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<https://www.magonlinelibrary.com/doi/abs/10.12968/bjom.2020.28.2.96>

Title: How to have the “ideal” Down syndrome screening discussion at antenatal appointments

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Abstract

This is the fourth in a series of papers published by BJM. The previous two papers inform midwifery practice by providing an insight into whether, to what extent and how cognitive status influences understanding of Down syndrome screening information, the importance of tailoring information and highlighting areas of communication that are effective in facilitating understanding. These findings led to the development of recommendations to inform a “best practice” model for midwifery communication of screening information within a conceptual framework that recognises the importance of accurate facts, empathic communication and support for decision-making, in a woman-centred approach.

These recommendations may have wider relevance beyond midwife communication of Down syndrome screening and may impact upon the communication of other screening information provided within antenatal and neonatal screening. It is important that screening information is communicated effectively in light of changes to screening programmes, such as the introduction of Non-Invasive Prenatal Testing.

Key phrases:

- A “best practice” model for midwifery communication of screening information is presented.
- The conceptual framework encompasses accurate facts, empathic communication and support for decision-making, in a woman-centred approach.
- The aim of the framework is to facilitate informed choice.
- These recommendations may have wider relevance beyond midwife communication of Down syndrome screening.

1. Introduction

This paper discusses the findings of the previous two papers (Reference paper 2 and 3) in this series and from the results will make recommendations regarding what information needs to be communicated in booking appointments, and the approach midwives should take, in order to accomplish an “ideal” Down syndrome screening discussion (fig.1). At the centre of an “ideal” consultation is a woman-centred approach, which is recommended for midwifery care (DoH, 2007; NMC, 2015, NICE 2016).

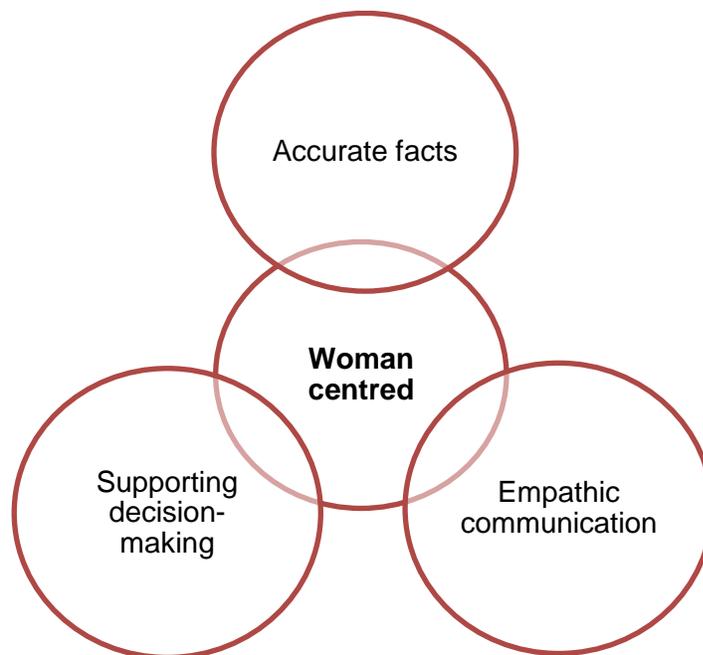


Figure 1: The components of an “ideal” Down syndrome discussion

Three overarching conceptual themes have been identified which could constitute an “ideal” Down syndrome discussion (fig.1). Within each theme different recommendations for midwife communication are outlined (table 1). The proposed midwifery guidelines encompass the five aspects of midwife communication included in Measuring Understanding of Screening Information and Communication (MUSIC)

(Reference Paper 1) framework and incorporates guidelines that already exist from ASW (2015), NMC (2015) and NICE (2016), and new recommendations (bold text, table 1) based on the results of this research, which are discussed further in subsequent sections.

