UNIVERSITY OF CAMBRIDGE
Winton Centre for
Risk and Evidence Communication

Decision Aid Supporting Document

Mode of birth: choosing vaginal or caesarean birth

Version **15.5** Date **July 2025** Planned Review **3 Years**

This document is designed to give further information about how we made the Decision Support Tool (Decision Aid).

This supporting document and the decision aid were written and researched by Leila Finikarides and Dr Alexandra Freeman.

Each tool had an expert advisory group nominated by NHS England, who commissioned the tools, the involvement of relevant charities or support groups, and was designed through rounds of redesign and feedback from clinicians, patients, and members of the public who might use it. These were one-on-one interviews, and the feedback was collated and acted on in multiple rounds.

Users (patients and the general public) are our focus, we include them from the beginning of the process and their views and feedback throughout are at the very heart of what we aim to do. The decision aids are for them.

Each tool is made to comply with the guidelines or criteria on decision aid development by IPDAS and NICE. Very often they go beyond what many might consider as a 'decision aid' because our work with patients and clinicians has emphasised how much patients want 'everything in one place' and clinicians find it helpful to have 'the perfect consultation' laid out to support them.

Users particularly appreciated the help that the documents gave them in preparing for an appointment (knowing what might happen in advance, and helping prompt questions they might want to ask), pages that help them when they talk to their doctor or other clinician, and those that remind them what's going on, what might happen, and what did just happen ("what did the doctor tell me in the room"). The extra information can make the documents seem long, but patients preferred this extra length, as long as the sections were easily navigable.

In this document you can find out more about who helped design the tool, some of the reasoning behind key decisions, and what reference sources were used. You can also see the answers to some of the questions we posed to the people we tested it with about how they might use the tool, which led to key decisions about its design. These are only

examples designed to give you a sense of how they were made – the full process is too detailed to document.

In designing the graphical representations of the numbers, we use a large body of research into risk communication done over many years (some by us), plus the testing we do during the production of the tools. Graphic design was by the company **Imaginary Friends.**

Topic Name		Mode of Birth – choosing vaginal or caesarean birth
Expert Advisory Group Healthcare Professionals & Patient Reps & their Declarations of Conflicts of Interest (COI)	**X 20**	**Jasmine Leonce** **National Maternity Speciality Advisor NHSE** No conflicts of interest to declare **Simon Mehigan** National Maternity Improvement Advisor Maternity Safety Support Programme C-Mid-O Office, NHS England No Declaration of COI **Dawn Cross** Senior Digital Midwife Digital Maternity Clinical Team I CNIO Portfolio I Transformation Directorate I NHS England No Declaration of COI **Dr Alison Wright** Consultant Obstetrician and Gynaecologist Lead personalised care for maternity NHS E and NHS I. No Declaration of COI **Prof Trixie McAree** National Midwifery Lead for Continuity of Carer, National Clinical Advisor, (Midwifery), Choice and Personalisation. No Declaration of COI **Sarah Wall** Service User Voice Lead, North East & Yorkshire, Maternity & Neonatal Care, NHS England No conflicts of interest to declare **Chaya Tagore** Maternity Voices Partnership Lead NHS England, Bath & NE Somerset, Swindon and Wiltshire No conflicts of interest to declare **Dr Mairead Black** D Senior Clinical Lecturer in Obstetrics

		Aberdeen Centre for Women's Health Research (ACWHR) University of Aberdeen, Aberdeen Maternity Hospital No conflicts of interest to declare **Prof Julia Sanders** Professor of Clinical Nursing & Midwifery, Cardiff University and Cardiff & Vale University Health Board No conflicts of interest to declare **Elizabeth Duff** Senior Policy Advisor, National Childbirth Trust No conflicts of interest to declare **Nichola Ling** Cons Obstetrician; Clinical Advisor to Digital Child Health and Maternity Programme, NHS England No Declaration of COI **Nina Khazaezadeh** Interim Regional Chief Midwife for London No conflicts of interest to declare **Julia Gudgeon** National Digital Midwife working on the Digital Child Health and Maternity Programme at NHSx No Declaration of COI **Cathy Strange** (on secondment with Somerset ICB as Lead Educator for Personalised Care) *Lead Educator SW Collaborative Health Coaching and Personalised Care Skills Programme*, *Right Skills Project Support*, *South West Integrated Personalised Care, NHS England* No conflicts of interest to declare **Dr Abi Merriel** Senior Clinical Lecturer in Obstetrics and Honorary Consultant Obstetrician Women's & Children's Health No conflicts of interest to declare **Angela Ugen** Lead Midwife for Outpatients at Guys' and St Thomas' Trust *Lead Midwife HFH, Community, Outpatients Services (ANC, FMU, MAU)* *Professional Midwifery Advocate (PMA)* No conflicts of interest to declare **Chrissy Luff** Senior Programme Manager Personalised Care

