# Preconception care

**Dr Karin Hammarberg (00:05):**

Hello and welcome to this presentation where I'm going to talk about preconception care. Why it's so important, when it's needed, and how we can best provide it. I'm Karin Hammerberg and I'm a senior research fellow at Monash University. I also work with the Victorian Assisted Reproductive Treatment Authority, VARTA for short. And at VARTA we have a government-funded fertility and preconception health promotion program called Your Fertility. And I'm going to refer quite a bit to Your Fertility resources in this presentation.

**Dr Karin Hammarberg (00:43):**

So my starting point is the so-called Red Book that you're all familiar with. The Red Book states that preconception care is a preventive activity, and that every woman of reproductive age should be considered for preconception care. And that this involves interventions to identify and modify risks to a woman's health or pregnancy outcome, through prevention and management. And I am reliably informed that in the next iteration of the Red Book, the recommendation to provide preconception care will be extended to include men. And I think this is a really positive step, because preparing for pregnancy should really be a shared responsibility. And there are quite a lot of things that the male partner can do to improve pregnancy outcomes.

**Dr Karin Hammarberg (01:39):**

So why is preconception health so important? Well, it's because genes are sensitive to the environment, and they can change how they function if they are exposed to suboptimal conditions. Changes in genes in response to the environment are called 'epigenetic'. And some epigenetic changes, they can affect the health trajectory of the offspring. We already know, of course, that epigenetic changes can occur in foetal life in response to the environment in the uterus. So for example, if a woman smokes, or if she's undernourished, this increases the risk that the baby is smaller than expected at birth. And this, in turn, increases the risk of poorer health in adulthood. But now we know that parents' condition, even before and at the time of conception, they can also affect the short and the long-term health of offspring. So in addition to the genetic material that parents contribute to their offspring, their health condition at the time of egg and sperm maturation, and at conception, they have lasting effects on the expression of the genes and the health of the future child. So it is true to say that parents can improve the odds of their children having good health by optimising their own health before conception.

**Dr Karin Hammarberg (03:10):**

And because we know that most women, and most men, they want children and they expect to become parents sometime in their life, and of course everyone hopes that they will have a healthy baby. And for this reason it's really essential to integrate preconception health promotion in primary care. And we also know that about 35% of pregnancies are actually unplanned. This of course doesn't necessarily mean that they are unwanted, but because they just happen, parents don't get the chance to improve their health before they conceive. So all of this points to the need to discuss the importance of pregnancy preparation. And primary healthcare providers are, in my view, really well-placed to help people understand this.

**Dr Karin Hammarberg (04:02):**

Preconception period is of course any time for fertile men and women, unless they use really reliable contraception. For people who use assisted reproductive technology, it's a bit easier to know when the preconception period is, and to advise them to optimise their health in the months leading up to the treatment, if not sooner. The US-based Centers for Disease Control and Prevention recommend that, as part of primary care visits, healthcare providers should provide a risk assessment and educational and health promotion counselling to all women. And I have added here 'and men' because I think it is essential that men are included as well. But to all women of childbearing age, to reduce reproductive risks and improve pregnancy outcomes.

**Dr Karin Hammarberg (04:55):**

Of course the idea that every primary care consultation should include discussion about preconception health might seem impossible. But there are certainly some types of consultations that lend themselves really well to opportunistically starting conversations about the importance of avoiding pregnancy, if it's not wanted, and if pregnancy is wanted, to prepare for it by optimising health. So of course any of the reproductive health consultations like pap smears, contraception advice and STI checks are excellent opportunities. But also I think some of these general health consultations including health checks and immunisation visits could be good opportunities.

**Dr Karin Hammarberg (05:39):**

But we do know from the literature, and I'm sure you know from clinical practice, that there are many barriers for routinely asking people about pregnancy intention and providing preconception health advice. The ones on this screen are from a systematic review on this topic, and they broadly fall into three categories. So practitioners sometimes don't think it's part of their role to discuss preconception health, especially those who are not in the obstetrics and gynaecology field, or they might feel that they don't know enough about it. And it is generally thought that there is a real lack of clarity about who is, in fact, responsible for preconception care. On the patient side, there are clearly some barriers, including that most women don't really see a healthcare provider before they try for pregnancy. There is also some evidence that some women think that there is no need to see a doctor before pregnancy, and presumably it's because they are not aware of the importance of this. The most commonly identified organisational and societal barriers identified in this review is of course practitioner's lack of time. And this is quite understandable, considering the time pressure that everyone is under. But there is also a lack of tool and guidelines, and of course the lack of reimbursement.

