Book Review: Socio-economics of personalized medicine in Asia

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Personalised medicine – tailoring medical practices to individuals based on genetic constitution to enhance diagnosis and treatment – is poised for rapid growth in Asia. However, most literature focuses on scientific perspectives in European and North American contexts. Shirley Sun’s new book bucks this trend with a sociological investigation of personalised medicine in Asian countries. It breaks new ground by problematising the obsession in medicine and drug development with ethnicity and race as a proxy for human genetic diversity.

The book focuses on cancer treatment and research, the most popular application of personalised medicine, and the Human Genome Organisation’s (HUGO) Pan-Asian Single Nucleotide Polymorphism (SNP) Consortium which conducted the largest survey of genetic diversity among Asians. The first chapter sets the scene with a succinct introduction to ethnicity, race, and personalised medicine, and the emphasis on a tension between the promise of targeting individuals and the reality of group and population approaches. According to Sun, limited availability of cost-effective genetic testing for individuals underpins a tendency to take ethnic and racial groups as genetically distinctive populations. This uncritical conversion of socially constructed concepts into genetically meaningful categories is challenged further in the second chapter, with reference to research findings by the SNP Consortium which reported that most ethnic and linguistic populations show genetic relatedness. Sun teases out the limitations of using ethnic and racial categories in genetics research, and draws analogies with other examples of categorisation errors in history, such as nation-state building in Europe and Japan.

Chapters three and four examine these issues in drug development, and public health and genomic research policy-making. In chapter three, Sun alleges that a major pharmaceutical company began targeting a lung cancer drug to Asian countries following poor performance in clinical trials in the United States. Although successful treatment depended on the presence of mutations in tumour tissues, clinical trial results hinged on race (Asian or non-Asian) rather than mutation status. Sun argues that this was a misappropriation which only served the interests of the pharmaceutical industry through mitigating costs, gaining regulatory approval, and targeting overseas markets. In chapter four - a case study of cost-effectiveness analysis in public health resources in Singapore - scientists reported using the country’s official population indicators as genetically-distinct populations, despite the availability of alternative criteria. Sun rebuts Singapore’s public policymaking with a review of the historical formation of ‘Malay’, which demonstrates the reification of simple ethnic and racial categories.

Chapter five considers the perspectives of medical oncologists in Singapore who argue that genetic testing should be available for every patient, and treatment decisions should only be based on ethnicity or race as a last resort or in preliminary research. Ironically, despite these arguments, limited resources and training requirements mean that they still rely on these socially constructed categories when prescribing drugs to patients. Chapter six highlights other barriers impeding personalised medicine, such as accessibility, training needs of doctors, prohibitive costs, privacy, and racial discrimination. Notably, high costs mean that personalised medicine is priced out of reach for many patients with low incomes or no health insurance – an ethical dilemma for doctors. Treatment costs are also a challenge for healthcare funders, such as governments, insurance companies, and society. Limited long-term benefits also mean patients and families face moral questions about the value of a few extra months of life. In what follows, Sun questions whether personalised medicine should become the gold-standard for cancer treatment.
Overall, the book offers intriguing insights about how cutting-edge developments in medicine and scientific research are embedded in complex social and historical contexts. Its sociological and Asian foci are welcome additions to a literature dominated by scientists in Europe and the United States. It should have wide appeal as the number of clinical trials in Asian countries is increasing. However, the book has a number of weaknesses. There is, for example, a lack of engagement with wider literature on identities and ethnicity in health research and practice. In addition, detail about the methodology of Sun’s interviews and data analysis is slim. Interview quotations in several chapters require further analysis as well as interweaving within the main storyline. There are also issues with organisation, style, and clarity. Some sections could be combined, expanded or moved to other chapters. The chapter conclusions do not always summarise their respective chapters, but introduce new data and quotes, as does the concluding chapter. However, these minor issues do not detract from the book’s important take-home message, namely, that although personalised medicine will continue to improve cancer diagnosis and treatment, we must consider its limitations. I highly recommend Sun’s book to social scientists, doctors, scientists, politicians, and anyone interested in the history and practice of medicine and drug development.

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