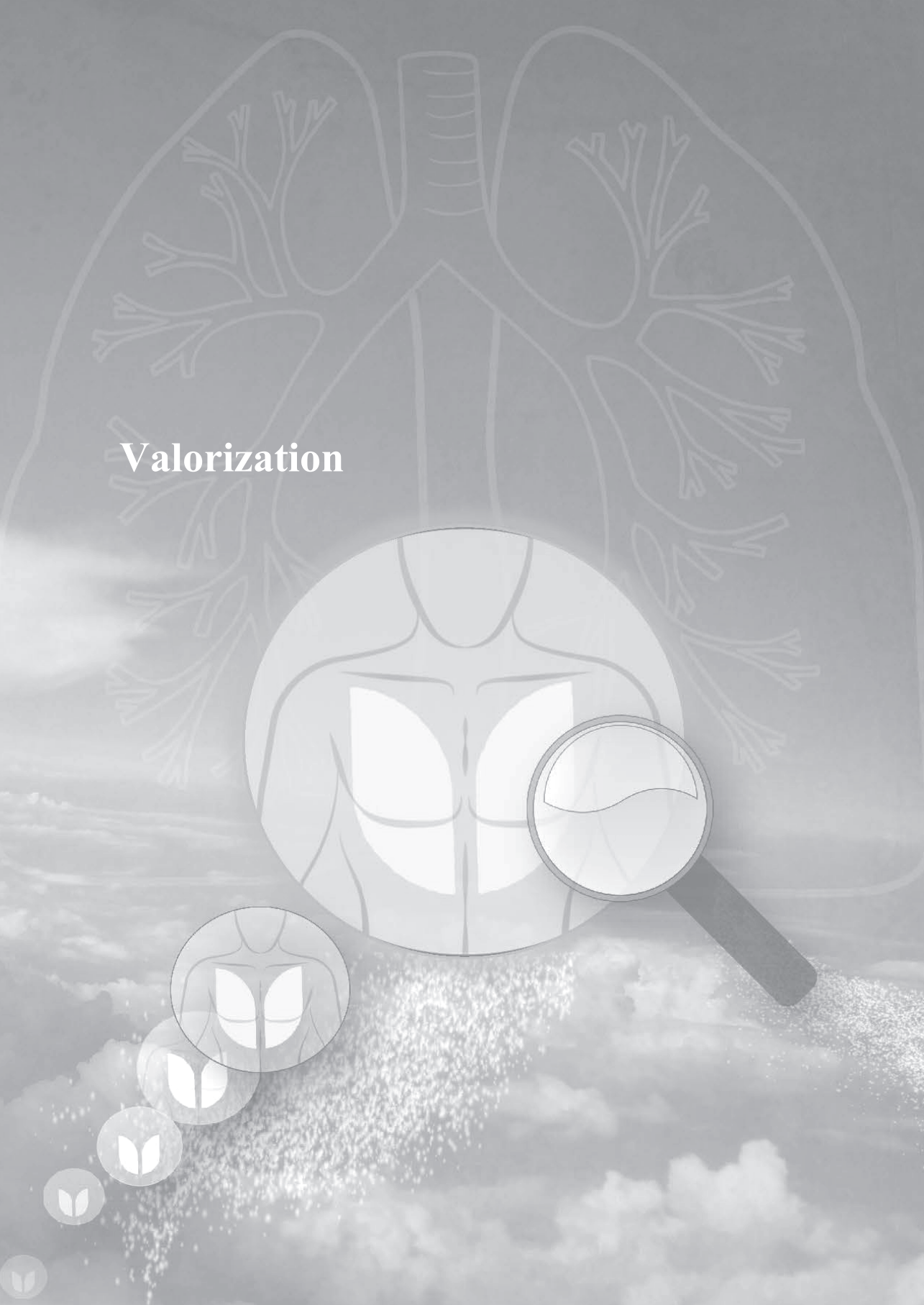
Early detection of chronic obstructive pulmonary disease in general practice

Valorization



Valorization

This chapter will discuss the current findings of this thesis in the light of the societal and economic impact as well as innovative concepts for future health care. It describes the activities resulting from the empirical studies in this thesis, in relationship to an array of target groups. The valorization potential of this thesis is presented, together with barriers and risks that need to be overcome.

