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Exploring the potential of triage and task-shifting in preventive child health care

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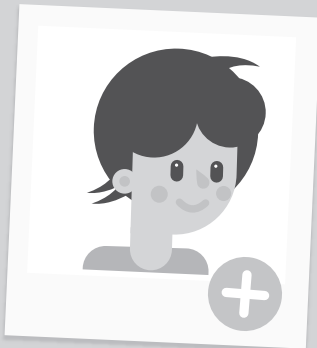
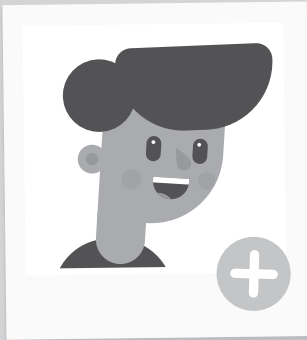
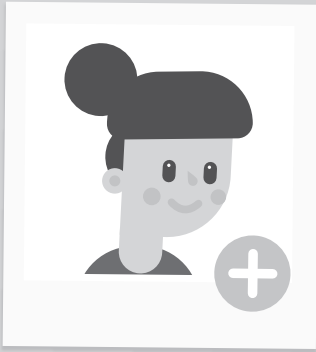
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Introduction and aims of this thesis



1

Preventive Child Health Care

The aim of Preventive Child Health Care (PCH) is to monitor growth and development in children, and to detect health problems and risk factors early, principally using a routine screening programme for all children [1,2]. It is essential to detect health problems so that early treatment can be given and illness and severe health problems can be prevented later [3-7].

The PCH system in the Netherlands is based on the Dutch Public Health Act (WPG), which requires municipal authorities to ensure that all children have access to PCH [8,9]. PCH care is paid for through government funding, which means that access is independent of insurance status. Specially trained community PCH professionals (physicians, nurses and assistants) provide vaccinations and preventive health care for all children from birth to 18 years of age [10]. A pre-defined age schedule is used to deliver preventive health assessments and the attendance rates are between 85% and 99% depending on the age group [11,12]. Traditionally, all children receive about seventeen routine health assessments: thirteen in the first four years (in well-child care) and four between the ages of 4 and 18 years (in school health services) [10]. Standardised screening procedures are used to identify a wide range of disorders such as visual and hearing impairment, psychosocial problems, motor dysfunction and overweight. In addition to the usual items (vision, hearing, growth), particular attention has been paid to mental health and lifestyle issues in the last decade. When risk factors are identified during the routine assessments, PCH physicians and nurses decide whether there is any need for advice, additional assessments by PCH, or referral to external services such as a general practitioner or specialised care.

Despite the benefits of a basic package of routine assessments for all children, many PCH services in both the Netherlands and many other countries are evaluating the organisation of their system. Given the health care and economic challenges, 80% of all European countries have developed a reform of PCH in the last five years [1]. PCH services need to be better tailored to adult-driven diseases such as mental health disorders and lifestyle-related problems but uneven access to care and shortfalls in programme quality also need to be addressed [13-18]. Economic challenges such as reduced budgets, the inefficient use of professionals and workforce shortages mean that the system of preventive health care also needs to be more efficient [19]. In addition, greater flexibility is required in the delivery of the PCH programme so that

it is tailored to apparent inequities in health between subgroups of children and the different care needs of children that arise as a result. Timely and appropriate care should be available for all children at risk [20]. Furthermore, in the Netherlands, children aged 4 to 18 years are assessed only four times during their time at school and no health problems are found at those times in the majority of children. This raises the question of how PCH should be re-organised to tailor care to the development of individual children.

There is also debate about whether the assessments must always be conducted by a physician or a nurse. Furthermore, is it possible to make more efficient use of the risk factors known to school professionals in children they meet daily in order to improve the early detection of health problems by PCH?

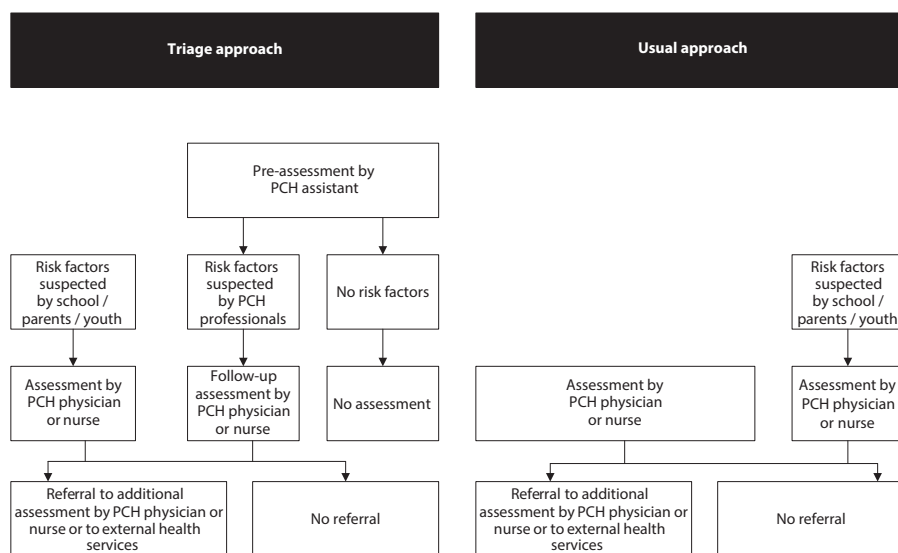
A triage approach and the approach as usual

In light of the need to reform the PCH system to provide a more efficient preventive service based on children's care needs, we investigated the possibilities of a novel approach organising routine assessments. The options for organising PCH on different lines are: reducing the frequency of routine assessments, task-shifting between the disciplines and different assessment methods such as face-to-face assessments, telephone assessments or contact using digital channels. To ensure that the Dutch PCH remains strong in terms of a low threshold and the wide coverage necessary for the early identification of health problems, we decided to investigate the integration of the principles of triage and task-shifting in the PCH system. Triage can be defined as the process of determining the need for an intervention, the level of urgency and the likely response to the intervention [21]. Task-shifting can be defined as the delegation of existing tasks to current or new professionals with less and/or more specific training.

