

On the Morality of Risk-Reducing Surgery

Timothy P. Collins, MD

Abstract. Possession of a BRCA1 or BRCA2 gene mutation puts a woman at very high risk of developing breast and ovarian carcinoma at an early age. One treatment option is surgical removal of the target organs—breasts, ovaries, and fallopian tubes—before the malignancy develops. This risk-reduction surgery has been shown to significantly reduce the likelihood that a woman will develop one of these cancers. This paper argues that such surgeries do not violate Catholic moral principles, but can be justified using the principles of double effect and totality and integrity. The paper does not recommend or endorse any specific treatment option. *National Catholic Bioethics Quarterly* 15.1 (Winter 2015): 000–000.

The existence of heritable cancer syndromes, sometimes known as “cancer families,” has been known for decades. More recently, specific gene mutations associated with some of these syndromes have been identified that, if present, increase a person’s risk of developing one or more types of malignancies. These mutations account for some (but not all) heritable cancer predispositions.¹ Most of the mutations involve genes whose protein products, when produced normally, are involved in the maintenance and regulation of cellular reproduction processes. When the gene is mutated, it cannot produce functional proteins that fix errors as they occur in the reproductive machinery, the errors accumulate, and eventually a malignancy develops. So the mutation is both a *marker* and a *contributing factor* in what is usually a sequence

Timothy Collins, MD, is a surgical and clinical pathologist and hematopathologist in the laboratory at the Maine VA Medical Center in Augusta, Maine. The contents of this essay do not represent the views of the Department of Veterans Affairs or the United States Government.

¹ Some of these mutations may also be acquired—meaning they were not inherited but appeared during the person’s life—but that is beyond the scope of this paper.

of events whose end result is malignancy. The discipline tying all of this together is known as oncogenetics.²

Generally, testing for specific mutations is performed in the setting of an established diagnosis of malignancy. However, if defined risk factors are identified in a patient *without* a diagnosis of malignancy (discussed in more detail below), testing for specific mutations may be indicated.³ If a healthy patient is found to be *at high risk* for the development of a malignancy on the basis of family history and the presence of specific gene mutations, one recommendation may be for the removal of as much of the healthy “at risk” or “cancer target” tissue as possible *before the malignancy develops*. To be clear, this is the removal of healthy tissue or organs based solely on the risk conferred by the presence of a specific mutation or family history, and it is known as prophylactic or risk-reduction surgery.

The question concerning us here is this: is risk-reduction surgery a morally valid approach to addressing the high risk of a serious malignancy conferred on a patient who possesses one of these gene mutations or family histories? Currently, there are only a few specific mutations or “very high risk” family histories where risk-reduction surgery is a recommendation, and in no case is surgery the only recommendation—there are other options. The list, however, is sure to grow. We will examine in detail the most common instance in which risk-reduction surgeries are recommended: BRCA1 and BRCA2 gene mutations in women, and the recommendations for prophylactic mastectomy or bilateral salpingo-oophorectomy. Since much of the medicine involves statistics, we must first gird ourselves with a bit of statistics prior to wading in. Then we must discuss the medicine, which we need to understand in order to discuss the morality.

Risky Business: A One-Minute Primer on Cancer Statistics

Clinicians talk about “absolute risk” and “relative risk.” *Absolute risk* is the actual, numerical probability of a specific person developing a specific cancer in a specific time period, such as over the next year, over the next five years, prior to age seventy, or over a statistical lifetime. Thus, a man in the United States may have a *lifetime risk* of developing prostate cancer of 16 percent: 16 out of 100 men will develop prostate cancer over the course of their (statistical) lives. This also means 84 out of 100 men will not. Just as the time period can be varied, so too the categories of men can be subdivided (“stratified”): smokers, latte drinkers, “all comers,” and so forth. *Relative risk* is a comparison of risk between groups, usually a group that has a risk factor (such as smokers) and a group that does not (nonsmokers), and is

² Jondavid Pollock and James S. Welsh, “Clinical Cancer Genetics Part 1: Gastrointestinal,” *American Journal of Clinical Oncology* 34.3 (June 2011): 332–336.

³ National Cancer Institute (NCI), “BRCA1 and BRCA2: Cancer Risk and Genetic Testing,” fact sheet F706, last revised January 22, 2014, <http://www.cancer.gov/cancertopics/factsheet/Risk/BRCA>; see also David Mutch, Lynette Denny, and Michael Quinn, “FIGO Guidelines: Hereditary Gynecologic Cancers,” *International Journal of Gynecology and Obstetrics* 124.3 (March 2014): 189–192.

generally presented as a percentage or ratio. Thus, the risk of lung cancer in smokers may be 2300 percent (or twenty-three times) higher than in nonsmokers. A relative risk of 100 means your risk is 100 percent higher, or twice as high. Note, though, that the actual *numbers* may be quite small: a disease whose risk increased from, say, one in a billion to two in a billion has undergone a 100 percent increase, a *doubling* of the risk. But two in a billion is still a pretty long shot.⁴

