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A good start for all children: Integrating early-life course medical and social care through Solid Start, the Netherlands' nationwide action programme

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ABSTRACT

The foundations of human wellbeing are laid in early life during the preconception stage and the 1,000-days of life from conception to the child's second birthday. This period is therefore receiving scrutiny as a concept for guiding pregnancy-care innovation and public health policy. The Dutch government took responsibility to invest in this. In September 2018, the Dutch Ministry of Health, Welfare, and Sport launched the Solid Start action programme. Coordinated nationally, the programme is implemented locally through coalitions in all 342 Dutch municipalities involving collaboration between medical and social-care professionals, policymakers, parents and organisations. The programme has generated a nationwide movement in which medical and social-care professionals now develop forms of structural collaboration that support (future) parents by offering evidence-based interventions that simultaneously enhance early healthy human development and prevent unwanted pregnancies. Although monitoring of the programme does not currently make it possible to address the causal effects of the programme itself, lessons can be distilled which have contributed to the successful implementation of this nationwide programme. These lessons include 1) having and maintaining an unambiguous narrative, 2) creating a lasting sense of urgency among stakeholders, and 3) ensuring that the programme is multi-sectoral.

1. Background

The environment in which human beings grow and develop is crucial in shaping the structure and function of the organs and tissues that will last a lifetime and adverse environmental exposures have widespread and far-reaching consequences for health, wellbeing and societal participation throughout life [1,2]. Early-life adversities are transmitted from one generation to the next, perpetuating a cycle of inequality and the loss of human potential across generations. This requires the implementation of life-course-driven multidisciplinary cross-sectorial interventions that promote health and prevent the loss of human potential.

The Netherlands provides an example of the ways in which a relatively poor international position regarding infant mortality fuelled a movement for change [3]. The call for action was amplified by a study that revealed considerable perinatal health disparities in the city of Rotterdam [4], and by research revealing the lasting consequences of a poor start in life caused by the Dutch wartime famine of 1944–45, which increased the risk of chronic diseases and reduced labour-market participation [5]. In 2007, the heatmaps of Rotterdam's socially deprived neighbourhoods showed rates of perinatal mortality, prematurity and Small for Gestational Age (SGA) status that were up to four times higher than the national average [4]. After these heatmaps were shared with the Rotterdam's alderman, a debate began not only between scientists, midwives, obstetricians and social workers, but also with local and national politicians. This created a sense of urgency that prompted local governments to take on active roles in a shared ambition to reduce the health inequities. The example of Rotterdam's 'Ready for a baby' programme in 2009 [6], was followed between 2011 and 2017 by 17 other Dutch cities in 'Healthy Pregnancy for All', a programme supported by the Ministry of Health, Welfare, and Sport [7].

Since then, an expanding group of medical and social professionals

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scientists, policymakers, non-profit organisations and groups of experts-by-experience have called for governmental investments in the first 1000 days of life. The narrative was supported by economic evidence showing that investments in the development of human potential are the best investment one can make [8]. But its primary focus lay on the moral obligation to give children a good start in life, transcending political and professional boundaries. In 2018, a year after the then alderman of Rotterdam had become Minister of Health, Welfare, and Sport, a nationwide action programme entitled 'Solid Start' was launched [9, 10].

This article describes the Solid Start programme; how it is monitored, and presents the first insights gained from the early years of the programme.

2. Methods

2.1. The Netherlands' nationwide Solid Start action programme

The Sold Start programme has three pillars: preconception, prenatal and postnatal. It aims to prevent unwanted pregnancies via contraception care; to prepare parents better for pregnancy by implementing preconception care; to identify medical and non-medical risks earlier during pregnancy; to provide more tailored cross-sectorial support to parents in families in vulnerable situations; and, in order to support parents from the beginning, to connect antenatal care with post-partum child and maternal care (Fig. 1).

Municipalities – which, in the Netherlands, are incorporated areas that have been granted self-governance by the state – play a vital role in the action programme by creating local coalitions that include medical and social-care professionals, policymakers, lay experts-by-experience and parent organisations. These local coalitions have two initial tasks: to identify the primary challenges within their communities and to develop tailored local strategies for tackling these challenges.

