

Overdiagnosis – Norwegian general practitioners show the way

The position paper on overdiagnosis from the Norwegian College of General Practice is the first of its kind to be adopted by a national medical college. In terms of a critique of the profession, it represents a milestone in Norwegian medical history. The document culminates in a challenge to medical communities, health authorities, politicians and the general public.

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The resources and technology of the health services provide considerable opportunities for preventing and treating disease. When used wrongly, these resources can cause harm and result in a reduced quality of life. Aspects of medicine in the Western world are expanding in ways that fail to promote health and that lead to an unnecessary use of resources and, in the worst case, cause harm.

The Norwegian College of General Practice has recently published a position paper on overdiagnosis and related medical overactivity (1). Leading international medical journals and associations have also put these issues on the agenda. The best known are the series of articles and campaigns *Too much medicine* in the *BMJ*, *Less is more* in the *Journal of the American Medical Association* and *Choosing Wisely*. The latter is a US campaign initiated by the American Board of Internal Medicine in 2012. It is aimed at patients and consumers, with the intention of reducing unnecessary use of health services and avoiding the risks associated with unnecessary treatment. This campaign has spread to about ten Western countries (2), and has received significant support from the medical profession in the USA and Canada. A similar campaign has been launched in the UK this year by the Academy of Medical Royal Colleges (3).

In Norway, increasing attention is being paid to variations in treatment regimes with no medical justification (4). The Directorate of Health has conducted an assessment on this subject (5), and the Norwegian Medical Association has prepared a report on variation, overconsumption and underconsumption in the health services (6).

GPs take the initiative

Norwegian GPs were among the first to point out the increasing attention paid by modern western medicine to the risk of future disease. As far back as the 1980s, Jostein Holmen put fundamental questions regarding the treatment of blood pressure on the agenda in his doctoral thesis (7), and introduced the concept of «the medical-industrial complex» into Norwegian debate (8). The Norwegian College of General Practitioners, NSAM as it was then called, developed a project of which the topic was the identification and treatment of risk factors in healthy patients. It resulted in the book *Diagnose: Risiko* [Diagnosis: Risk] in 2000 (9). The academic community of

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general practice in Trondheim in particular has since published a series of research articles on the topic (10). In 2011, the Norwegian College of General Practice (NFA) published a position paper on preventive health work (11), which has attracted international attention.

The involvement of GPs is not coincidental. They work closely with the general population – at the nexus between science and society, and between disease and normality. While they need to identify and treat disease as early as possible, they also observe how increasing medicalisation underlies problematic tendencies in the population, among politicians and in the medical community. Overdiagnosis is one of these tendencies.

As part of a targeted effort to inspire reflection in the medical community on overdiagnosis, in January 2015 the Norwegian College of General Practice estab-

lished a reference group. One need that was identified was to summarise arguments that our colleagues can use when faced with requests from patients as well as politicians and the media for services whose benefits are questionable.

The issue is a complex one, and GPs themselves are responsible for significant medical overactivity. However, this in itself is the best argument in favour of working further to achieve clear, well-justified and, as far as possible, unified viewpoints. In the current work programme (12), the Norwegian College of General Practice has decided to develop and promote the position paper on overdiagnosis and related overactivity in collaboration with the reference group, to collaborate with other medical communities and to contribute to the Norwegian Medical Association's work on this topic.

The position paper was adopted at the board meeting of the Norwegian College of General Practice in April 2016 and presented at the College's general assembly in May 2016. A draft was presented and discussed at the conference *Preventing Overdiagnosis* in Washington D.C. in autumn 2015 and in June 2016 at the WONCA Europe Conference in Copenhagen. The document has been translated into English, and at the Nordic leaders' meeting in Helsinki in August of this year, all the Nordic Colleges of General Practice and general practitioner associations adopted it as the relevant strategy in this area.

The position paper – concepts, examples and challenges

The document defines and describes overdiagnosis and related concepts such as medical overuse, too much medicine, overtreatment, over-investigation and the expansion of disease definitions.

The clinical examples are numerous. Common, benign conditions, such as baldness and mild irritable bowel symptoms, are turned into medical problems.

Blanket cancer screening may result in the discovery and treatment of «cancerous

tumours» which in reality pose no risk. A randomised study with a follow-up time of 13 years showed that in the case of prostate-specific antigen (PSA) measurement, in the best case 781 men need to be invited for screening to avoid one death from prostate cancer. The same study also revealed that in order to prevent one death, 27 men were overdiagnosed with prostate cancer (13). A Cochrane meta-analysis of four randomised studies (14) shows that in the worst case, no reduction in mortality from prostate cancer is observed – the incidence of cancer diagnosis increases by approximately 70%, while total mortality nonetheless remains unaffected.