		NHS England - North East and Yorkshire Region No Declaration of COI **Lisa Leeks** Transformation and Workforce Lead South Warwickshire University NHS Foundation Trust No Declaration of COI **Sophie Randall** Director, Patient Information Forum (PIF) No conflicts of interest to declare **Jane Sandall** Professor of Social Science and Women's Health NIHR Senior Investigator Emerita Head of Midwifery and Maternity Research Chief Midwifery Office, NHS England
Other healthcare professionals (not part of the expert advisory group) who were interviewed or provided input or feedback	x11	**Other clinicians:** x11 (midwives, clinical researchers, GPs, obstetricians)
Patients and public involved in 6 (pain), 4 (induction), 4 (mode) rounds of testing and feedback	**x46**	**x46 general public across the three decision aids** **Experience of giving birth – range of birth experiences** Pregnant Not pregnant but previously given birth Never been pregnant Range of birth experiences: vaginal, planned and unplanned caesarean, induction and instrumental. **Range of ages, ethnicities, education levels** From CSE / GSE to PhD **Age ranges** Ages from 20 to 70 **Ethnicity** x16 from other ethnicities than White British **Other** 2 non-native English speakers 3 low health literacy scores

		3 were people with autism or had other visual needs such as dyslexia or Irlen's syndrome
Organisations we consulted		NCT OAA Tommy's PIF RCOG MVP Service User Reps
Who are the Winton Centre for Risk & Evidence Communication?		The Winton Centre was funded by a philanthropic donation from the David & Claudia Harding Foundation to help communicate evidence 'to inform, not persuade'. The team carried out research in how best to communicate numbers and uncertainty, created training courses to help professions who needed to communicate evidence in a balanced way, and produced tools to communicate evidence on different topics.

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What questions do we ask of our expert group and user testers and why?

We interviewed the expert advisory group, members of the public and potential users of the decision aid and regular healthcare professionals who might use the decision aid. We interviewed each tester (members of the public or people who have used maternity services, and regular healthcare professionals) via video call, usually for about an hour.

We need to understand which information to include and to what level of detail.

For users (the general public):

We always first asked about their experience of pregnancy or birth and the decision to be made.

We asked them what did they want to know at the time and what would they have liked to have known. We asked them what they would tell someone now who was making the decision.

We then asked for their feedback on the decision aid.
We ask if they would like a clinician to go through the document with them.

Then we ask them:

- Whether they understood the purpose of the document (that it is a decision aid, not an information sheet).
- Whether they would read it, if they would find it useful, would it help them make a decision?
- Whether, if they were handed the document by a healthcare professional, they would read it.
- Whether, if they saw this document on a table, for example in a clinic waiting room, they pick it up, and *want* to read it.

The aim of these decision aids is to help people make a decision. But in order to be useful and used, they need to be read. And in order to be read, they need to be picked up. We therefore amend and refine the documents and retest them (with a mix of the same and different testers) until the answers to these questions are “yes”.

If people want a healthcare professional to go through the document with them, we make sure it’s clear in the document that this is what they can do and, on the front page, which pages are (most) useful to be used in a consultation with a healthcare professional.

For clinicians (both our expert group and regular clinicians):
We ask:

- What is the decision being made? (what are the options that are available)
- At which point in a pathway / pregnancy are they making the decision, and therefore what is the background knowledge of the potential user (what do they already know), and when and how would they physically receive this leaflet?
- Are there inclusion / exclusion criteria around the decision aid?
- How would the decision aid be used, e.g. by users 'on their own' before a consultation with a healthcare professional, or always first with a healthcare professional.

The answers to these questions help us to understand which information to include in the leaflet, at what level of detail and language to use.

Pain, Induction and Mode of Birth	We developed, wrote and iteratively tested the 3 maternity decision aid topics simultaneously; "Making a decision about vaginal or caesarean birth", "Making a decision about pain management in labour and birth" "Making a decision about Induction of labour". Because we wrote and tested the 3 leaflets at the same time, we were able to carry over feedback across the series where appropriate, for example, feedback about language, formatting and other content (e.g. section for the birth partner, level of detail, pages to fill in etc). We usually interviewed each tester for about an hour and often followed up by email on later versions: x46 general public x11 'regular' healthcare professionals Some testers were used once only, others were asked to test different versions of the leaflets through their progression, others were asked to test more than one topic. We did this in order to get the broadest range of feedback. Feedback can be different, and differently useful, if a tester has seen the series (all three topics), or one topic through its progression, for example. In this supporting document we therefore provide some example feedback from each of the topics to illustrate some of the cross over as well as topic specific feedback and decisions.
What is the decision? And / or What are the treatment options available?	**MODE OF BIRTH** Choosing vaginal or planned caesarean birth.

	We present what is involved in vaginal (unassisted and assisted) and caesarean (planned and unplanned) birth, showing risks and benefits of each to help readers choose.
When should it be made available? (healthcare professional answer)	When making a birth plan, after 12 weeks
When would it be useful to be given it? (patient answer) **&** **How would it be used?**	**MODE** Early on in pregnancy, possibly from first appt, 12 weeks, to revisit later in pregnancy. *"Important to get it earlier than 28 weeks, maybe even 12 weeks. It's good to think about it beforehand but I wouldn't start writing down preferences until later."*
Are there any exclusion / inclusion criteria?	**ALL 3 TOOLS** Some options are not suitable for some people. Some options have different risk / benefit profiles for some people. Some options are not available everywhere. Outcomes and options available in maternity can be extremely variable. Where you are in the country, where you are giving birth, or resources in your area can all mean that options available to you are limited. Things about you, such as, is this your first baby or not, your current health status or that of your baby, can all limit options available to you and affect the risk or benefit profile of that option. It is not possible, in a static pdf, to include personalised risk or outcomes (and this would be difficult to do with the available data in any case). Induction in particular is offered for different reasons and at different time points. **ACTION We make a clear note on all the leaflets that not everything is always available to everyone, and guide users to talk to their midwife or doctor about their personal situation, offering guiding questions and reflective pointers in the leaflets' "What's important to you" and other pages.**
Would you prefer a printed version, online electronic version or both?	**ALL 3 TOOLS** 22 preferred a printed document only 19 preferred both printed and online versions