The national programme focuses on stimulating, facilitating and securing this local approach. Initial funding from the Ministry of Health, Welfare, and Sport made it possible to organise local meetings and the support of experts-by-experience. The local coalitions had access both to municipal heatmaps showing perinatal health data at neighbourhood level and to a roadmap for evidence-based interventions and care pathways. A crucial part of the learning approach involved Pharos, the national expertise centre on health inequities, which was assigned the task of supporting all municipalities in forming local coalitions, helping to formulate aims, and assessing local needs. It now achieves this by providing offline and online support (including webinars, interactive websites, analytical tools and training sessions).

After the launch of the program in 2018, in 2022 all municipalities received funding to support a local coalition. Therefore, Solid Start 2022–2025, involved local and regional administrative agreements that would strengthen the professional and informal networks. The 14 closely related actions included the implementation of prenatal home visits by child healthcare services and the comprehensive contraception programme 'Not-Pregnant-Now' [10], and increased involvement of general practitioners (Fig. 2).

2.2. Advisory bodies

At the launch of the action programme, a national coalition of approximately 35 'ambassadors' was formed, who, in collaboration with the Minister of Health, Welfare, and Sport, advocated the importance of the first 1000 days and the implementation of the programme. It includes all key actors and leaders in their field; scientists; local aldermen; medical and paramedical professionals (midwives, obstetricians, maternity-care workers, general practitioners, child healthcare workers) and representatives from health insurance companies, health foundations, NGOs, and expertise centres. The coalition develops and promotes a collective narrative on the importance of a good start in life, exchanging experiences related to the programme, and proposes solutions to the obstacles they identify.

The Ministry also established a steering committee to oversee and advance the Solid Start programme. To maximise the programme's alignment with parent's needs and to enhance its effectiveness and relevance, a panel of experts-by-experience serves as a 'mirror' group within it. The Ministry organises annual Solid Start conferences and sends out monthly newsletters showcasing successfully implemented Solid Start initiatives, as well as providing information on emerging developments, regulations, and funding opportunities.

2.3. Monitoring the Solid Start programme

From the outset, the Solid Start action programme adopted a

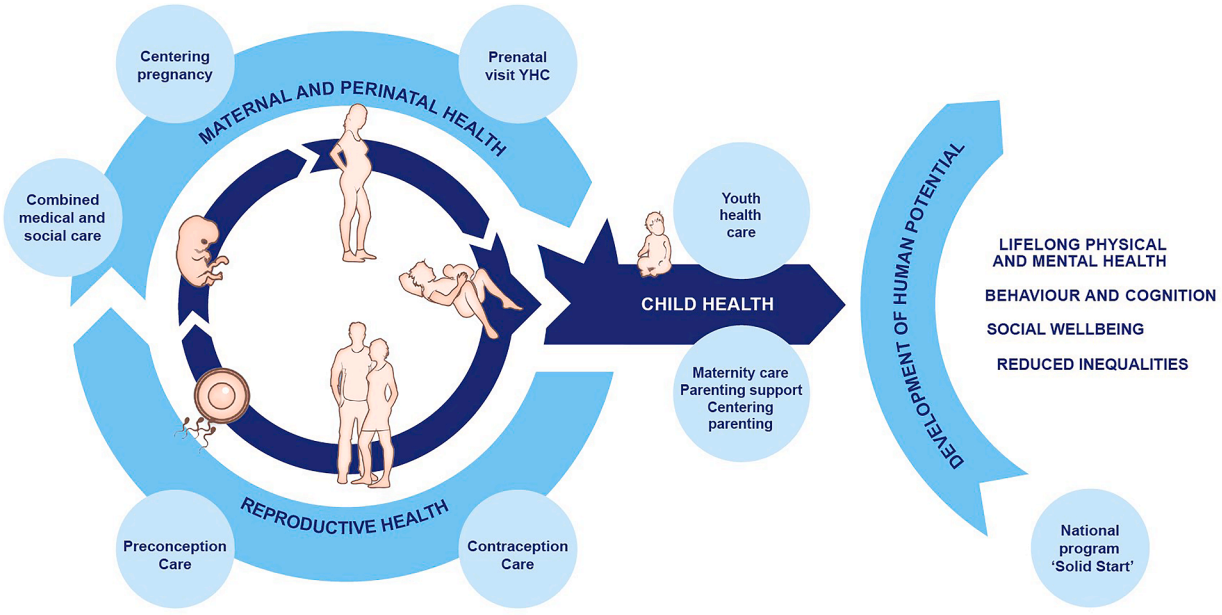

Fig. 1. Interventions during the early life course (light blue spheres) in the Netherlands' Solid Start national programme.