Here are some other useful terms⁵: “Incidence” is the number of newly diagnosed cases in a specific time period. “Prevalence” is total number of cases existing at a certain date. “Mortality” is the number of people who die from a disease during a specific time period. “Survival” is the proportion of patients alive at a certain point subsequent to their diagnosis, for example, the percentage alive five years after a diagnosis of ovarian cancer. Endless subdivisions are possible (“alive without evidence of disease,” “alive with disease,” and so on).⁶

Cancers, Genetics, and Guidelines

Breast cancer is the most common malignancy in women in the West, excluding skin cancers. The lifetime risk for breast cancer among US women is 7 to 12 percent. For 2014, the estimated incidence is 14 percent (232,700 new cases) and the mortality in 2014 is estimated to be 7 percent of all cancer deaths (40,000 deaths).⁷ The majority of breast cancers develop in women who do *not* have a hereditary cancer syndrome; about 5 to 10 percent of all breast cancers appear to be hereditary.⁸ The overall five-year survival for women diagnosed with breast cancer is about 89 percent.⁹

Ovarian cancer occurs far less frequently than breast cancer. The lifetime risk among US women is 1.4 percent. The estimated incidence for 2014 is 1.3 percent (22,000 cases), and the 2014 mortality is estimated at 2.4 percent of all cancer deaths (14,300 deaths). Ovarian cancer is also considerably less amenable to treatment—the five-year survival is 44.5 percent,¹⁰ compared to the 89 percent five-year survival for breast cancer.

Finally, we have been discussing breast and ovarian cancers as if they were homogenous entities: breast *cancer* (singular) and ovarian *cancer* (singular). They

⁴ Mayo Clinic, “Cancer Risk: What the Numbers Mean,” March 01, 2014, <http://www.mayoclinic.org/diseases-conditions/cancer/in-depth/cancer/art-20044092>. The “one in a billion” illustration is my own.

⁵ NCI Surveillance, Epidemiology, and End Results (SEER) Program, “Defining Cancer Statistics” (no date), <http://seer.cancer.gov/statistics/types.html>, accessed April 29, 2014.

⁶ A detailed glossary of epidemiological terms is available at the NCI website, <http://www.cancer.gov/statistics/glossary>.

⁷ NCI SEER, “Defining Cancer Statistics.” The fact sheet gives a lifetime risk estimate of 12 percent. The CDC gives a figure of 7 percent. See Centers for Disease Control and Prevention, “Does Breast or Ovarian Cancer Run in Your Family?” CDC website, updated September 29, 2014, <http://www.cdc.gov/Features/HereditaryCancer/>.

⁸ CDC, “Does Breast or Ovarian Cancer Run in Your Family?”

⁹ NCI SEER, “Defining Cancer Statistics.”

¹⁰ *Ibid.*

are not. There are many different kinds of breast and ovarian cancers, and they all vary in their prognoses and treatment options. This is true of all cancers: there is not one lung cancer, skin cancer, or colon cancer, but many kinds, all with different prognoses and treatment options.¹¹ However, there are dominant subtypes—the most common forms—of all these cancers, and these subtypes dominate and influence the statistics. It is useful, therefore, to use population statistics in general discussions such as this one, while recognizing that any “live,” individual case must be evaluated with far greater precision and that the actual prognosis in an individual case *might* be significantly different than that predicted by the rather gross measure of population statistics. And now we shall inject genetics into the mix.

Breast cancer genes one and two (BRCA1 and BRCA2), also known as early-onset or hereditary breast cancer genes, encode multifunctional proteins that, among other things, repair DNA strands and other molecular elements of the cellular reproductive machinery.¹² The BRCA genes are by no means alone in this: there are many other genes encoding proteins that function in various aspects of the surveillance and repair of the wonderfully complex little molecular machines of a cell. BRCA genes are, however, a set of genes that have been identified and, when mutated in such a way as to render their protein products nonfunctional, are known to contribute to specific kinds of cancers. Either men or women can inherit the BRCA gene mutations. If present in a woman, the mutation increases the risk of breast or ovarian cancer, as well as other cancers, primarily cancers of the fallopian tube or primary peritoneal cancer.¹³ If present in a man, he is at risk for breast cancer or prostate cancer.¹⁴ Men and women with BRCA mutations have an increased risk of pancreatic cancer.¹⁵ We are going to discuss only breast and ovarian cancer in women, as risk-reduction surgery is not recommended in the other instances.

As we saw above, in most cases of breast cancer, there is no hereditary syndrome present. Even when a hereditary syndrome *is* present, usually there is not an identified heritable gene mutation. But when a hereditary gene mutation is present, it is most

¹¹ This is not to be confused with cancer “staging,” which is an estimate of whether, and how far, a particular cancer has spread. To make it even more dense, there is “clinical” staging and “pathologic” staging (and, sometimes, “imaging” staging), which are all related but not identical. In general, the most important prognostic indicators in an individual patient are the specific histologic cancer *type* and *grade* (not “breast cancer” but, for example, “infiltrating ductal carcinoma of the breast, grade 2”) and cancer *stage*.

¹² Wendy Rubenstein, “Inherited Breast Cancer,” in *Molecular Pathology in Clinical Practice*, ed. Debra Leonard (New York: Springer Science and Business, 2007), 207.