(Patient answer)	1 preferred online only
Would you, personally, use it?	**ALL 3 TOOLS** All testers said (eventually by the final version, and emphatically) yes. *"Lots of good info, I wish this had been available for me! Easy to follow and read, I like the colour coding and the spaces to write your own stuff down."* *"I think there's some really great info on here and useful to have all in one place. I didn't have anything like this and would have definitely helped."* **Mode of birth** one tester said: *"I also carry some guilt / sensitivity about the fact I had c sections so please bear that in mind when you read my feedback as I'm perhaps a sensitive reader when it comes to anything to do with sections."* *"I think there's some really great info on here and useful to have all in one place. I didn't have anything like this and would have definitely helped."*
DID YOU FIND THE NUMBERS USEFUL?	All testers said yes. *"Beforehand, it is great to know the risks eg. headache with epidural (I don't care about this when in labour but it's good to have this knowledge and be able to consider it before!)…Long term effects of spinal and epidural eg. catheter and not being able to get out of bed meaning longer stay on postnatal ward."* *"Yes, helpful to see effectiveness and risks when making choices"* *"Really like the tables in here at the end so you can compare between modes easily."*
Any other comments?	**ALL 3 TOOLS** ITERATIVE ROUNDS OF TESTING AND AMENDS In order to make the leaflets in the series as short and concise as possible, we always ask if there is anything that users don't need to know, is there anything we can remove to make the leaflet shorter.

	Similarly, to make sure we include everything that is useful, we ask if there is anything missing. We usually continue adding and removing until the answers to these questions are both 'no'. LANGUAGE We consulted the Royal College of Midwives' project on how to communicate about different kinds of birth and spoke to other groups such as representatives from LGBTQ+ community about language. https://www.rcm.org.uk/rebirth-hub/rebirth-summary-2022/ IMPLEMENTATION & USE Quite often testers would ask about access to the leaflet, how would they get it, when would they receive it. Predominantly people wanted a printed version that they could write on and take with them to appointments or when they go into labour. A question that was often asked was whether their midwife would actually read the pages that they fill in. *"Do midwives get a copy of this? I don't feel that mine was very helpful at the time. I didn't feel like I could approach or question her."* *"The info given to me, NHS leaflets that had been photocopied so many times you could hardly read them"* *"I think even though you reiterate that women have a choice quite often in clinical environments you are at the whim of the professional."*
Were there any key decisions made when designing the document, and what was the reasoning behind them?	**ALL 3 TOOLS** **Inclusive language: women/birthing people** We had quite a bit of discussion over whether to use the word 'women' throughout the document, or even at all. NHS policy is currently to use it, along with a sentence that it is being used inclusively to mean all birthing people regardless of gender identity. We were able to write the document without any gendered language, avoiding the issue. Some were concerned that this in itself might feel exclusionary to women, but no testers had picked this up (including our inclusivity experts), and most of the expert advisory group had not noticed that we had avoided any gendered terms.

Some example answers from our patient and 'regular healthcare professional' testers and actions we took on the basis of them (organised by testing round)

What matters to you / what's important to you pages	**'WHAT MATTERS TO YOU?' / 'WHAT'S IMPORTANT TO YOU?' PAGES** *"This helps the parents-to-be have a set place to put their thoughts and questions to take to appointments. It also helps for them to see if their opinions change over the pregnancy so they can reflect on what's best for them."* **About the need for control and acknowledging anxiety, one tester suggested** *"…I think the questions on [the what's important to you slide] should include something like 'I worry about my mental health in unpredictable situations' to reflect the reasons many women choose caesarean .ie. anxiety/need for control."* *"I Would do 'what's important to you' page first"* *"Nice to have the weeks to see if your thoughts change over time"* **PCSPs Pregnancy preferences care plan** Our 'what's important to you' pages on each decision aid collectively would add up to the birth plan / birth preferences type documents, but our decision aids don't all include everything on the PCSP. They are laid out easily and are relevant to each decision and refer out to the PCSP. *"Birth plan reference on page one - my experience is they don't ask for birth plan you have to make sure they've read it. You have to put it in front of them. Some people don't feel confident doing this so maybe reiterate that professionals have to listen to your wishes and you should feel able to share your plan with all professionals involved in your care."* **ALL 3 TOOLS** *"Please make it clear to share these thoughts and your wants with you partner or birthing partner. As I said my labour was long with lots of twists and turns and I really feel like I was out*

	of it on pain killers so many choices were made by my birthing partner (mum) as I was unable." *"I think even though you reiterate that women have a choice quite often in clinical environments you are at the whim of the professional. Having someone to advocate for your plan on your behalf is important-"*
Risks & Benefits VISUALISATIONS & numbers pages	*"They are the things I'd want to know about and generally the risks are quite low which is good to know, it's reassuring, you want to know you're relatively safe."* *"I would want to know all these risks. It would influence me. But these are generally quite low which is good to know. It's reassuring. You want to know you're relatively safe. And I want to know about any risks to my baby."* *"Really like the tables in here at the end so you can compare between modes easily."* **T&F CLINICIANS ACROSS THE TOOLS** Be careful about ordering and grouping of risks and benefits. Think about short medium and long term risks split *"Think about prevalence numbers and what people will feel if they read them. If you see that 73% have a vaginal birth, will that make you feel alienated if you don't?"* **ACROSS THE TOOLS** *"Might be good to switch order of stats around- stats on stillborns first seems a bit intense?"* **ACTION we are always mindful about the order in which we present risks and benefits. We do not list stillbirth or death, for example first.**
POSITIVE	**ALL 3 TOOLS** *"Reassuring and unbiased"* *"Despite medical procedure the vocab is all easy to understand for the average person"*

