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Nudging and population-based cancer screening

Eli Feiring

University of Oslo, Norway

eli.feiring at medisin.uio.no

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Abstract

Regulatory tools that are targeting peoples' biases in decision-making, such as the disposition to postpone decisions and to focus on short term rather than future gains, are increasingly being used and justified through the influence of insights from behavioral economics on policy-making. Advances in behavioral economics and cognitive psychology have revealed how individual decision-making is boundedly rational, habitual and systematically biased and sometimes result in outcomes that are suboptimal according to the individual's values and long-time preferences. These findings have prompted policy-makers to develop decision aid to correct behavior through conscious and reflective processes, but also to utilize biases that are common when people make decisions.

The literature on the theory and practice of nudging has spurred much debate on understanding the psychological processes that drives behavior and decision making as well as the development, implementation and evaluation of the effectiveness of using nudging as a policy tool in many different sectors of public policy. Further, a growing literature is emerging about the ethics of nudging. The ethical debate has first and foremost evolved around the assumption that decisional nudging infringes upon individual autonomy. Governmental nudging may be seen to intrude into areas of personal responsibility and the worry has been raised that people are being manipulated by subtle interventions in choice situations.

While the debate on the ethics of nudging has informed some analyses of public health initiatives, ethical analysis of nudging in the context of screening is sparse. This paper aims to assess the legitimacy of using nudges as a regulatory tool to increase participation in cancer screening programs. Screening healthy, non-symptomatic individuals is expected to reduce mortality rates of cancer at the population level and is seen to be an essential part of modern cancer care. In women, breast cancer has high incident rates and population-based screening programs are introduced in many countries in the world. High acceptance rate is an explicitly stated goal in most programs. Governments may intervene to improve the attractiveness of participation in screening. One option is the modification of the environment in which choices are made so that the choice to participate becomes more likely than non-participation.

This is the first study that offers an analysis of nudging and breast cancer screening in a Norwegian context. The paper analyses how different nudging techniques are used to maximize screening uptake by a content analysis of textual material such as invitation letter and informational leaflets. Further, the paper explores whether it is normatively justifiable to nudge women to participate in breast cancer screening.

Introduction

Breast cancer is the most common cancer among women. Late localized cancer is associated with poor prognosis. To detect cancer before it becomes symptomatic, population-based mammography screening programmes are introduced in well-resourced settings worldwide. Breast cancer mortality seems to be decreasing in countries where such programmes have been implemented, although the association between screening and mortality from breast cancer remains uncertain (WHO 2014). The individual woman participating in screening may, however, experience serious adverse health effects due to false positive mammography, detection and treatment of cancer that would otherwise not have affected her, and anxiety and emotional stress. Some women will also experience interval cancer (cancer between screenings).

Precise estimates of effects of mammography screening programmes are difficult to obtain and there is great controversy in the international academic literature on the interpretation of the available evidence (Marmot et al 2012). Still, health authorities in most developed countries have concluded that population-level benefits of screening for breast cancer outweigh adverse effects. In the US, women between the ages of 50 and 74 are recommended be screened every two years. The European Union recommends biennial screening for women between the ages of 50 and 69, following WHO guidelines.

High acceptance rate is an explicitly stated goal in most population-based screening programmes. Yet, it is well-known that people delay or even reject medical tests and governments may intervene to improve the attractiveness of participation in screening. One approach is to modify the environment in which individual choices are made so that the choice to participate in screening becomes more likely than non-participation, still not restricting available options. This approach belongs to the kind of policy interventions known

as nudging. For example, many countries have established specific default rules for mammography screening to make participation the intuitively easy and psychologically salient choice. Unless women indicate otherwise, they will be presumed to participate and will receive an invitation letter to screening with a prescheduled appointment. Those who do not want to participate can opt-out of the service.

Nudges are regulatory tools that are supposed to counteract heuristics and biases that are common to individual decision-making and make people fail to follow through on their intention, such as the disposition to postpone decisions or to place less weight on the future relative to the present. Such tools are increasingly being used and justified through the influence of insights from behavioral sciences on policy-making. Advances in behavioral economics and cognitive psychology have revealed how individual decision-making is boundedly rational, habitual and systematically biased and sometimes result in outcomes that are suboptimal according to the individual's values and long-time preferences (Kahneman 2003, Thaler and Sunstein 2008). These findings have prompted policy-makers to develop decision aids to steer people towards normatively defined better behavior in situations where cognitive limitations and psychological biases are likely and expected to negatively affect choices.

