

Appendix 1: Steering Group Members

Leanne Metcalf (Chair) - James Lind Alliance Adviser

Dr Matthew Prior (Coordinator) - Clinical Research Fellow in Obstetrics and Gynaecology

Professor Jim Thornton - Professor Jim Thornton is Professor of Obstetrics and Gynaecology at the University of Nottingham and Consultant Obstetrician.

Mr Nick Raine-Fenning - Consultant Gynaecologist at Queen's Medical Centre in Nottingham

Professor Arri Coomarasamy - Director of Tommy's National Centre for Miscarriage Research

Mr Kim Hinshaw - Consultant Obstetrician & Gynaecologist

Carmel Bagness - RCN Professional Lead Midwifery and Women's Health

Jane Brewin - Chief Executive of Tommy's

Rachel Small - Chair of the Association of Early Pregnancy Units

Maureen Sharkey - Scottish Care & Information on Miscarriage (SCIM).

Professor Lesley Regan - President RCOG

Julie Orford - Women's representative

Sophie Willetts - RCOG women's voice panel

Emily O'Toole - RCOG Women's Voices Involvement Panel

Barbara Hepworth-Jones - trustee and former chair of the Miscarriage Association

Judy Shakespeare - Retired GP RCGP Clinical Champion for Perinatal Mental Health.

Lucy Easthope - Women's representative

Appendix 2: Taxonomy for miscarriage questions

<i>Category</i>	<i>Total</i>	<i>Example submissions</i>
<i>Association</i>	7	Is there a link with infertility? Are there links between miscarriage and premature birth?, Can miscarriage cause insomnia?
<i>Cause generic</i>	528	What causes miscarriage? Why does it happen?, Why do they occur?, What causes miscarriage early in pregnancy?, What causes recurrent miscarriage?, What causes miscarriage after 12 weeks?
<i>Cause specific</i>	279	Was my age a factor? Does cervical treatment for CIN (excisional or ablative) increase risk of miscarriage? Does stress increase the chance of miscarriage? What proportion of miscarriages are due to lethal genetic anomalies?
<i>Diagnosis</i>	99	How can an early miscarriage be detected? If I'm bleeding does this mean a definite miscarriage? Do regular scans in first 12 weeks really help women who have had recurrent miscarriages?
<i>Embryo Pain</i>	1	At what stage do embryos feel anything similar to pain?
<i>Follow up</i>	8	How soon after a miscarriage can you try again? How should we advise women following a miscarriage in order to optimise the chance of a successful pregnancy in the future?
<i>Incidence</i>	31	What is the incidence of miscarriage in women over 30? How common are they really?
<i>Investigation</i>	168	Why in the UK they don't check the length of a cervix? What investigations are of true clinical value?,
<i>Management</i>	85	Is there anything I can do to help the miscarriage happen quickly? Use of ultrasound guidance to make surgical management of miscarriage safe.
<i>Pathology</i>	31	What exactly is happening when miscarriage is occurring? Why might the amniotic sac break at only 16 weeks pregnant?

<i>Prevention</i>	334 Does aspirin help prevent miscarriage? How can you prevent recurrent miscarriages?, What can patients do to prevent miscarriages? Do early scans reduce the risk of miscarriage?
<i>Prognosis</i>	128 Am I more likely to have another miscarriage after the first one? What is my risk of miscarrying again taking into account my age, past medical history, current medication, weight, diet and lifestyle?
<i>Risk factors</i>	66 Why are some couples affected by miscarriage and others not? Do lifestyle treatments reduce the risk of miscarriage in women with PCOS? What impact father age or lifestyle can affect the chances of miscarriage?
<i>Screening</i>	11 Can we predict which woman is prone to a first miscarriage? How could you be screened prior to pregnancy to prevent chromosome issues?
<i>Social</i>	27 Why is it such a taboo subject? What employer support could be available for parents grieving due to miscarriage?
<i>Support</i>	382 Research into the psychological effects and how this may affect ability to conceive in future? What is the most appropriate way to support women (and partners) after a miscarriage to reduce psychological harm?, How long do women typically grieve following a miscarriage?, Why are people so insensitive particularly staff?
<i>Systems</i>	89 What is the optimal configuration of early pregnancy loss service (in terms of physical outcomes, service user satisfaction, staff satisfaction)? Why am I put on a ward with people having an abortion?, How much evidence is there to suggest hospital is the better environment after a miscarriage?
<i>Terminology</i>	13 Why hospitals call it the product of conception? Why is your baby now referred to as a product?, Why do doctors refer to Miscarriage as "spontaneous abortion?"
<i>Treatment</i>	112 How uNKiller cells should be treated? The role of uterine septum resection in women with recurrent miscarriage and septate uterus?

Twins

3 How come when pregnant with twins, I miscarried one, but other twin was fine? Why isn't there better training for hospital staff for a twin/multiple pregnancy with only one surviving baby?