	"Would help you make a decision- gives you the confidence and knowledge needed to ask questions" *"Lots of good info, I wish this had been available for me! Easy to follow and read, I like the colour coding and the spaces to write your own stuff down."* *"Did not feel that I really had a choice so this would have been useful beforehand"* *"I truly admire the time, dedication, effort, and commitment you and your team have put into the document you shared with me. I know that when I was pregnant, I would have appreciated having this information to help me through the process."*
Reading age	Using https://readabilityformulas.com/readability-scoring-system.php Average Reading Age Consensus Calculator **Average reading 11-12 (v15.4 22-07-25)**

Some example answers from our patient and 'regular healthcare professional' testers and actions we took on the basis of them (organised by testing round)

MODE **V1.0 (T&F clinicians)**	**PERSONALISATION & CONCERNS ABOUT A MODE OF BIRTH DECISION AID** *"Mode of birth is a difficult topic to cover in a decision aid"* T&F expert Clinician *"…I worry that the nuance of risk has been removed and oversimplified and that this is what makes up the important part of decision making. Eg risks of caesarean depends and widely varies, depending on whether you've had a baby before, if you have induction and where you are."* Clinician *"I think having a decision support tool regarding VB versus CS is difficult. Is the tool intended to be used for all women regardless of complexity – for example, would a woman with no maternal, fetal or medical complexity be offered the tool to inform a decision? In these instances it would usually be assumed that the woman would be aiming for a VB unless she expressed she had concerns and wanted to consider a CS….* *…The real area where mode of birth becomes a challenge is when you have to make these decisions in the middle of labour.* *So in other words, a woman has laboured and during the course of that labour she needs a change of plan for whatever reason – usually she may need a venteuse, forceps, CS.* *It is this decision making that is challenging as the woman is often in a late stage of labour, potentially in pain, tired, and then is asked to make a decision, and consent to a procedure.* *In this space, I had envisaged a tool to explain – "what if I need an Assisted vaginal birth or CS in labour"? And then much as you have presented, just without the reference to IOL etc.* *This could then be used as part of AN education and a way of informing women about what can happen in labour to prepare them and essentially be part of the consent process."* **ACTION – see note in INCLUSION AND EXCLUSION section above.** **LANGUAGE - BEING IN CONTROL, PLANNING FOR… AIMING FOR…** Language around being in control was very important to users across the series of maternity decision aids.

	A recurring theme was about feeling out of control, not knowing what was happening or what would happen, or that they had a choice in the matter. This tool is about choosing a vaginal or caesarean birth. Some clinicians preferred language such as "aiming for vaginal birth" or "planning for caesarean birth" to indicate the uncertainty an unpredictability of the situation. *"This is the choice we're talking about, 'aiming for, and not 'vaginal birth' as if this will happen."* Service user reps and others pointed out that there was emotion behind language such as this; *"I strongly disagree with the term 'aiming for', it implies a low expectation of success…I propose that both vaginal and caesarean births should be 'planned' or that women 'plan for' them. This term acknowledges this may not be the end result but still has the indication of women being in control."* Further testing with users said they preferred neither aiming nor planning. "…just say vaginal or caesarean." **ACTION We worded the leaflet to present the facts about vaginal birth or caesarean birth. And tried to avoid using a tense or sentence that would require either 'planning for' or 'aiming for'.** Making a plan, or writing down preferences, was important for users but they wanted more emphasis on explaining that things do not always go according to plan so they are prepared for the unexpected. **Soften language** In the early versions our language was too prescriptive. **EXAMPLE ACTIONS** - we softened "you should make a decision by 36 weeks" to "ideally you will have agreed on a plan by 36 weeks but you can change your mind at any time" - we changed 'you will be given' to 'you will be offered' - and we changed 'you should read this leaflet…' to 'you should receive this leaflet…

	- we tested versions of the leaflet title. Users preferred "Making a decision about…choosing how to have your baby. Vaginal or caesarean birth" **Place of birth** Testers liked that we explained and emphasised that it is a *choice* and the limitations available around place of birth… *"this is really important and it's good to see it on the front page."*
MODE **V 3.0** **V1.0 (T&F clinicians)**	WHAT IS HAPPENING AND WHAT DID HAPPEN TO ME? A recurring theme across the series of testing sessions was that people felt they didn't know what was happening and couldn't remember what did actually happen. *"It was awful – no one explains to you what went wrong – her nose or chin was stuck at a weird angle. I was doubly incontinent for 3 months after… I didn't know how many stitches I had, or what happened to me…I only found out when I was pregnant again that I got my notes through FOI and it was actually worse than I remembered"* **ACTION – we added a prompt / fill in section on the back pages that says "Space for you to write down what happened during the birth".** Users said this would help them think about asking, it was good to have a prompt and space to write things down. OVERALL LENGTH / WORDINESS The leaflets are quite long with a lot of content. We were keen to know how to make them shorter or whether this length was a problem to users. Generally across the series, the colours and sections make the leaflets easy to navigate and use, and we removed as much content as users were happy with. *"Didn't put me off how wordy it was…it's completely different when you're pregnant and planning something as enormous as a birth – it wouldn't put me off to have this much to read. You want to know everything."* *"…It's key that there are different colours and boxes and paras – makes it quicker and easier to read…"*

