

## Study protocols

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# The effect of a birthplace decision support tool on women's decision-making and information gathering behaviours during pregnancy: mybirthplace study protocol

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## ABSTRACT

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**Background** The Maternity Review for England highlighted the need for more accessible information to support decisions. This study assesses the effect of a decision support tool (DST) on women's decision-making regarding birthplace.

**Methods** A mixed method sequential exploratory design involving three phases and 169 women from a large UK maternity hospital. Phase one: A questionnaire survey pre and post-access to the DST examining knowledge level and stages of decision-making scale. Phase 2: Follow-up questionnaire at 28 weeks to enable the usefulness of Mybirthplace to be evaluated. Phase 3: Qualitative interviews with 10 purposely chosen women at 36 weeks gestation. Collection of data on actual birthplace.

**Discussion** This study is the first to assess the effect of a DST in supporting women's choice of place of birth.

**Keywords:** decision support tool, Mybirthplace, choice, decision-making, birthplace, mixed methods

## BACKGROUND

The Government's ambition for the National Health Service (NHS) to achieve world-leading health outcomes<sup>1</sup> relies on a strategy of shared decision-making (SDM) and patient-led decisions.<sup>2</sup> The white paper promotes the philosophy of 'no choice about me without me' and stresses the need for SDM.<sup>3,4</sup> SDM has been defined as a

*'Two way process of information giving between the clinician and patient, whereby the final decision is made jointly'.<sup>1</sup>*

A prerequisite is information sharing, which is positively associated with adherence to treatment and care.<sup>5</sup>

The National Maternity Review highlighted the need for greater access to unbiased information with the aim of supporting inclusive decision-making about care.<sup>1</sup> Most women still give birth in hospital,<sup>6</sup> but the National Childbirth Trust<sup>7</sup> found that 49% of women were dissatisfied with the information they received about birthplace. New ways of providing women with information to support choice are needed.

## EXISTING INTERVENTIONS

One way is through use of decision support tools (DSTs).<sup>8</sup> DSTs have a long history of use within health, for example, cancer treatment;<sup>9</sup> however, their use in midwifery care has been limited to only a few clinical scenarios that include mode of birth following a caesarean section,<sup>10–14</sup> antenatal screening for fetal anomaly<sup>15</sup> and delivery options for breech birth.<sup>16</sup> Research shows that these DSTs are effective in reducing the decisional conflict that women have when it comes to making a choice.<sup>14,17</sup> Although tools exist to support choice with regard to birthplace, for example, WHICH website,<sup>18</sup> no studies have reported the effectiveness of these tools.

## THE INTERVENTION – THE MYBIRTHPLACE APP

*MyBirthplace*<sup>19</sup> is a DST created to support women's choice regarding place of birth.

The app, which is publicly owned and copyrighted to the Hospital that created it, offers information about the different local birthplace options available to pregnant women. All underpinning data are based on local statistics and information derived from the Birthplace in England national prospective cohort study.<sup>20</sup> The application programming interface (API) is open but licensed and is available via the internet <https://mybirthplace.org/portsmouth/><sup>21,22</sup> with an option to download to a smart device. No personal information is taken or used in the app and therefore poses no security risks.

*MyBirthplace* is provided to women at the initial appointment with their midwife, but can be accessed throughout pregnancy. A clear preference for place of birth is required by the hospital at 36 weeks' gestation.<sup>23</sup>

This paper describes a protocol for a study to evaluate the effectiveness of the app.

## Aim

To identify when women decide about place of birth and how effective the DST is in helping to make this decision.

Secondary aims: To

- explore women's information gathering and decision-making behaviours;
- understand women's views and opinions about using *MyBirthplace*;
- explore how *MyBirthplace* was used with women by their midwife;
- explore women's feelings about how well *MyBirthplace* supported them to make a decision;
- explore women's views around its usefulness.

## Methods/Design

A three-phase mixed method sequential exploratory study.

1. Quantitative questionnaire survey of newly pregnant women, completed before and after accessing the DST.
2. Follow-up questionnaire survey at 28 weeks administered online via Bristol Online Survey (BoS) or on paper (postal), depending on participant's preference.
3. Qualitative interviews with purposely chosen women from the first two phases conducted at 36 weeks. Data on actual birthplace.

## Setting

One of the largest acute hospitals in the United Kingdom (UK) serving a local urban population of 650,000 and providing care to around 6000 pregnant women each year.<sup>21,23</sup>

## Sample and sample size

Newly pregnant women between 16 and 45 years will be identified following referral from the general practitioner surgeries.

The sample size of 169 women was determined by a power calculation based on changes in stages of decision-making scale (SDMS) that can be attributed to the DST.

Statistical significance will be assessed using the Sign test. This tests for differences in the size of paired groups (median differences); in this case, comparing pre-, post- and 28-week responses to the SDMS with the ability to understand

1. those whose score on the scale improved;
2. those whose score on the scale remained the same;
3. those whose score on the scale got worse.