Table 1: Guidelines midwives should follow to achieve an “ideal” Down syndrome discussion. New recommendations outlined in **bold**

1. Accurate facts	
1.1	Fully describe the condition: <ul style="list-style-type: none"> • explaining that Down syndrome is a lifelong genetic condition. • covering associated health conditions. • providing information regarding improved medication. • discussing the increase in life expectancy. • recognising achievable life goals. • acknowledging the variability of condition.
1.2	Discuss the causes of Down syndrome: <ul style="list-style-type: none"> ○ as a chromosomal condition. ○ as an hereditary condition. ○ with regards to its association with advanced maternal age.
1.3	Describe both screening and testing: <ul style="list-style-type: none"> • advocating that screening and testing are optional and the right to accept or decline screening or testing should be made clear. • explaining Combined screening as both a blood test and nuchal translucency. • mentioning that Quadruple screening consists of a blood test only and will be offered if women present later in the pregnancy or if an image cannot be obtained during Combined screening. • outlining that screening does not provide a definitive diagnosis but a classification of high or low chance (1/150) within which women will be classed. • ensuring an awareness of the limitations of screening, false positives and false negatives. • identifying the two forms of diagnostic testing: amniocentesis/ chorionic villus sampling. • introducing the potential that women will be faced with a decision regarding continuing or ending a pregnancy (termination).
1.4	Convey the potential incidental detection of other chromosomal conditions and implications of these conditions.
1.5	Demonstrate an awareness of trusted websites women can be directed to.
2.1	Check whether women received, read and understood the Down syndrome screening information leaflet.
2.2	Good communication is essential and the following principles should be applied

<p>to ensure communicated information:</p> <ul style="list-style-type: none"> ○ is simple. ○ explains any medical / technical terms used. ○ is neutral / non-directive. ○ uses balanced information. ○ is accurate. ○ keeps up to date with evidence. ○ is interactive.
<p>2.3 Tailor information to women’s cognitive status and ensure:</p> <ul style="list-style-type: none"> ○ it is sensitive to individual’s differing cognitive abilities. ○ women have received sufficient information to make informed decisions.
<p>2.4 Consistently check knowledge and understanding throughout and following the Down syndrome discussion in a way that does not cause embarrassment and puts onus on self.</p>
<p>2.5 Listen to women’s differing personal beliefs and values regarding parenting a child with Down syndrome and respect them at all times.</p>
<p>2.6 Acknowledge differing language barriers and ensure care is sensitive to women’s culture.</p>
<p>2.7 Demonstrate confidence in communicating information.</p>
<p>3.1 Identify any previous pregnancies, the care received and whether women opted for screening previously. Recognising that screening decisions for the current pregnancy may be different.</p>
<p>3.2 Promote inclusion of the partner in the decision-making process and value their contribution.</p>
<p>3.3 Listen to women to help identify any anxiety and attempt to alleviate this appropriately.</p>
<p>3.4 Utilise resources, where necessary, to aid oral explanation e.g. pictures, graphs.</p>
<p>3.5 Adopt a psychoeducational (Kessler) approach and identify an appropriate balance between the role of educator and counsellor.</p>
<p>3.6 Encourage women to consider potential decisions that need to be made at each point along the screening and testing pathway and their consequences.</p>
<p>3.7 Take the appropriate time:</p> <ul style="list-style-type: none"> ○ to allow women to reflect on their decision. ○ to allow women to discuss the decision with their partner. ○ to allow the opportunity for women to discuss issues and ask questions.
<p>3.8 Recognise and respect women’s decisions even when this is contrary to the views of the midwife.</p>
<p>3.9 Advocate and facilitate informed decision-making (including informed refusal).</p>

Accurate facts

There are clear guidelines that outline the information that should be provided in antenatal screening appointments (NICE, 2016):

- Screening is optional.
- The types of tests offered.
- The limitations of tests offered.
- Risk information.

The current research revealed that not all this information was covered consistently in appointments and midwives did not always follow these guidelines (Reference paper 2). Statements 1.2, 1.4 and 1.5 should also be incorporated in midwifery guidelines to fully inform women regarding Down syndrome and screening.

