HOUSE OF LORDS

Preterm Birth Committee

Corrected oral evidence: Preterm birth

Monday 12 February 2024

2.35 pm

Watch the meeting

Members present: Lord Patel (The Chair); Baroness Cumberlege; Baroness Owen of Alderley Edge; Baroness Seccombe; Baroness Thornhill; Baroness Watkins of Tavistock; Lord Winston; Baroness Wyld.

Evidence Session No. 1 Heard in Public Questions 1 - 16

Witnesses

I: Dr Jennifer Jardine, Academic Clinical Lecturer in Obstetrics and Gynaecology, Queen Mary, University of London; Professor Marian Knight MBE, Professor of Maternal and Child Population Health, and Director, National Perinatal Epidemiology Unit, University of Oxford; Professor Jan van der Meulen, Professor of Clinical Epidemiology, London School of Hygiene & Tropical Medicine, and Chair, National Maternity and Perinatal Audit Project Team.

Examination of witnesses

Dr Jennifer Jardine, Professor Marian Knight and Professor Jan van der Meulen.

Q1 **The Chair:** Welcome and thank you for coming today to help us with our inquiry. To start, can you introduce yourselves for the record? After that, we will move on to the questions straightaway.

Professor Jan van der Meulen: I am a professor of clinical epidemiology at the London School of Hygiene & Tropical Medicine.

Dr Jennifer Jardine: I am an academic clinical lecturer at Queen Mary, University of London, and a senior registrar in obstetrics and gynaecology in north-east London.

Professor Marian Knight: I am a professor of maternal and child population health at the University of Oxford. I am a perinatal epidemiologist and public health physician; I am also the director of the NPEU.

The Chair: Thank you. Let us go straight into the questions. Some of the committee members will ask primary questions but we may have supplementaries as well. Please keep your answers short if you can; that way, we will get into more detail in other areas. If somebody has already said something, do not feel obliged to repeat the same thing.

Baroness Cumberlege: I am Julia Cumberlege. I led the team that produced a report called *Better Births*; that was a while ago now—five years ago, I think. I have always been very interested in birth. Indeed, I had the experience of having three births.

Baroness Watkins of Tavistock: Baroness Cumberlege, you are down for the first question. Would you like me to take it for you? Perhaps you could take my question later.

Baroness Cumberlege: Yes, that is very kind of you.

Q2 **Baroness Watkins of Tavistock:** I am a nurse by background and a NED—non-executive director—in the NHS. What are the current rates of preterm birth in England and how have they changed in recent years? To what extent do the current figures demonstrate progress towards the Government's ambition of 6% of live births being preterm by 2025? That—their ambition being 6%—sounds wrong, does it not, but we know that that means a significant reduction.

Professor Marian Knight: The answer is clear: the current preterm birth rate, from 2022, is 7.8%. If you look back at the data we have from the MBRRACE-UK surveillance, there has been no progress since 2016. So I cannot see any clear progress towards that target of 6% by 2025.

Professor Jan van der Meulen: It is also important to think about how that percentage is measured. For example, the 7.8% that Marian Knight mentioned includes all births before the 37th completed week, but you also have to think about where you start including the births. For example, in some studies, people report on preterm birth rates in pregnancies that are 24 weeks or more, because that is the threshold above which births are registerable. At the moment, quite a lot is happening with very early births without or with few signs of life, and to what extent they are recorded. Basically, trends over time need to take into account especially what happens with how births before 24 weeks are recorded so that we can have a true representation.

The Chair: Can you explain that? How else would we record it, if not by births?

Professor Jan van der Meulen: There is an issue with, for instance, babies born before 24 weeks without signs of life not always being recorded because there is no mandatory obligation to do that. There is variation in whether births without signs of life are recorded. Before 24 weeks, that could have an impact on the trend over time in the preterm birth rate.

Baroness Watkins of Tavistock: Are you saying that a woman may

give birth at 22 weeks to a baby that is not at all viable, but some people are categorising such babies as preterm births?