Women tend to be fairly decisive regarding birthplace and most decide before pregnancy, by booking visit<sup>24</sup> or within the first trimester.<sup>25</sup> It seems unlikely that women will be more indecisive following use of a DST. Previous studies have found that patients' anxiety and decisional conflict scores

improve after accessing a DST.<sup>10,11,16,26</sup> None of the previous studies show indecision, following access to DSTs.

As this is the first study in this area, it was difficult to predict the percentage needed in each group to allow for the margin of error. The sample size calculation was informed by a review of the current literature and advice from a statistician. A realistic ratio was set at 70:30 – for every 70 women whose scores improve using the DST we will allow for 30 participants to be more indecisive than previously indicated.

### Inclusion criteria

- Age 16–45
- Newly pregnant and not yet accessed a midwife

### Exclusion criteria

- Women unable to speak read or write English.
- Women deemed incapable of giving consent.

## RECRUITMENT PROTOCOL

Women willing to participate will return the opt-in slip, allowing the researcher to contact them. Women will meet the researcher prior to their first midwifery appointments and written consent obtained. Participants will be advised that they can withdraw from the study without their care being affected.

Following consent, women will complete the first questionnaire and attend the appointment. A second questionnaire will be completed post-appointment.

Consent for the 28-week survey will be gained at this time and women will choose either a paper survey or an online survey.

Questionnaires, delivered in paper or online format, were created by the research team to meet the specific needs of the study. The questionnaires are free to use and the author may be contacted for use in the future.

For the qualitative interviews at 36 weeks of pregnancy, women will be purposively chosen from participants who accessed the DST. Purposive sampling selects participants who have experienced the phenomenon of the study,<sup>27</sup> in this

case, exposure to the DST. Interviews will be conducted with at least 10 women to provide a rounded selection of opinions on the phenomenon being studied.

## STUDY PROCEDURES

The questionnaires went through a four-stage validation procedure, involving verification by

- the supervisory team;
- an independent public engagement officer who specialises in ensuring questions are accessible to the public and easily understood in terms of language and layout;
- peers for face validity and to iron out any issues;
- a small group of antenatal women.

## MEASURES

### SDMS

The primary outcome measure is the SDMS.<sup>28</sup> This determines an individual's willingness and ability to engage in decision-making, how they progress into making a decision, and how receptive they are in considering/reconsidering their options.<sup>29</sup> This is especially significant when considering how decision-making changes when the individual has access to a DST.<sup>30</sup> Figure 1 shows the SDMS.

The SDMS is the only decision-making tool with the ability to assess women's decision-making at various points and allow for changes. This is important in pregnancy as there are many changes in health and wellbeing of mother and baby. SDMS data will provide a clear understanding of how participants feel about the decision at each stage of the study.

### Information accessed before MyBirthplace

Women will be asked to identify where they currently access health information about birthplace, and to rate their satisfaction with this source. Response options in the questionnaire are based on previous research.<sup>31</sup>

Q16) Thinking about where you want to give birth, would you say.....? (Please tick one)	
I have not begun to think about the choices	<input type="checkbox"/>
I have not begun to think about the choices but I am interested in doing so	<input type="checkbox"/>
I am considering options now	<input type="checkbox"/>
I am close to selecting an option	<input type="checkbox"/>
I have already made a decision but am still willing to reconsider	<input type="checkbox"/>
I have already made a decision and am unlikely to change my mind	<input type="checkbox"/>

**Figure 1** SDMS. Adapted from O'Connor 2000 with permission

## Level of knowledge

Women's knowledge and understanding of birthplace options within the local area will be assessed prior to and after their first appointment. Improvement in knowledge is expected with women reporting more options after their appointment.

## Consideration of important factors

Choice is affected by a number of variables, for example, partners,<sup>32</sup> therefore women will be asked to identify factors they deem important when choosing birthplace.

## Evaluation of the MyBirthplace DST

In the post-intervention and 28-week follow-up, women will be asked satisfaction with a number of concepts related to *Mybirthplace*; this includes visually appeal, ease of understanding and ease of use.

## Quality and safety

Participant recruitment will be monitored daily to ensure adherence to the study timeframe, documents of recruitment and reporting of adverse events. Monitoring of miscarriages and retention rates will be monthly to ensure that sample size requirements are met.

