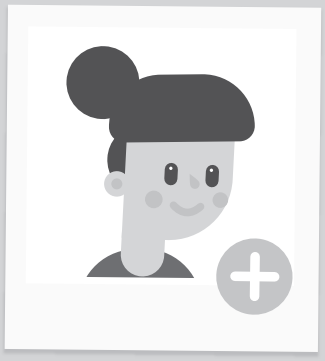
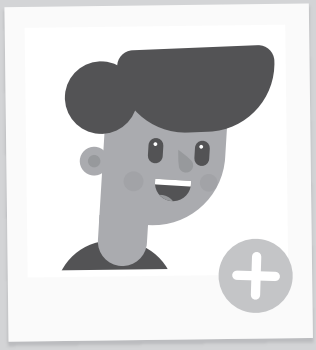
Exploring the potential of triage and task-shifting in preventive child health care

Bezem, J.





Summary

In **Chapter 1,** the relevance and challenges of the Preventive Child Health care (PCH) system, and the developed triage approach are described.
The aim of PCH is to deliver preventive services for all children and therefore to detect health problems early and monitor child growth and development longitudinally. Despite the benefits of the Dutch PCH system, which includes a basic package of routine assessments for all children in the country, many PCH services are thinking about ways to reform the organisation of the routine assessments. Greater flexibility is required in the delivery of the PCH programme so that it is tailored to apparent health inequities between subgroups of children and the different care needs that arise as a result. 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. In the light of these challenges, we developed a novel approach to the organisation of routine assessments by PCH, involving triage and the shifting of tasks among PCH professionals,. We hypothesised that the efficient deployment of PCH professionals and a reduction in the costs of routine assessments would create more opportunities to provide additional PCH care for children with specific health-care needs. Our thinking was that more time would be made available for additional PCH assessments at times other than those pre-defined for routine assessments, and for additional assessments in response to requests from teachers, parents and adolescents.
This thesis addresses several issues relating to 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.

Access to PCH

It is essential for health screening programmes to be accessible for all children, and this is a proven merit of the basic package delivered by Dutch PCH. In **Chapter 2** we explore the parental help-seeking process in a triage approach to PCH. In a retrospective pilot study based on the data from routine assessments of 390 children aged 5 to 6 years, we investigated access to PCH. We compared the attendance rates for PCH assessment appointments in groups in which the triage approach or the usual approach were used, assuming that attendance rates were indicators of the accessibility of PCH. The attendance rates for pre-assessments and follow-up assessments in the triage approach were compared with the attendance rate for the usual assessment. Our results showed similar

appointment attendance rates for the two approaches. In the triage approach, 96.4% of the children attended the pre-assessment, and 87.7% of the referred children attended a follow-up assessment by a physician or nurse. The rate of attendance for the assessments in the usual approach was 90.0%.
We found similar results in the more comprehensive study described in **Chapter 3** using a prospective observational cohort design. In the triage approach, 96.6% of the children attended pre-assessments, and 89.4% of the referred children attended a follow-up assessment by a physician or nurse. The rate of attendance for the assessments in the usual approach was 93.6%. As expected, all the children in the usual group received a routine PCH assessment by a physician or nurse while only 46% of the children in the triage group required PCH assessment by a physician or a nurse.
In conclusion, access to PCH seems to remain unchanged using a triage approach in a comparison with the usual approach.

Detection by PCH

In **Chapter 3,** we present the results of a prospective cohort study in which detection by the triage approach of overweight, visual disorders, and psychosocial problems was compared with the results of the usual PCH approach. We also assessed the severity of the health problems in subgroups of children with the detected health problems. We used data from the routine assessments of 1897 children aged 5 to 6 and 10 to 11 years.
We found no difference between the triage approach and the usual approach in the detection rates for incident cases of overweight, visual and psychosocial problems. However, we found a marginal difference between the two approaches in the BMI scores in subgroups of children identified with overweight or obesity by PCH. In the triage approach the subgroup of children identified with overweight included more children with a BMI indicating obesity, while the usual approach included more children with a BMI indicating less severe overweight. Significantly higher SDQ scores were found in the subgroup of cases with identified psychosocial problems when the triage approach was used than when the usual approach was adopted.

Delivery of extra care for children with specific needs

When problems are identified by PCH professionals, they decide whether to refer to extra care in the form of additional assessments by PCH, or to external

specialised care. We need to know more about the delivery of extra care in the triage approach, in which PCH professionals are involved differently in routine assessments. In **Chapter 4,** we describe the delivery of extra care targeting children with specific health-care needs in the triage approach and the usual approach in the context of the prospective cohort study. We investigated referral rates to extra care, in other words additional PCH assessments or to external services pursuant to the routine assessments. We did not find any differences between the two approaches for the total group of children referred to extra care. However, more children aged 5 to 6 years and fewer children aged 10 to 11 years were referred to additional PCH assessments in the triage approach. Overall, fewer children were referred to external services in the triage approach than in the usual approach. This can be explained by the fact that in the triage and usual approach the children are assessed by different disciplines leading to other follow-up trajectories. Different processes are used to identify health problems in both approaches. Furtherly, time available to provide advice, recommendations and reassurance may differ, affecting the referral to external services.