¹³ Mutch, Denny, and Quinn, “FIGO Guidelines,” 189.

¹⁴ Gynecomastia—benign breast tissue—is fairly common in men. It is generally ignored or, if a cosmetic issue, it can be excised. Breast *cancer* in a man is rare—I have diagnosed it only once in seventeen years of general diagnostic surgical pathology practice—and if it occurs, that is an indication for BRCA testing. See National Comprehensive Cancer Network, Genetic/Familial High-Risk Assessment: Breast and Ovarian, NCCN Guidelines v. 2.2014, September 2014, MS-7 [34], http://www.nccn.org/professionals/physician_gls/pdf/genetics_screening.pdf. (Note: Access to NCCN guidelines requires free user registration.)

¹⁵ NCI, “BRCA1 and BRCA2.”

commonly the BRCA1 or BRCA2 gene mutation, although (to state it again) these mutations only account for about one quarter of all heritable breast cancer cases, which in turn are a minority of *all* breast cancer cases.¹⁶ In other words, less than 10 percent of all women who develop breast cancer have a hereditary cancer type of history, and only a quarter of *those* have a BRCA mutation. So, what is the incidence of BRCA mutations in the general population? Less than 0.5 percent.¹⁷ For the majority of hereditary cancer syndromes, a genetic mechanism is assumed but not yet identified.

If a BRCA1 or BRCA2 mutation is present, it increases a woman's lifetime risk of breast cancer from four- to sixfold—her lifetime risk goes from 7 to 12 percent up to 45 to 65 percent.¹⁸ Thus, though the mutations are rare, *half* (more or less) of women with one of the mutations will develop breast cancer. Regarding ovarian cancer, if a woman inherits a BRCA1 mutation, her lifetime risk increases to 39 to 46 percent, *thirty-two times* over the background lifetime risk of 1.4 percent.¹⁹ Thus, like breast cancer, *half* (or a little less) of women who carry the BRCA1 mutation will develop ovarian cancer. Recall that ovarian cancer carries a far poorer five-year survival than does breast cancer. A BRCA2 mutation also elevates the ovarian cancer risk, though somewhat less so than BRCA1: a roughly tenfold increased risk.²⁰ As the alternative name (“early onset” or “hereditary” breast cancer genes) says, BRCA-related breast and ovarian cancers tend to occur at a relatively young age. This is very important point: a five-year survival of 50 percent in a seventy-year-old carries far different implications than the same five-year survival in a forty-year-old. Finally, the breast cancers may be of a more aggressive type (so-called “triple negative” breast cancers).²¹

When does one test for the mutation? It is not recommended that all women get routinely tested for BRCA mutations. Rather, there are a series of screening tools that evaluate family history and personal factors to determine if “genetic risk assessment” (i.e., mutation testing) is indicated.²² If a woman is found to have a BRCA mutation

¹⁶ Mutch, Denny, and Quinn, “FIGO Guidelines,” 189. Ovarian or fallopian tube cancers can spread to the peritoneum, which is the one-cell-thick lining of the peritoneal cavity. The peritoneal cells share their histogenesis with the fallopian tube lining and the surface cells of the ovaries; thus, malignancies of these tissues can look quite similar. However, if the malignancy is originating in the peritoneal cells themselves, rather than spreading there from tube or ovary, it is known as a primary peritoneal cancer. It is very hard to treat, and has a poor prognosis. See also NCI, “BRCA1 and BRCA2.”

¹⁷ Mutch, Denny, and Quinn, “FIGO Guidelines.” 189. These authors cite estimates of 1 in 300 to 1 in 800 in the general population.

¹⁸ NCI, “BRCA1 and BRCA2.”

¹⁹ Mutch, Denny, and Quinn, “FIGO Guidelines,” 189. This is a dramatic increase in a deadly disease, although because the baseline lifetime risk for ovarian cancer is fairly low (1.4 percent), the lifetime risk for a BRCA1 mutation carrier is similar to, or slightly less than, the risk for breast cancer in the same carrier. However, recall that ovarian cancer has a significantly worse five-year survival rate than does breast cancer.

²⁰ NCI, “BRCA1 and BRCA2.”

²¹ NCCN, Genetic/Familial High-Risk Assessment, MS-4 and MS-5 [31 and 32].

²² US Preventive Services Task Force, “Risk Assessment, Genetic Counseling, and Genetic Testing for BRCA-Related Cancer in Women, USPSTF Recommendation Statement,”

but does not have the disease, she first must decide whether she wants to pursue risk-reduction strategies or not.²³ If not, then the recommendation is for enhanced screening, which includes clinical exams and annual mammograms starting at age twenty-five.²⁴ However, there is a question as to whether BRCA mutation carriers are more sensitive to radiation-induced cancers, and whether mammograms starting at an earlier age might not further increase the already elevated risk of breast cancer.²⁵ The answer to this question is not known. Other possible screening modalities such as MRI bring their own problems. It is also the case that there are no effective screening tools for ovarian cancer: it is the inability to detect ovarian carcinoma early that is a major contributor to its high mortality, as the disease is usually well advanced before it becomes clinically apparent. Although transvaginal ultrasound and blood tests for ovarian cancer markers (CA-125) are sometimes recommended, they are ineffective in detecting ovarian cancer early enough to prevent death.²⁶ The point is that “simply enhancing the screening” is not necessarily a simple or effective solution.

