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Ethical Counselling and Medical Decision-Making in the Era of Personalised Medicine

A Practice-Oriented Guide



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About the Book

This book offers an overview of the main questions arising when biomedical decision-making intersects ethical decision-making. It reports on two ethical decision-making methodologies, one conceived for the patients, the other for the physicians. It shows how patients' autonomous choices can be empowered by increasing awareness of ethical deliberation, and at the same time, it supports healthcare professionals in developing an ethical sensitivity, which they can apply in their daily practice.

The book highlights the importance and relevance of practicing bioethics in the age of personalised medicine. It presents concrete case studies dealing with cancer and genetic diseases, where difficult decisions need to be made by all the parties involved: patients, physicians, and families. Decisions concern not only diagnostic procedures and treatments, but also moral values, religious beliefs, and ways of seeing life and death, thus adding further layers of complexity to biomedical decision-making. This book, which is strongly rooted in the philosophical tradition, features non-directive counselling and patient-centeredness. It provides a concise yet comprehensive and practice-oriented guide to decision-making in modern healthcare.

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Giovanni Boniolo

Abstract We introduce the issue of the Ethical Counselling, showing its usefulness to improve patients' awareness on the ethical choices they may be asked to do whenever clinical options raise ethical dilemmatic situations.

Patient first: i.e., patients' quality of life and the imbricated quality of their decisional process.

Case 1

Giovanna (38) is a single mother of two children (5 and 3). At the age of 25, she was diagnosed with breast cancer but thanks to the early diagnosis and good response to treatment she recovered. There is a known history of cancer in Giovanna's family: her father died of colon cancer, her paternal aunt had breast cancer, and two of Giovanna's cousins also developed tumours. As doctors suspected, Giovanna has been tested positive for TP53 mutation. This particular germline mutation is associated with Li-Fraumeni syndrome, which indicates the increased risk (up to 85 %) of developing tumours in early adulthood: bone and soft-tissue sarcoma, premenopausal breast carcinoma, leukaemia, brain cancer, and adrenocortical carcinoma. Some of these cancers also affect children. Giovanna knows that the father of both children does not have any history of cancer in his family and TP53 mutation, being a dominant autosomal disorder, implies that there is 50 % chance that each of her children inherited TP53 mutation from her. Giovanna is thinking about testing her children for TP53 mutation, but her religious mother keeps telling Giovanna that she should rely on God's will. Meanwhile, Giovanna wants to protect her children from having to face cancer but is not sure if undergoing the testing is the right thing to do. She is also feeling

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uneasy about managing the information in case one or both of her children test positive. What will she be expected to do with such information? Will she be obliged to communicate the results to the children? If so, when and how should it happen?

Case 2

Claudio (29) is a cancer survivor, who had his semen collected and frozen before undergoing chemotherapy when he was 15 years old. His parents chose a private cryostorage facility and paid all the costs. Now, they cannot wait to have a grandchild. Claudio and his partner Francesca (32) have been trying to conceive a baby without success. Recently, they were seen by a fertility specialist who explained that intracytoplasmatic sperm injection (ICSI) would be the best option with an estimate for a successful pregnancy ranging up to 37 %, noting that research has been limited and these numbers come from very small, single site studies. Moreover, choosing this option would expose Francesca to numerous medical procedures (retrieving the eggs, transferring the embryos to her uterus, etc.). Claudio is not sure if it is fair on Francesca to expose her to all these interventions when success rates are just about one-third. In addition, Claudio is also concerned that his cancer might recur and he might die before his child is independent. Should Claudio do everything possible to become a parent?

Case 3

Anna (27) comes from a small village in the south of Italy. She is married to Matteo, and they have a 3-year-old son. Their attempt to have a second child resulted in two miscarriages. However, Anna just discovered that she is again two months pregnant. Soon after, she felt something strange under her arm and went to see her doctor. The diagnosis was dreadful: oestrogen-positive breast cancer! Anna was offered three therapeutic paths which could be followed in order to treat her disease: (1) standard treatment which is not compatible with pregnancy; (2) surgery followed by adapted chemotherapy which is compatible with foetal development but has lower response rate to treatment; (3) just surgery, postponing all other treatments until after the delivery of the baby. Matteo is categorically against any choices that could compromise Anna's survival. What should Anna do?

