

# P5 medicine: a plus for a personalized approach to oncology

Alessandra Gorini and Gabriella Pravettoni

The March 2011 issue of *Nature Reviews Clinical Oncology* included a focus on personalized cancer medicine. Of particular interest was the article by Leroy Hood and Steven Friend (Hood, L. & Friend, S. H. Predictive, personalized, preventive, participatory (P4) cancer medicine. *Nat. Rev. Clin. Oncol.* **8**, 184–187).<sup>1</sup> As stated by Lisa Hutchinson in the accompanying Editorial, personalized medicine requires consideration because “each cancer is as individual as the patient”<sup>2</sup>.

The ‘P4 medicine’ approach is an extension of personalized medicine and encompasses predictive, personalized, preventive and participatory aspects.<sup>1</sup> P4 medicine aims to understand the complexity of biological networks governing the carcinogenic process and uses this information to provide better patient care. Once educated about the power of this approach, patients will become partners of clinical trials increasing their voluntary participation and, as stated by its proponents, medicine will change “from a reactive to a proactive discipline”<sup>1</sup>.

Although the P4 approach is farsighted compared with the more-traditional personalized medicine perspective, we argue that it lacks a consideration of the psychological needs and values that make each individual unique. Our aim is to give more prominence to the behavioral and psycho-cognitive components that affect how individuals act to prevent, cope and react to illness, decide about different therapeutic options, interact with health care providers and adhere to treatment. All these factors are so essential that we suggest transforming P4 medicine into ‘P5 medicine’, with the ‘fifth P’ standing for the psycho-cognitive aspects.

To pursue these objectives, it is necessary to empower patients in the health-care decision process and in clinical research. The life expectancy of cancer patients and the efficacy of therapy are often uncertain; therefore, patients should be involved in all treatment decisions to be able to identify the best options for them.<sup>3</sup> To achieve this,

patients need to receive clear information about their disease and the available therapeutic options. In addition, it is critical to improve the informed consent process by providing patients with clear and personalized documentation. This information and support allow patients to decide about their medical care, weighing the benefits, risks and alternatives of proposed interventions to ensure that the care they receive reflects their goals, preferences, and values. An example of an innovative informed consent is the iMedConsent™ software currently used in the Department of Veterans Affairs hospitals. The advantage of using a computer-based tool is that the program content can be continuously updated to include new medical information, and personalized to reflect individual patient risks.<sup>4</sup>

Another point linked to the ‘fifth P’ is quality of life. Typically, patients undergo palliative interventions (such as conservative surgery, radiotherapy and chemotherapy), that influence their quality of life to a variable degree depending on their age, family, work and social conditions, personal needs, values and aspirations.<sup>5</sup> In this situation, the doctor–patient relationship can be a crucial element for prognosis that can improve the patient’s quality of life and treatment adherence.<sup>6,7</sup> Moreover, the perception of the physician’s approach as adapted to patient needs seems to be associated with a reduced incidence of depression and anxiety,<sup>8,9</sup> which can preserve therapeutic adherence and immunity capacities.<sup>10,11</sup>

How is it possible to convey a substantial amount of complex, individualized, well-balanced information and to collect the patient’s preference and needs during the traditional physician–patient encounter? We believe that technology can help us. Indeed, although physicians should establish trust and be available to answer questions, interactive, computer-based programs that provide personalized information—possibly used under the supervision of an educated health care professional—might be

## Box 1 | Advantages of P5 medicine

- Engaging patients in personalized treatment as well as management plans
- Bolstering the responsibility of patients for their own health care
- Giving instruments to assess and empower patients quality of life
- Reduced side effects and improved treatment efficacy
- Support for physicians to better guide patients in making their choices

suitable and practical vehicles for improving information collection and patient understanding,<sup>4</sup> with the advantage of reducing the influence of physician preference.<sup>12</sup> Evidence-based, interactive decision tools have demonstrated positive effects on the knowledge of cancer patients, as well as an ability to promote realistic expectations, foster patient participation in decision making and decrease decisional conflict.<sup>13</sup>

The P5 approach to medicine has many advantages (Box 1). Taking into account not only that each patient has a unique set of genes and circumstances that influence their expression, but also their personal framework of preferences and values and unique psychological and cognitive style, the shift in health care from illness to wellness proposed by the P4 approach should become even more feasible.

Department of Social and Political Studies, University of Milan, Via Conservatorio 7, 20122 Milan, Italy (A. Gorini, G. Pravettoni).

Correspondence to: A. Gorini  
alessandra.gorini@unimi.it

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## Competing interests

The authors declare no competing interests.

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