**Dr Karin Hammarberg (07:06):**

In terms of the Australian context, the Your Fertility team have surveyed primary healthcare professionals about their knowledge and attitudes and practices relating to promoting preconception health. So we have surveyed primary healthcare nurses, we have surveyed maternal child and health nurses and general practitioners. And in fact the findings from all these three studies are pretty much identical, and they show that primary healthcare providers in Australia, they actually do believe that it is part of their role to promote preconception health. But also it shows that most practitioners don't really do this routinely. Part of the reasons for this is that some worry about bringing up the subject in case it is sensitive to people to talk about. Quite a few feel that they don't really know enough about it. And universally across these three studies, practitioners really want more education and they want more resources that they can share with patients.

**Dr Karin Hammarberg (08:12):**

So these findings really give us clues to what might help practitioners to be more proactive about asking people whether they plan pregnancy, and talk to them about the benefits of optimising their health beforehand. I am going to tell you a bit about these enablers, including some research that shows that people actually don't mind being asked about pregnancy plans. Also going to tell you a bit about some available educational resources for primary care providers, and some resources that are really useful to share with patients.

**Dr Karin Hammarberg (08:49):**

So firstly, based on the findings of a study that we conducted a couple of years ago, practitioners probably don't need to worry too much that asking about pregnancy intention, thinking that it is a sensitive subject. Because we did a survey of more than 700 people of reproductive age, and the survey was all about knowledge and attitudes and behaviours in relation to fertility and preconception health. But one of the questions we asked was, 'How would you feel if your GP asked you if you were hoping to be pregnant in the next 12 months?' And it was really quite encouraging to see that three in four stated that, either that they wouldn't mind, and some even said that they would appreciate it if the GP asked them about their pregnancy intentions.

**Dr Karin Hammarberg (09:39):**

So now to the 'how to' question. How can we integrate, in a nonjudgmental way, a question about whether people want to avoid or achieve pregnancy in the near future? I think one of the most inspired initiatives for how to ask about pregnancy intention is the 'One Key Question' initiative, which was championed by people in the United States. They recommend that healthcare providers routinely ask women who are in the reproductive age range, 'Would you like to become pregnant in the next year?' And then if the answer is 'yes', or 'maybe', this is really the opportunity to offer preconception health check, not there and then, but to come back and have a preconception health check at some later time. And of course if the answer is 'no', this is really the golden opportunity to discuss the importance of reliable contraception, and if it's not already in use, to refer the patient to a family planning clinic or to come back for a preconception health advice.

**Dr Karin Hammarberg (10:46):**

Using this One Key Question idea. We have developed some resources for Australian practitioners, and we call them 'planting the seed'. And this really refers to the proactive approach to planning pregnancy and preventing poor pregnancy outcomes. So there is this downloadable guide about how to ask and how to advise, depending on the answer. But more importantly, we have produced some short videos to demonstrate how this can be done in practice and how little extra time this adds to a consultation. So the videos include one with a woman who is planning to get pregnant, one with a male patient who does not want to be fathering a pregnancy at this point, and one with a woman who does not want to become pregnant in the near future. So we're going to look at these three short videos now and I hope you will agree that asking can be quite quick and easy.

**GP 1 (11:56):**

Well, thanks Renee for coming in today to talk about your diabetes and your medication. I just wanted to ask, with the opportunity, whether or not you and your partner are thinking of having a baby in the near future?

**Renee (12:06):**

Ah, probably not. We haven't really started talking about that quite yet. And I do have a bit of a concern about how my diabetes might affect a pregnancy.

**GP 1 (12:14):**

Okay, well I can understand that. And there is a cause for concern there if diabetes isn't well controlled. So it's important to have this conversation with me before, if you decide to fall pregnant, well before this. So in the meantime, contraception is important, and are you happy with your form of contraception?

**Renee (12:35):**

Yeah, no, I've been on the Pill for a few years now and it seems to work quite well for me, so quite happy with it.