If a woman chooses to pursue risk reduction, there are two avenues. First is “chemoprevention,” generally using the chemotherapeutic agent tamoxifen, although some other chemotherapeutic agents are under investigation. The data are so far not strongly encouraging regarding effectiveness, and there is some question as to whether tamoxifen might increase the risk of endometrial cancer in these women.²⁷

The second risk-reduction option, and the one which concerns us here, is prophylactic mastectomy and bilateral salpingo-oophorectomy (BSO). The recommendations regarding mastectomy read as follows: “*Discuss* risk-reducing mastectomy. Counseling may include a discussion regarding degree of protection, reconstruction options, and risks.” The recommendations regarding BSO read as follows: “*Recommend* risk-reducing salpingo-oophorectomy, ideally between 35 and 40 [years], and upon completion of childbearing, or individualized based on earliest age of onset of ovarian cancer in the family.”²⁸ Note that mastectomy is a “discussion,” while BSO is a “recommendation.” This reflects the higher mortality and the lack of effective screening modalities for ovarian cancer.

December 2013, <http://www.uspreventiveservicestaskforce.org/uspstf/uspstrgen.htm>. See also Mutch, Denny, and Quinn, “FIGO Guidelines”; and NCCN, Genetic/Familial High-Risk Assessment, MS-16 [43].

²³ Often, patients who already have a diagnosis of cancer then go on to have BRCA mutation testing. However, these patients are in a different risk group than those we are discussing. We are discussing *only* those patients who have the mutations (they initially received testing because of family history) but do not have the disease.

²⁴ NCCN, Genetic/Familial High-Risk Assessment, MS-22 [49].

²⁵ Jondavid Pollock and James S. Welsh, “Clinical Cancer Genetics Part 2: Breast,” *American Journal of Clinical Oncology* 37.1 (February 2014): 86–89. See also NCI, “BRCA1 and BRCA2,” 7.

²⁶ NCI, “BRCA1 and BRCA2,” 7.

²⁷ Pollock and Welsh, “Clinical Cancer Genetics: Part 2,” 87; and NCCN, Genetic/Familial High-Risk Assessment, MS-6 [33].

²⁸ NCCN, Genetic/Familial High-Risk Assessment, HBOC-A 1 [12].

Overall, prophylactic bilateral mastectomy in patients with BRAC1 and BRAC2 mutation decreases the risk of breast cancer by 85 to greater than 95 percent.²⁹ Prophylactic BSO decreases the likelihood of ovarian cancer by 69 to greater than 90 percent.³⁰ Neither surgery completely eliminates the risk, mostly because it is rarely possible to remove *all* of the “at risk” tissue. But the risk reduction is robust, real, and significant.

Prophylactic surgeries have risks: bleeding, infection, various postsurgical complications, anesthesia risk, and risk of death. Estimating the risk of a proposed surgery is very dependent on the specific surgery to be performed and the underlying medical condition of the patient. In addition, there are psychological risks, including changes in body image and problems in sexual function. These risks should not be minimized—death related to a prophylactic surgery would be a profound tragedy—but they are generally small. Overall, “the appropriateness of (risk-reduction surgery) is a complicated risk-benefit analysis that requires . . . counseling regarding cancer risks from a health professional skilled in assessing cancer risk.”³¹ In summary, we have this: the proposed removal of organs and tissues and, in the case of BSO, the surgical sterilization of women who do not have, and may never develop, cancer. Is this moral?

The Morality of Human Acts

There are three elements to a human action that define its morality: the *object* that is chosen, the *end* in view, and the *circumstances* surrounding it.³²

The object is the thing that one does, it is “the matter of a human act”³³; the “kind of action or behavior chosen.”³⁴ The object, also known as the “proximate end,”³⁵ is separate from the person, and it has its own “moral status.”³⁶ By simple extension, the man doing the act identifies himself with the act: the man who freely

²⁹ NCI, “Surgery to Reduce the Risk of Breast Cancer,” fact sheet, last reviewed August 12, 2013, <http://www.cancer.gov/cancertopics/factsheet/Therapy/risk-reducing-surgery>; see also Pollock and Welsh, “Clinical Cancer Genetics: Part 2,” and NCI, “BRCA1 and BRCA2.” Various numbers are reported in the literature. Much of the variation depends on the exact type of surgery performed, and how much (if any) breast tissue was left behind. All of the literature, though, supports a dramatic decrease in development of cancer.

³⁰ NCI, “BRCA1 and BRCA2.”

³¹ Blue Cross Blue Shield of Alabama, “Prophylactic Mastectomy,” September 2013, <https://www.bcbsal.org/providers/policies/final/174.pdf>.

³² Both the title of this section of the paper and the general outline of the discussion are taken from Article 4 of the Catechism, “The Morality of Human Acts,” which encompasses nn. 1749–1756. Much of the Catechism’s wording follows *Veritatis splendor*, cited below.