[1.2] Causes of Down syndrome

Research conducted by McGregor (2005) found that within Wales, nurses, midwives and health visitors (n=605) had low levels of basic genetic knowledge. A similar picture was found within this research where Down syndrome was only discussed as a chromosomal condition in 27 consultations and no explanation of the meaning of the term “chromosome” was provided (Reference paper 2). In order for women to understand that the chance of having a baby with Down syndrome is different for each pregnancy Down syndrome should be discussed as a chromosomal condition and the meaning of the term “chromosome” should be provided. Furthermore, the associated risk of advanced maternal age should be discussed to ensure women have a realistic idea of their own risk. This was only discussed in 18 consultations within this research.

[1.4] Incidental findings

Through screening it is sometimes possible to detect the presence of other chromosomal conditions (Spencer *et al.* 2000). Only three midwives, in nine consultations mentioned the potential detection of other chromosomal conditions (Reference paper 2). This has ethical implications where women were consenting to screening without being aware that they were also consenting to potentially finding chromosomal conditions other than Down syndrome.

Non-Invasive Prenatal Testing (NIPT) is being introduced into the NHS and will be offered to women following a positive screening result prior to invasive testing. NIPT can detect genetic conditions other than Down syndrome. Consequently, it is vital that women are counselled regarding all detectable conditions and their implications and are asked whether they would want to receive the results of any additional findings (Dondorp *et al.* 2015).

[1.5] Websites

Many websites regarding screening are not always well regulated, accurate or verified by a health professional (Bianco *et al.* 2013; Mercer *et al.* 2014). Midwives should be educated regarding which websites they can safely refer women to since many women now seek information from the internet (Reference paper 2).

[2] Empathic communication

For empathic presentation midwives need to be mindful of relevant social and emotional issues and have self awareness in order to communicate information effectively. The new aspects of empathic communication recommended by this research are discussed further.

[2.2] Communication

The results of this research (Reference paper 2) found that high levels of complex language were used, with high Flesch Kincaid Grade Level (Flesch and Kincaid, 1965) scores and long sentence lengths. In relation to the “Language complexity” component of MUSIC, communication of information should be simple and explain any medical/technical terms used. This will hopefully prevent women from feeling that the midwife could have used "simpler language" following the appointment.

Corresponding to the “Dynamics” component of MUSIC, communication should be interactive which will enable the midwife to address other aspects of the guidelines. Women will be provided more time and opportunity to ask questions [3.7]. The midwife will also be able to adopt a more woman-centred and psychoeducational approach [3.5] since interactive conversation allows the midwife not only to educate the woman but also listen to her needs in order to adopt more of a counselling role and be able to identify if the woman is feeling anxious [3.3]. An interactive approach also allows the midwife time to attempt to assess the woman’s needs and information could be tailored accordingly [2.3].

[2.3] Tailoring to cognitive status

Women’s cognitive ability had an influence on their understanding of Down syndrome screening information (Reference paper 3). Consequently, it is important that midwives are sensitive to individuals differing cognitive abilities and information requirements since women with concrete cognitive ability were leaving appointments not well informed.

Individuals have different needs for information and a woman's Need for Cognition (NfC) influenced their ability to understand Down syndrome screening information (Reference paper 3). It is important to identify women with high NfC, who are more likely to ask questions, to ensure that the midwife provides them with enough information. It is equally important to identify those with low NfC since they may require information provided in a different format in order to facilitate understanding.