Governmental use of nudges that benefit the nudgee can (but not necessarily) be justified by the political doctrine of libertarian paternalism as is done by Thaler and Sunstein in *Nudge* (2008). A libertarian paternalistic nudge is “any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives (...) the intervention must be easy and cheap to avoid” (2008,6). These kinds of nudges are paternalistic in the sense of trying to induce choices that

are serving people's own preferences and values, yet liberty-preserving by not affecting the options available (Thaler and Sunstein 2003).

The literature on the theory and practice of nudging has spurred much debate on understanding the psychological processes that drives behavior and decision making as well as the development, implementation and evaluation of the effectiveness of nudges as a regulative tool in different sectors of public policy making (Vlaev et al 2016). Further, a growing literature is emerging about the ethics of nudging (Sunstein 2015, Wilkingson 2013, Blumenthal-Barby and Burroughs 2012). This debate has many layers. Worries have been raised about manipulation, deception and infringement of individual autonomy and agency in specific choice situations where policy makers and "expert" choice architects make subtle interventions (Vallgård 2012, White 2013). Concerns about distributive consequences are voiced (Purnell et al 2015). Further, the ideological basis of the libertarian paternalism approach has been examined and criticized for extending new forms of neoliberal governmentability by potentially undermining the significance of rational choice and creating passive subject (Jones et al 2013, Leggett 2014).

Given the ethical concerns about nudges as governmental tools and their potential normative costs, there seems to be reason to be cautious when debating whether and when to implement certain nudges. What is the legitimate extent of nudging individuals to healthy behavior?

The aim of the present paper is to develop an analysis of the ethics of nudging in the context of breast cancer screening. While the debate on the ethics of nudging has informed analyses of various public health initiatives to regulate smoking, alcohol misuse, overconsumption of foods and drinks, and poor adherence to evidence-based guidelines (Vlaev et al 2016), ethical analysis of nudging in the context of screening is sparse. A recent study researched the Danish mammography screening programme and concluded that the influence exerted upon women's

choices of participation could not be justified within a welfare-enhancing libertarian paternalistic framework (Ploug, Holm, and Brodersen 2012). The present study is the first study that offers an analysis of nudging and breast cancer screening in a Norwegian context.

First, the paper demonstrates how different kinds of nudges are used in the Norwegian Breast Screening Programme to maximize uptake. Second, the paper explores whether it is justifiable to nudge women to participate in breast cancer screening programmes. It is argued that assessment of nudges must be differentiated, the normative permissibility is conditional on the cognitive process they entail, their goals, their interaction with autonomy, justice, institutional transparency, and to how the specific nudge affects behavior.

Analytical framework

Behavioral economics is a discipline that is informed by cognitive psychology. It challenges neo classical economics' fundamental assumption that people make decisions that are fully informed and rational. Rather, decision making is understood as a process with predictable biases that may be anticipated and counteracted. Empirical findings suggest that people have limited attention and limited access to information, together with limited capacity to foresee and balance consequences resulting from alternative choice-sets. These limitations lead them to apply simplifying heuristics. Further, people have bounded self-control. They procrastinate, their emotions play a vital role in decision-making, and small barriers become deterrents to action. Also, people have non-standard preferences. They are biased toward unrealistic optimism and toward preservation of the status quo, oriented towards the present rather than to the future and suffer from loss aversion. Further, people are vulnerable to framing effects and their preferences are mutable and may be manipulated (Congon et al 2011, Madrian 2014).

These insights allow for a formulation of policies that aims to correct boundedly rational behavior and to steer people's decisions towards welfare-enhancing, "wiser", options. A range of policy tools to help the individual execute her preferences are available.

The term nudging is used as a characteristic of intentional yet subtle changes in the context in which people make decisions, the so-called choice architecture. Nudging is thought to be effective as a means to counteract biases through a range of different mechanisms. For example may trivial costs be imposed to make certain choices easier, or default rules be changed to help overcome procrastination.