Professor Jan van der Meulen: Yes, although in some cases they do not. People have to understand this in terms of trends over time.

The Chair: But they are preterm births, are they not?

Professor Jan van der Meulen: The question is about trends over time; this is something I want to put in the discussion as a caution.

Q3 **Baroness Watkins of Tavistock:** I need to understand something that I dare say our chair does already. Clinically, when I was practising—quite a long time ago—we would have said that that was a miscarriage and would not have recorded it as a preterm birth. If the Government's aim is to get to 6% and we are changing the dataset from 24 weeks on, by definition we have a potential challenge—not a problem, but a challenge. I can see that Professor Knight wants to come in, and I will give this to her, but this is my supplementary because I want to understand this.

Professor Marian Knight: I have a point of clarification. The 7.8% figure that I gave you is for live births of babies of 22 weeks' gestation or more. This is important. If a baby is born with signs of life, it is registered as a live birth. The confusion is around babies who are born with no signs of life at 22 weeks; this would be counted as a miscarriage rather than a stillbirth. Professor van der Meulen's point is a valid one; that is one reason why the MBRRACE team, working with royal colleges, has produced clear guidance about assessing signs of life. We have always collected information about all babies born at 22 weeks or more. My figures, from 2016 to 2022, take those factors into account and show no change in the proportion of babies born preterm.

The Chair: Thank you for clarifying that distinction between live births that are preterm and babies not showing signs of life at birth, as well as the gestation issues. That is important for our inquiry, which is about preterm births. Professor Jardine?

Dr Jennifer Jardine: My point has been covered by Professor Knight.

Lord Winston: I will muddy the waters slightly. How do you categorise stillborn babies born at 34 weeks? Are they preterm births or not?

Professor Marian Knight: Again, the figures I gave you relate solely to live births. A stillbirth at 34 weeks is still a woman having a preterm birth. As I said, to avoid any confusion, the 7.8% figure that I gave you relates to live-born babies.

The Chair: Do we have figures for babies born before 37 weeks but after 24 weeks if they are stillborn?

Professor Marian Knight: I do not have those figures at my fingertips, but we would be able to find proportions of babies who are stillborn or liveborn.

Dr Jennifer Jardine: About 75% of all the stillbirths in this country are preterm. The majority of stillbirths occur in preterm birth and have overlapping drivers.

To come back to the preterm birth rate, Professor Knight will have access to more up-to-date data than is available to me, but it is important to set out that the preterm birth rate as it stands encompasses all babies and is measured among babies. When we talk about maternity care, we talk about women giving birth, but they are not the same thing. The preterm birth rate among singletons is in the region of 6% to 6.5%. For women having a multiple birth, the rate is much higher; the data I have says that around 55% to 60% of twins are born preterm, and the rate is higher still with higher-level multiples.

One thing that is so challenging about this 6% goal—or talking about 7.8%—is that we talk about a heterogenous number that is measured among babies rather than among pregnancies. Women giving birth and pregnancies is where we target all our intervention.

Professor Jan van der Meulen: I apologise in advance for making this slightly more complex, but we are talking about a number of things, including the definition of signs of life and all that. Again, it highlights that preterm births cover a wide spectrum of babies born across a wide spectrum of gestational ages.

Lord Winston: That is right.

Professor Jan van der Meulen: Practice can change, for example, and babies are born at very early ages more frequently now than in the past. The interpretation of signs of life and the practice might change a bit compared with in the past. All those aspects play a role if we bang them all together and look at headline figures and trends over time.

I agree with everything that Marian said, but I also want to highlight the fact that, if we want to look at trends over time as a measure of the success of a policy that the Government put in place some time ago, we may need to be careful with these headline measures, because they include a number of different changes, such as what happens early on in the spectrum of gestational age and how "signs of life" is being interpreted.