Although triage and task-shifting among health care professionals have primarily been introduced in primary health care and emergency health care services, the integration of these principles in the PCH system may have several advantages such as: the optimal use of the skills and expertise of health care professionals; a reduction in the workload of physicians and nurses; improved accessibility of health care and greater patient satisfaction [22-29].

A novel PCH approach to routine assessments was developed based on task-shifting from PCH physicians and nurses to PCH assistants for children aged 4 to 18 years [30]. In the usual PCH approach, all children are assessed by a PCH

physician or a nurse, sometimes with support from a PCH assistant. In the two-step procedure in the triage approach, children are first assessed by a PCH assistant who follows a strict pre-assessment protocol. The pre-assessment of the children is conducted on the basis of questionnaires completed by parents and school professionals and face-to-face screening. The PCH assistant refers only children with suspected health concerns to a follow-up assessment by a PCH physician or nurse. The triage procedure therefore includes both a pre-assessment and a possible follow-up assessment. The nature and complexity of the suspected health problems determines whether follow-up assessment by a physician or a nurse is needed: physicians attend to medical and developmental disorders; nurses usually attend to psychosocial problems and lifestyle issues. The follow-up assessment by the PCH physician or nurse, like the routine assessment in the usual approach, determines the need for referral to additional PCH assessment or to an external health service. Furthermore, PCH professionals can assess children in the triage and the usual approach at the request of, for example, parents, school professionals and adolescents. The assessment procedures in the two approaches are shown in the following figure.



The aim of the triage approach is to organise the early identification of health problems as part of the routine health programme for all children more effectively and efficiently [31]. We hypothesised that the efficient involvement

of PCH professionals and a reduction in health care costs for routine assessments would create more opportunities to provide additional PCH care for children with specific health care needs. We believed that more time would therefore be available for additional PCH assessments, not only at times other than those in the pre-defined schedule but also at the request of school professionals, parents and adolescents.

Study of the triage approach

ZonMw granted funding for a pilot study with retrospective data and a more comprehensive prospective cohort study to investigate the triage approach. This study was carried out by TNO in cooperation with the Leiden University Medical Center and six PCH departments of Regional Health Services. The Medical Ethics Committee of Leiden University Medical Centre approved the study.

A separate study using digital questionnaires was conducted in 2012 to investigate school professionals' perceptions of access to school health services when a triage approach is in place.

Research looking at the daily practice of PCH is important to improve the quality and efficiency of preventive health care for children.

Outline of the thesis

The aim of this thesis is to establish a picture of access to PCH, detection rates and the delivery of care when a triage approach is used by PCH, and looks at the possible cost implications by comparison with routine assessments.

The findings could result in recommendations for efficient and flexible PCH services in order to optimise customised care for children with specific health care needs.

This led to the following research questions:

- What are the attendance rates for routine PCH assessments and the delivery of care in terms of rates of referral for the triage approach, as compared with the usual approach?
- How does the triage approach perform by comparison with the usual approach in terms of identifying overweight, visual disorders, and psychosocial problems?
- What is the impact of triage on additional PCH care and referral rates to external health services when triage is used as opposed to the usual approach?

- What are the costs of conducting routine health assessments by PCH with a triage approach and with the usual approach?
- What is the impact on school professionals' perception of access to PCH in terms of the approachability and appropriateness of PCH support when the triage approach is used rather than the usual approach?

In **Chapter 2** we explore the help-seeking process in a triage approach to PCH. We also discuss a retrospective pilot study in which data about routine assessments were used to investigate accessibility (in terms of attendance rates) and the delivery of extra care (in terms of referral rates to either additional PCH care or to external services) under the triage approach by comparison with the usual approach.

In **Chapter 3** we present the results of a prospective cohort study in which the detection by the triage approach of overweight, visual disorders, and psychosocial problems was compared with the results with the usual PCH approach. We also assessed the severity of the health problems in the subgroups of children with the detected health problems.

Chapter 4 describes a prospective observational cohort study comparing the delivery of extra care for children with health care needs in the triage approach and the usual approach. We investigated referral rates to extra care, by PCH or by external services, and rates of PCH assessments at the request of parties such as parents and school professionals.

In **Chapter 5** we describe the direct costs of conducting PCH assessments with the triage and usual approach using a bottom-up micro-costing approach. PCH professionals registered time spent on assessments, including time related to non-attendance for assessments, the referral of children and administration.

Chapter 6 describes how professionals in primary schools perceive access to school health services (SHS) under a triage approach by comparison with the usual approach. School professionals completed digital questionnaires about contact frequency, the approachability of SHS and the appropriateness of support from SHS.

Finally, in **Chapter 7**, we discuss our findings and the implications for preventive child health care and further research.

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