**GP 1 (12:39):**

Great. Now if things do change down the track, I need you to be aware that there is a window of opportunity for women, because of your age, and the opportunity to conceive naturally declines over the age of 35. Just to be aware of that. And if you decide to change your mind down the track, make sure that you make an appointment with your partner to come and see me a good six months beforehand, so we can talk about your diabetes and how we can optimise your chances of falling pregnant and having a healthy baby. And there's a really good website that you can have a look at in your own time, which is the Your Fertility website, which has a whole host of interesting information around modifying your lifestyle factors to improve these chances.

**Renee (13:22):**

Okay, great. I'll keep that in mind.

**GP 1 (13:24):**

Great.

**GP 2 (13:29):**

Okay, Simon, we're going to get the results of the SDI screening tests that we did in a few days' time. In the meantime, I was wondering if you have any plans to become a father in the near future?

**Simon (13:40):**

No, nothing on the horizon. No.

**GP 2 (13:42):**

That's not the plan. What about contraception? Do you use anything?

Simon (13:46):

Yeah, use condoms.

**GP 2 (13:47):**

That's really good. The reason I'm asking about this is we know that untreated STIs could impact the fertility in both male and female patients. So it's very important to keep on doing this SDI screening test that you did today. Do it once a year. Don't wait for any symptoms, because we know lots of STIs don't have any symptoms whatsoever, and it's very important to keep an eye on it. And down the track, if things change and you decide to have a child, it's always good to come back and we can sit and talk about different things. There are a lot of things that we can change in our lifestyle, which makes a better outcome of the pregnancy. I found a lot of my male patients are not aware of the impact of things like alcohol, smoking, their weight, and lifestyle in general, on the quality of the sperms. So always good to discuss these things before you decide to have a child in the future, if that's ever a plan. Anything else you need to know today? Any questions?

**Simon (14:47):**

No, that's covered everything. I'll keep all that in the back of my mind. Yeah, that's everything for today.

**GP 2 (14:53):**

That's great. You take care of yourself. I'll see you later.

**GP 2 (15:00):**

Okay Michelle, so we've done your cervical screening test. I'm going to get the results in about a week or two. We'll let you know once the results are ready. In the meantime, I was wondering if you have any plans for a pregnancy in the next year or so?

**Michelle (15:14):**

Well, we actually are discussing trying within the next year to have a baby, or so.

**GP 2 (15:18):**

Oh, that's great. Good that I ask that, because there's a thing called 'preconception health check', and lots of things that it's good for you and your partner to know, that you can make changes and have a better fertility rate, a healthier pregnancy and a healthier baby at the end. Things like alcohol, smoking, exercise, your day-to-day healthy diets. Your vaccination and your partner's vaccination history is important, and we can always update you with things that you require before a pregnancy. We do some blood tests for you before the pregnancy, and things that we can discuss to make the pregnancy work better. There's a very useful website called Your Fertility, heaps of useful information. And when you come back next time we can talk about these and if you have any questions we can cover them.

**Michelle (16:14):**

Alright, that all sounds good. Well, I'll have a chat with my partner tonight, and we will take some time to look at the website, and I'll give you a call to set up an appointment.

**GP 2 (16:22):**

That's great. Do you have any other questions for today?

**Michelle (16:24):**

I think that's it. Thank you so much.

**GP 2 (16:26):**

My pleasure. You take care of yourself.

**Dr Karin Hammarberg (16:40):**

The guide has a summary of the things to cover in a preconception care consultation, and this summary is drawn from best practice guidelines. And as you can see, there is quite a lot to cover, but I'm going to talk in more detail about four of the most important preconception health risk factors. So the four potentially modifiable risk factors which we should really advise patients about are obesity, alcohol use, smoking, and micronutrient deficiency.

**Dr Karin Hammarberg (17:15):**

So obesity is the most common clinical risk factor for the development of high risk and complicated pregnancies. Many factors of course contribute to the obesity epidemic, including family history, eating habits, and the level of physical activity. Also, lots of environmental factors, including this really 'ready access' to processed food, all the fast food and sugary drinks, and the strong reliance on cars for transport. Obesity is a stigmatised condition, and it is difficult to discuss, but patients do need to know that it's associated with really poor reproductive outcomes.