Baroness Owen of Alderley Edge: To touch on your points, the background briefing said that healthcare professionals "may struggle to distinguish between true signs of life and brief reflex activity". Is this variance, which we have touched on already, categorised in one way for hospitals or between individuals? I noticed that there are also varying trends in different locations. Could this have an impact on it?

Dr Jennifer Jardine: It is probably clinician to clinician, to be totally frank.

On the understanding of what constitutes brief signs of life—this is partly what Professor van der Meulen touched on—one of the many things that

has changed in the provision of care since the Government's first iteration of this ambition in 2015 is that we have pushed back the threshold of viability in practice. The threshold of 24 weeks that Baroness Watkins discussed is no longer what is practised. We are much more proactive now, at around 22 weeks in particular, than when I started practising obstetrics and gynaecology 11 years ago.

Some of these babies will have extremely brief signs of life that are difficult to interpret and will be interpreted differently by people depending on their level of experience in caring for those babies. When we come to talk about outcomes for babies born preterm, we might talk about where those babies are born. In some neonatal units, there is a high level of expertise in caring for very preterm babies, but that is not the same everywhere, so those signs of life may be interpreted differently.

Q4 **Baroness Wyld:** Huge apologies for coming in slightly late. It was unavoidable, I am afraid. I want to ask you about the risk factors associated with preterm birth. Clearly, there are many across socioeconomic and clinical factors. In going through them, could you talk as much as you can about how confident we can be about the causality of each one that we discuss? Professor Jardine, perhaps we could start with you.

Dr Jennifer Jardine: I appreciate the promotion, but I am a long way away from being a professor.

Baroness Wyld: Okay, we will take that.

Professor Jan van der Meulen: I am not a clinician but, again, I can give a brief summary of this. You have to think about the risk factors for the mother before pregnancy—for instance, existing diseases like diabetes or hypertension, as well as conditions that can occur during pregnancy, such as gestational diabetes and pre-eclampsia. All of those elements play a role. Maternal age is important, especially at the extremes of age; very young and very old mothers are at higher risk. All these risk factors relate directly to the mother.

You also have to look at the wider risk factors. For instance, we have a lot of evidence that preterm birth risks depend on socioeconomic deprivation. We did a study—Dr Jardine was part of it—that showed that if all women had the same level of risk of preterm birth as the women who live in the 20% most affluent neighbourhoods, 20% of the preterm births would not have happened. These wider, upstream risk factors play a very important role, which is something to consider. I cannot stress that enough, because we have to start to think about the prevention of preterm births.

In my view, the committee needs to talk not just to clinicians but to public health specialists who think about lifestyle and the environments that humans live in. You also need to talk among yourselves, because this depends on aspects such as fairness of income, of housing, of job

security, of welfare provision, especially for families at the age when they have children. That gives you an idea of the risk factors that we should talk about.

Dr Jennifer Jardine: Another relevant consideration when thinking about risk factors is to think about preterm birth split into the main reasons that drive it. Preterm birth can be spontaneous—that is, a spontaneous labour process that starts of its own accord—or initiated by a clinician. There is some overlap between these but, generally speaking, it is one or the other. Over time, in high-income countries generally, there has been an increase in provider-initiated, or iatrogenic, preterm birth as we know more about what is going on inside the womb and we are more able to monitor women during their pregnancies. It is also because, globally, women are entering pregnancy less healthy than they were maybe 20 or 30 years ago.

The Chair: Can you give an iatrogenic example?

Dr Jennifer Jardine: Doing a caesarean section for pre-eclampsia at 34 weeks, for example, is classified as a provider-initiated preterm birth. Obviously clinically it does not feel like much of a choice, but it is still classified as a provider-initiated birth. It has different mechanisms.

The Chair: I see that your hand is up, Lord Winston.

Lord Winston: Thank you.

The Chair: Let Dr Jardine finish her answer.

Lord Winston: I thought you had, Dr Jardine.

Dr Jennifer Jardine: I am very happy to finish my answer, but I feel you will know more about this than me.