[2.4] Consistently check women's knowledge / understanding

The NMC (2018) states that health professionals should "check people's understanding from time to time to keep misunderstanding or mistakes to a minimum" (p.9). However, there are currently no guidelines outlining the best way midwives could check women's knowledge / understanding (Ahmed *et al.* 2013). From these findings, a framework could be developed to outline how midwives should check women's knowledge / understanding in a sensitive way. Women's knowledge of Down syndrome should be checked to allow the midwife to tailor [2.3] the consultation by assessing whether each woman requires any further information. Following the presentation of each piece of information [1.1-1.4] women's understanding should be checked so the midwife can be sure each woman is making an informed decision [3.9]. Understanding can be assessed through carefully phrased comments to encourage interaction (Watson and Gallois, 2002) using open rather than closed, leading or guiding questions (Martin *et al.* 2015). Questions should be asked sensitively to ensure that women do not feel embarrassed by any lack of knowledge or misunderstanding (Weil, 2000). To achieve this, midwives could attempt to shift the responsibility onto themselves for any misunderstandings women may have. Another way to check understanding is via a "teach back" method

whereby individuals have to repeat information the health professional has provided (Werner-Lin *et al.* 2016).

It would be beneficial to establish how genetic counsellors within the UK's Association of Genetic Nurses and Counsellors assess understanding to make comparisons with how midwives check women's understanding. This research offers a starting point upon which a framework could be formed to educate midwives regarding exactly how women's knowledge / understanding should be checked with the suggestions made here being further refined.

[2.7] Confidence

Education was identified as being a barrier that could affect midwives ability to communicate Down syndrome information effectively (Reference paper 2). In order to feel confident delivering information to women midwives need to be fully educated on all aspects of information they need to provide [1.1-1.4].

[3] Supporting decision-making

New ways that midwives could support women to make informed decisions regarding Down syndrome within antenatal screening are discussed here.

[3.1] Previous pregnancy

Within the healthboard where this research was conducted, combined screening had only recently been introduced. Consequently, all women would have been receiving new screening information. However, the findings revealed that women, who had attended a booking appointment with a previous pregnancy, had shorter Down syndrome discussions with their midwife even though this would have been the first time

they received screening information. Due to the new screening method, women's parity, and whether they had attended a booking appointment previously, had no influence on their understanding of Down syndrome screening information

However, in other locations, where the screening method has remained the same for some time it could be that women's previous experience of booking appointments influences their knowledge in subsequent pregnancies.

Midwives should not assume that women who have opted for screening previously will opt for screening again and this conversation provides midwives an opportunity to identify women's beliefs about parenting a child with Down syndrome [2.5].

[3.4] Resources

Resources were only used by midwives in 3% of appointments to aid explanation (Reference paper 2) however research outlines the benefits of using resources to educate clients within the healthcare setting (e.g. Bakker, 1999; Houts *et al.* 2006; Garcia-Retamero and Galesic, 2010). Resources that could be utilized include leaflets or cards, displaying written descriptions, pictograms, charts and pictures of individuals with Down syndrome, the Nuchal Translucency measurement, and invasive testing.

[3.5] Psychoeducational

Biesecker and Peters (2001, p.194) defined genetic counselling as a "dynamic psychoeducational process" encompassing Kessler's (1997) idea that it should be viewed on a continuum where one end represents a "teaching model" and the other represents a "counselling model". Whilst being educated, clients should feel supported

with the communicator responding to their emotional and personal needs (Kessler, 1997).

[3.7] Time

Women had a better understanding of Down syndrome screening information when they had their booking appointments within the community (Reference paper 2). Within the community both appointments and Down syndrome discussions were longer which could account for improved understanding within this setting. Thus, it is important that midwives in clinic dedicate the same amount of time to booking appointments as those in the community.

NICE guidelines (2016) outline that professionals “should provide pregnant women with an opportunity to discuss issues and ask questions” (p.12). However, within the current research discussions were not very interactive meaning women had limited time to ask questions (Reference paper 2).

Time was identified as a barrier which could affect successful communication and consequently the women’s ability to make an informed decision (Reference paper 2). Midwives need to take time into consideration and potentially find a way to facilitate decision-making post booking appointment when the woman has had time to reflect on her decision and discussed it with a partner.

[3.9] Facilitate informed decision-making including informed refusal

In the majority of appointments, midwives described Down syndrome screening and then obtained consent. However, six midwives, in nineteen appointments, asked women if they wanted screening, before any description had been offered (Reference paper 2).