Case 4

Julie (41) is married for ten years to Philip. They are both lawyers and only recently decided to have kids. Because of her age, and in order to increase her chances of pregnancy, Julie decides to undergo assisted reproduction, more specifically in vitro fertilisation (IVF). IVF is successful, two embryos are implanted in utero and both attach, giving rise to a twin bicorial pregnancy. After fifteen weeks of gestation, Julie undergoes amniocentesis at the local department of medical genetics. Amniocentesis is a prenatal test that is routinely offered to women who are at an increased risk for bearing a child with birth defects or chromosomal aberrations, like Down's syndrome. The outcome is unusual: although the twins are males, one of them has the normal karyotype (XY), while the other has an extra male (Y) chromosome. This condition, known as YY syndrome, does not give rise to

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severe clinical implications. However, the medical geneticist explains to Julie that, with a certain likelihood (around 50 %), affected individuals may develop mild language and learning impairments, in particular they may show the symptoms of attention deficit hyperactivity disorder (ADHD). With respect to IQ levels, however, XYY children do not show any significant difference with children having the XY karyotype. The physician also reassures Julie that the studies that in the past associated the YY syndrome with severe psychiatric disorders leading to criminal attitudes are now dismissed by the medical community as scientifically flawed. Julie is a positive and confident person and, in agreement with her husband, decides she will not submit the kids to postnatal testing in order to identify who of them is affected by the YY syndrome. Her motivations are as follows: "I do not want to discriminate among them. If they should want to know, they will test as adults". Is Julie and Philip's choice not to test the twins ethically acceptable?

Case 5

Veronica, 45, is married with two children. Her friend Sara just got a positive result from her mammogram and the following biopsy confirmed a breast cancer for which she underwent surgery and chemotherapy facing severe side effects. Thus, Veronica decides to ask her doctor whether she shall go for a mammography. The physician performs a clinical breast examination, a physical examination to check for lumps or other changes that suggest a possible cancer lesion, and finds nothing strange. Veronica has no family history of breast cancer, but still she was 37 years old at the birth of her first child and she is now 45. The physicians points out the potential benefits and harms of breast cancer screening test in Veronica's clinical case by presenting her with statistical data on mortality reduction, the probability of false-positive results and overdiagnosis, combined with the patient's anamnesis and the absence of sign or symptoms. Veronica and her husband are facing a dilemma. On the one hand, they are worried about possible life-threatening conditions and they want to be sure everything is fine even though she is asymptomatic. Therefore, Veronica might to undergo a mammography screening claiming, "I know about possible harmful outcomes, but I rather be safe than sorry. I'm sure my children would agree". On the other hand, Veronica is very touchy and sensitive about medical procedures and she is worried about undertaking useless and potentially harmful medical practices. Therefore, she might decide not to undergo a mammography screening claiming, "I was impressed by Sara's story, but why should I check if I'm feeling well?".

These are just some exemplary cases in which patients in clinical settings must navigate not only between *clinical* but also between *ethical* options. Indeed, the complexity of all these and similar cases stems from the fact that each of them raises two kinds of interrelated yet distinct questions: questions concerning the clinical side of the cases, and questions concerning patients' values, moral sensitivity, and ethical perspectives.

Of course, not every clinical decision raises relevant ethical questions. However, as both doctors and patients are well aware of, routine clinical practice is fraught with difficult situations in which what *should be done* at the clinical level appears

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unclear because it is unclear what *ought to be done* at level of the moral options at stake. Whenever this happens, one can say that one is facing not only a clinical but also an *ethical decisional problem*, which sometimes could become an *ethical dilemma*. A dilemma is a decisional conflict occurring within a single agent whenever he/she must decide between two or more mutually exclusive courses of action, so that selecting one option necessarily results in discharging the other. The peculiar feature characterising *ethical* dilemmas is that the reasons that the agent provides in favour of one of the two alternatives are specifically *moral* reasons, that is, reasons concerning moral principles and values.¹

But how do people decide when they face an ethical decisional problem? To answer this question, it is worth looking at a series of recent empirical findings about human moral decision-making.² For our purpose, the results of these empirical studies can be summarised in four general statements, which we co-opt hereafter among the grounding assumptions of our view about how ethical decisions in clinical settings should be approached. First, humans are morally flexible. This means that rather than deciding and judging on the basis of a well-constructed moral theory, most people tend, instead, to decide and judge according to a vaguely structured moral framework and the requirements of the social context they are part of. This almost unstructured moral framework that human beings seem to possess constitutes a sort of normative toolkit of decisional heuristics the subject makes use of every time a moral decision has to be taken. Second, this "moral toolkit" is almost always unconsciously assumed, and it usually reflects the influence of many biographical variables (personal history, culture, tradition, etc.). Third, emotional reactions depend on complex moral judgements. Experimental moral philosophers have also pointed out that the first automatic, apparently purely emotional answer to a moral demand is actually rooted in normative principles ("I must ...") or in rightful claims ("I have the right to ...") belonging to that moral framework. Finally, one's morality may not be negotiable. As other researches have emphasised, people often possess moral values and principles that they consider as unquestionable or sacred.