The Chair: We will come back to you, Professor Knight, after Lord Winston has asked his question.

Q5 **Lord Winston:** I am very interested in the figures from Singapore's flagship programme on metabolic pathways to developmental diseases. In particular, it looked in detail at pregnancies right the way through from the very beginning in a very large cohort of women, and it found that a significant proportion of the women were pre-diabetic to half the levels that you would normally detect in an NHS study. Do you know what the outcome was in terms of preterm birth?

Dr Jennifer Jardine: That is asking a question about a study that I have not read in a little while.

Lord Winston: It might be worth looking at it.

The Chair: We will keep that question for later witnesses. Professor Knight, you wanted to comment on Baroness Wyld's original question.

Professor Marian Knight: I was going to come in on the original point to amplify something specifically. I am obviously a public health physician, and I think it is very important to recognise that we are not going to prevent preterm births solely by actions focused on maternity services. We have to recognise the significant impact of pre-pregnancy health.

I want to come back to the question of causality, which was the first question answered. For most things, we are not able to do a randomised controlled trial that would enable us to give a firm answer on causality. However, there are some areas where we see the same patterns across many different populations, which gives us more confidence that what we are seeing is indeed causal. We clearly see many of the associations with socioeconomic deprivation, for example, across those populations.

We know specifically that, if you have pre-existing medical complications, such as diabetes or epilepsy, which Baroness Cumberlege will know about, you are more at risk of having a preterm birth. In most instances, it will be provider-initiated, but we know that can be impacted by optimising your pre-pregnancy health. We do not have a good enough focus on pre-pregnancy health or indeed enough awareness of the impact of your health pre pregnancy and what a difference it can make during pregnancy. That is a key message to include.

The Chair: In public health terms, do we know the number of women who are, let us say, diabetic or pre-diabetic and the incidence of preterm birth in those mothers? Do we know the number of mothers who smoke during or just before pregnancy?

Professor Marian Knight: We could calculate the numbers, but I do not have them at my fingertips.

The Chair: So epidemiologically we do not collect those numbers.

Professor Jan van der Meulen: If I may answer, we have the numbers, but they are perhaps not as accurate as we would want. We know that smoking and obesity are risk factors explaining preterm birth rates.

The Chair: What are the numbers?

Professor Jan van der Meulen: We do not know exactly. It is always, "Let's focus on the numbers", but they are being collected in several national datasets that will be key in taking this kind of research forward. We can give you the numbers after the meeting. We know that they partly explain the impact of socioeconomic status but not fully.

It is not only about lifestyle factors; it goes beyond that. That is the point I want to make. It is not only about women who make the wrong choices in life and choose risky behaviour. It is about the wider issues that need to be addressed.

The Chair: If you have any numbers, we would be pleased to have them. Even though they might not be absolutely accurate, it is interesting to know the trend.

Q6 **Baroness Wyld:** That was hugely helpful. I want to ask Professor Knight about the point on early intervention and pre-pregnancy health. What main adjustment or addition would you make to the public health system in that case?

Professor Marian Knight: There are two main things. One is making women aware of reproductive health choices. There is a place for interventions in schools to ensure that women are aware of their contraceptive choices, are planning pregnancies and are aware of the need to optimise pre-pregnancy health.

However, that still falls between different parts of the healthcare system. Is it your GP who should be providing that or should it be, for example, the new maternal medicine networks, which are leading maternity units through obstetric services? Should it be your usual healthcare services for diabetes or epilepsy as well as or instead of them? It is not clear where women should go to get that advice. There is still clear evidence that clinicians who are not used to managing pregnant women or advising women on pregnancy are not clear about how best to advise women. That is an area where we can make an important difference.

Q7 **Baroness Cumberlege:** Thank you. That was very interesting. In my area, we have a lot of Travellers. They have a way of thinking about things and doing things that is not always the same as what we would recommend and appreciate. How do you get to hard-to-reach groups, like Travellers? They are people who would benefit hugely from officials and professionals being able to put forward their views in a way that is accessible to those people.