**Dr Karin Hammarberg (17:57):**

So obesity can cause hormonal changes, and they can interfere with ovulation, and that in turn of course reduces a woman's fertility, leading to longer time to pregnancy, and also a higher risk of infertility. It can also affect sperm quality and lower male fertility. It is unfortunately associated with a number of pregnancy complications, including neural tube defects, preterm birth, gestational diabetes, caesarean section, high blood pressure and blood clotting problems. We also know that parental obesity can cause epigenetic changes, the ones we talked about before. And these changes can predispose the child to obesity, and all its related health problems later in life. So these are really very long-term intergenerational health risks.

**Dr Karin Hammarberg (18:53):**

This quote is from Professor Jude Stevenson in the United Kingdom. She's one of the very strong proponents for the need for universal preconception care, and she says that this rise in obesity among women of reproductive age has been the most pressing 'wake-up call' to improve preconception health. So obesity, which affects over one in five pregnant women in the UK, and I think it's round about the same kind of proportion in Australia, obesity is strongly linked to almost all adverse pregnancy and birth outcomes. And she also says that, unfortunately, attempts to tackle the problem through diet and physical activity interventions which start in pregnancy, they have really had negligible effect on immediate and later outcomes. So she concludes from all this that, together, these findings call for a new focus on improving health before conception.

**Dr Karin Hammarberg (19:54):**

But how do we discuss obesity in this context? Because people who are overweight or obese, they often feel really bad about this. And in part this is because of the stigma attached to obesity. People living with obesity are often described feeling judged and stigmatised, discriminated against, and pressured by others. But because the impact of obesity on pregnancy health is so great, I think it is really important that we try to discuss it with the patient before they attempt pregnancy, even if it's a difficult topic to talk about. Any such discussion of course has to focus on encouragement and support, which is absolutely essential. But we also need to help people set achievable weight loss goals and a realistic timeframe to reach those goals. It's also of course important that people have knowledge and understanding about nutrition and healthy eating, that they have access to fresh food, and this is of course, we know, not always the case, and also that they have the means to increase their levels of physical activity.

**Dr Karin Hammarberg (21:00):**

It also quite useful I think for women to know that even a modest weight loss does improve fertility and pregnancy health, and that exercise can help maintain weight and also possibly achieve a modest weight loss. So recommendations currently are for up to 300 minutes of moderate intensity exercise every week, and that comes to about 35 to 45 minutes per day. Men and women are also twice as likely to make positive health behaviour change if their partner does that too. So I think it's a good thing to promote as a couple activity. If weight loss is one of the goals, it's best to do this together.

**Dr Karin Hammarberg (21:46):**

Alcohol is another factor that needs to be addressed in preconception care. The NH&MRC guidelines, they're very clear that the best option for women who are trying to for pregnancy is to avoid alcohol. But I do think it's important to not let the men off the hook. And the message to men from FASD Hub Australia is that we just don't know if and how alcohol might damage sperm, and that it's therefore best for men to also avoid alcohol in the preconception period. The evidence about the harmful effects of alcohol on offspring is really mounting, and we now know that even a modest amount consumed during pregnancy can cause foetal alcohol spectrum disorder. And foetal alcohol spectrum disorder is described as 'severe neurodevelopmental impairments that result from brain damage caused by alcohol exposure before birth'.

**Dr Karin Hammarberg (22:51):**

FASD Hub Australia is a government-sponsored source of really high quality evidence-based content about alcohol and pregnancy. And on their website you can find lots of really useful resources for health professionals and also for their patients. The Foundation for Alcohol Research and Education. They also make very strong points about the importance of not drinking in the preconception period. And you might have seen their ads on TV, and they call them 'every moment matters'. They have been screening quite a bit on TV recently and I think they're excellent.

**Dr Karin Hammarberg (23:29):**

Smoking, including passive smoking, is of course, everyone knows, harmful for general health, but it might not be so well known by people in the public that it's really associated with very adverse effects on reproductive outcomes as well. So smoking increases the risk of infertility, and it takes longer for smokers to conceive than for non-smokers. It does reduce the chance of achieving a pregnancy with assisted reproductive technology. And it increases the risk of a lot of pregnancy complications, and of course it has really adverse effects on the baby's health.

