Executive Summary

Request for advice

Recent years have seen increasing attention focused on preconception care as a means of promoting the health of prospective parents and their children. It was this trend, together with the persistence of relatively high perinatal mortality in the Netherlands, that prompted the Minister of Health, Welfare and Sport to request that the Health Council produce an advisory report on preconception care.

The Minister asked the Council to review the current level of knowledge concerning preconception care. He also wished to know to what extent the available knowledge is already being applied, both in the Netherlands and elsewhere. A further question raised was which specific requirements a programme of preconception care would need to meet. Finally, the Minister asked the Health Council to investigate how one might reach the maximum possible number of parents-to-be, what professional groups and other bodies would need to be involved, and what ethical considerations arise in connection with preconception care.

In collaboration with the Dutch Cochrane Centre, a systematic review has been conducted of the scientific literature, using preconception care as the principal search term. This has generated a limited selection of topics on which sufficient literature with the highest level of evidence is available. In the light of the results, evidence-based recommendations have been made with regard to food, alcohol, tobacco and other recreational drugs, working conditions, illness and

medication. Also discussed are genetic factors and ethical and legal matters. Finally, the Committee that produced this advisory report outlines a programme of preconception care which it advises the Minister to introduce in the Netherlands.

One concept, many forms

The aim of preconception care is, first and foremost, to improve the health of mother and child. Any public health benefits and cost savings are important spin-offs.

Preconception care is defined in this advisory report as the entire raft of measures to promote the health of the mother-to-be and her child. If they are to be effective, these measures should preferably be undertaken prior to conception. Preconception care is therefore multidisciplinary, encompassing lifestyle (including food, drink, tobacco and other recreational drugs), working conditions, illness, medication and genetic factors.

Preconception care has various, complementary forms. Some are aimed at individual parents-to-be, while others may, for example, collectively target all women of child-bearing age.

Individual preconception care can either be of a general or specialist nature. One general measure is the so-called preconception consultation, whereby couples who would like to have a child have a discussion with a GP or midwife. After having identified and assessed the risk factors, he/she gives them a combination of advice that is aimed at changing behaviour (e.g. to stop smoking) and non-directive information aimed at promoting their freedom of choice (e.g. about genetic testing). If necessary, prospective parents can then also be referred for specialist preconception care. This applies to situations where there is an increased risk either of complications during the pregnancy or of an adverse pregnancy outcome.

Examples of collective measures in the field of preconception care are rubella vaccination, iodisation of salt, radiological protection and education campaigns on the use of folic acid.

Food, drink, tobacco and other recreational drugs

A healthy, varied diet is important for everyone, and therefore also for people who wish to have a child. A healthy diet is, to a large extent, also sufficient to meet a woman's needs during early pregnancy. However, certain nutrients are already particularly important before conception. It is, for example, important to

begin taking folic acid supplements (0.4 mg per day) at least four weeks before the planned conception in order to reduce the risk of having a child with a neural tube defect. Furthermore, the level of vitamin D in the body needs to be adequate. Vitamin D supplementation is recommended, especially for women with little exposure to sunlight or who have a very dark skin. Finally, women wishing to become pregnant are advised to refrain from eating liver products in order to avoid an excess of vitamin A.

Parents-to-be are best advised to abstain from of all recreational drugs. Tobacco and alcohol have been shown to have adverse effects both on fertility and on the unborn child. The use of hallucinogenic drugs is also inadvisable.

Working conditions

Exposure to high concentrations of chemical agents is detrimental to the health of all people. This is, however, especially relevant to people who would like to have a child and to pregnant women, because of the possible adverse effects on the unborn child. There are indications that exposure to high concentrations of such compounds as pesticides, solvents and cytostatics is associated with an increased risk of miscarriage and congenital abnormalities. Thusfar no indications have been found suggesting adverse effects of preconception exposure to such physical factors as low dosages of ionising radiation and noise and to other factors such as shift work on pregnancy outcomes. Stress before conception, however, can be harmful. The Occupational Health and Safety Act (*Arbowet*) already includes maximum exposure levels for chemical and physical factors and rules governing shiftwork for pregnant women.

Compliance with the occupational health and safety regulations (protective clothing, extractor systems) should keep exposure to both chemicals and physical factors within safe limits.