We often communicate very much through a professional attitude. When I meet Travellers, it is very interesting to see the huge gap, especially when it comes to something like giving birth, which they have a lot of their own philosophy about. We are missing out hugely.

The Chair: Professor Knight, how do we collect data on Travellers?

Professor Marian Knight: Baroness Cumberlege's point is very valid. It is not just Traveller communities but diverse communities throughout the UK. We need to work with them and hear their voices so that these conversations can be had in a way that is meaningful to them and gives them the information they need to make choices in the context of their own cultural background. Dr Jardine, who is an on-the-ground clinician, may well be able to provide some concrete examples of doing that.

The Chair: We will get those from the clinicians. Baroness Thornhill has a quick question.

Q8 **Baroness Thornhill:** I am trying to tease apart the causality issues. I am struggling with the fact that the statistics I see tell me that ethnic-minority mothers are at higher risk. I want to understand how much of

that is associated with socioeconomic deprivation and being part of particular group a cause in itself. That is what I struggle with when things are lumped together in this way and we talk about "all" of one group. That is why I appreciated Professor van der Meulen's comments about it being more complex and multilayered. Do you know what I am getting at?

The Chair: I will ask Professor van der Meulen whether he has any figures.

Professor Jan van der Meulen: I will try to answer the question. Let us first acknowledge the complexity of the causality of it in the first place. There are no easy answers. The research that needs to be recommended is the research that goes into that detail.

Secondly, if you look explicitly at preterm birth only, there is a strong gradient across groups with different socioeconomic backgrounds but not so much between groups with different ethnic-minority backgrounds. That should be taken into account. However, if you look at the risk of a poor pregnancy outcome—it could be stillbirth or a small baby—there is a strong difference in risk between women from different ethnic-minority backgrounds. The risk for black women, for instance, is a lot higher than for white women. However, women from different ethnic backgrounds do not have higher preterm birth rates—

The Chair: Sorry to interrupt, but you keep talking in the abstract. I understand the risks related to ethnicity and deprivation. The report on mortality that Professor Knight produced identified the fact that a mother's risk of dying is three times higher if she is from a black background. Instead of talking in the abstract, do we have any data at all to demonstrate a link between the risk of preterm birth and ethnicity, smoking or any other issues?

Professor Jan van der Meulen: We do, actually; the risk is in the evidence I just quoted. We published a paper two or three years ago in the *Lancet* looking at the impact of socioeconomic deprivation but also at the impact of women coming from different ethnic backgrounds. For instance, on stillbirths, preterm birth rates and—

The Chair: What are they? What are the data?

Professor Jan van der Meulen: The data tell us that, for instance, as I said, women from different ethnic-minority backgrounds do not vary in terms of the risk of having a preterm birth; that is not what we see. It highlights the complexity of this issue because, on the other hand, we see that the risk for black women is three times higher than for white women, if you look at stillbirths. You see that the risk is increased even more if we look at poor black women compared to rich white women. So those gradients exist in terms of outcomes, not in terms of preterm birth.

I apologise for the abstract reasoning but this is one of the things that I want to highlight: focusing on preterm birth rates is one thing but I would recommend that all the work being done to improve outcomes of

pregnancies looks at preterm birth rates in the context of all the thinking about to what extent there is evidence about how the outcome of pregnancies can be improved altogether, in terms of not only perinatal mortality and growth but the longer-term outcomes such as educational attainment and the need for special educational support.

The Chair: We will no doubt have an opportunity to explore those issues but, today, we need to concentrate on the data relating to preterm births. Baroness Cumberlege, would you like to ask your question?

Baroness Cumberlege: Sorry, are you talking to me? I thought I had asked my question, but I have another one.

The Chair: Go on.

Q9 **Baroness Cumberlege:** I am wondering about the impact of preterm birth in terms of infant mortality, morbidity and longer-term outcomes. Can we have a bit of information on that?