³³ *Catechism*, n. 1751.

³⁴ Peter J. Cataldo, “The Moral Fonts of Action and Decision Making,” in *Catholic Health Care Ethics: A Manual for Practitioners*, 2nd ed., ed. Edward J. Furton, Peter J. Cataldo, and Albert S. Moraczewski (Philadelphia: National Catholic Bioethics Center, 2009), 10.

³⁵ William May, *Catholic Bioethics and the Gift of Human Life*, 3rd ed. (Huntington, IN: Our Sunday Visitor, 2013), 63.

³⁶ Cataldo, “Moral Fonts of Action and Decision Making,” 10.

chooses to lie makes himself a liar.³⁷ For this reason Pope St. John Paul II reaffirmed St. Thomas Aquinas's statement that "the morality of the human act depends *primarily and fundamentally* on the 'object' rationally chosen by the deliberate will."³⁸ The object is that thing which we do.³⁹

The intention, also known as the end or further end, is the reason that one does what one does: "Every willed act must be done for some motive."⁴⁰ Generally, an intention involves not one act but several, all ordered to the same end.⁴¹ Unlike the object, which is separate from the person, the intention "resides within the acting subject."⁴² It is necessarily subjective, though like the object, it can and should be judged against objective moral norms.

The circumstances ("things standing around") are "secondary elements" of a moral act. They may alter the severity of an act, and they may alter the degree of responsibility of the agent, but they cannot change the nature of the act.⁴³ Circumstances cannot make an evil act good. This is seen, for example, in the matter of mortal sin. For a sin to be mortal, it must involve a grave matter (object), and it must be executed with full knowledge and consent of the will (intention). Circumstances—unintentional ignorance, coercion, fear, or other legitimate elements—may lessen the imputability of a particular grave offense, but circumstances cannot in and of themselves alter the *nature* of the object; they cannot render a sin sinless.⁴⁴

These three elements are separate and distinct "sources of morality."⁴⁵ For the overall act to be morally good, all three elements—the object, the end, and the circumstances—must be individually good. This is the "principle of totality, *bonum ex integra causa* (good when all the elements are good). If one element—the object, for example—is evil, then the entire action is evil: *malum ex quocumque defectu* (bad from any defect whatsoever).⁴⁶

The principle of double effect is a method of evaluating the morality of an action that has two outcomes, one good and the other evil. It is generally presented as having four elements: (1) the object—the act—must be in itself good, or at least neutral; (2) the intention is for the good effect—the evil effect, while foreseen, is not intended; (3) the good effect is not brought about by means of the evil effect (the ends do not justify the means); and (4) there is proportionality between the good

³⁷ *Ibid.*, 12.

³⁸ John Paul II, *Veritatis splendor* (August 6, 1993), n. 78, emphasis added.

³⁹ May, *Catholic Bioethics*, 63.

⁴⁰ Brian Mullady, "The Moral Act: Object, Circumstances, Intention," *Ethics and Medics* 19.9 (September 1994): 1.

⁴¹ *Catechism*, n. 1752.

⁴² *Ibid.*

⁴³ *Catechism*, n. 1754.

⁴⁴ *Ibid.*, nn. 1857–1860. This section addresses the elements of mortal sin.

⁴⁵ May, *Catholic Bioethics*, 63.

⁴⁶ *Ibid.*, 64.

effect and the bad effect. The first element deals with the object, the second with the intentions, while the third and fourth concern circumstances.⁴⁷

The Object Must Be Good or at Least Neutral

The object—what is being done—in prophylactic surgery is this: a woman who is not ill is having breasts, ovaries, and fallopian tubes surgically removed. It is important to keep in mind that we are not talking about any random non-vital organ. We are discussing *specific* organs that, though apparently healthy, nevertheless *directly threaten the life and well-being of the woman by their presence*.⁴⁸ Is this object good, or is it evil? Specifically, is it *mutilation*, and (in the case of the BSO) is it *surgical contraception*?

The term “mutilation” is used rather freely in Catholic bioethics literature, though there appears to be no consensus as to what it means. On a common usage level, it means to cripple, cut off, permanently destroy, or otherwise radically alter some entity, not necessarily a human being.⁴⁹ One can mutilate a man, a monkey, or a manuscript. Sometimes implicit in this term, in reference to men, is the intent to cause pain and suffering. The word has been used by various Church Fathers over the centuries⁵⁰ and appears in the Second Vatican Council document *Gaudium et spes* as follows: “Furthermore . . . whatever violates the integrity of the human person, such as mutilation, torments inflicted on body or mind, attempts to coerce the will itself . . . all these things and others of their like are infamies indeed.”⁵¹ According to my reading, the author is including the implicit components of deliberate infliction of pain and suffering in his use of “mutilation.” Perhaps these are also elements John Paul II had in mind in *Veritatis splendor*, where he quoted the list from *Gaudium et spes* directly, and labeled it a list of intrinsically evil acts—*intrinsece malum*, meaning evils which can never be justified.⁵² However, neither document specifies what constitutes mutilation.