Some women questioned the midwife, making it clear that they required a description of screening before they could make a decision:

Midwife: *“What about the Down syndrome screening?”*

Woman 076: *“Right, what about it?”*

Midwife: *“Have you thought about the Down syndrome screening?”*

Woman 075: *“What is the Down syndrome screening?”*

A further issue with asking women if they want screening prior to any description being provided is that some women accepted, or declined screening, based on very limited information. This is concerning when informed consent is key to ethical practice (NHS Online, 2016).

Seven women initially thought that screening was invasive testing. Without a description being provided women may be refusing screening, due its assumed invasive nature. If midwives describe screening first, before asking women to make a decision, then they are facilitating informed consent. Only one midwife, although asking initially if women wanted screening, facilitated informed refusal by continuing to explain screening to women and then checking at the end that their decision had not changed:

“You’re not going to [Woman 088: No] have the test yeah? And that’s absolutely fine so long as you understand, so if I just explain it quickly so you understand what the test is and what you’re not going to have yeah [Woman 088: Yeah] okay.” (088)

2. Discussion

Guidelines (ASW, 2015; NMC, 2015; NICE 2016) outline the importance of informed choice however the current research revealed that not all women left appointments fully informed regarding Down syndrome although they had made a decision to accept or reject screening. This could be attributed to a number of reasons, for example midwives did not always fully discuss Down syndrome screening, or that the woman was limited by her cognitive capabilities to understand the information. By checking women's knowledge / understanding levels consistently [2.4] midwives should be able to ascertain whether women are making informed decisions.

Table 1 contains guidelines of how Down syndrome discussions could be structured to facilitate informed decision-making whilst adopting a woman-centred approach. These guidelines can be brought together to create a new conceptual framework to inform midwives regarding the best ways to communicate Down syndrome screening information in an "ideal consultation" (fig.2). This framework can be applied to midwifery practice during the communication of Down syndrome screening. Midwives should be aware of the four cardinal ethical principles of healthcare of autonomy, non-maleficence, beneficence and justice (Beauchamp and Childress, 2013) whilst following this framework and communicating information.