	'…Pregnancy is different, so length and wordiness didn't put me off…" **CONTENT – ADD BETTER EXAMPLE** "*Where you talk about recovery and lifting things …add examples such as lifting a younger child, otherwise it seems just relevant to those doing manual work"* **ACTION ; We added 'lifting a toddler' as an example** **WHAT'S IMPORTANT TO YOU PAGE** CHOICE AND CONTROL and INFORMATION (Abby – mode v3.0) INCLUDING POINTERS TO ASK YOUR MIDWIFE ABOUT WHAT IS AVAILABLE, TELL YOUR MIDEWIFE ABOUT PREVIOUS EXPERIENCE *"…My 1st birth was vaginal and it went horribly wrong. I ended up with ventouse and was so traumatised from first time round I didn't have a baby for another 10 years because I didn't want to put myself through it again.* *We went in with a lovely birth plan and it didn't go like that at all…. I think just being warned more about that, don't think your plan will happen like you're planning. It's not about frighting women but I felt so angry – I felt if I had had better knowledge I would have been better prepared and less traumatised…. I was screaming for a caesarean and it wasn't too late but they said it was.* *I felt fobbed off a bit, her head was stuck – thought she was going to die, it was absolutely awful"* What was different about your 2nd birth? - *"It was an accidental 2nd pregnancy and I was terrified but also realised that I was going to go ahead with it.* *But I was adamant that I was going to have a planned c-section and was terrified I would be denied.* *I had such good midwife care – and towards the end thought maybe I could have the water birth that I had wanted before in my first pregnancy.* *They advised because of what had happened last time that it was the best thing. It cured my birth trauma….and they were wonderful – they said this is your baby, your birth you want to have. I got to look around the unit where it would happen. I was nervous but couldn't have been more different."* Plain language term in main text and medical term in brackets

MODE **V 5.0**	**REALISTIC EXPECTATIONS** *"It's not a decision really, it's just what you're hoping for… and to say that 'what you plan for does not always happen', this is so important. You mentally have to prepare that it might not go in the direction you want to."* *"In the NCT group we had, 7 had unplanned c-sections. No one was prepared for it. I don't think anyone was mentally prepared for it."* (Clinician) *"Make sure you're being realistic about expectations from the first page – include how many have emergency c-birth on the first page"* **ACTION – we put this outcome along with how many have vaginal and planned caesarean on the top of page 2** **CHOICE** *"…planned caesarean, I didn't think we could choose that. We weren't given the option. I didn't think unless something was wrong you could choose one."* **ASSISTED BIRTH** ***"I** didn't feel like I had a choice and I remember asking and I was pissed off when they replied – I didn't want forceps or ventouse. I didn't want them. I didn't have enough confidence around those that it would be fine.* *I remember asking: can you tell me why? You haven't given me the option of one or the other. They laughed away my question – said the reason why we do it is because the ventouse could work or not work, forceps is best bet all in one."* **When to call your midwife** From many testers, they wanted it clear when to contact their midwife if they were worried, at home or in a hospital or ward. A theme across the series of decision aids (not limited to maternity) was the feeling that NHS staff are busy, some are worried to 'bother' them, others feel they might be forgotten. **Information about when you get home** Not strictly part of the decision making, but as with all these leaflets, having 'the information all in one place' was useful. They wanted to know things like

	"…what appointments are coming up, contact numbers, support for feeding, when you will feel blue 'expect that day 4 is the worst day of your life and that is completely normal' **EXAMPLES WHERE TESTERS WANTED US TO EXPLAIN SOMETHING IN MORE DETAIL** *The word episiotomy* - *Why you might stay in hospital longer* *"Some mums in my group were surprised they didn't get to go home".* - *Make the uncertainty around caesarean clearer* *"…that caesarean has longer recovery, and that actually you might not get the day and date you choose, either because your baby might come on its own, or because of things in the hospital / staffing."* *"Good to have hospital stay and recovery on first page – people don't realise how major the operation is"* **COLOURS** *"I like the split of colours and like that they're not girly pink"* **PERSONALISATION** "Older" testers tended to ask for a mention specifically because they were generally advised that they were higher risk and some choices were better than others. *"Didn't like being called a geriatric all the time!"* *"I have a particular bias/interest in stats for older mothers as found so little information on it when I was pregnant but then once I dug the info out, it was quite shocking to me that the stats on lots of stuff (like likelihood of intervention, likelihood of an emergency C-section, risk of tearing etc) changes significantly when you're over 40. But I'm not sure if this leaflet is the place to go into all that or not"* **ACTION – we include prevalence by age, what kind of birth did people have at different ages (caesarean, assisted or vaginal births).** **We did not stratify risks or benefits by age.** **Some level of personalisation was included where the outcomes were significantly different. One example was first and subsequent births.**
Mode v6.1	**Language**

