each person and his or her cancer

Precision medicine

Generate patient's personal and cancer profile

- Race/ethnicity
- Family history
- Patient and tumor genome and epigenome
- Gender and age
- Disease presentation
- Lifestyle and environmental exposures
- Socioeconomic status
- Geography
- Unknown factors
- Microbiome
- Metabolic profile
- Immune profile
- Reproductive and medical factors and comorbidities

Patient's profile determines best treatment strategy
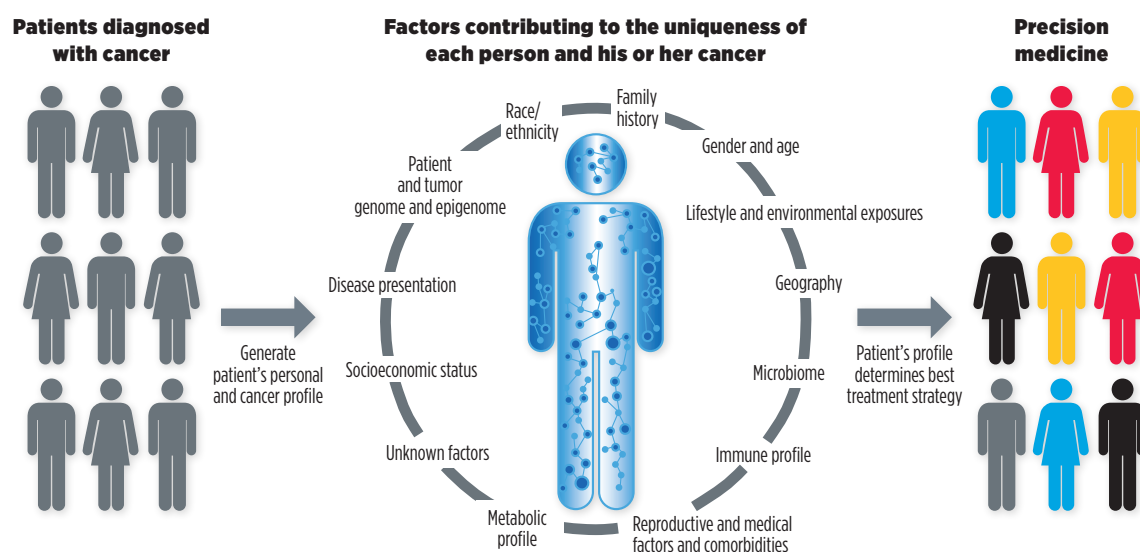
Precision medicine is broadly defined as treating patients based on characteristics that distinguish them from other patients with the same disease. As shown in the figure, the factors that contribute to the uniqueness of a patient and his or her cancer include, but are not limited to, the person's genome, the genome and epigenome of his or her cancer, the immune characteristics of the person and his or her cancer, disease presentation, gender, exposures, lifestyle, microbiome, and other comorbidities. Currently, genomics is the predominant factor influencing precision medicine, but as we learn more about the additional factors, we can create an even more personalized approach to cancer treatment. It is important to note, however, that the cost effectiveness of such profiling still needs to be evaluated alongside ongoing efforts to define which and to what extent such profiling improves outcomes for individuals.

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