Efforts to incorporate insights from behavioral economics into the policy design are developed in many countries and many policy-areas. The nudge approach has been embraced by policy-makers of different ideological orientations (Leggett 2014). It is recognized in the literature that the approach has an ambiguous normative foundation and that this may contribute to its attractiveness for policy-makers. In addition, compared to traditional policy tools, such as hard incentive-based instruments or legal regulation, the political costs of nudging are low (Schubert 2017).

Yet, as all policy interventions the governmental use of nudging carries a burden of justification. Even if there always will be some kind of choice architecture put into place, the specific nudges are designed with different aims and intentions and different justifications and the assessment of legitimacy needs to be context-sensitive.

A useful starting point for thinking about what types of policy tools will be justifiable in the context of screening, is to examine the overall aim of the intervention, the different kinds of nudging mechanisms that is used, and the alternatives. Rather than looking at a simple set of values, the aim is to identify the ethically relevant dimensions that should be considered in an

analysis of the justifiability of using nudges in population based screening contexts (cf. Blumenthal-Barby and Burroughs 2012).

As an analytical point of departure, I suggest that the following questions should be considered:

- Is the aim of the intervention legitimate?
- Are the various kinds of nudges objectionable?
- Are important values such as welfare and distributive justice compromised?
- Is the use of nudges fully transparent and subject to public scrutiny?
- Is there a better alternative?

Setting

Norway is characterized by high per capita income and an egalitarian ideological orientation. Healthcare is universal and tax-financed, and 8,9% of GDP is spent on health. While primary healthcare and social services in Norway are organised at the municipality level, an independent local administrative level, specialised healthcare is subject to national governance. Specialised healthcare is administered by four regional health enterprises.

The main health policy goal is to offer good quality healthcare equally accessible to all. There are at least three different concerns of equity at play. First, healthcare should be distributed according to need. Second, there should be no discrimination on the basis of personal and social characteristics, such as social status groups, genders, ethnicity, and age, place of

residence, diagnosis, or cause of illness. Third, health authorities should aim to reduce unfair social inequalities in health. Further, solidarity is an important underlying value and is expressed in the health system's single tier design that aims to share the best standard of care possible with all members of society. Thus, the patients' ability to pay does not enter the decision-making process concerning use of expensive technology in hospitals, including breast cancer diagnostics and treatment. Multi-center breast cancer treatment is established in all of the four health regions of Norway.

Breast cancer is the most common cancer among Norwegian women.

The Norwegian Breast Cancer Screening Program is governmentally funded and administrated by the Cancer Registry of Norway. The program was established in 1995/96 and developed to a nationwide program in 2004. Today, all women between the ages of 50-69 are included on a voluntary basis. As recommended by the EU guidelines women are screened every second year (EUnetHTA 2011). Participants in the population based mammography screening program pay a low examination fee. Women outside the target age-span will need a referral from their GP to visit private radiology clinics and pay full price.

The attendance rate is 75 pst (Selbuødegård et al 2016). Women in Oslo, the capital of Norway, has lower participation rate (62 pst), which may be explained by access to private clinics and by lower participation in mammography screening among women with ethnic minority background.

Data

Data used was the invitation to participate in the breast cancer screening programme all Norwegian women aged 48-49 receive: The postal *information letter* about the invitation to

participate that will follow; the *invitation letter*; and the accompanying *information leaflet* issued by the health authorities. Data was collected from the official web-site of the Norwegian Cancer registry of Norway, the Norwegian Breast Cancer Screening Programme. All documents were publicly available and did not require permission to access (<https://www.kreftregisteret.no/en/screening/Breast-Cancer-Screening-Programme/>).

Results

A closer reading of the textual material indicates a clear intention on behalf of health authorities to maximize participation rate. Nationwide mammography screening is justified with reference to expected health gain at the population level: “*The objective is to detect breast cancer at an early stage, which often leads to improved survival*”.

A range of different nudges are put to use: Default (non-coercive), framed information provision, reminders, social norms etc. Some of these nudges are paternalistic, others are educative, and some of them are designed to exploit behavioral bias.

Default rule: The invitation to Norwegian women contains a pre-booked appointment for mammography. Thus, the individual is presumed to consent to breast cancer screening. She may, however, opt out by contacting the health service.

The use of default exploits the tendency to accept the status quo when an option is presented as standard or prescribed, even if this choice is inconsistent with the individual’s preferences. Default is supposed to work by two mechanisms. One is reducing efforts: The default option requires no action and no laborious calculation of the benefits and harms of the different

alternatives (cf Dinner et al 2011). The other mechanism is the implied endorsement of the option that the decision-makers have preselected due to its merits, as an advice on the part of women.