Relevance

The results of the studies described in this thesis are of societal relevance. COPD is a leading cause of morbidity and mortality worldwide and results in substantial social and economic burden, which has been increasing in the last decade and will continue to do so in the upcoming years. (1) There is considerable debate about the prevalence and its inter-practice variation of chronic obstructive pulmonary disease (COPD) in the Netherlands. The existing underdiagnosis of the disease became clear when population-based studies showed prevalence figures two to three times higher than those found in general practice registry studies. (2,3) Our study confirms this fact of underdiagnosis.
Data obtained from earlier COPD casefinding studies were mostly based on inclusion criteria as the presence of risk factors and chronic respiratory symptoms. (4,5,6) Some studies showed that more than half of the respondents with respiratory symptoms had not previously consulted a health care provider. (7,8,9) Compared to the symptoms all participants of 40 till 70 years age groups reported when being asked in our questionnaire, many of them had failed to report their respiratory symptoms during normal clinical consultation. This suggests that patients lack awareness and knowledge about the disease.(**chapter 3**)
Early diagnosis of COPD is relevant both for the prevention of disease progression and for its treatment. The studies in this thesis showed evidence that more COPD patients can be detected through targeted population-based screening as compared to usual care (**chapters 2 and 3**), and that the new early detection programme for COPD has achieved that patients became more prepared to actively disclose information about their symptoms and risk factors. In this thesis we made use of the four stage early detection model (**chapter 4**) to conduct our studies. We provided the Prevention Consultation programme as an exemplary format of script for usage by health care providers that are responsible for screening and prevention in the general practices. (10)

Target groups

The results presented in this thesis might be of relevance to several societal groups.
The first and most important group are the patients themselves. One of the most important goals is to raise patients' awareness of having respiratory symptoms, in order to detect patients at risk of COPD. If all patients in the age of 40 to 70 years old would receive from their own doctor a COPD Detection Questionnaire accompanied with an explanatory letter (chapter 3) then a considerable amount of them would feel inclined to respond. This way of extensive information dissemination might be an effective way to promote patients' personal preventive activities. The Dutch Lung Foundation (www.longfonds.nl) is an important patients' association promoting the interests of patients with chronic lung disease by providing information and advice, and sharing experiences. On their website they introduced the online COPD risk test from 2010 onwards. The added success of their support by means of multiple mass campaigns, such as the distribution of flyers and television commercials to our programme, is evident.
The second group is that of healthcare professionals who are employed in general practices and are responsible for conducting a COPD early detection programme. Applying the early detection method may enable them to improve the care for their patients as a prevention activity. This is done by means of answering specific questions, motivating new (most early-stage) COPD patients to stop smoking and helping them adhere to other therapeutic recommendations. Moreover, screenees at low and medium risk for COPD are informed about their symptoms, weight, physical activities and quit smoking interventions. Because of spirometry underutilization in general practices more spirometric tests are needed. Minimization of COPD underdiagnosis in the Dutch general practices will result in more known COPD patients being eligible for follow-up and treatment in an integrated chronic care model.
Thirdly, the results and conclusions of the COPD early detection programme is of importance to the national Boards and Colleges of professionals. The Dutch College of General Practitioners and their working-group on COPD have been informed about our results and will take our findings into account regarding the Dutch COPD guideline for GPs.(11) In 2015, the most recent COPD guideline already recommended a method for COPD early detection for the first time. Furthermore, it concluded that the group of current smoking patients with a chronic cough should have direct access to spirometry in the GPs office.
A fourth societal group will be the medical insurance companies. The importance of regional multidisciplinary care groups for the implementation of COPD management programmes is evident. Reimbursement of the costs of regional