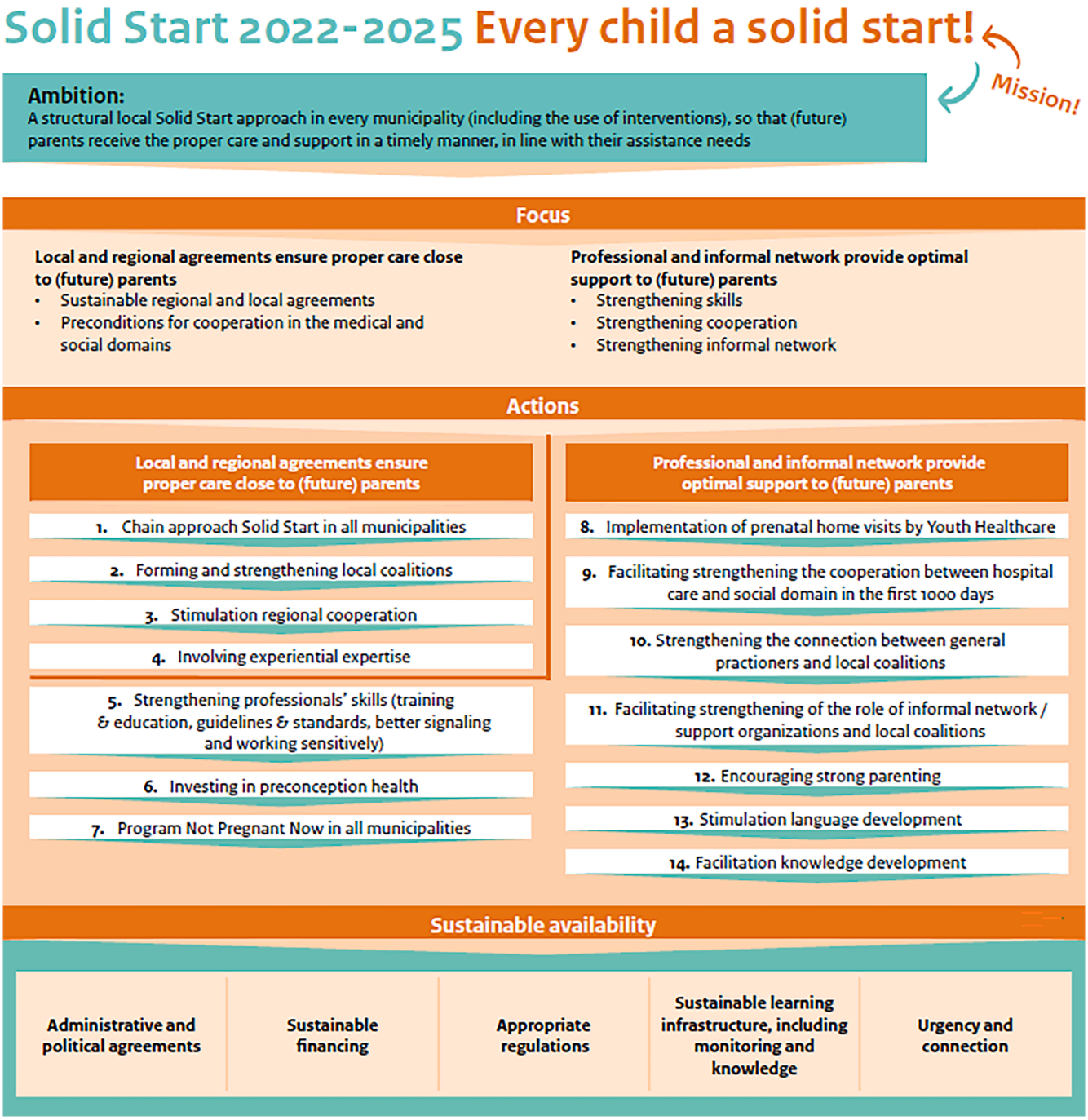

Fig. 2. The focus of the local Solid Start 2022–2025 programme.