Reminders: If a woman does not respond to the invitation to be screened, a reminder is sent.

Information disclosure: Information about the benefits of screening is presented in precise numerical terms. However, information about possible harms uses verbal descriptions. The manner in which information is presented is known to influence decisions. Risk-information may be very difficult to understand and may be framed in various different ways.

Recommendation from authorities: The health authorities give a clear recommendation.

Norwegian women are known to perceive the health care system as fair and trust the authorities to provide good care. The invitation may become something women just cannot decline out of courtesy.

Norms: Social and cultural norms are played on. The information leaflet contains information about high-prevalence information, i.e. information about what others do. Further, the invitation associates non-participation with risk to health and welfare, and fortified societal norms about good health management.

Affective cues: The information leaflet is printed in a “delicate” lay-out, with the use of beautiful pictures of violet lavender, possibly making women thinking about summer and the good life in southern France.

Table 1 Nudging, the Norwegian Breast Cancer Screening Program

Type of nudge	Description	Ethical considerations	Example
Default	Preset options – “go with the flow”	Transparency Opt-out option Expected benefits and harms Expected injustice	Pre-scheduled appointment
Reminder	Prompt – counteract delays	Privacy	One reminder to non-respondents
Information	Factual information – attention drawn to what seems relevant	Truthfulness Evidence-based	<i>“One may expect the following results when 1000 women are examined: 960-70 normal mammograms; 30-40 are recalled; 5-6 are diagnosed with breast cancer or precancerous lesions”. “Overdiagnosis: (...) There are disagreements among the medical and scientific experts as to how big this problem is”.</i>
Recommendation from authorities	Communication of information and advice by experts – exploits trust	Evidence-based	<i>“Mammography regularly is today the most important method for detection breast cancer in an early stage (...) The programme is a governmental, nationwide and voluntary health service”.</i>
Norms	Social perceptions of common behavior - conformity effects	What others do-information true	<i>“Three in four invited women choose to participate”</i>
Affective cues	Priming/emotional associations – influencing the subconscious	Whether there is a justification for use	“Delicate” pictures

Discussion

This study indicates how the choice to participate in mammography screening is made intuitively easy, psychologically salient by an invitation letter with a prescheduled appointment. Information is presented in an associatively attractive mode and the choice to be screened is framed as clearly endorsed by the social environment. The analysis of the textual material suggests that a range of different nudging techniques are utilized to maximize uptake.

Is the aim of the intervention legitimate?

The main aim of mammography screening is to reduce premature death from breast cancer. According to numbers presented by the NHS, out of 200 women, 15 would be expected to get breast cancer over the next 20 years (NHS Breast Screening Leaflet, 2015). If screened, 3 women would die early from their breast cancer. If not screened, 12 women will be diagnosed and treated and 4 are expected to die from breast cancer. Yet, 3 would never know that they have breast cancer and will be unaffected. This means that 3 screened women are expected to be over-treated if they participate in screening. These women are treated and “cured”, but are actually harmed because they receive unnecessary treatment (Brawley 2017).

From a public health perspective, there is good reason to run a mammography screening programme (although there are discussions about closing down breast cancer screening programmes in some countries). However, as a public health intervention, specific ethical concerns are required because it balances the risks and benefits by individuals with those faced by the population as a whole.

Are the various kinds of nudges objectionable?

Manipulation, persuasion and autonomy

According to Ploug and others (2012), libertarian paternalism entails a weakening of the standard requirements of informed consent because it does not rule out the provision of inadequate information. If this is true, then libertarian paternalistic nudges may be manipulative. Manipulation occurs if one present someone with evidence but intentionally not mention information and facts one acknowledge as relevant (Tsai 2014), thereby exploiting the lack of knowledge and depriving her the opportunity to rational reflection. Further, manipulation is present if one introduces reasons into the deliberation in order to play on emotions, exploiting the limitation in capacities. That is: Reasons are given not to advance the individual's rational reflections but to subvert the decision making process.

It may be claimed that nudges work by manipulating people's choices because they exploit people's irrationality and information deficit. Manipulation is a strategy used when one wants to trigger an affective reaction and may be defined as a statement or action that *does not sufficiently engage or appeal to people's capacity for reflective and deliberative choice* (Sunstein 20xx).