In addition, we examined the results of the PCH assessments requested by parties such as parents, school professionals and professionals of well-child care with the aim of devoting more attention to children at risk. More PCH assessments at the request of these parties were found when the triage approach was used ($p<0.01$). The children were referred by school professionals in particular. It could be hypothesised that differences in the rates for PCH assessments on request between the triage and usual approach are due to the fact that the triage approach results in more awareness among school professionals that physicians and nurses can assess children on request several times in a year. Furthermore, we found differences between the two approaches for the referral rates to additional PCH assessments pursuant to the PCH assessments on request. In the triage approach, half of the children seen on request were referred to additional PCH assessments and one out of five to external services. In the usual approach, no children were referred to additional PCH assessments and 2 of 27 children (7.4%) were referred to external services.

Costs of delivering routine assessments

Triage and task-shifting among PCH professionals could facilitate the resolution of organisational challenges in terms of the efficient use of budgets

and the workforce, allowing for extra care to be given to children with specific needs. In **Chapter 5,** we describe our study of the direct costs of PCH routine assessments by PCH professionals in the triage and usual approaches using a bottom-up micro-costing design. PCH professionals registered time spent on assessments, including time related to non-attendance at assessments, the referral of children and administration. The triage approach to PCH resulted in a projected cost reduction of about one-third by comparison with usual practice for routine assessments of children aged 5 to 6 years by physicians. Minimal cost savings were found in the group of children aged 10 to 11 years when nurses are involved.

The projected costs for PCH professionals working on PCH assessments amounted to €5.2 million per cohort of 100,000 children aged 5/6 years in the triage approach, and €7.6 million in the usual approach. The projected costs in both approaches for children aged 10/11 years were about €4 million per 100,000 children. In the triage approach for children aged 5/6 years, the cost reduction is attributable to the lower level of physician involvement in the assessment of children in combination with the same level of deployment of PCH assistants with relatively low salary costs by comparison with the usual approach. The cost reduction for children aged 10/11 years can be attributed to the costs required for pre-assessments by PCH assistants in the triage approach (which are lower than the costs of assessments by a nurse in the usual approach). However, this reduction in costs was almost offset by the higher costs of the follow-up assessments by physicians or nurses in the triage approach.

We found a reduction in the costs of parental attendance at assessments with the triage approach that is attributable to the absence of parents at pre-assessments in the triage approach. This finding applies to both age groups.

School professionals' perception of access to PCH

Cognitive performance and educational achievements in children benefit from good health and health-related behaviours. The collaboration between preventive health services and the education system helps to detect health problems in school children and furthers early interventions intended to improve health and, therefore, cognitive outcomes. In **Chapter 6** we explore the views of school professionals in elementary schools about working with a triage approach to the routine assessments conducted by PCH and we make a comparison with school professionals who were offered the usual

PCH approach. We conducted a cross-sectional study comparing school professionals' perceptions of the triage and the usual approaches to PCH. The randomly selected school professionals completed digital questionnaires about contact frequency, the approachability of PCH and the appropriateness of support from PCH. School care coordinators and teachers were invited to participate in the study, resulting in a response of 444 (35.7%) professionals from schools working with the triage approach and 320 (44.6%) professionals working with the usual approach.
We found a difference between the two approaches in terms of the perceived appropriateness of support from PCH and the contact frequency between schools and PCH professionals. School professionals using the triage approach had more contacts with PCH and were more satisfied with the appropriateness of support from PCH than respondents in the usual approach group. No impact was found on the perceived approachability of PCH.

Finally, in **Chapter 7,** the main results of this thesis, implications for PCH services and further research developments are discussed.
To improve the effectiveness, strengths and social relevance of PCH, it is important to maintain access to PCH and the wide reach of the system. The delivery of PCH care will also have to be tailored to the requirements of parents and children. In addition, it is important that PCH services respond to developments in the youth and health care system. In the triage approach, access to preventive basic care, and the detection of the health problems studied, were comparable with the usual approach. The efficient deployment of PCH professionals using triage and task-shifting reduced the costs and involvement of PCH physicians and nurses in routine assessments, particularly in the youngest age group (5 to 6 years). The associated release of workforce and budgets may create more opportunities for the delivery of care to children and their families with specific health-care needs. In our study, in the triage approach PCH physicians and nurses provided more demand-driven care at the request of parents and others such as school professionals.
We have emphasised the importance of making the PCH programme more flexible to create time for PCH professionals to collaborate with professionals from the school system, and from the youth care and primary care systems, with the aim of improving joint commitment to early detection, and the delivery of more coordinated care. Our findings for the triage approach suggest that it will

encourage the ongoing formation of networks of this kind, and the position of PCH in them: school professionals using the triage approach appreciated the appropriateness of support from PCH and had more contacts with PCH.
In conclusion, triage and task-shifting could help to ensure that appropriate care is delivered to meet the different care needs of parents and their children while maintaining the routine assessments for all children. More research is needed into the outcomes of referral to extra care and into the cost benefits of the triage approach.