	"Explain that caesarean birth also known as c-section – because it's what people have heard.
Mode v7.1	**LAYOUT AND FORMAT** **T&F clinician** *"I really like the side-by-side presentation of information on each birth mode, and also the age-related table."* **ASSISTED** **One expert clinician was "***…surprised by lack of detail on assisted.. In some cases it might be a decision that you're involved in whether to have or which to choose. Risks and benefits of each will be explained"* **ACTION We were not planning to include detail about assisted birth because there is an iDecide a leaflet for it, but enough testers mentioned it so we added more detail.** This highlights a point we get across the series of 19 decision aids where users like 'all the information in one place' if they can. The tools provide the information they need to make a decision, *as well as* other information they feel important or useful. GENERAL ANAESTHETIC (T&F patient feedback) *Where GA is referred to, can it be contextualised with numbers to show it is much more unusual.*
MODE V6.1	*(MIDWIFE) "I feel bad as I don't have a lot of feedback as this is brilliant! There is a lot of info but it is broken up into manageable chunks, colours and a mix of text, boxes, charts and images. You can see that this is a later version and makes me feel excited for what the other 2 maternity leaflets will look like and how they will help people (data is not as clearly presented as in induction for example.)"*

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Where did we get our numbers from?

This section explains what sources we used, and why.

How many people have… ?

Where possible we try to use the most recent UK registry/audit data for the prevalence of a condition, or, in this case, of different choices/outcomes.

Our data, as much as possible, comes from the NHS's 2022/23 England maternity data (HES/MSDS): https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics/

The length of time people spend in hospital was from Table 3d.

The number who have each kind of birth (vaginal, planned C-section, unplanned C-section) was calculated from the totals in Table 3a, and those ending up with an assisted birth calculated from the totals in Table 2a.

The number of people who had a general anaesthetic for a caesarean was from Table 3b (including those with general plus epidural or spinal).

The percentage having induction of birth we took from Table 2a/Summary Report 3.

The percentage having an assisted (instrumental: ventouse or forceps) or an unplanned Caesarean delivery in their first or subsequent births was taken from Table 3i.

The percentage having each kind of birth by age group was from Table 4c. For the 50+ age group we combined data from the years 2021/2 and 2022/3 because the numbers were so small.

For data on tears and episiotomy we used a variety of sources. For overall tears ('perineal lacerations'), we were able to use the 2022/23 HES data from NHS in England (HES) Tables 7c and h (looking at vaginal births only), combined with data that we found elsewhere:

Gurol-Urganci 2013 – UK data on 1,035,253 women having their first vaginal birth: https://doi.org/10.1111/1471-0528.12363

Thiagamoorthy 2014 – UK data on 692,259 women splitting data by number of previous births: https://doi.org/10.1007/s00192-014-2406-x

NHS Maternity audit report Table 9 (for the percentage of those having an assisted birth that have an episiotomy): https://maternityaudit.org.uk/FilesUploaded/Ref%20336%20NMPA%20Clinical%20Report_2022.pdf

Okeahialam 2022 – a systematic review which split data by ventouse and forceps, and with/without episiotomy
https://doi.org/10.1007/s00192-022-05145-1

Vergese 2016 – a review including 40,614 women who had had a previous vaginal delivery. We extracted from Fig 2 (multiple births only). (NB This was dominated by data from Samarasekera 2009, a UK based retrospective study):
https://doi.org/10.1007/s00192-016-2956-1

Morgan 2022 – review of 39,487 women in France looking at episiotomy rates – we extracted the 2020 numbers from Figure 1b.
https://doi.org/10.1002/ijgo.14091

We noted the study by Guzmán Rojas, 2017 (https://doi.org/10.1002/uog.18827) which pointed out that ultrasound diagnosis of anal sphincter tears resulted in a much higher rate of diagnosis than visual inspection. Unfortunately we were not able to find studies using ultrasound diagnosis that gave percentages with 3rd/4th degree tears depending on mode of birth and parity, but we added a sentence in the text of the decision aid to explain this.

For the number that go into labour before their planned C-section, we had to use Australian data on the number who go into labour before their planned second C-section. This percentage does vary depending on whether the woman had had a pre-term birth before (as well as other factors such as smoking): Roberts 2014 (https://doi.org/10.1186/1471-2393-14-125) - 17,314 women categorised as 'low risk'.

For the number of home births that needed to be transferred to hospital, we used data from the NPEU 'Birthplace in England Research Programme', which collected data on care in labour, delivery and birth outcomes for the mother and baby for over 64,000 'low risk' births in England including nearly 17,000 planned 'low risk' home births, 28,000 planned 'low risk' midwifery unit births (AMUs and FMUs) and nearly 20,000 planned 'low risk' obstetric unit births: https://www.npeu.ox.ac.uk/birthplace.

Potential benefits & harms of different options

For this section of each decision aid, we try to find the absolute risks (the number out of every 100, 1000 or 100,000 people who would have experienced the outcome) for each of the things that patients and clinicians tell us is important. Numbers can come from observational studies (where people choose their treatment and the outcomes are recorded), or from clinical trials (where people are assigned to a treatment at random). Which is more useful depends on the circumstances, but in some clinical trials some people assigned to one treatment ends up taking another (for different reasons). Some academic studies report the outcomes as if they had taken the treatment they were originally assigned (called 'intention to treat' data), and some studies report the outcomes depending on the treatment that they actually took (called 'per protocol' or 'per treatment' data). NICE also report 'intention to treat' data most of the time. We always try to find 'per protocol' data as

this is more useful for an individual wanting to know what might happen if they have one treatment or another.