learning-community approach. To monitor its implementation and effects, the Ministry tasked the National Institute for Public Health and the Environment (Dutch abbreviation, RIVM). The RIVM set up a scientific advisory board composed of experts from scientific, medical and social sectors, municipalities and experts by experience. A set of 15 national indicators originally developed through a Delphi study [11] now define the programme's processes and outcomes (Table 1). By assessing the advancement of this indicator set, the RIVM tracks both the implementation of the nationwide programme and its outcomes.

To effectively monitor the progress on each indicator, a dynamic data infrastructure was constructed that links routinely collected data from various sources covering all stages of the early-life course (Data Infrastructure for Parents and Children (DIAPER)). To summarise the detailed description published by Scheefhals et al. [12] DIAPER has three main data sources: 1) the Dutch perinatal registry, which provides data on pregnancy care and the health outcomes of mothers and children; 2) the Dutch healthcare information centre Vektis, which, under the Health Insurance Act, gathers data from all Dutch health insurers on medical spending; and 3) Statistics Netherlands (SN), which provides access to its System of Social Statistical Datasets (SSD) [13]. This includes information on health and welfare, income and spending, labour and social security, population, and education. It also contributes to the extensive coverage of sociodemographic characteristics [12]. The data in the SSD originate from a variety of government and non-government organisations, such as municipalities, the National Tax Authority, and the National Vehicle Authority (known by its Dutch abbreviation, RDW). SN transforms crude data into harmonised and linkable datasets and also ensures that data is pseudonymised.

Table 1
Overview of the key indicator set of the national monitor [11].

		Indicator (year of data collection)	%	Progress in desired direction?
Overall Action programme	1	Municipalities with a local coalition (2023) (P)	62	Yes
	2	Municipalities with formalised Solid Start plans (2023) (P)	57	Yes
Preconception phase	3	Municipalities that have implemented the 'Not Pregnant Now' programme (2023) (P)	82	Yes
Pregnancy phase	4	Municipalities with 'Prenatal home visits by Child Healthcare Services implemented (2023) (P)	77	Yes
	5	Midwifery practices providing the Centering Pregnancy programme (2023) (P)	28	Yes
	6	Pregnant women with problematic debts (2021) (P)	1•6	Yes
	7	Municipalities that have implemented the 'Nurse family partnership' programme implemented (2023)) (P)	49	Yes
	8	Child healthcare services providing the 'Centering Parenting' programme (2023) (P)	26	Yes
	9	Pregnant women having their first contact with maternity care provider after week 10 of pregnancy (2020) (P)	21•8	Yes
Postnatal phase	10	Families not using maternity care assistance after delivery (2020) (P)	4•8	Stable
	11	Children born into vulnerable situations (2021) (O)	6•8	Yes
	12	Preterm birth and or low birth weight for gestational age (2021) (O)	14•8	Yes
	13	Children around the age of two with negative scores on speech and language development (2022) (O)	5•8*	No
	14	Children around the age of two with obesity (2022) (O)	8•9*	No
	15	Children who had been placed out of their homes (2022) (O)	1•6‰	Unclear

* Data from 2021 was based on a sample of Child Healthcare organisations that differed from the sample in previous years. Comparisons are complicated by the fact that child healthcare organisations all had different policies regarding the COVID19 pandemic. P: process measures, O: outcome measures.

The RIVM also conducts a process evaluation to gather the perspectives and experiences of those involved in the Solid Start programme. This enables a deeper understanding of the factors that promote and impede implementation. Additional in-depth information is provided by annual focus-group meetings with relevant stakeholders, and through individual interviews with clients and experts-by-experience. The RIVM's annual report combines monitoring and process-evaluation data to inform the Ministry of Health, Welfare, and Sport on the programme's progress and impact [11]. The Ministry then reports annually to the Dutch parliament.