Professor Marian Knight: Data from the National Child Mortality Database attribute preterm birth as the leading cause of child death up to the age of 18. Obviously, the majority of those deaths will occur in the neonatal period—the period up to 28 days of age, when the database attributes 28% of deaths to prematurity-related causes—but we know that preterm birth has an impact on deaths that occur throughout the childhood period. So it has a substantial long-term impact.

Professor Jan van der Meulen: We also need to recognise that preterm birth is on a large spectrum of pregnancies with widely varying pregnancy durations. The shorter the pregnancy at the time of birth, the higher the risk of poor outcomes, of course.

Q10 **Baroness Thornhill:** In my own experience as somebody dealing with pupils with special educational needs, when I researched individuals and did a piece of work for my master's, I noticed that there was a higher incidence of preterm birth. However, this is only my anecdotal evidence. Is that also evidenced?

Professor Jan van der Meulen: There is a lot of evidence on that. It is important to say that it does not stop at 37 weeks. If pregnancies have a longer gestational age at birth—38 and 39 weeks—you can see, in terms of educational outcomes and the risk of having special educational needs, that there is still a beneficial effect. Looking at gestational age in a dichotomy between being preterm and full term again underestimates the complexity of the problem that we are dealing with.

Q11 **Baroness Owen of Alderley Edge:** We were handed a graph—I am not sure whether you have been given it—on the proportion of childhood deaths attributable to preterm birth. I was interested to see that there was an increase in deaths between three and five, six and seven, and eight and nine, but, in other areas—for instance, between five and six, and between seven and eight—it decreases. What is causing that variance?

Professor Marian Knight: I think I have the same graph. There are no confidence intervals on that graph, so I do not think you should interpret those small differences between deaths at the age of six and the age of seven as necessarily showing a difference in trend. Fortunately, the numbers of child deaths are relatively small so the trends that you see on the graph are probably not statistically significantly different. What you can clearly see is the high proportion of deaths in the first year of life, which are those very early deaths occurring in the first month.

Q12 **Baroness Owen of Alderley Edge:** How do the incidence of preterm birth and outcomes for preterm babies vary by geography, ethnic groups and socioeconomic background? What is driving this variation?

The Chair: You have answered part of that question, to a degree, but we would like you to focus on the second part: what is driving those differences.

Dr Jennifer Jardine: I just want to provide some of the numbers you asked for. When we looked between 2015 and 2017 at women having one baby—singleton births—the rate of preterm birth in white women was about 6% while the rate in black women was about 6.6%, so it was very similar. However, the rate in the least deprived groups was 4.9% but, in the most deprived groups, it was 7.2%—very different. When you consider that that is a common incident, the overall numbers are very large, so the overall excess numbers that are attributable to social deprivation are very large.

The reasons underlying those, on the data we had at that time, can be partially explained by differences in health behaviours and health characteristics, as Professor van der Meulen explained. Of those differences in socioeconomic deprivation, about half can be explained by differences in smoking and body mass index between women in the most affluent group and those in the least affluent. If you add in all the other risk factors—such as whether that woman had a previous preterm birth, which is the biggest predictor on an individual level—that does not really change things at all.

Overall, we know that these socioeconomic differences are partially driven by health behaviours but not really explained by differences in other health characteristics. We see some geographical difference but it is not particularly pronounced and is probably accounted for by socioeconomic deprivation, as is the ethnic variation.

The Chair: Thank you. That is very helpful.

Q13 **Baroness Seccombe:** Many years ago, I gave birth to two children. The first one was at 42 weeks; as a result, he had styes on his eyes and there was an effect on his skin, but he soon recovered and everything was lovely. My question is this: is there any evidence of the effect that Covid had on people who gave birth during that period?

Professor Marian Knight: I led the national surveillance on women who were admitted to hospital with Covid in pregnancy. It is without doubt

that giving birth preterm is one of the biggest risks for women getting Covid in pregnancy. However—Professor van der Meulen may want to come in on this—when we looked overall at rates of preterm birth at that time, I do not believe that there was a big change in overall rates of preterm birth across the UK.