Other intrinsically evil acts listed in *Veritatis splendor* include homicide, abortion, and contraception. Homicide—also known as murder—is easy to define (if not always easy to prove) as it is the deliberate killing of an innocent human being. Abortion, too, is easy to define as a subset of all murders, insofar as it is “deliberate

⁴⁷ Peter Cataldo, “The Principle of Double Effect,” *Ethics and Medics* 20.3 (March 1995): 1–3; see also Edward J. Furton and Albert S. Moraczewski, “Double Effect,” in *Catholic Health Care Ethics*, 23–26.

⁴⁸ An interesting thought experiment is whether a heritable mutation such as BRCA is a “disease.” While common sense may argue it is not, an actuary for an insurance company might suggest that it is. Like a virus (Is it dead or alive? Do we “kill” it or just “inactivate” it?), mutations such as BRCA inhabit, for the moment, a murky netherworld of imprecision as to their exact status.

⁴⁹ *Webster’s Third New International Dictionary, Unabridged*, s.v. “mutilation.”

⁵⁰ A brief review can be found in Anthony Stoeppel and Pablo Requena, “Organ Donation Is Not Mutilation: The History of an Erroneous Idea,” *National Catholic Bioethics Quarterly* 13.3 (Autumn 2013): 427–436.

⁵¹ Paul VI, *Gaudium et spes* (December 7, 1965), n. 27.

⁵² John Paul II, *Veritatis splendor*, n. 80.

prenatal homicide.”⁵³ But is every procedure that results in removal of healthy tissue mutilation? No. As the US Conference of Catholic Bishops points out in *Ethical and Religious Directives for Health Care Services*, obtaining organs from living donors is licit under specified conditions.⁵⁴ However, not all living organ donation is licit. According to the *Catechism of the Catholic Church*, living organ donation is *not* licit if it causes the “disabling mutilation” of a person.⁵⁵ But is all “mutilation” evil? In the next paragraph, the Catechism, citing Denzinger, states, “Except when performed for strictly therapeutic medical reasons, directly intended amputations, *mutilations*, and sterilizations performed on innocent persons are against the moral law.”⁵⁶ This suggests that the opposite statement, “for legitimate therapeutic reasons, mutilation might be within the moral law,” could be true.⁵⁷

The point here is not to question the Catechism, for I think the general contexts are quite clear. The point is to highlight the slipperiness of the word “mutilation,” and to suggest that procedures which *might* meet a strict definition of “mutilation” (disfiguring, crippling, or permanently destroying) are not *necessarily* evil. It depends on *circumstances*: surgical procedures performed for head and neck cancers, for example, are often described as “mutilating” insofar as they can be radically disfiguring. Yet they are not evil. An alternative approach may be to confine the use of the word “mutilation” to situations where evil is *intended*,⁵⁸ and use the more neutral “organ or tissue removal” in therapeutic situations. In other words, just as not all killing is murder and not all sex is fornication, not all tissue destruction is mutilation. But “sometimes a circumstance can alter the object of the act . . . by becoming a principal condition *specifying* the object.”⁵⁹ The innocence of the person killed, for example, could be construed as a “circumstance,” but it is a circumstance so profound that it really is a *specification*, an *element* of the object.

Likewise, to me it seems that the “circumstance” of medical necessity is also a specification of the object of tissue or organ removal so profound that it alters the nature of the object. In other words, the “quality” of medical necessity “belongs to the very substance and identity of the act.”⁶⁰ Thus, the object (act or action) of the prophylactic surgical removal of breasts, tubes, and ovaries is not mutilation in any pejorative sense, nor is it contraception (we will take this matter up below). The

⁵³ Edward Peters, “The Best Defense Is No Offense,” *In the Light of the Law: A Canon Lawyer’s Blog*, May 20, 2014, <http://canonlawblog.wordpress.com/2014/05/20/the-best-defense-is-no-offense/>; Peters is an internationally known canon lawyer worth reading regularly for his penetratingly clear and unambiguous exposition on canon law and contemporary Catholicism as practiced in these United States.

⁵⁴ US Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services*, 5th ed. (Washington, DC: USCCB, 2009), n. 30.

⁵⁵ *Catechism*, n. 2296.

⁵⁶ *Ibid.*, n. 2297, emphasis added.

⁵⁷ The Catechism is not making this statement. I am making it for illustration.

⁵⁸ Stoeppel and Requena, “Organ Donation Is Not Mutilation.”

⁵⁹ Mullady, “Moral Act,” 2, emphasis added.

⁶⁰ Cataldo, “Moral Fonts of Action and Decision Making,” 10. Cataldo is not drawing this conclusion. I am, using his reasoning.

object (act or action) here is *tissue removal for legitimate therapeutic reasons*. In and of itself, this object is good.

The Intention Must Be for the Good Effect

Are the reasons, the circumstances, good? First, let us examine totality and integrity.

In *Casti connubii*, Pope Pius XI observed that “private individuals . . . are not free to destroy or mutilate their members, or in any other way render themselves unfit for their natural functions, *except when no other provision can be made for the good of the whole body*.”⁶¹ Pius XI was addressing contraceptive practices in this section of his most excellent and prescient encyclical on chaste marriage, but he was nevertheless carving out an area where actions which might result in sterilization or other “mutilations” might be licit: *medical necessity*.