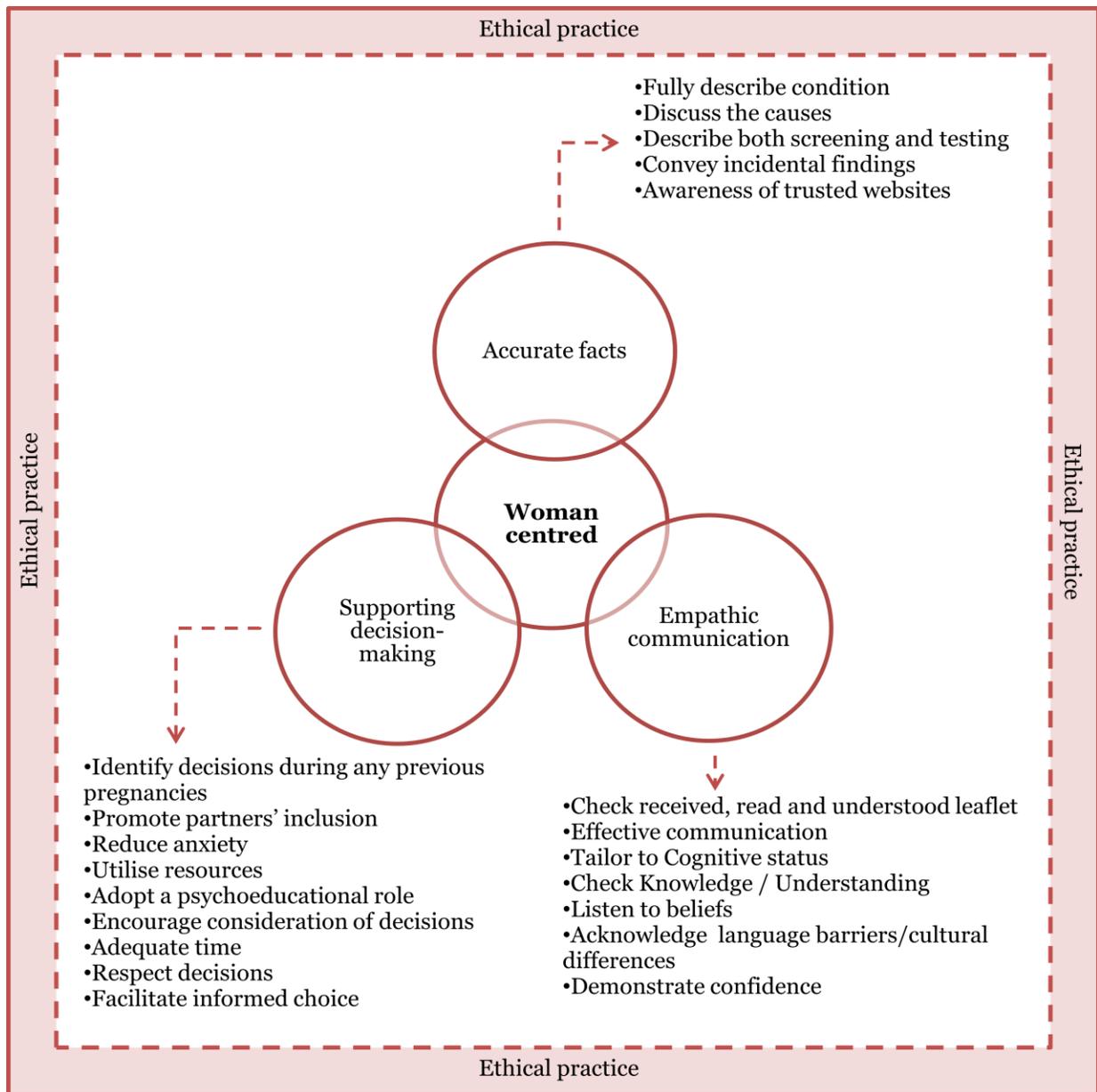


Figure 2: Conceptual framework of guidelines that midwives can follow for an “ideal” Down syndrome discussion

The recommendations of MUSIC and the conceptual framework (fig.2) have the potential to improve women’s understanding of Down syndrome screening information by ensuring that midwives adequately communicate information and women’s cognitive

status requirements are tailored to. The number of screening programmes offered in antenatal and postnatal care is increasing. MUSIC could be applied to many different forms of screening where decision-making is required. Furthermore, antenatal screening for Down syndrome, and other chromosomal conditions is common practice within many countries (Nicolaidis *et al.* 2002; Leporrier *et al.* 2003). Thus MUSIC could be applied to healthcare services outside of NHS Wales.

With the introduction of NIPT, the amount of pre-screening information that will need to be communicated will increase and the complexity of autonomous decision-making becomes more challenging (Beulen *et al.* 2016). Therefore, counselling for NIPT needs to be balanced, provide accurate information and adequately support informed decision-making (van Schendel *et al.* 2016). It is the health professionals' responsibility to ensure that women understand information and are making informed decisions in order to prevent NIPT being routinised (Alexander *et al.* 2014). When implementing NIPT "if existing programmes are problematic to start with" (Munthe, 2015, p.39) then introduction will be difficult for midwives. It is imperative that midwives' knowledge is up to date and are communicating screening effectively before they are required to learn more complex screening methods with greater implications. With the rapid increase in genetic discovery and technologies it is difficult for health professionals to keep up to date (DoH, 2003; Burke *et al.* 2007; Skirton *et al.* 2012) therefore, ongoing training is required and midwives need to receive support at practice, policy and leadership levels.