The Chair: Do you have anything to add, Professor van der Meulen?

Professor Jan van der Meulen: Yes. I shall try to narrow it down and be a little more specific. We compared the preterm birth rate during the first Covid period, from March 2020 onwards, with the preceding year. We saw a decrease in the preterm birth rate during the Covid period. It was ever so slight but the numbers are so huge that that increase was statistically significant. This tells a number of stories that we need to look at. There was an experiment where loads of things in society changed. Infection was a risk factor for women who were pregnant or gave birth; Professor Marian Knight's work has shown this. However, at the same time, women stayed at home and the pressures all changed, for instance for women who did physically demanding work and who once worked until the very end of their pregnancies. This is one of those little pieces of evidence, however weak, that demonstrate the wider impact of how women can live their lives in the best possible way to support their pregnancies.

This may not always be supported by the demands put on them by the families they have to look after, by their employers and by insecure financial situations. All of those things put pressure on pregnant women, meaning that they are perhaps not always able to live the healthy lives that we want them to live. I phrase it like that because I want to move away from life choices—healthy lifestyles that women can control—because, of course, loads of these factors are not within the control of women.

Baroness Wyld: Presumably, during the pandemic, women had less access to the public health information that you have cited as so important. There is certainly evidence that a lot of them struggled to access perinatal mental health support, for example. How does that work alongside your lifestyle points?

The Chair: Do we know about this? Make it evidence-based, please.

Professor Jan van der Meulen: Like you, I can only speculate on that. People have access to evidence, perhaps not so much through talking to clinicians any more but there is so much out there on the internet. That was no different during Covid.

Q14 **Lord Winston:** Might the three of you be kind enough to tell us what you think the priority areas are—first, for intervention, and, secondly, for research to deal with preterm birth?

Professor Marian Knight: As I have said, based on what we know, my priority for intervention is optimising pre-pregnancy health and

contraceptive choices to enable women to choose to become pregnant at the optimal time for them and their health.

On research, from the questioning of the panel, it has been clear that there is a lot of nuance that we do not understand. You have rightly pressed us for a number of specific figures for causality; there is still a place for us to look at those specifics and the complexity of the problem so that we have more economically underpinned evidence about where we should place our interventions. I am excited that the NIHR has just announced £50 million-worth of funding for research into maternity inequalities. Preterm births and their outcomes are a key area that needs to be included.

Dr Jennifer Jardine: I completely agree with Professor Knight but, going back to causality, a lot of the risk factors that we have talked about today lie far earlier on in the causal pathway than the things we could directly intervene on as clinicians. We do not really understand much about what starts a labour off and how to stop it, but the models for that are getting better all the time. The research here needs to sit across the clinical research spectrum. It sits in the basic mechanisms—understanding what happens around preterm birth and how to stop it—and around measuring it a little better. In my particular area, the absence of high-quality, rapidly available data prevents us being able to answer your questions as well as we should be able to.

It is also about understanding how to implement the things we do have. The things that we currently have to identify women at a higher risk of preterm birth, to treat them, to reduce that risk for them and to care for their babies appropriately when they are born just are not done well enough. For example, 21% of the most premature babies under 27 weeks are still not born in a neonatal unit that has the facilities to care for them. That kind of implementation work is really important to make sure that we understand how to prevent and treat the consequences of preterm birth.

Professor Jan van der Meulen: I agree with loads of the things that have been said by my two colleagues, and I will mention a few other areas, if I may.

We also need to look at longer-term outcomes—I am making it a bit more about the research context that we need to do this type of work in. As Marian Knight has already said, we need the money. We need to explore a complex research environment to capture women's pre-pregnancy health and lives. We also need to look more specifically at the environments that women live in. The research might need to focus more on families than on women. It might need to look at the wider outcomes for children. Educational outcomes, for example, should be linked to health, and that has already been done by a team at UCL. We need to think not only about the concept but about the research environments that we need so that we gradually get there.