Of course, there are different sets of reasons for why manipulation is wrong: It offends people's autonomy and dignity as reflective individuals; and the authorities promote their interests rather than those of the nudge and so welfare is threatened.

The use of manipulative techniques is well known in the history of screening. Jørgensen et al (2009) simply call leaflets sampled in a study from 2006 for "propaganda". The leaflets studied simply failed to inform women of harms, s.a. overdiagnosis, false positive and interval cancers. The leaflets left no question about the right decision and the authors argue that the

policy with pre-set appointments short-circuits informed decision-making. Leaflet information has changed over the years, but they may still make people feel vulnerable and then offer them hope (Woloshin et al 2012). When guided by intuition in the context of breast cancer screening “we do not *think* risk; we *feel* it”. It is easy to eclipse the mental calculations we must undertake to figure out for example why early detections does not necessarily mean living longer.

In this case, some of the nudges used are transparent while at the same time targeting automatic behavior, such as the use of prescheduled appointments, others are nontransparent, such as use of pictures and colors in the information leaflet, and may be seen as manipulative. The presentation of benefits, risks and harms rather belong to the broad middle terrain between (permissible) rational persuasion and (impermissible) manipulation (cf. Blumenthal-Barby 2012).

Authorities’ attempts to influence choices carry with them a potential for infringements on individual autonomy and agency, for example by triggering flawed reasoning or imposing experts’ preferences on individuals. Nudges may push some people towards a behavior in accordance with their true preferences, but still decrease autonomy for others, even when they are welfare-promoting for a majority of the population. The libertarian aspect of the libertarian paternalism prescribes that the nudges should be easy to avoid. This require that one needs to know that one is being nudged, which again first require transparency (external condition), and second, that one has capacity to resist pressure (internal condition) (Mills 2015).

Are important values such as welfare compromised?

The libertarian paternalist should aim for welfare optimizing strategies, as judged by the nudgee herself. The nudgee's preferences are those she would have in an ideal condition of complete information, no lack of self-control and unlimited cognitive abilities (Sunstein 2003). These kinds of preferences are not easily elicited.

Still, it may be of interest to determine how the women deem the acceptability of nudges in this context. There is a growing literature on people's perceptions about different aspects of screening. The findings are, however, inconclusive. Preferences for screening is highly cultural determined. To give a few examples:

In the US, mammography is said to symbolize empowerment and optimism for many American women (Barker and Galardi 2011). In 2009, new guidelines for breast cancer screening in the US were implemented as scientific concerns about the efficacy of mammography developed. Recommendations to begin screening at age 40 were changed to begin routine biennial mammograms at age 50. In a study of the reactions of cancer patients to the new guidelines, the patients accentuated medicine's obligation to prevent or alleviate individual suffering on a short term basis and expressed little understanding of the epidemiological search for the best long-term outcome for the greatest number of people. Scientific expertise was discounted on grounds that it lacked experiential connection to illness and a virtual connection to others with the same illness. In another study of the changes in the U.S. guidelines, women ages 40-50 expressed that they were unconvinced about potential disadvantages of screening and did not intend to comply with the change (Allen 2013).

In a study of how the invitation and the choice of participation were experienced among women participating in the Norwegian Breast Cancer Screening Programme, the respondents

experienced the pre-scheduled appointment for mammography as an aid in overcoming the temptation to postpone the examination. The fixed appointment made it both practically and emotionally easier to make what the women experienced as “the right choice”. The invitation to participate was described as an indication of a responsible welfare state (Østerlie et al 2015). The respondents trusted the welfare system and the recommendation to participate by experts. They received the opting out procedure with gratitude.

However, in a study of self-control and health among Danish respondents, Gyrd-Hansen and Kjær (2015) asked if people really demand self-control strategies. They found high degrees of lack of self-perceived self-control in the area of participation in screening programs there was generally more support for interventions to increase participation in screening programmes among the non-target groups (those who participate when invited) than among the target groups, but that those who themselves participate tend to be hesitant to enforce their decisions on others. In this study, interventions to improve participation would override target groups preferences and indicated that intervention cannot be justified on the grounds of libertarian paternalism.