We usually start by looking at trustworthy summaries of evidence, such as those done by NICE or by the Cochrane collaboration.

If these summaries give us all the numbers that we need, and are considered up to date by the expert group, we would use those. If not, we would look for any large trial in a population that is relevant to the UK and use the findings of that. If there are many trials, we would collate them all and tend to cite a range based on the lowest and highest number for each outcome found across those studies (rounding the numbers to give an appropriate sense of the degree of certainty). Where there is consensus that there is 'no significant difference' between different outcomes, we will ensure this is reflected in the ranges we give.

The expert group will agree all the numbers, and suggest better sources for them, throughout the development process.

We used NICE guideline CG190 (https://www.nice.org.uk/guidance/cg190) – including the 2023 update, and CG 192 (https://www.nice.org.uk/guidance/ng192) – including the 2023 update, along with guidance from our expert group and patient interviews.

Where NICE gave intention-to-treat data, we sourced per-protocol data from elsewhere instead.

Issues for mother:

Post-natal depression
Rowlands 2012 (UK – 5332 people in survey on postnatal wellbeing)
http://www.biomedcentral.com/1471-2393/12/138

Blom 2010 (Netherlands – 4941 people in survey 2 months after birth)
https://doi.org/10.1111/j.1471-0528.2010.02660.x

Barbadoro 2012 (Italy – 5812 people in survey up to 5 years after birth)
https://doi.org/10.1080/03630242.2012.674090

PTSD
Rowlands 2012 (UK – 5332 people in survey on postnatal wellbeing)
http://www.biomedcentral.com/1471-2393/12/138

Kjerulff 2021 (US – 3006 people in survey)
https://doi.org/10.1016/j.jpsychores.2021.110424

Heavy bleeding post-partum

NHS (HES) data for 2022/23, Table 7c (ICD-10 code O72): https://digital.nhs.uk/data-and-information/publications/statistical/nhs-maternity-statistics

Issues for baby:

Jaundice and trauma to baby
Peters 2018 - a study of 491 590 women and their babies in Australia:
https://doi.org/10.1111/birt.12348

NHS (HES/MSDS) data for 2022/23 (Table 8b) indicated higher rates of jaundice (9-10% for vaginal births, 13-14 for Caesarean), but was not available broken down by instrumental/spontaneous, planned/emergency separately. We used these higher numbers to create ranges to give people a sense of the likelihoods.

How many babies need to go into neonatal special care?
NICE (NG192) evidence review Appendix M (Table 14, p166) of Evidence Review A:
https://www.nice.org.uk/guidance/ng192/evidence/a-the-benefits-and-risks-of-planned-caesarean-birth-pdf-9071941646

How many babies need a little help breathing at first?
Resuscitation Council UK report from 2021: https://www.resus.org.uk/library/2021-resuscitation-guidelines/newborn-resuscitation-and-support-transition-infants-birth

How many babies suffer respiratory distress syndrome?
NHS (HES/MSDS) data for 2022/23 (Table 8.b) – complication code P12.

Stillbirth
MacDorman 2008, US registry data (Table 1: vaginal, CS with no labour):
https://doi.org/10.1111/j.1523-536X.2007.00205.x

Grobman 2018, a clinical trial in 3,062 women in the US:
https://doi.org/10.1056/NEJMoa1800566

Muglu 2009, a review of 13 studies covering 15 million pregnancies:
https://doi.org/10.1371/journal.pmed.1002838.t002

Grivell 2011, a study of 28,626 women in Australia:
https://doi.org/10.1111/j.1600-0412.2011.01298.x

NHS (HES/MSDS) maternity data 2022/3 (Table 3j).
This data suggested higher rates for spontaneous vertex births, presumably because it did not exclude pre-term births.

We noted the numbers quoted in NICE's 2023 guidance (Appendix A) appear to be an order of magnitude too large.

Asthma and allergies
NICE NG192 guidance evidence review
https://www.nice.org.uk/guidance/ng192/resources/appendix-a-benefits-and-risks-of-vaginal-and-caesarean-birth-pdf-9074971693
Black 2015 – a study of 321 287 babies in the UK:
https://doi.org/10.1001/jama.2015.16176

Peters 2018 - a study of 491 590 women and their babies in Australia:
https://doi.org/10.1111/birt.12348

Long-term effects and effects on future pregnancies:

Hysterectomy
NICE NG192 evidence review Appendix M:
https://www.nice.org.uk/guidance/ng192/evidence/a-the-benefits-and-risks-of-planned-caesarean-birth-pdf-9071941646

Effect on Heavy Periods
Juang et al. 2006, a study in 3694 women:
https://doi.org/10.1016/j.ijgo.2005.12.006

Number who need an operation to repair their caesarean scar: Stegwee 2000 - a study of 2000 women: https://doi.org/10.1111/1471-0528.16472
(There are numerous papers on the topic – this one had the prevalence figures we needed)

Incontinence
Figures on urinary and fecal incontinence are very variable and difficult to aggregate. We decided to take our lead mainly from NICE NG192, but added ranges based on other references.