In 2021, the RIVM was asked to set up a support programme to help local coalitions to monitor the local impact of the Solid Start programme as well as their needs. This support programme focuses on fostering collaboration with various stakeholders and sharing best practices through learning communities. Currently, 11 local coalitions actively participate in regular learning sessions in which they identify and discuss their specific needs for support.

A first critical step in this was the development of an additional indicator set that was tailored to specific local monitoring needs by conducting an additional Delphi study. The set comprises 19 local indicators covering all three phases of the programme (preconception, pregnancy, and postpartum) [14]. The indicators prioritise medical and social topics such as poverty, stress, smoking, accumulation of risk factors, use of preconception care, low literacy, premature birth, and intellectual disability. The set of indicators was quantified in 2021, and is available (in Dutch) on the website: www.regiobeeld.nl/kansrijkestart.

3. Results

3.1. Participation of municipalities

After the Solid Start programme was launched in 2018, the number of municipalities that requested and received funding increased steadily from 98 (the first instalments at the launch in 2018) to 275 in 2020. In 2022 the other 67 municipalities also received funding. In 2023, a national questionnaire among all 342 municipalities showed that 62% of them had established local coalitions (Table 1). Since then, most of the others have been actively working towards establishing them.

3.2. Trends in indicators over time

Most indicators monitored in the Solid Start programme showed trends in the desired direction. Over the years, for example, there has been a slight downward trend both in the percentage of babies born preterm or small for gestational age, and in the percentage of babies born in a vulnerable situation (Table 1) [11,15]. Similar trends have been observed for other indicators, such as the percentage of pregnant women starting prenatal care after 10 weeks of pregnancy, which decreased from 26•2% in 2016 to 21•8% in 2022, and the percentage of children of women with problematic debt, which fell from 2•9% in 2019 to 1•7% in 2021. However, none of these trends represent evidence of the programme's direct causal effects: they merely illustrate the trends over time produced by the indicators used to monitor the programme. For a more detailed description of the various definitions, operationalisations, data sources, and progress over time of each indicator, we refer to the original documents of the monitor [11].

3.3. Policy lessons learned

Even though the Solid Start programme is still in its early stages, we believe – as actors who are closely involved in it – that some early lessons can already be distilled from it. The first is that the key to its adoption was the existence of an unambiguous narrative that resonated with all stakeholders. This narrative also plays a vital role in ensuring that the programme maintains a consistent presence on policy agendas. The second lesson is the lasting sense of urgency among stakeholders. An instrumental role in achieving this was played by the use of heatmaps showing levels of perinatal mortality, prematurity and small-for-gestational-age status at regional, municipal and neighbourhood levels [16,17]. Thirdly, by becoming a multi-sectorial, multidisciplinary programme, the Solid Start programme has enhanced a paradigm shift in the organisation and delivery of pregnancy-related care in the Netherlands. This shift entails the integration of the care provided by the medical and social sectors, and incorporates cutting-edge knowledge from various expertise fields – some of them new – in reproductive health. These include preconception and contraception care, social obstetrics, perinatal public health, lifestyle medicine, mental health, and health promotion. This shift also acknowledges that the wider determinants of health – such as poverty – require collaboration between

ministries, especially the Ministries of Health, Welfare, and Sport; of Interior and Kingdom Relations; of Social Affairs and Employment; and of Economic Affairs and Climate Policy.

4. Discussion

The Solid Start programme launched by the Ministry of Health, Welfare, and Sport in 2018 has gained significant momentum: all municipalities in the Netherlands now receive funding for building local coalitions, and 62% of municipalities have formally established coalitions in which medical and social-care professionals work together. Although, as yet, causality cannot be established, the national monitor shows that while some indicators do not change over time, most show a trend in the intended direction.