A new randomized controlled study of whether including information about overdetection of breast cancer in a decision aid would help women to make an informed choice about screening, found that providing comprehensive information about overdetection increased the number of women making an informed choice and also indicated that some women are less likely to choose screening compared with a control decision aid with overdetection information omitted (Herch al 2015).

Studies of women’s experiences of a false-positive mammography have indicated that screening may create anxiety and dependence on health experts, and a feeling of increased responsibility for governing their own health (Lindberg et al 2013, Solbjør 2011). A study of

Norwegian women that had experienced interval breast cancer (interval cancer accounted for 28 pct of cancers in screened women), indicated that women would see themselves as exceptions to a beneficial health service and continued trusting the screening programme (Solbjør 2012).

A study of people's willingness to accept overtreatment in cancer screening in the UK, found that people in general did not know much about overtreatment, but that they on the whole made a trade-off between benefits and harms. The respondents had, however, highly variable views on how much overtreatment is acceptable (Van den Bruel et al 2015).

But how should this information be assessed? Ultimately, participants will be reassured if the test is negative, they will have gratitude if the test is positive because their cancer is discovered at an early stage, and a false positive will be followed by relief that no cancer was found after all. Harms will be discounted or explained away (Ransohoff 2002).

(About here: Distributive justice and Are the nudges used fully transparent and subject to public scrutiny?).

Is there a better alternative?

There is an ongoing professional debate about the precise estimates of benefits and harms of breast cancer screening because data are uncertain. Accordingly, the traditional aim of maximizing participation in breast cancer screening programmes is challenged and a shift towards providing information that allows informed decision-making is emerging within the

mammography debate (Jørgensen et al 2009). It is increasingly recognized that harms and benefits of screening may fall on different individuals and that the balance between benefits and harms can be valued very differently by the individual than by the health authorities. Patients should therefore be provided with information about all options and the risks, harms and benefit associated with them. This is thought to enable patients to identify and clarify their preferences in accordance with their values.

One way to implement this approach is by using decision aids such as evidence-based information leaflets. There is a growing empirical literature on the level of informed choice in women invited to and participating in screening, as well as on the moral importance of opportunities to weight benefits and harms of screening so as to form an opinion and make an autonomous choice, free from external pressures or barriers (Gigerenzer 2015).

Given that the health authorities, through democratic decision-making, establish population-based screening programmes, they have three options if they want to enable informed choice and aim at high uptake. First, they may give a clear recommendation and mandate screening. Second, they may design default rules and give the possibility for opt-out. Third, they may require active choice.

Holm and others have argued that active choice is required. Given that screening falls into the domain of informed consent, nudges are illegitimate, because nudges necessarily interfere with autonomous decision-making since reflection is bypassed.

Are there arguments against active choice within this context? Some women would choose not to choose because it is difficult to understand the complexity of the factual situation. A recommendation from authorities that is trusted allows individuals to engage in so called “intellectual outsourcing. She may have preferences for being free from the burden of

decision-making when it comes to certain medical options. Full epistemic independence will prevent individuals from being able to pursue other important goals because of limitations of time, interest and concern.

We may ask whether it is a sound aspiration to empower the individual to think like experts and expect her to perform a proper balancing of harms and benefits. For most women, it is epistemically difficult to understand the factual disagreement of the experts in this field. Further, to be fully informed, the individual must understand prevalence, incidents, false negative and false positive findings, unexpected findings, interval cancer etc.

Is the decision to participate in screening a sphere where we are sensitive to the importance of being treated as having the competence and authority to engage with our reasons? Or may the level of expertise of the individual make the reason offering less insulting? Does she have epistemic access to the relevant information?

Rosenbaum (2014) has argued that “Defaulting to patient preferences in the face of uncertainty has become the moral high ground”. We may, I think, ask whether it actually is valuable in this context to acquire a stock of knowledge and whether the requirement that women should make an active choice without a clear recommendation is contrary to her preferences and therefore, paternalistic.

Conclusion

Reducing the morbidity and mortality caused by cancer is a challenge to societies worldwide. Cancer mortality can be reduced by early detection and treatment and for some cancer types, screening healthy, non-symptomatic individuals is seen to be an essential part of modern cancer care. For population-based screening programmes, at the population level the benefit

should outweigh the harms. Breast cancer screening reduces mortality of breast cancer, but may harm the individual women participation in screening. In this paper, ethical considerations are discussed in the context of the Norwegian Breast Screening Programme.

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