Screening of the population in South Korea for thyroid cancer offers an excellent example of what we are facing. From 1993 to 2011, the incidence of this type of cancer increased fifteen-fold in that country, while mortality remained unchanged (15). Similarly, in many countries we observe a considerable increase in the incidence of renal cancer, prostate cancer, breast cancer and malignant melanomas – with no corresponding increase in mortality. There is much to indicate that we are also facing significant overdiagnosis of these conditions in Norway (16).

More peculiarly, social problems can be defined as disease that triggers payment of welfare benefits. Changes in intervention and measurement values for various risk factors, as well as a change in the definition of chronic diseases, are also relevant examples. The boundary between what is defined as a risk and what is defined as a disease is blurred (17).

Not everything that can be done, needs to be done

The main reason to prevent overdiagnosis is that it may cause harm. However, useless interventions that are not directly harmful should also be avoided because of their detrimental economic consequences for both society and the patients.

Overdiagnosis may also indirectly contribute to underdiagnosis, by allocating limited resources to excessive investigation and pathologisation instead of activities that might be more profitable. This can help to maintain and reinforce social injustice. Appropriate prioritisation entails the exclusion of unnecessary and harmful investigations and interventions, so that resources can be used on beneficial investigations and interventions.

We believe that doctors generally need to increase their competence regarding the unfavourable effects of investigation and treatment. The information given by doctors to patients about risk, treatment and preven-

tion must be realistic and give equal weight to potential harmful and beneficial effects.

Driving forces

Overdiagnosis and overtreatment are driven by many different forces. It has long been central to health policy – including the coordination reform – to strengthen preventive work and start interventions early to

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prevent people from developing disease or complications of disease. Early discovery and intervention appear to be intuitively desirable, but they also increase the risk of unnecessary investigation and treatment (16).

This can lead to what we might call a popularity paradox (18): Discovery and treatment of unknown, symptom-free and indolent malignant tumours give the patient the feeling of being saved by the health services – despite the fact that a diagnosis and thereby a disease has been inflicted on them that if undiscovered would never have resulted in symptoms or death. This produces so-called survival stories, which in turn can lead to a lower threshold for screening for various conditions, and thereby to even more overdiagnosis and overtreatment.

Doctors tend to be ambitious in the practice of their profession and have high demands for perfection. Worries about not discovering potentially serious conditions early enough and coming under the spotlight of the media and the supervisory authorities contributes to a defensive medicine with a low threshold for further investigations.

Developments in technology are an important contributor to our tendency towards excessive investigation and tend to expand our understanding of disease and deepen our belief in technologically supported, individually targeted preventive activity (19).

Commercial medical providers offer health checks and examinations that are neither called for nor shown to have a posi-

tive effect, but which on the contrary can result in unnecessary investigations and interventions (20).

What should be done?

The authorities should confront the myth that early diagnosis is an unmitigated benefit. It must be recognised that efforts to avoid all cases of false-negative findings increase the prevalence of false positives. All guidelines and manuals for the health services should encompass a separate paragraph that reflects upon the possible harmful effects of the recommendations given, whether concerning diagnosis and treatment or interventions at group level. Political ambitions and the launching of concepts such as «the patient's health services» must not be interpreted to mean that patients decide on the assessment and treatment.

The authorities should develop indicators for overdiagnosis and overtreatment and should make errors of medical overuse the subject of scrutiny in line with other errors. When introducing a new screening programme, the potential benefit must be weighed against the potential harm. We are not confident that this is currently the case (21, 22).

All health information and information on health services, including screening and other preventive measures, should take account of the fact that life is an uncertain project with no guarantee of health and happiness, and that all medical interventions have adverse effects and limitations. Doctors and authorities should actively raise the issue that when health is made a product in a market with good profit potential, there is a great risk that the final outcome will be less health for more money. More stringent demands should be made of commercial providers to avoid overdiagnosis and overtreatment. The links between disease diagnoses and welfare benefits should also be debated.

A lost cause?

Some will perhaps claim that the battle against overdiagnosis has already been lost. However, we must point out that there are also some positive developments. For example, GPs today experience fewer requests for antibiotics for ear infections in children than previously, presumably due to better information on the harmful effects of overtreatment with antibiotic.

It is assumed that orthopaedic surgeons take account of recent findings on the wide variation in the prevalence of various operations (4) and studies that indicate that many of the operations performed are unnecessary, for example in the case of meniscus injury (23, 24).

At the national board meeting of the Norwegian Medical Association in May 2016, the association's preliminary report on overconsumption and underconsumption of the health services, *Too much, too little or just right* (6), was discussed. Just one year previously this had been a controversial topic, but this year the national board welcomed the report and wanted a clearer discussion of how the commercialisation of medicine is one of the important drivers causing overdiagnosis. The national board also wanted the proposals regarding how the Norwegian Medical Association can counteract this to be made clearer.

This shows that the work has borne fruit. Even key health politicians are now debating overuse, overdiagnosis and overtreatment.

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Received 28 June 2016, first revision submitted 19 September 2016, accepted 26 October 2016.

Editor: Lars Frich.