3. Conclusion

This paper concludes a series of papers that have sought to identify what aspects influence women's understanding of Down syndrome screening information. The results

have been assembled into a new series of midwifery guidelines to inform a “best practice” conceptual framework for communication of screening information which can be applied in practice. Furthermore, new recommendations for how midwives should assess women’s understanding to ensure informed decision-making have been outlined. This study goes some way in highlighting areas of information provision regarding screening that need to be addressed in light of the implementation of NIPT. Whilst Down syndrome screening is changing within the NHS, what remains the same is the moral dilemmas women face and the midwife’s role in facilitating informed choice.

Acknowledgements: Thank you to the University of South Wales for funding the research via a doctoral scholarship. The authors wish to acknowledge the support of those midwives who helped us to recruit women for the study. In particular, thank you to study advisors Debbie Lucey and Nicola Ralph for so generously sharing your midwifery expertise. Our particular thanks go to the women who completed the questionnaires.

Funding: The research was funded by a scholarship from the University of South Wales, UK. The funding source had no involvement in the development of this framework.

Conflicts of interest: None.

References

Ahmed S, Bryant LD, Cole P (2013) Midwives’ perceptions of their role as facilitators of informed choice in antenatal screening. *Midwifery*, 29: 745-750.

Alexander E, Kelly S, Kerzin-Storarr L (2014) Non-Invasive Prenatal Testing: UK genetic counselors' experiences and perspectives. *Journal of Genetic Counseling*, 24: 300–311.

Bakker AB (1999) Persuasive communication about AIDS prevention: Need for cognition determines the impact of message format. *AIDS Education and Prevention*, 11:150-162.

Beauchamp T, Childress J (2013) *Principles of Biomedical Ethics*. 7th edn. New York: Oxford University Press.

Beulen L, van den Berg M, Faas BH, Feenstra I, Hageman M, van Vugt JM, Bekker MN. (2016) The effect of a decision aid on informed decision-making in the era of non-invasive prenatal testing: a randomised controlled trial. *European Journal of Human Genetics*, 24, 1409-1416.

Biesecker BB, Peters KF (2001) Goals of genetic counselling: Peering into the black box. *American Journal of Medical Genetics*, 106: 191-198.

Blue GM, Kasparian NA, Sholler GF, Kirk EP, Winlaw DS (2015) Genetic counselling in parents of children with congenital heart disease significantly improves knowledge about causation and enhances psychosocial functioning. *International Journal of Cardiology*, 178: 124-130.

Burke S, Bennett C, Bedward J, and Farndon P (2007) The experiences and preferences of people receiving genetic information from healthcare professionals. NHS National Genetics Education and Development Centre, 1-43.

Dondorp W, de Wert G, Bombard Y, Bianchi D. W, Bergmann C, Borry P, Chitty L. S, Fellmann F, Forzano F, Hall, A, Henneman L, Howard HC, Lucassen A, Ormond K, Peterlin B, Radojkovic D, Rogowski W, Soller M, Tibben A, Tranebjærg L, van El CG, Cornel MC (2015) Non-invasive prenatal testing for aneuploidy and beyond: challenges of responsible innovation in prenatal screening. Summary and recommendations. *European Journal of Human Genetics*, 23: 1438–1450.

Flesch JR, Kincaid C (1965) *Flesch-Kincaid Readability Formula*. Boston: Houghton Mifflin.

Kessler S (1997) Psychological aspects of genetic counselling. IX. Teaching and counseling. *Journal of Genetic Counseling*, 6: 287-295.

Wales. Antenatal Screening Wales (2015) *Antenatal Screening Wales Policy, Standards and Protocols*. [Online]. Available at: <http://www.antenatalscreening.wales.nhs.uk/sitesplus/documents/989/8%2D%20English%20Version.pdf> Accessed 10 October 2016.

Department of Health (2003) *Our inheritance, our future: realising the potential of genetics in the NHS*. [Online]. Available at: http://www.geneticseducation.nhs.uk/downloads/0001DH_White_paper.pdf Accessed: 23 October 2014.

