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Original Research

Process evaluation of the implementation of scorecard-based antenatal risk assessment, care pathways and interdisciplinary consultation: the Healthy Pregnancy 4 All study

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ABSTRACT

Objective: To evaluate the implementation of a complex intervention in the antenatal healthcare field in 14 Dutch municipalities. The intervention consisted of the implementation of a systematic scorecard-based risk assessment in pregnancy, subsequent patient-tailored care pathways, and consultations of professionals from different medical and social disciplines.

Methods: Saunders's seven-step method was used for the development of a programme implementation monitoring plan, with specific attention to the setting and context of the programme. Data were triangulated from multiple sources, and prespecified criteria were applied to examine the evidence for implementation.

Results: Six out of 11 municipalities (54%) met the implementation criteria for the entire risk assessment programme, whereas three municipalities (27%) met the criteria if the three components of implementation were analysed separately.

Conclusions: A process evaluation of implementation of a complex intervention is possible. The results can be used to improve understanding of the associations between specific programme elements and programme outcomes on effectiveness of the intervention. Additionally, the results are important for formative purposes to assess how future implementation of antenatal risk assessment can be improved in comparable contexts.

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Introduction

The results of the European PERISTAT studies revealed that perinatal mortality was substantially higher in the Netherlands compared with other European countries.[1,2] This revelation made perinatal mortality an important political and social issue, which led to many national and local initiatives in the Dutch antenatal healthcare field to improve and re-evaluate the current antenatal healthcare system.

One of these actions was the initiation of the Healthy Pregnancy 4 All (HP4All) study in 2011 by the Erasmus University Medical Centre. With support from the Ministry of Health, Welfare and Sport, strategies were implemented to improve perinatal outcomes with special focus on deprived neighbourhoods. The selection of deprived neighbourhoods was based on the presence of an elevated incidence of adverse perinatal outcomes (above both the national and municipal average).[3] The HP4All study includes two interventions: preconception care[4] and broadened risk assessment (RA) during pregnancy.[5] This process evaluation focuses on the RA intervention.[5]

Despite increasing evidence on the association between non-medical risk factors (e.g. single parentship, employment status, education level or financial debts) and adverse pregnancy outcomes,[6] current RA in the antenatal period mainly focuses on medical risk factors.[7,8] Furthermore, the presence of multiple (non-medical combined with medical) risk factors could have an accumulative effect. This effect warrants comprehensive RA, taking both medical and non-medical risk factors into account. This is the key principle of the RA intervention.[9,10]

A complex structural intervention such as the present intervention depends on the participation of local healthcare professionals in the participating municipalities. The aim of this process evaluation was to monitor and document implementation of the programme. In addition, it was hypothesised that this study will contribute to understanding of the associations between specific programme elements and outcomes and the effectiveness of the intervention.

Methods

Saunders et al.'s[11] seven-step method was used to evaluate the process of implementation of the RA intervention in an antenatal healthcare setting. This framework was used to analyse and report implementation dose, reach and fidelity and completeness of the implementation. These steps are based on guidelines for developing a programme implementation monitoring plan,[11] and methods for assessing implementation at organisational level.[12]

This process evaluation was designed to answer the following questions: (1) Were all elements of the RA intervention delivered by the HP4All team (dose delivered)?; (2) To what extent were the interventions within the RA intervention implemented by healthcare professionals (dose received)?; (3) To what extent did local caregivers and local project coordinators provide support for the new approach in RA (fidelity and completeness)?; (4) How many local healthcare professionals were involved throughout the project, and how many study participants were reached (reach)?; and (5) Will midwives and gynaecologists continue with the intervention as implemented (participant responsiveness)?

Step 1: setting, context and programme

The setting for the RA intervention was the antenatal healthcare field in 14 Dutch municipalities. This field is unique because it is divided into three levels ('tiers') with a distinction between low- and high-risk pregnancies. The first tier provides care for low-risk pregnancies, and care is provided by community midwives or, occasionally, general practitioners. The second tier provides care for pregnancies with one or more predefined risk factors, and care is provided by gynaecologists.[7,8] The third tier is reserved for severe maternal or foetal morbidity and (threatening) prematurity (<32 weeks of gestation).

Intervention

The RA intervention consisted of systematic scorecard-based RA performed by antenatal healthcare professionals (community midwives and gynaecologists). They were asked to use the R4U (Rotterdam Reproductive Risk Reduction) scorecard with pregnant women at the first antenatal visit (provided that informed consent was given by the pregnant woman). The R4U scorecard covers 70 items divided into six domains (social status, ethnicity, care, lifestyle, and medical and obstetric history) and provides a weighted score for every pregnant woman. If the score exceeded a predefined cut-off point, the woman's risk profile was discussed in a multidisciplinary consultation between community midwives, gynaecologists and other invited non-obstetric care providers (e.g. social workers).[13,14] For each detected risk factor, there was a subsequent patient-tailored care pathway, and the opportunity to consult professionals from different medical and social disciplines was offered.

The RA intervention was implemented within an effectiveness study, designed as a cluster randomised trial.[5] This study aimed to investigate the effectiveness of scorecard-based antenatal RA to identify women, early in pregnancy, who were at risk for adverse pregnancy outcomes. Ten clusters (in 14 municipalities) were assigned at random to either the intervention group ($n = 5$) or the control group ($n = 5$). Due to extensive collaboration between obstetric caregivers in the northern part of the Netherlands, four small municipalities and one large municipality were combined to form one cluster of randomisation at the start of this study. Therefore, 10 clusters were created instead of 14. The intervention was compared with regular antenatal healthcare in the control group.

After the inclusion of 700 participants or after two-thirds of the study period had passed (two years), municipalities randomised as control municipalities were allowed to start implementation of the intervention. Therefore, the authors aimed to have implemented the RA intervention in all 14 municipalities by the end of the study period.