**Dr Karin Hammarberg (24:09):**

When we talk to patients who smoke, it's often better to focus on the benefits of quitting, rather than on the risks of continuing. And the good news is that the effects of smoking on eggs and sperm, and on fertility, they are in fact reversible. So whether it's the male or the female or both who smoke, quitting will increase their chance of conceiving and having a healthy baby. There is no safe limit for smoking. The only way to protect the smoker and the unborn baby from harm is to quit. But we do know that quitting can be really difficult, and people do need a lot of support. There are a lot of resources out there to help people quit. So directing smokers to these, and making sure that they have regular contact with a supportive GP, I think that can really help a lot of people get across the line.

**Dr Karin Hammarberg (25:04):**

And just a few words about the importance of supplements in the preconception period. And you will be well aware of the recommendation that women take folic acid and iodine at least a month before conception. If it started at least a month before conception, daily folic acid actually prevents seven out of 10 cases of neural tube defect, which I think is a pretty profound statistic. There is also a little bit of evidence that zinc and selenium might improve sperm quality.

**Dr Karin Hammarberg (25:37):**

And just to finish up, I want to tell you about two studies looking at women's preconception health. The first is from the UK where Judith Stephenson and her colleagues surveyed almost 1200 women who were pregnant about their preparation for pregnancy. So they find that 73% clearly planned the pregnancy, but actually means that 27% had an unplanned pregnancy. And we all know what that means in terms of preparation for pregnancy. So 51, about just over half of the women, did take folic acid before pregnancy, and the percentage who took folic acid was a bit higher among those who were planning pregnancy. They found that one in five women actually smoked, and more than half consumed alcohol in the three months before pregnancy. But also that half of the smokers and almost half of the drinkers, they stopped or reduced pre-pregnancy. About half saw a health professional before pregnancy, and they were much more likely to take folic acid and to adopt a healthy diet. So I think this really points to the importance of, and the usefulness of, providing care in the preconception period.

**Dr Karin Hammarberg (26:54):**

The second is a study of women in Australia. They surveyed just over 400 women in early pregnancy. And the findings were pretty similar to those in the UK study, with only about half having a preconception health check and taking folic acid before they conceived. Of the women with BMI in the obese range, very few actually categorised themselves as obese. So whether this is because obesity has become normalised, because it's so common, it's hard to know, but it does reinforce the point about the complexities of obesity as a public health risk.

**Dr Karin Hammarberg (27:36):**

So before I tell you a bit about some resources that might help you integrate preconception health promotion in your practice, I'd really like to share this quote from Edwina Dorney and her colleagues. And this quote really summarises my whole talk in one sentence. They say that 'the critical first step is screening women for their pregnancy intentions and initiating conversations about optimising health before conception or discussing effective contraceptive options'. And again, let me just say that I would like to see men added to this quote.

**Dr Karin Hammarberg (28:14):**

So I'll just talk to you about some educational resources for health professionals, to use in preconception health consultations. There are quite a few really excellent ones out there, and I'll discuss those with you now. The first one I really highly recommend is Dr Edwina Dorney's two papers. One is about preconception and one is about interconception care. And they're both available in open access from the Australian Journal of General Practitioners. And they really offer a great overview of the benefits of preconception care and the evidence to support the need to integrate questions about pregnancy planning in consultations with people of reproductive age.

**Dr Karin Hammarberg (29:00):**

And then there are also by now at least three online learning modules relating to preconception care, and they're all endorsed and accredited by professional organisations, and they do have CPD points attached to them. And lastly, on Your Fertility website, there is a range of resources and information for you to direct your patients to. They are all of course evidence-based, and they come in many different formats, including checklists and fact sheets, videos, and links to other websites with trustworthy information. One of the most popular ones is the interactive tool that we call Healthy Conception Tool. This tool has a section for women and one for men. And this is where they input their own personal information like age and height, weight, alcohol consumption, smoking, et cetera. And then they get personalised advice about each factor and how it might affect their chance of conceiving and having a healthy baby. And at the end of it, users can print out a detailed summary of their information or they can have it on their phone, and the call to action is to take this to a preconception health check with their general practitioner.

**Dr Karin Hammarberg (30:21):**

So this is all for me. I want to really thank you, and I encourage you to visit the Jean Hailes website for more resources and tools, webinars and articles. Thank you.

**End of transcript**

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