Department of Health (2007) *Maternity Matters: Choice, access and continuity of care in a safe service*. London: Department of Health.

Garcia-Retamero R, and Galesic M (2010) Who profits from visual aids: Overcoming challenges in people's understanding of risks. *Social Science & Medicine*, 70: 1019–1025.

Houts P, Doak C, Doak L, Loscalzo M (2006) The role of pictures in improving health communication: A review of research on attention, comprehension, recall, and adherence. *Patient Education Counseling*, 61: 173-190.

Lagan BM, Sinclair M, Kernohan WG (2010) Internet use in pregnancy informs women's decision making: A web-based survey. *Birth*, 37: 106-115.

Leporrier N, Herrou M, Morello R, Leymarie P (2003) Fetuses with Down's Syndrome detected by prenatal screening are more likely to abort spontaneously than foetuses with Down's syndrome not detected by prenatal screening. *BJOG-An International Journal of Obstetrics and Gynaecology*, 110: 18–21.

Martin L, Hutton EK, Janneke T, Gitsels-van der Wal MA, Spelten ER, Kuiper F, Pereboom MTR, van Dulmen S (2015) Antenatal counselling for congenital anomaly tests: An exploratory video-observational study about client-midwife communication. *Midwifery*, 31: 37-46.

McGregor S (2005) Integrating the new genetics into health education practice: Exploring the challenges for midwives, nurses and health visitors in primary care. Unpublished MPhilThesis, University of Glamorgan, Pontypridd.

Munthe C (2015) A new ethical landscape of prenatal testing: individualizing choice to serve autonomy and promote public health: a radical proposal. *Bioethics*, 29: 36–45.

National Health Service (2014) Achieving prudent healthcare in NHS Wales. Cardiff: Public Health Wales.

National Health Service, Online (2016) Consent to treatment. [Online]. Available at: <http://www.nhs.uk/conditions/Consent-to-treatment/Pages/Introduction.aspx> Accessed: 18 October 2016.

Nicolaides KH, Heath V, Cicero S (2002) Increased fetal nuchal translucency measurement at 11–14 weeks. *Prenatal Diagnosis*, 22, 308–315.

Nursing and Midwifery Council. (2018) The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates. [Online]. Available at: <https://www.nmc.org.uk/globalassets/sitedocuments/nmc-publications/nmc-code.pdf> Accessed: 12 May 2019.

National Institute of Clinical Excellence (2016) Antenatal care for uncomplicated pregnancies. [Online]. Available at: <https://www.nice.org.uk/guidance/cg62/resources/antenatal-care-for-uncomplicated-pregnancies-975564597445> Accessed: 5 January 2016.

Skirton H, O'Connor A, Humphreys A (2012) Nurses' competence in genetics: A mixed method systematic review. *Journal of Advanced Nursing*, 68: 2387–2398.

Spencer K, Liao AWJ, Skentou H, Cicero S, Nicolaides KH (2000) Screening for triploidy by fetal nuchal translucency and maternal serum free β -hCG and PAPP-A at 10–14 weeks of gestation. *Prenatal Diagnosis*, 20: 495–499.

van Schendel RV, Kater-Kuipers A, van Vliet-Lachotzki V, Dondorp WJ, Cornel MC and Henneman L (2016) What do parents of children with Down syndrome think about Non-

Invasive Prenatal Testing NIPT? Journal of Genetic Counseling, [Online]. Available at: <http://link.springer.com/article/10.1007%2Fs10897-016-0012-4> Accessed: 9 October 2016.

Watson B, and Gallois C (2002) Patients interactions with health providers: A Linguistic Category Model approach. Journal of language and social psychology, 21: 32-52.

Weil J. 2000 Psychosocial Genetic Counseling. New York: Oxford.

Werner-Lin A, McCoyd JLM, Bernhardt BA (2016) Balancing genetics science and counseling art in prenatal chromosomal microarray testing. Journal of Genetic Counseling, 25: 855-867.