After the launch of the Solid Start programme, advocacy on the importance of preconception health and the first 1000 days increased. This was evidenced by an increase in local meetings on the topic and a strong increase in the number of professional protocols, webinars, podcasts, and articles in professional and public magazines. Although many of these inputs came from an increasing range of organisations, all strongly reiterated the same message: investing in the first 1000 days is the best investment anyone can make. As part of their ambition to achieve a Healthy Generation in 2040, the Joint Dutch Health Foundations in the Netherlands initiated a campaign to invest in the first 1000 days of life. The coalition agreement of the national government that was inaugurated in 2022 included an explicit statement on these first 1000 days, committing itself to achieving a healthy generation in 2040 and ensuring the availability of a Solid Start in every municipality.

Solid Start has been politically and financially secured with €23 million in structural annual funding. The greater part of this budget is devoted to local and regional coalitions in three areas: strengthening and maintaining local coalitions; financing Solid Start interventions for the benefit of expectant parents in vulnerable situations; and supporting agreements on regional collaboration. A small part of the budget is spent on monitoring and communication. We believe that it is not the size of the budget that proved crucial to making change possible. Instead, it was the political leadership, allowing a nationwide movement to induce change, supported by a large group of professionals, scientists, organisations, and NGOs.

In 2023, Solid Start as a national ambition was also secured as a priority within the mission-driven Dutch Enterprise policy of the Ministry of Economic Affairs. It was recognised as a strategic public-private partnership (PPPs) to contribute to the key targets of adding 'five more years of healthy living and reducing socioeconomic health differences by 30%'. The PPP comprises over 60 knowledge organisations such as universities, citizens organisations, local and national governments, and industry. It serves as a research and innovation action line within the national Solid Start action programme.

Monitoring at the national and local levels is important for two reasons: understanding challenges, needs, and the outcomes achieved; and identifying any unwanted impacts or ineffective elements the programme may cause. Although the programme is led nationally, local approaches differ according to local needs. A constant dialogue on experiences bridged the tension between the local and national levels of implementation. Monitoring the programme with input from various stakeholders has also proved to be important to building bridges between disciplines and formulating joint goals.

The implementation of the programme and its outcomes have both been affected by societal changes and events, such as the COVID19 pandemic and increases in poverty. The availability of data has also presented challenges: for instance, due to a lack of clarity about the possibilities of data sharing under the Dutch General Data Protection Regulation (GDPR), some child healthcare centres have been unable to provide data on the care they have provided. Also, as the adoption of the Solid Start programme and its underlying interventions accelerates, there may be a need to update the indicators used to measure its impact. Given that the comprehensive aim of the programme – to provide each child with the best possible start – is likely to have positive effects on many different outcomes (including school performance, behaviour and health), it will not be easy to capture all outcomes in a single metric or to establish causal links.

5. Conclusion

Solid Start may serve as an example and inspiration for other countries. We describe how, by taking responsibility, a national government has initiated a societal change that will contribute to providing children with a better start in life, even without far-reaching system reforms or significant financial investments. Although monitoring of the programme does not currently make it possible to address the causal effects of the programme itself, it has provided valuable insights into the progress made during its implementation, and into its impact on key indicators at the national and local levels. Lessons learned include 1) having and maintaining an unambiguous narrative, 2) creating a lasting sense of urgency among stakeholders, and 3) ensuring that the programme is multi-sectoral. These lessons remain as relevant today as they were at the start of the programme, when the key strategy consisted 1) of implementing change through municipal coalitions, 2) bringing into close contact the very medical and social-care workers who have responsibility for people in their own community, and 3) enhancing collaboration among all the providers concerned in order to support (future) parents as early as possible. In the process, the set-up of the programme sometimes changed and developed, an adaptive process to which the inputs of lay experts-by-experience proved to be vital.

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Contributors

EAPS wrote the first draft of the manuscript. All authors contributed equally to its review and editing, to the final conceptualisation of the figures, and to data interpretation. They all had final responsibility for the decision on submitting the manuscript for publication.

CRediT authorship contribution statement

Eric A.P. Steegers: Writing – original draft, Supervision. **Jeroen N. Struijs:** Writing – review & editing. **Angela J.M. Uijtdewilligen:** Writing – review & editing. **Tessa J. Roseboom:** Writing – review & editing.