Once considered together, these assumptions support the view that, (i) in face of the same ethical dilemma, different persons may take different decisions because they rely on a diverse, often unique set of moral tools, heuristics, and guiding principles; (ii) this moral toolkit is often unconscious, and therefore, despite

¹For a deeper introduction on the concept of ethical dilemmas see McConnell T (2014) Moral Dilemmas, The Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/archives/fall2014/entries/moral-dilemmas.

²See, for example, Bartels DM et al. (forthcoming) Moral Judgment and Decision Making. In: Keren G, Wu G (eds) The Wiley Blackwell Handbook of Judgment and Decision Making, Wiley, Chichester (UK); Knobe J (2010) Person as scientist, person as moralist. Behav Brain Sci. 33:315–29.

³It is important to note that the complexity of the moral world and the flexibility of human nature was already known and discussed since the Greek philosophers and Aeschylus, Sophocles and Euripides' tragedies (by the way, also in contemporary age these features have been stressed in many writings coming form totally different traditions such as F.M. Dostoyevsky's *Demons* and P. Levi's *The Drowned and the Saved*).

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possessing it, human beings are not aware of it; (iii) despite the initial certainty of our intuitive response, we may revise our decisions whenever they conflict with some parts of our moral framework; and (iv) there are ideas that people are unlikely to question and change.

These assumptions constitute the core elements of what we define as *Personal Philosophy*. This expression refers to that wide set of more or less deep, coherent, and justified metaphysical, methodological, religious, political, esthetical, etc., beliefs, assumptions, principles, and values that an agent possesses and that characterises in a unique way how he/she approaches the world and his/her life. In other words, Personal Philosophy could be considered as the "conceptual and value-laden window" from which any individual starts reflecting in order to make judgments, to make choices, and to act.⁴

The importance of taking into account the very personal and ethical dimension of the decision-maker—what we have just called Personal Philosophy—appears particularly relevant in the era of the so-called *personalised medicine*. Personalised medicine can be broadly defined as "the tailoring of medical treatment to the individual (especially genetic and epigenetic) characteristics, needs and preferences of the patient during all stages of care, including prevention, diagnosis, treatment and follow-up". Even if the term is sometimes used interchangeably with "precision medicine", "stratified medicine", and "targeted medicine", the focus is always on providing the right treatment at the right dose to the right patient at the right time. However, despite its importance and novelty, personalised medicine has been much more appreciated by researchers and clinicians, rather than by patients. A possible reason lying behind this fact might be the fact that patients appear much more interested in the dimension of the "care" broadly considered—that is, in the act of taking care of a human being conceived as a whole—rather than in the practice of "disease treatment" in a strictly technical sense. Nevertheless, in the broader debate on personalised medicine, this personal patient care aspect has not received much attention, an aspect to which, instead, we want to give a proper consideration. Personal Philosophy within the ethical decision-making process could be considered as the equivalent of personalised medicine within the clinical decision-making process. To be more precise, the possibility of letting the patient

⁴We privilege this term instead of the classical *Weltanschauung (World view)* because the latter belongs to a specific German philosophical tradition; see Dilthey W (1907). Das Wesen der Philosophie. Marix Verlag, Wiesbaden 2008; Jasper K (1919) Psychologie der Weltanschauungen, Verlag von Julius Springer, Berlin. Another very close concept would be *Weltbild (World conception)*, which, nevertheless, has had less biography then *Weltanschauung*.

⁵See: European Science Foundation. Report on Personalised Medicine: http://www.esf.org/coordinatingresearch/forward-looks/biomedical-sciences-med/current-forward-looks-in-biomedical-sciences/personalised-medicine-for-the-european-citizen.html.

⁶U.S. Food and Drug Administration (FDA) (2013) Paving the way for personalized medicine: FDA's role in a new era of medical product development. October 2013. Report.