NICE NG192 evidence review Appendix M
https://www.nice.org.uk/guidance/ng192/evidence/a-the-benefits-and-risks-of-planned-caesarean-birth-pdf-9071941646

Handa (2011) – 1,011 women in the US followed 5-10 years after giving birth:
https://doi.org/10.1097/AOG.0b013e3182267f2f

MacArthur (2011) – 3763 women in the UK/NZ followed up 12 years after giving birth:
https://doi.org/10.1111/j.1471-0528.2011.02964.x

Andrews 2012 – 149 women with anal sphincter injuries due to birth in the UK followed up 4 years later:
https://doi.org/10.1007/s00192-012-1835-7

Siahkal 2020 meta-analysis of 12,756 women in 12 countries:
https://doi.org/10.1007/s00192-020-04442-x

Levator avulsion
Dietz 2013, a review of other studies:
https://doi.org/10.1111/ajo.12059

Rusavy 2021, a review of 37 studies including 5594 women:
https://doi.org/10.1111/1471-0528.16837

Friedman 2019, a review of 20 studies including 5067 women:
https://doi.org/10.1007/s00192-018-3827-8

Pelvic organ prolapse (symptoms)
Wu 2014, a study of 7,924 women in the US :
https://doi.org/10.1097/AOG.0000000000000057

Handa 2011, a study of 1,011 women in the US for 5-10 years after giving birth:
https://doi.org/10.1097/AOG.0b013e3182267f2f

Keag 2018, a review of 80 studies including 29,928,274 women:
https://doi.org/10.1371/journal.pmed.1002494

Cattani 2021, a review of 108 studies:
https://doi.org/10.1007/s00192-021-04724-y

Placenta abruption
Daltveit 2008, a study of 880,309 births in Norway:
https://doi.org/10.1097/AOG.0b013e3181744110

Jackson 2012, a study of 24,839 women in Denmark:
https://doi.org/10.1016/j.ajog.2011.09.023

Getahun 2006, a study of 187,577 women in US:
https://doi.org/10.1097/01.aog.0000206182.63788.80

Kennare 2007, a study of 36,038 women in Australia:
https://doi.org/10.1097/01.AOG.0000250469.23047.73

Placenta previa
Daltveit 2008, a study of 880,309 births in Norway:
https://doi.org/10.1097/AOG.0b013e3181744110

Jackson 2012, a study of 24,839 women in Denmark:
https://doi.org/10.1016/j.ajog.2011.09.023

Getahun 2006, a study of 187,577 women in US:

https://doi.org/10.1097/01.aog.0000206182.63788.80

Placenta accreta
Daltveit 2008, a study of 880,309 births in Norway:
https://doi.org/10.1097/AOG.0b013e3181744110

Kennare 2007, a study of 36,038 women in Australia:
https://doi.org/10.1097/01.AOG.0000250469.23047.73

Jackson 2012, a study of 24,839 women in Denmark:
https://doi.org/10.1016/j.ajog.2011.09.023

Stillbirth in future pregnancy
For this we took note of NICE evidence review (https://www.nice.org.uk/guidance/ng192/evidence/a-the-benefits-and-risks-of-planned-caesarean-birth-pdf-9071941646) p21, where they listed the three conflicting and very low quality studies, and then their discussion where they concluded that the committee agreed that "the inconsistency…represented mixed findings rather than a clinically important increase or decrease in stillbirths following caesarean birth."

We then requested a specific analysis from the NHS Maternity statistics team which confirmed the lack of any significant difference:
https://digital.nhs.uk/supplementary-information/2024/additional-analysis-on-gestation-length-by-labour-onset-and-delivery-method

Likelihood of vaginal birth in future pregnancies
For the likelihood for vaginal birth in a future pregnancy we used data on second births only. For the 'second birth after a vaginal first birth, we had to use the NHS HES/MSDS 2022/23 data separated by parity (Table 3i) which actually means that this data would include those that had had a caesarean delivery first time round but it was the best we could find.

For the likelihood of a vaginal birth in a second pregnancy when the first was caesarean, we used the supplementary data from:
Rowe 2015, a study of 1500 women in the UK:
https://doi.org/10.1111/1471-0528.13546

Likelihood of preterm birth in future pregnancy after caesarean at full dilatation/instrumental birth:

Wang 2019 – a study of 1,299 women in Australia:
https://doi.org/10.1111/ajo.13058

Williams 2020 – a study of 16,340 women in Scotland:
https://doi.org/10.1111/1471-0528.16566

Cong 2017 - a study of 2,672 women in Australia:
https://doi.org/10.1111/ajo.12713

Issues with fertility after caesarean
Evidence on this was conflicting, but since the year 2000 UK data appears to show very little or no effect (at a population level – individual women could have their fertility affected).

Tower 2019 – following 1,152 women who had caesareans in the UK in 1992-3:
https://doi.org/10.1080/01443610050111959

Gurol-Urganci 2013 – a systematic review of existing studies:
https://doi.org/10.1093/humrep/det130

Gurol-Urganci 2014 – an analysis of NHS data from 2000-2012:
https://doi.org/10.1093/humrep/deu057

Active management versus waiting for the placenta to come out on its own
NICE guidelines (NG235) from 2023, Table 10:
https://www.nice.org.uk/guidance/ng235/chapter/Recommendations#third-stage-of-labour