Illness and medication

During every preconception consultation it should be investigated whether either of the future parents has – or is at risk of developing – an illness that might affect the pregnancy, or vice versa.

As far as infectious diseases are concerned, rubella (‘German measles’) vaccination status is particularly important. If necessary, booster vaccinations can be given prior to conception. Pre-existing sexually transmissible diseases must be treated prior to conception. In the case of HIV-seropositive individuals, it will be necessary to discuss medication policy.

It is important that women with diabetes should have their blood-sugar levels well under control in advance of conception. Tight glycaemic control has been shown to result in better pregnancy outcomes, in terms of fewer complications and fewer congenital abnormalities. In the case of epilepsy, it is important to switch to monotherapy (if possible) or, if the woman is episode-free, perhaps even to phase out medication completely. This reduces the risk of congenital abnormalities.

As far as the use of other medicines is concerned, it will be necessary to consider (on an individual basis and always under the supervision of a doctor or pharmacist) whether medication may possibly be harmful and, if this is the case, to adjust the dosage or, where possible, phase it out.

Other health related factors with an adverse effect on pregnancy outcomes are obesity, anorexia and a relatively high paternal of maternal age.

Genetic factors

Preconceptional genetic counselling will in the first instance require a proper personal and family history, followed – if necessary – by referral to a clinical genetics centre. The aim of preconception counselling here is to extend the range of options available to individuals with an unfavourable genetic background and to give them more time to consider carrier screening and/or antenatal screening or the consequences of opting for (or against) pregnancy.

The advisory report takes a closer look at carrier screening for cystic fibrosis and haemoglobinopathies, since these genetic disorders are relatively common among various population groups in the Netherlands. It would be advisable to carry out a study to further explore the desirability and efficiency of general carrier screening for these disorders.

Ethical and legal matters

Preconception care can contribute to two values which are especially relevant to (future) parents: firstly, the health and well being of the child and its mother and secondly, the freedom to have children. The broad character of this type of care raises a variety of ethical and legal issues. Some ethical and legal questions are difficult to answer at this stage. One such example is the conflict between the desire to provide people with the best possible information about lifestyle and health and their right “not to know” everything (e.g. about the possible presence of a genetic disorder). Preconception care programmes should therefore be regularly evaluated, taking these possible consequences into account, e.g. in conjunc-

tion with research into the health effects of preconception care. A number of recommendations are made with a view to ensuring the careful delivery of preconception care (e.g. adopting a phased approach to the provision of information and making a clear distinction between advice that is aimed at modifying behaviour in cases where risks can be influenced and non-directive information aimed at increasing reproductive autonomy where they cannot). As far as the legal aspects are concerned, it should be pointed out that the existing statutory framework set out in the WGBO [Medical Treatment Agreement Act], WBO [Population Screening Act] and WMO [Medical Research Involving Human Subjects Act] and in the provisions of the Constitution with regard to self-determination, privacy and public health is also fully applicable to preconception care.

Preconception care programme

Many of the scientific insights discussed in this advisory report are already also being communicated to prospective parents in the form of antenatal education. However, it would be better if most of the information were provided prior to conception, since this would offer greater health benefits.

The Health Council therefore advises the Minister to set up a centrally coordinated programme of preconception care, pointing out that this approach will reach the greatest number of parents-to-be. This strategy will also create the most favourable conditions for monitoring the effectiveness, efficiency and social consequence of this care programme. Furthermore, the various components of the programme (advice and interventions relating to food, drink, tobacco and other recreational drugs, working conditions, illness and the use of medicines and genetic aspects) should not be provided as separate elements but as an integrated healthcare concept.

A sound knowledge infrastructure is also crucially important. The Committee urges that preconception care should be enshrined in medical guidelines. It also believes that the professional groups concerned will require supplementary training and recommends that a proper database should be established and a communications strategy should be developed in order to provide information to the target group.

The organisation of preconception care will necessitate choices as to which professional groups are to deliver the general, individual preconception care. It may be possible to consider this question at regional level. Furthermore, the Committee recommends central governance with regard to monitoring, quality assurance and knowledge infrastructure.

Conclusion

Preconception care offers a simple means of improving the preparedness of women *and men* for pregnancy. This will benefit not only the health of the future child, but certainly also that of the prospective parent(s). It would therefore be advisable to offer this form of programmatic care to anybody in the Netherlands who wishes to have a child.