⁷See: Cornetta K, Brown CB (2013) Perspective: Balancing personalized Medicine and Personalized care. Acad Med 88(3): 309–313; Van Heist A (2011) Professional loving care: an ethical view of the healthcare sector. Ethics of care series. Volume 2. Peeters, Leuven.

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decide in line with his/her Personal Philosophy seems nothing but the ethical equivalent of providing the patient with a tailored treatment. Both personalised medicine and Personal Philosophy appear, thus, as significant dimensions contributing to the development and improvement of the personal patient care ideal.

Summing up, many times *clinical decision-making* goes hand in hand with *ethical decision-making*. However, sometimes, the difficulty of choosing between incompatible ethical options may give rise to an ethical dilemma, which can then affect also the decisions to be taken at the clinical level. Every time this occurs, patients tend to rely on their Personal Philosophy in order to decide which option ought to be chosen in any given situation. Since the decision on which clinical option ought to be pursued may depend on a choice that is made at the level of the moral decisional problem at issue, doctors willing to put into practice a personalised approach to medicine and care cannot avoid facing patient's ethical dilemmas through the exploration of their own Personal Philosophy. Moreover, Personal Philosophy could be considered, as the equivalent of personalised medicine in the ethical dimension. As the latter requires that the patient be provided with an ever more specific and tailored treatment, the former assumes that clinical choices involving ethical decisions are taken in relation to the patient's Personal Philosophy.

This set of considerations suggests the need to have proper tools that help in comprehending and coping with ethical dilemmas in clinical settings. The necessity of having such tools can be also justified in the light of preventing some potential risks, both on the side of patients and on the side of clinicians. In particular, two kinds of risks might be identified here.

- The risk for the patient to fall into what could be thought of as an ethical decisional paralysis. Indeed, there are people able to decide by themselves, but there are also people who could find themselves in the situation as described by Seneca to Lucilius, the procurator of Sicily: "No man by himself has sufficient strength to rise above it; he needs a helping hand, and someone to extricate him".8
- The risk for the clinician to consider himself/herself as ready to deal with patients' ethically dilemmatic situations only on the basis of their own Personal Philosophy. As all human beings, clinicians too possess their specific and individual Personal Philosophy. However, as we will better explain in the third chapter of this book, the mere fact of being clinicians does not legitimate them to impose it on patients whenever extremely serious patients' life choices are on the stage. On the contrary, clinicians should be trained to face them in order to properly recognise them and thus to avoid imposing, even unwillingly, their personal standpoints in a directive manner on patients.

In this book, we use the label "Ethical Counselling" to refer to a comprehensive methodology through which it is possible to mitigate the problems that might arise

⁸Seneca LA (62-65) Moral Letters to Lucilius, Letter 52, 2.

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when both patients and doctors face ethical decisional problems in clinical settings, as well as meet the patient's need of receiving a more comprehensive and personalised care. More specifically, in our view,

Ethical Counselling is a dialogic activity implementable in the cases in which clinical decisions involve ethical issues. It always involves the presence of two actors—the ethical counsellor and the counselee—, and it has two different purposes. On the one hand, by clarifying and investigating patients' Personal Philosophy, it assists them (with or without their relatives) to break through their ethical decisional paralysis in clinical settings and to choose the option more in line with their ethical sensitivity. On the other hand, it trains clinicians to properly examine the ethical dilemma that their patients are facing, in order to go beyond their commonsensical and intuitive moral understanding and to avoid the dangerous conviction that their own Personal Philosophy is better than patients' one.

In particular:

- Ethical Counselling is not a form of psychological support, even if, being directed towards patients beliefs, it crosses with some psychological aspects.
- Ethical Counselling is not aimed at providing solutions to ethical dilemmas.
 Rather, it is conceived as a "way of cleaning the windows" in order to have a
 deeper comprehension of them. This, in turn, is done in order to allow patients
 to be more aware of their choices and clinicians of the situation they are
 addressing.
- Ethical Counselling is not a mandatory tool that should be imposed on patients. Instead, it might be proposed to them and they might use it, in case they feel the necessity for it. Differently, some nudges to undergo an ethical counselling process seem to be necessary for clinicians since, as said, an intuitive moral understanding does not prove to be enough in dilemmatic cases involving patients.
- Ethical Counselling is a tool by means of which the counsellor serves the patient or the clinician (according to two different methodologies, as we will explain in the methodological part of this book) to reflect and thus to tame the first intuitive answer. Note that this *reflection slot* between the rising of the dilemma and reaching its solution allows also for a critical examination of the representation of the clinical event the patient is living. Usually, human beings have a starting representation of the event at issue, and they proceed to make a moral evaluation based on it. Thus, if an ethical counsellor introduces time to discuss such a representation, this could be better considered, or reconsidered, and, probably, a better moral evaluation and solution could come out.