chronic COPD care is being negotiated with medical insurance companies and could be arranged in a bundled payment system. Early detection helps to identify more new cases and hence more exacerbations could be prevented or detected at an earlier phase, which will contribute to the reduction of the burden of the disease.(12) Prevention of exacerbations is extremely important from an economic perspective, as exacerbations generate the majority of costs due to the use of health care services. (13)
The extra workload of a COPD early detection programme in general practice requires extra cost. Dutch insurance companies are now inclined to reimburse the cost of COPD early detection programme in a preparatory module as a part of a bundled payment system in the integrated chronic care model.

Innovative activities

Several of the activities we studied have proven successful in developing an early detection programme for COPD.
In this thesis the COPD Respiratory Health Screening Questionnaire (RHSQ) takes a central place for COPD early detection. On the website of the Dutch Lung Foundation is the COPD risk test used and has been send back since the year 2010 already 550,000 times. With this result the RHSQ seems to be relevant to Dutch people as being one of the most successful questionnaires for preventive purposes.
An innovative aspect within our early detection programme, is the concept of targeted screening for COPD in general practice. First, the COPD detection questionnaire is posted to all so called healthy persons from 40 till 70 years old. With the results a high risk group can be identified. We call it targeted screening because only the respondents with a relevant risk for COPD, as indicated by their score on the questionnaire, are further evaluated for the presence of COPD in the GP-practice.
After participation in the early detection programme the new COPD patients have received their correct diagnosis earlier than would have occurred during usual clinical care. Subsequently exacerbations can be detected earlier, allowing the right therapy to be administered. Possibly a beneficial effect on health care costs could be presented as there are indications that the direct healthcare costs are much higher for undetected COPD patients than for known COPD patients. (14)
Moreover, stop-smoking intervention can start earlier. Since stop-smoking interventions are an important condition of screening programmes from the point of view of public health, these results are promising.

Implementation of our approach in a busy GP practice could lead to high burden on health care providers. If they would experience a high or peak workload during the three months of the early detection programme they can make use of specific services for their programme activities. These specific services can exist of supportive actions by a specialized agency, such as compiling a digital mailing list from the electronic medical records and posting questionnaires, structuring the work-up protocol of the programme script, installing and explaining the digital risk tool and performing extra spirometries in a limited time period. However, reimbursement for this support is not in place and still needs negotiation with healthcare insurance companies.

Future directions

Developments for future implementation that can be seen as spin-offs of our research.

The effects of early detection activities that we found show it is good to establish future directions after designing innovative products for the benefit of target groups. In addition to targeted screening we can identify specific patient target groups at high risk who require immediate spirometry in the context of opportunistic screening (casefinding). We might identify a target group of current smokers with chronic cough; current smokers in low SES groups or patients with comorbidities as cardiovascular disease. More research is needed to identify new target groups. The Dutch COPD guideline might need to be adjusted to include a casefinding programme for persons at high risk of COPD.

Since we know that respondents are likely to use the internet and respond to web-based questionnaires, we could also expect them to visit websites that are recommended to them in a targeted way. The effect of improving education by websites could be to increase the number of respondents. According to recent literature it is possible to integrate a web-based COPD patient self-management support application into the current primary care disease management process. (15) This might be a reason to develop more extensive web-based early detection applications. In cooperation with the Dutch Lung Foundation and the Dutch College of General Practitioners, a Personal Health Check has recently been developed, which includes web-based COPD and cardiovascular risk (CVR) detecting questionnaires.

In the Netherlands, assessment of the implementation of the early detection programme can be successful, when it is included in a ‘three-step integrated chronic care_model’. Doctors have pointed out that prior reassessment in the practice registration of all known respiratory diagnoses (first step) and early detection of unknown COPD diagnoses (second step) should precede

participation in an integrated chronic care programme for COPD as follow-up (third step).

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