Pope Pius XII developed these themes further in his 1952 address that specifically discusses patients, “The Moral Limits of Medical Research and Treatment.” It is worth quoting extensively:

As for the patient, he is not absolute master of himself, of his body or of his soul. He cannot, therefore, freely dispose of himself as he pleases . . . he does not have unlimited power to destroy or mutilate his body and its functions. Nevertheless, by virtue of the principle of *totality*, by virtue of his right to use the services of his organism as a whole, *the patient can allow individual parts to be destroyed or mutilated* when and to the extent necessary for the good of his being as a whole. He may do so to ensure his being’s existence and to *avoid* or, naturally, to repair serious and lasting damage which cannot otherwise be avoided or repaired.⁶²

Pius XII defines totality in this way: “The part exists for the whole and . . . the good of the part remains subordinated to the good of the whole, that the whole is a determining factor for the part and can dispose of it in its own interest.”⁶³

Pius XII further clarified, the “master and user of this organism, which possesses a subsisting unity, can dispose directly and immediately of integral parts, members and organs within the scope of their natural finality. He can also intervene, as often as and to the extent that the good of the whole demands, to paralyze, destroy, *mutilate* and separate the members.”⁶⁴ Just as Pius XI was distinguishing medically indicated surgery (including “mutilation”) from sterilization for reason of contraception, Pius XII here is distinguishing medically indicated surgery (including “mutilation”) from surgical procedures performed as “an abuse of the power of authority.”⁶⁵ Neverthe-

⁶¹ Pius XI, *Casti connubii* (December 31, 1930), n. 71, emphasis added.

⁶² Pius XII, “The Moral Limits of Medical Research and Treatment” (September 14, 1952), n. 13, available at Papal Encyclicals Online, <http://www.papalencyclicals.net/Pius12/P12PSYCH.HTM>, emphasis added.

⁶³ *Ibid.*, n. 34.

⁶⁴ *Ibid.*, n. 31, emphasis added.

⁶⁵ *Ibid.*, n. 31.

less, both popes are clearly stating situations where surgical alteration (including “mutilation”) can occur.

In a separate discourse, Pius XII explicitly addressed the circumstances where a healthy organ could be removed: (1) where its preservation would damage or endanger the life of the person, (2) where the damage could not be avoided in any other way than by surgery, or (3) “when the surgery and removal of the organ or suppression of its function will lead to a diminution or elimination of the *threat* to the organism.”⁶⁶

Totality, then, can be “seen as being directed toward the preservation of the physical whole of the human body;”⁶⁷ though, as Pius XII points out, the part is subordinated to the whole and can, if necessary, be disposed of for the good of the whole. Integrity can be seen as referring “to the respecting of the hierarchical ordering of the members of the body with ‘the values of intellect, will, conscience, and fraternity (being) preeminent.’”⁶⁸ A distinction can be drawn between “physical integrity” and “functional integrity”: Physical integrity is simply keeping all one’s parts, both kidneys, for example. Functional integrity is keeping one’s physiologic functionality, which may or may not be the same as keeping all of one’s parts. One can live with only one kidney, and donate the other. One loses one’s functional integrity, however, if one donates one’s brain.⁶⁹ This is summarized in the *ERDs* as follows: “All persons . . . have the right and duty to protect and preserve their bodily and functional integrity. The functional integrity of the person may be sacrificed to maintain the health or life of the person when no other morally permissible means is available.”⁷⁰

The reason we review the medical literature so extensively is to establish the medical basis for the argument. BRCA mutations, though rare, are, when present, *significant* risk factors for particularly noxious malignancies. Breast cancer screening methods exist, but they are not without risks, not the least of which is that they can generate patient anxiety, lead to greater radiation exposure, and increase the number of surgical procedures.⁷¹ Effective screening techniques for ovarian cancer do not

⁶⁶ John Haas, “The Totality and Integrity of the Body,” *Ethics & Medics* 20.2 (February 1995): 2, emphasis added.

⁶⁷ *Ibid.*, 1.

⁶⁸ *Ibid.*, quoting *Gaudium et spes*, n. 61.

⁶⁹ *Ibid.* Much of the literature regarding integrity revolves around the question of the morality of living-donor organ transplantation. For a fuller discussion of this, see also Stoeppl and Requena, “Organ Donation Is Not Mutilation.”

⁷⁰ USCCB, *Ethical and Religious Directives*, n. 29.

⁷¹ I am avoiding another invidious and polarizing phrase, “unnecessary procedures.” A biopsy may be negative but not necessarily “unnecessary” as it was *driven by the screening protocol*. The appropriateness of various screening protocols is a far larger issue than we can get into here. Suffice it to say, if she hadn’t had the screening, she wouldn’t have had the biopsy, which ended up negative, and she would have avoided the potential of a complication from the biopsy. But then, if she does not have the screening, the early cancer may be missed, and so on.

exist. These, then, form the circumstances of a significant medical *threat*, without demonstrably superior alternative approaches.