If the Ethical Counselling is a personalised tool focused on patient's Personal Philosophy, the ethical counsellor is someone who, by using his/her knowledge and expertise and through a properly constructed dialogue, serves the patient to ethically reflect on *his/her* way of living and thinking, in order to let *him/her* take important moral decisions concerning diagnostic possibilities and therapeutic treatments that might have a great impact on his/her life and on the life of his/her relatives.

The purpose of the Ethical Counselling is to allow for a reflection slot in which the first automatic and emotional answer to a dilemma is posed under review, as it xvi The Plan

happens also to the starting representation of the clinical event. Moreover, it allows to individuate the patient or clinician's value ranking in order to understand whether there are undisputable or non-negotiable moral values and principles. However, as it will be explained in the next chapters, even if the clinician, being a human being, has his/her Personal Philosophy, this should not come first onto patient's one.

In the following chapters, the ideas just mentioned will be properly explained and justified, in order to offer a theoretically informed guide on Ethical Counselling.

In Chapter "Ethics Consultation Services: The Scenario", we try to give an idea of the state-of-the-art concerning ethical consultation services and the so-called *philosophical counselling*. By doing this, we could also prepare the ground to make the typicality of our approach to Ethical Counselling more perspicuous. In particular, as Chapters "Ethical Counselling for Patients" and "Ethical Counselling for Clinicians" highlight, our approach is based on two methodologies (one designed for patients and one designed for clinicians) that are historically rooted in our philosophical tradition. The methodology we propose in the case of Ethical Counselling for patients is strongly grounded in the Aristotelian practical philosophy, which could be considered as the first decision-making theorisation. Instead, the methodology we propose in the case of Ethical Counselling for clinicians follows the presentation of the *status quaestionis* with which the Medieval scholars began their *disputationes*, that is, the technique designed to clarify and solve a problem: exactly the tool necessary for clinicians to clarify the ethical problems met by their patients.

By pondering on these two methodologies, the reader could easily grasp that they are intended also to offer the *reflection slot* mentioned above. In fact, it allows for a better analysis of the initial Personal Philosophies, of patient's representations of the clinical event, and of the reasoning by means of which evaluations and solutions are justified. Note that, from this point of view, our way of proposing Ethical Counselling is deeply entrenched with critical thinking in the field of ethically dilemmatic decisional situations.

This, so-to-say, more theoretical part is followed by three chapters in which we present three topics that have to be extremely familiar to any ethical counsellor: communication, emotions, and probability.

Handling communication properly (Chapter "Nocebo and the Patient–Doctor Communication") is one amongst the main skills required for structuring an appropriate patient-physician relationship, but it is also vital whenever a service of Ethical Counselling is implemented. In the chapter devoted to it, we do not dwell upon how the communication should be made: a certainly relevant question that we would invite to be enquired separately. Differently, we discuss an aspect that should be known by the ethical counsellor, that is, its neurocognitive counterpart and its possible effects on the patient's brain. Informing patients about potential side effects of treatments and interventions can induce nocebo effects which refer to adverse events related to negative expectations and anticipations. Neurobiological and preclinical studies have shown that nocebo effects result from negative expectations, previous experiences, and clinical interactions. In particular, a proportion of adverse events are due to patients being informed about potential adverse events of

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medication. Disclosures and the manner in which information is delivered can contribute to producing adverse effects.

Emotions (Chapter "Reasons and Emotions") should be also taken into account in the Ethical Counselling process. Not only do they permeate the representation of the clinical event as constructed by the patient and not only should emotional narratives find room during the counselling, but they also have to be tamed. As we will discuss in the chapter concerning the counselling for patient, a relevant point known since a couple of thousands of years ago concerns the fact the a good decision-maker has to be characterised by what the ancients called *sophrosyne*, that is, temperance: the virtue of ruling emotions in order to make the decision as rational as possible. This does not mean, of course, that we want to discard emotions from the ethical counselling process, but that by means of the reflexion slot that it allows, the first emotional answer might be tamed in order to arrive at a (at least partially) detached solution. Surely, the degree of detachment depends on the individual patient, but the ethical counsellor should work in the direction of considering patient's emotions by trying to govern them, also in order to prevent them from becoming harmful. In this chapter, we discuss also why we consider reason-giving as an essential component for moral deliberation and thus of Ethical Counselling. In particular, we shall consider: (i) the role of emotions with respect to reason-giving; (ii) why we should rely on reason-giving in ethical choices; (iii) how reason-giving makes explicit patients' Personal Philosophies; (iv) why reason-giving is always an open-ended process.

