



Dutch Breast Cancer Screening Program: organization and effectiveness

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Organization

The program is organized in a logistical chain of public and private organizations (Figure 2). The Health Council provides scientific advice for the Minister of Health, who decides on introduction of and/or innovations in screening programs. The Centre for Population Screening of RIVM finances, coordinates and directs the program, stakeholders and partners. Also the Centre is responsible for setting quality standards, organizing monitoring and evaluation, organizing uniform information for the public and for involved professionals, coordination of knowledge (practical en scientific), and development and improvement of the programs. The Health Inspection is overlooking the whole chain of integrated care.

The regional screening organizations are responsible for the practical execution of the program and are:

- owner of the mobile units
- owner of the mammographs
- hiring screeners
- contracting radiologists
- in charge of IT system
- in contact with clients
- in contact with municipalities
- in contact with regional hospitals and GP's

Key elements of the program are the independent positions of the National Expert and Training Centre for Breast Cancer Screening (LRCB) to optimize and secure the quality of the program and the National Evaluation Team for Breast Cancer Screening in the Netherlands (NETB) to monitor and evaluate the effectiveness of the program.

Introduction

- The programmatic Dutch Breast Screening Program started in 1990
- Based on criteria formulated by Wilson and Jungner (1968):
 1. Relevance: disease is an important health problem
 2. Treatable: disease must be treatable with a generally accepted treatment
 3. Health infrastructure: there should be sufficient infrastructure for diagnosis
 4. Recognizable: there should be a recognizable latent stadium of the disease
 5. Natural course: the natural course of the disease should be known
 6. Illness: there should be consensus as to who is ill or most at risk
 7. Screeningtest: the screeningtest should be easy to use
 8. Acceptability: the screeningtest should be acceptable for the general population
 9. Cost-benefit: cost should be at least equal to the benefits
 10. Continuity: the screening proces must be continuous.
- Goal of the screening program: to detect breast cancer in an early stage. Early detection leads to a better prognosis, less invasive treatment options and decreased breast cancer mortality.
- On behalf of the Dutch Ministry of Health the Program is financed and coordinated by the Centre for Population Screening of RIVM
- The Dutch Screening Programs are secured by 4 important public values:
 1. Effectiveness
 2. Quality: safe, protocolized, uniform, and good alliance with health care
 3. Affordability: efficiency and cost-effectiveness
 4. Accessibility: close to participant, free of cost, free choice, timely

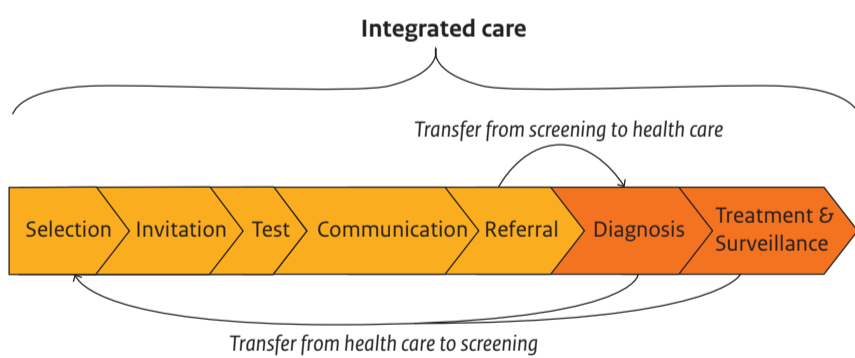


Figure 1: Primary process of the breast screening program

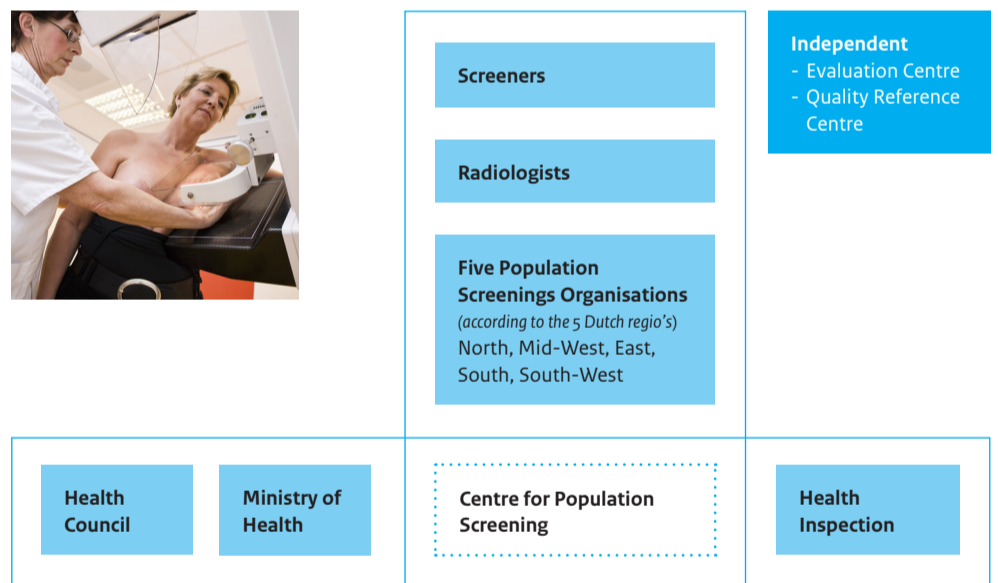


Figure 2: Public and private organizations

Facts

- Target population: women aged 50-75 years
- Invitation every 2 years: 1.1 million women
- 80% attendance rate (participation n=950.000)
- Screen detected cancers in target population: 5500
- Referral rate per 1000 women screened: 20,2
- Program sensitivity: 71,5% (2/3 detected)
- Regular participation leads to 50% risk reduction in mortality
- Lives saved per year: n=775
- Overdiagnosed: n=375
- Cost: €60 million per year
- € 55-60 per examination

Table 1. Program sensitivity and specificity

Per 1000 women		The truth	
		+	-
The test	+	True positives: 6	False positives: 14
	-	False negatives: 2	True negatives: 978

Advantages of the program

- Health gain
- Risk reduction
- Less invasive treatment
- More treatment options
- Reassurance

Disadvantages of the program

- False-positive results
- False-negative results
- Overdiagnosis and overtreatment
- No guarantees
- Radiation / tests in healthy people
- Mammography is a painful method

Factors for Success in the Netherlands



- Favorable geography NL
- National management by Centre for Population Screening
- National independent reference centre
- National independent evaluator
- Invitation according to postal regional code
- Mobile units in communities
- Organized separate from health care (women are not (yet) patients but clients)
- Recently: digitalization
- Dutch system is a system of balancing of interests: public and private
- National advisory committees, consisting of the involved public and private organizations, advise the Centre for Population Screening on a regular basis