An important point to make is that, despite all efforts, the maternity services data that are being collected in England and that should give us all the detailed information we need to look at the conditions of women at the start of pregnancy—what care they get and what their outcomes are—are still not as good as we want them to be. Thinking about those issues and linking datasets together is key.

My final point, which has already been made by Jen Jardine, is that there are actually two forms of preterm birth. One is where the onset of labour is started by the healthcare professional—the obstetrician or the midwife—and one is where it starts spontaneously. We all believe that we have to think about these things as separate. In thinking about what we can do to bring the preterm birth rate down, we should think what this means for preterm births that began because an obstetrician or a midwife started the onset of labour as a result of the idea that it is better for the baby to be outside the womb than inside. That complexity needs to be taken into account in every research question we ask.

Q15 **Lord Winston:** Could each of you briefly tell us the one thing to come out of this inquiry that you think might be helpful?

Professor Jan van der Meulen: I will say what I said before: access to the right kind of data and linked datasets so that we can look at long-term outcomes and the family environment of women and take more account of the socioeconomic contexts that women live in.

Professor Marian Knight: For me, it is about making sure that the pre-pregnancy counselling that is needed does not fall between the gaps—that is, ensuring that there is a clear place where it is funded, where women can access it and where it has the capacity to provide all the information that women need to optimise their health.

Dr Jennifer Jardine: We should try to think about a target that is split into targets that measure what actually happens. Preterm birth is an outcome of many different processes and heterogenous systems. Aiming at this target of 6% of preterm births masks all sorts of changes, some of which are for the good and some of which are for the less good. Improvements have been made since that target was initially made, such as reducing smoking among pregnant women from 11% to 9%. However, other things have changed; based on our randomised controlled trial evidence, I would say that we are now a bit more pro delivering women with late preterm pre-eclampsia.

We have to unmask a little what we are talking about a bit, maybe not to the extent that we are dealing with very complex numbers every day on the ground but so that we understand where improvements are happening. It is quite difficult for people to keep on delivering interventions and then to see that the number overall stays the same, rather than seeing where we are doing quite a lot of things to improve.

Q16 **Baroness Watkins of Tavistock:** I am still very interested in this 7.6% sticking point when the aim is 6%. If you take the WHO definition, which

says that 24 weeks is technically viable—I know we are saving babies who are younger than that—can you extrapolate from your data whether we are getting nearer to 6% if we look at the cohort we looked at in 2015? Also, within that, when you are deliberately intervening to save the baby's life, surely that statistic does not belong in the 7.6% if you have a target of 6%? There may not be an answer to this, but these two bits may be very important for our report.

The Chair: This is about the rate of spontaneous preterm labour and birth as opposed to including figures on births that are iatrogenic because of conditions requiring early delivery.

Professor Marian Knight: I can come in with some numbers that might be helpful to tease that out. The number of babies across the whole country born between 22 and 23 weeks—livebirths—is around 500. That is 0.07%. We cannot blame that number of babies for the difference between 6% and 7.6%. I hope it is helpful to put that in context.

The Chair: It is.

Baroness Watkins of Tavistock: It is very helpful for me, anyway.

The Chair: I have tried to keep to time, and I know that has been at the risk of cutting off my colleagues asking more questions and not allowing all the witnesses to give full answers. I am sorry about that, but your contributions have been most helpful. This was our first session, and it has kicked off with a lot of information that will be useful to us as our inquiry progresses. Professor van der Meulen, you said that you might be able to send us some information, including about your previous publication.

Professor Jan van der Meulen: I will.

The Chair: We would welcome that. Professor Knight and Dr Jardine, if you have information that you would like to submit, please do so. I encourage all three of you to respond to our call for evidence, which will be out soon, and send in written evidence, which will act as official evidence as much as today's sessions. Thank you for coming today. We appreciate it very much.