Declaration of competing interest

EAPS was the initiator of the local Rotterdam programme 'Ready for a baby' and the 'Healthy Pregnancy for All' programme in 17 Dutch cities. He is a member of the national coalition of the national Solid Start programme. JS supervised the monitoring of the Solid Start programme. Since 2019, AU has been the national programme manager of Solid Start at the Ministry of Health, Welfare and Sport. TR is chair of the scientific steering committee of the Solid Start programme and a member of the national coalition. The authors of this manuscript received no personal remuneration for writing this manuscript.

Data sharing

Queries and requests concerning the national monitoring data should be directed to Prof. Jeroen Struijs, jstruijs@nza.nl

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References

[1] Gluckman PD, Hanson MA. Living with the past: evolution, development, and patterns of disease. Science 2004;305(5691):1733–6.
[2] Ashorn P, Ashorn U, Muthiani Y, Aboubaker S, Askari S, Bahl R, et al. Small vulnerable newborns-big potential for impact. Lancet 2023;401(10389):1692–706.
[3] Drife JO, Künzel W, Ulmsten U, Bösze P, Gupta J, Lansac J, et al. The Peristat project. Eur J Obstet Gynecol Reprod Biol 2003;111(1):S1–78. Suppl.
[4] Poeran J, Denktas S, Birnie E, Bonsel GJ, Steegers EA. Urban perinatal health inequalities. J Matern Fetal Neonatal Med 2011;24(4):643–6.
[5] Roseboom TJ, van der Meulen JH, Ravelli AC, van Montfrans GA, Osmond C, Barker DJ, Bleeker OP. Blood pressure in adults after prenatal exposure to famine. J Hypertens 1999;17(3):325–30.
[6] Denktas S, Bonsel GJ, Van der Weg EJ, Voorham AJ, Torij HW, De Graaf JP, et al. An urban perinatal health programme of strategies to improve perinatal health. Matern Child Health J 2012;16(8):1553–8.
[7] Denktas S, Poeran J, van Voorst SF, Vos AA, de Jong-Potjer LC, Waelput AJ, et al. Design and outline of the healthy pregnancy 4 all study. BMC Pregnancy Childbirth 2014;14:253.
[8] Heckman JJ. Skill formation and the economics of investing in disadvantaged children. Science 2006;312:1900–2.
[9] Schreiber L. A solid start for every child: the netherlands integrates medical and social care, 2009-2022. innovations for successful societies. Trustees of Princeton University; 2022.
[10] Waelput AJM, Rijlaarsdam CW, Steegers EAP. Preconception health and choices: tailored solutions for prospective parents. IJPBE 2022;(9):22–6.
[11] National Institute for Public Health and the Environment. https://www.rivm.nl/monitoren-zwangerschap-en-geboorte/kansrijke-start/landelijke-monitor.
[12] Scheefhals ZTM, de Vries EF, Molenaar JM, Numans ME, Struijs JN. Observational data for integrated maternity care: experiences with a data-infrastructure for parents and children in the Netherlands. Int J Integr Care 2023;23(4):20.
[13] Bakker M, van Rooijen J, van Toor L. The system of social statistical datasets of statistics Netherlands: an integral approach to the production of register-based social statistics. Statistical Journal of the IAOS 2014;30:411–24. 14.
[14] Molenaar JM, Boesveld IC, Kiefte-de Jong JC, Struijs JN. Monitoring the Dutch Solid Start Program: Developing an Indicator Set for Municipalities to Monitor their First Thousand Days-Approach. Int J Integr Care 2022;22(4):8.
[15] Molenaar JM, van der Meer L, Bertens LCM, de Vries EF, Waelput AJM, Knight M, et al. Defining vulnerability subgroups among pregnant women using pre-pregnancy information: a latent class analysis. Eur J Public Health 2023;33(1):25–34.
[16] van der Meer L, Waelput AJM, Steegers EAP, Bertens LCM. Creating a sense of urgency and provoking action - An example on the use of heat maps to address perinatal health inequalities. Prev Med Rep 2022;30:102058.
[17] National Institute for Public Health and the Environment. Indicatorenset lokale monitoring kansrijke start. 2021 [Internet] Available from, www.regiobeeld.nl/kansrijkestart [Accessed].