So the intention is the good effect of decreasing the threat. The evil effect is the removal of healthy organs. It is justifiable under the principles of totality and maintenance of bodily integrity. This is so regarding mastectomy as well as BSO, but BSO (unlike mastectomy) also renders the patient sterile, which brings us to the next question: Is this contraception?

Surgical sterilization performed for reason of contraception is *intrinsece malum*. This is obvious in the case of gratuitous sterilization for purposes of contraception. Suppose, however, the sterilization were proposed because a future pregnancy could directly endanger the mother's life? Consistent Church teaching, as most recently recapitulated by the Congregation for the Doctrine of the Faith, is that this sterilization is illicit, as the act is one of contraception.⁷² Granted, the circumstances are serious, but they do not change the nature of the act. However, suppose the uterus is cancerous. In that case, the organ poses an immediate threat to the mother and must be removed to preserve her life and health. The act is not one of contraception; it is one of therapy. The intent is not to prevent pregnancy but to remove an immediate medical threat to the woman, the unintended but unavoidable secondary consequence of sterility notwithstanding.⁷³

Prophylactic BSO would seem to fall into this latter category. The act is to remove specific organs that constitute a threat to the woman, and the intent is *not* contraceptive, as evidenced by the guidelines that specify "after completion of child-bearing."⁷⁴ This is not the place to explore what the contemporary medical establishment may mean by the phrase "after completion of childbearing." It is simply to point out that, even from a secular perspective, the *reason* this is being proposed is *not* to prevent pregnancy; it is *not* a contraceptive act. We shall take up the question of *immediacy* at the conclusion of the paper. To finish out the second principle, it is the good effect (reduction of the threat) that is intended; the evil effect (sterilization) is foreseen but unintended.

The Good Outcome Must Not Brought about by the Evil

This flows directly from the preceding discussions. Surgical removal of organs for legitimate medical reasons (including threats) is licit under the principles of totality and integrity. The circumstances are not gratuitous, and the medical indications are rather strictly defined. The sterilization produced by the BSO is foreseen but not intended.

There Must Be Proportionality between the Effects

"There's no such thing as a minor surgery," grumbled the very tired and very cranky resident as we rolled a patient to the operating room late one night during my medical student days. Fair enough, but it is nevertheless the case that laparoscopic

⁷² Congregation for the Doctrine of the Faith, Responses to Questions Proposed concerning "Uterine Isolation" and Related Matters (July 31, 1993).

⁷³ *Ibid.*

⁷⁴ NCCN, Genetic/Familial High-Risk Assessment, MS-24 [51]; see also MS-25 [52].

BSO is well tolerated and relatively low risk. Bilateral mastectomy is a major procedure with more potential morbidity than BSO, but in contemporary practice it too is well tolerated with generally good outcomes. Risk estimates vary dramatically for any surgical procedure, as they are so dependent on other patient factors and illnesses (“comorbidities”), but suffice it to say that assessing risk is a major part of the pre-operative analysis by the surgeon. If the risk is deemed too high, the surgery will not proceed. This is especially true in the case of prophylactic procedures. By definition, if a prophylactic procedure is performed, the risks of *not* doing the surgery, from a medical standpoint, significantly exceed the risk of doing the surgery.

At this point, I conclude that prophylactic mastectomy and bilateral salpingo-oophorectomy, in specified situations such as the presence of a BRCA gene mutation, are licit. The object—the surgical removal of apparently healthy non-vital organs that nevertheless seriously threaten the patient—is good, justified under the principles of totality and integrity. The intention is to reduce the threat, which is good; the foreseen but unintended secondary effect is, in the case of BSO, sterility, which is not good. The good effect is not brought about by the evil effect. The action is proportionate to the threat, and there are not clearly superior alternatives (more on this below).

One legitimate question is just how immediate the threat is. The guidelines recommend considering surgery in the thirty-five to forty-year-old range, as this is the age at which the disease likelihood starts to rise rapidly.⁷⁵ But in a thirty-five-year-old woman, when might a cancer develop? A week? A year? Never? And what constitutes “immediate”? A day? A decade? Who decides, and on what basis? The Congregation for the Doctrine of the Faith used the term “immediate.” It also used the phrase “serious present danger.”⁷⁶ Pius XII used neither. I suggest that it is the threat—not the actual cancer—that is present and immediate.

Finally, is prophylactic surgery the best alternative? The *Ethical and Religious Directives* states, “The functional integrity of the person may be sacrificed to maintain the health or life of the person when no other morally permissible means is available.”⁷⁷ Other approaches *are* available, and many, maybe even most, women may choose them. But as we saw in the first part of the paper, the other options are by no means without problems, and a particular woman and her physician could conclude that they are not satisfactory and pursue the surgeries. The point of this paper is, specifically, *not* to make a medical recommendation or endorsement. It is solely to argue that risk-reduction surgery, if chosen, is not in violation of Catholic moral teaching. Whether it is the *best* choice in a particular instance is between the woman, her family, and her physicians.

⁷⁵ Ibid.

⁷⁶ CDF, “Uterine Isolation,” question 3.

⁷⁷ USCCB, *Ethical and Religious Directives*, n. 29.