Probability (Chapter "The Centrality of Probability") is at the core of many ethical decisions encountered in clinical choices in the age of personalised medicine. Carrier testing for cystic fibrosis tells us whether the individual has one copy of a mutated CF transmembrane regulator (CFTR) gene. In this case, the individual tested positive will have 50 % of having a child who is a carrier of the same condition and has to decide his/her reproductive strategy. If also the partner is a healthy carrier, the potential child will have 50 % chances of being a healthy carrier and 25 % of having the condition. How to decide about becoming parents? Predictive and presymptomatic testing could provide the information about whether an asymptomatic individual will surely or only probabilistically develop a specific pathological condition. If an asymptomatic individual is tested positive for the mutation of Huntingtin gene, they will surely suffer from Huntington's disease: a pathology, which has no treatment so far. Thus, what should this individual do? How should he/she manage his/her life plan? To be positive to genetic variants for type 2 diabetes tells you that you have from 10 to 35 % chances to develop the pathology. What does this mean? Is it worth doing the test? Probability has also to do with the survival rates that tell us the probability over time, for example, to die of a particular disease since it has been diagnosed or treated. But what does this mean? Let us recall that for an individual (be it an asymptomatic one or with an already overt pathology), it is not relevant at all to know a statistical probability but to know his/her particular fate. Thus, he/she has to understand the probabilistic information given by the clinician but, first of all, the clinician has to know the xviii The Plan

meaning of probability. And, of course, an ethical counsellor cannot be unprovided with such knowledge.

After a first part devoted to these methodological features, the second part deals with some of the most important questions an ethical counsellor could face (and thus should know) in the context of personalised medicine.

We begin (Chapter "Genetic Testing and Reproductive Choices") by offering an introduction for the management of the ethically controversial issues arising from the relationships between reproductive choices and genetic testing. Rather than going into the details of each and any argument present in the bioethical literature on the topic, we prefer to provide a conceptual road map that should serve the ethical counsellor for correctly framing the case he/she may be asked to confront with.

Then, (Chapter "The 'Right-not-to-Know") we present a very related issue, that is, that one concerning the ethical controversies resulting from the exercise of the so-called right-not-to-know. By problematising the substantive conflicts at the basis of patient's decision to waive some health-related information, the chapter provides a normative map for orienteering the practice of ethical counselling in the face of these claims. In particular, we discuss a number of ethical and legal aspects of the right-not-to-know in the context of Julie's case introduced above.

Also the following chapter (Chapter "Incidental Findings") is in somehow connected with the previous two, since it deals with the so-called incidental findings. Various medical tests are routinely performed in medical practice to establish or confirm a diagnosis and prescribe the right treatment. In some cases, the results of a medical test can reveal a previously undiagnosed condition, which is not related to the current medical condition and the original purpose of the test. Such results are referred to as "incidental findings" and have sparked a significant debate on whether all of these findings or some, and which ones, should be reported back to the patients. We discuss the implications and the management of the incidental findings in the clinic and the debate that surrounds them, to offer a method for reaching an ethically desirable outcome on the case-by-case basis.

We then proceed with the questions regarding the ethical choices occurring in the field of oncofertility (Chapter "Oncofertility"). In this chapter, we present the most pressing ethical concerns surrounding fertility preservation for cancer patients by giving an overview of the arguments supporting and rejecting fertility sparing interventions.

Finally, we deal with the issue regarding overdiagnosis (Chapter "Overdiagnosis"), one of the main concerns in screening context, which we particularise on cancer. By overdiagnosis, we refer to the detection of a tumour, which does not constitute a substantial hazard to the patient, but it is treated as it was. In cancer clinical practice, indeed, overdiagnosis represents a possible harmful outcome of screening to which both patients and physicians should pay careful attention. We will explain how ethical counselling could provide aid in understanding probabilities and emphasising patients' values in order to reach an informed decision about whether to undergo screening tests.

We conclude with some remarks on what the ethical choice could be in the light of what has been said in the previous chapters.

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