Breast reconstruction

Valorization

By law, Dutch universities have three main tasks: to educate at an academic level, to conduct scholarly research, and to ensure that research findings impact society. Valorization is the term that governmental and university policymakers use to denote this pros of "translating academic wisdom to societal benefit". This chapter outlines the valorization potential of the research findings presented in this thesis.

Data is the economy's new oil. It offers great potential to improve people's daily life, notably when it comes to their health. Harnessing the billions of terabytes of data generated across the world could radically transform healthcare, increase the quality of care and potentially save millions of lives. In this thesis, we used big data to elaborate on some of the non-clinical key questions related to breast reconstruction in patients diagnosed with breast cancer.

Do all breast cancer patients have the same access to high-quality care? Using big data, we evaluated the trend over time and examined disparities in different types of breast reconstructive techniques in chapter 1 and 2. Demonstrating significant disparities in different types of breast reconstruction performed throughout the United States, these studies showed that differences in sociodemographic and hospital variables affect the type of procedure performed in the different regions of the United States. Disparities come in different types and forms, including age-related disparities. We demonstrated this in chapter 4 where we evaluated if elderly breast cancer patients receive the same standard of care when compared to their younger counterparts. As physicians, we have the responsibility to provide the highest standard of care for each patient. In order to be aware of the shortcomings, we need data. In this thesis, we demonstrated that big data in the form of large-volume databases is an excellent tool to evaluate, assess, and demonstrate these shortcomings.

When we have a clear view of what must be improved to be able to provide the highest standard of care, the road opens for action. Healthcare policy is an excellent way to address and tackle these shortcomings. When laws or legislations are implemented, its effects can consequently be evaluated using big data, as we did in chapter 3. This chapter demonstrated that despite implementation of the WHCRA, significant disparities still exist. While an increasing number of women opted for breast reconstruction in the years after the WHCRA, this trend was not consistent across all demographic or racial groups. Having data, the community was able to assess what intervention was needed in order to reach the vulnerable target groups. As a result, the "Breast Cancer Patient Education Act of 2015" was introduced with the goal of increasing awareness on the availability and coverage of breast reconstruction, especially for racial and ethnic minority groups. This being said, we must keep in mind that the quality of data is important to draw the correct conclusions (Chapter 7). Moreover, in the final chapter of this thesis we conducted a proof of concept study comparing data between two different countries. The ability to compare these data across populations and time points can facilitate new scientific discoveries, faster access

to treatment intervention, and enable differences between populations to be delineated.

The relevance of the outcomes of this dissertation of patients include better access to high-quality care. Policymakers can use the result of this dissertation implement laws and legislations to improve access to care and reduce disparities. The papers published in this thesis have led to different press-releases by the American Society of Plastic Surgery. As a result of this thesis, a symposium will be organized after the Ph.D. defense, bringing together different stakeholders in the field of big data and healthcare. As demonstrated in this dissertation, there is a great potential in big data. Big data should be embraced in order to improve patient care.