## Data collection

Data collection for the study is depicted in the flow diagram (Figure 2)

## DATA MANAGEMENT AND ANALYSIS

Data management and analysis will follow a pre-set analysis plan. Data collated from phases 1 and 2 will be analysed

via the statistical package for the social sciences. Descriptive analysis will be used to produce measures of central tendency for ordinal, interval and ratio data.<sup>33</sup> Non-parametric tests will be used to show relationships between the key variables using chi-square test.<sup>33,34</sup>

Thematic analysis will be utilised to analyse the face-to-face interviews. This was chosen due to its ability to get close to the data, while staying flexible.<sup>35</sup>

## DISCUSSION

Evidence exists on choice of place of birth,<sup>20</sup> including factors that impact on a woman's choice<sup>36,37</sup> and midwives' influence on choice.<sup>38</sup> Despite this, women feel they lack information to make an informed choice;<sup>39</sup> *MyBirthplace* was designed to improve women's decision-making about place of birth. The study will contribute to knowledge and understanding of the effectiveness of *MyBirthplace* and will identify whether the use of the tool is justified within the shared discussion, recommending it for use to support other pregnant women in other localities. The study will begin to address the possibility of moving from NHS delivering information in traditional formats to digital information delivery.

The research outlined in this protocol aims to provide explicit, quantitative expressions of women's valuations and qualitative experience of the *MyBirthplace* DST and its use within pregnancy. Our protocol provides a template for other researchers interested in assessing DSTs specifically related to choice of birthplace. This study is timely and is the first study of its kind, no other study has looked at a birthplace DST and therefore it will be an original contribution to the field.

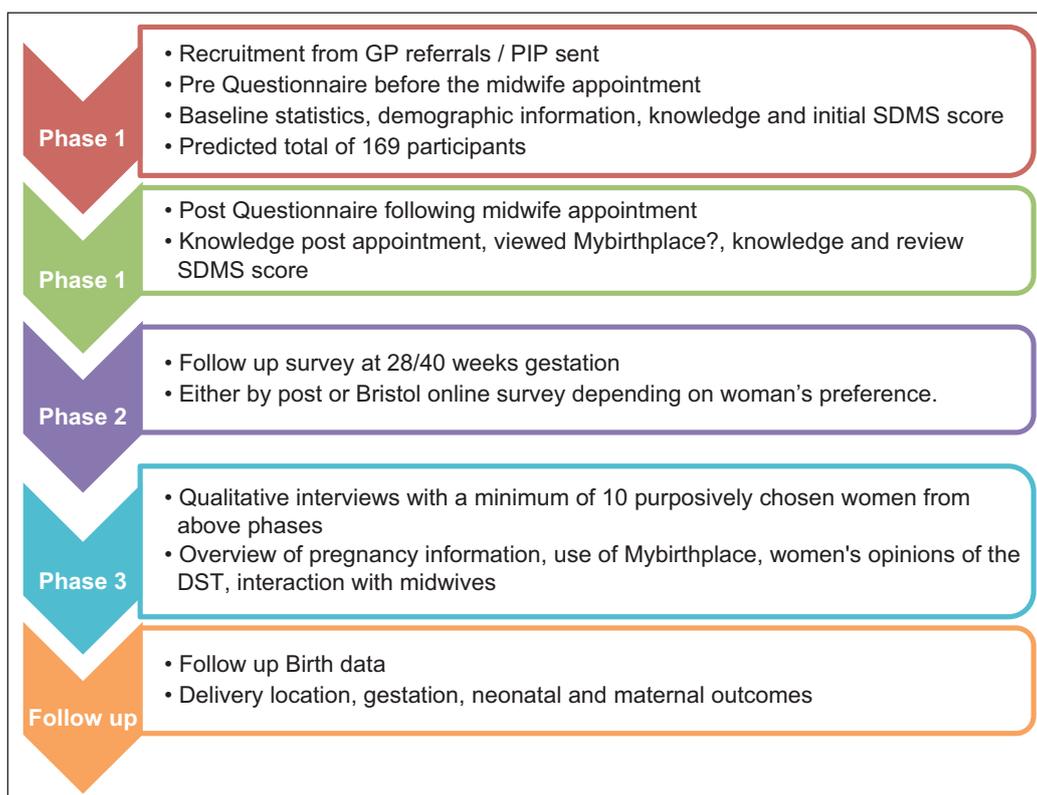


Figure 2 Mybirthplace study phases of data collection in a large urban hospital for the required 169 women

The app has been developed at a time where women are becoming more information savvy and the use of online resources is increasing. Digital services are more widely available, including access to medical records, as more is done to make online services accessible to patients<sup>40</sup> research is need to assess their effectiveness.

### Ethics approval and consent to participate

Internal approval was granted by Bournemouth University Research Ethics Committee in August 2015 followed by National Ethical Approval December 2015 by South Central Hampshire B search Ethics Committee; REC reference 15/SC/05/06.

### Consent for publication

Not applicable

### Availability of data and material

Not applicable

### Competing interests

No competing interests

### Funding

The Ph.D. is a joint collaboration between Portsmouth Hospital NHS Trust and Bournemouth University; the researcher is paid a stipend over her four years of study.

### Authors' contributions

Vanora A. Hundley and Gill Walton conceived the study and secured funding for the work. Daisy Wiggins, Vanora A. Hundley, Carol S. Bond and Carol Wilkins were responsible for the drafting of the protocol for which all the authors contributed to the final version.

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Not applicable

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