Appendix 3: Demographic data of survey respondents

	Initial Survey		Interim Prioritisation Survey	
	Number of respondents	Percentage	Number of respondents	Percentage
Region				
East Midlands	84	8%	162	8%
East of England	55	5%	125	6%
London	93	9%	180	8%
North East	74	7%	124	6%
North West	126	12%	216	10%
Northern Ireland	17	2%	54	3%
Scotland	96	9%	218	10%
South East	147	13%	341	16%
South West	88	8%	169	8%
Wales	23	2%	65	3%
West Midlands	128	12%	163	8%
Yorks and Humber	72	7%	159	7%
Outside the UK	32	3%	101	5%
Did not answer	58	5%	45	2%
At what stage were your miscarriages?				
Before 6 weeks	376	0.206	376	21%
Between 6 and 12 weeks	1525	0.834	1525	83%
After 12 weeks	346	0.189	346	19%
How long is it since your last miscarriage?				
I have just been diagnosed with a miscarriage	46	3%	46	0.025

Less than a month	109	6%	109	0.06
Between one and six months	397	22%	397	0.217
Between six months and a year	286	16%	286	0.156
Over a year	991	54%	991	0.542

Number of previous miscarriages

0	9	1%	13	1%
1	397	45%	768	42%
2	201	23%	445	24%
3	133	15%	292	16%
4	70	8%	135	7%
5	31	4%	78	4%
6	14	2%	36	2%
7	13	1%	27	1%
8	4	0%	7	0%
9	3	0%	6	0%
10 or more	6	1%	16	1%

If you are a healthcare professional, which best describes your role?

Obstetrician / Gynaecologist	41	26%	89	31%
General Practitioner	7	4%	30	10%
Nurse	44	28%	68	24%
Midwife	37	23%	60	21%
Sonographer	6	4%	4	1%
Healthcare assistant	10	6%	21	7%
Counsellor	13	8%	17	6%

Appendix 4: All refined questions

- 1 What causes miscarriage?
- 2 What causes recurrent (more than three to the same woman) miscarriages?
- 3 What causes late (after 14 weeks) miscarriage?
- 4 What causes missed miscarriage, where the baby dies before the miscarriage occurs?

- 5 Do lifestyle factors (diet, stress, exercise, weight, alcohol, sexual activity, smoking, night shifts or flying) cause miscarriage?
- 6 Does fetal gender cause miscarriage in some women?
- 7 Do immunological abnormalities cause miscarriage?
- 8 To what extent do genetic and chromosomal abnormalities in the fetus cause miscarriage?
- 9 What male factors contribute towards the cause of miscarriage?

Do medical tests cause miscarriage? (such as internal examination, ultrasound scanning, amniocentesis or chorionic villous biopsy)

To what extent do pre-existing medical conditions cause miscarriage? (e.g. vitamin deficiencies, diabetes, previous infertility, endometriosis, polycystic ovarian syndrome, menstrual irregularities, cervical factors, uterine anomalies, polyps, immunological factors or previous pregnancy complications e.g. caesarean section or preterm birth)

Does infection cause miscarriage?

Do medicines cause miscarriage? (e.g. contraceptive pill, progesterone, vaccines, antidepressants, antibiotics, antihistamines, or vitamin supplements)

To what extent do parental factors cause miscarriage? (e.g. genetic, chromosomal, blood group)

Does super fertility (more frequent implantation and ease of pregnancy) cause miscarriage?

What causes preterm spontaneous rupture of membranes as a type of late miscarriage?

Does breastfeeding when pregnant cause miscarriage?

Does ethnicity affect miscarriage?

Can miscarriage of a current pregnancy be predicted? (e.g. by ultrasound, blood test or vaginal tests).

How common is miscarriage in the United Kingdom?

21 Are miscarriage rates affected by gestational age, geography, maternal age?

22 What are the appropriate investigations for women after one, two, or three or more miscarriages?

What investigations are of true clinical value? (e.g. ultrasound, gene sequencing, natural killer cells, thromboelastography
23 (TEG), microarray testing of the fetus, paternal investigations, plasminogen activator inhibitor polymorphism)

What is the optimal process for conservative, medical and surgical management of miscarriage? (efficacy, location, safety, pain
24 relief, symptoms, information)

25 Does the method of management of miscarriage affect future fertility or miscarriage?

26 What are the risks after a miscarriage? (Such as change in menstrual pattern or mental health problems)

27 What is the best method of contraception after miscarriage?

What are the effective interventions to prevent miscarriage, threatened miscarriage and recurrent miscarriage? (e.g. lifestyle,
vitamins, aspirin, early scans, HCG, dopamine agonists, progestogen, polytherapy, steroids, oestrogen, metformin,
28 anticoagulants, intravenous immunoglobulin, intralipid and anti-tnf alpha)

What preconception tests or interventions prevent miscarriage? (e.g. vitamin supplements, folic acid, Dehydroepiandrosterone
29 (DHEA), co-enzyme Q-10 or bariatric surgery)

30 Does alternative or complimentary medicine prevent miscarriage? (e.g. traditional Chinese medicine, acupuncture)

31 Does a dedicated recurrent miscarriage clinic with reassurance scans reduce the rates of miscarriage?

32 What is the probability of a further miscarriage after one, two or three or more previous miscarriage(s)?

33 What is the best time to conceive after a miscarriage?

34 Why does society not talk about miscarriage?

35 What is the best societal support for women with miscarriage (leave from work e.g. same as stillbirth)?

36 What types of emotional support are effective in preventing or treating women or their partners after a miscarriage?

37 How can health care professionals be prepared to offer patient's guidance or referral?

What types of care are effective in preventing mental health problems for mothers and fathers during and immediately after a miscarriage?

39 What are the emotional and mental health impacts of miscarriage in the short and long term for the mother and the father?

40 What type of care reduces anxiety during a subsequent pregnancy after miscarriage?

41 What is the best way to support the extended family?

42 Could women be better prepared for the possibility of miscarriage?

43 Does health professional follow up improve the likelihood of a subsequent successful pregnancy?

44 Does counselling improve the likelihood of a subsequent successful pregnancy?

45 Do dedicated early pregnancy units offer benefit to women having a miscarriage?

46 What can be done to improve the coordination between different miscarriage services?

47 When should women book with their midwife in pregnancy?

48 Which treatments are effective for incompetent cervix? (e.g. progesterone, cervical cerclage or arabin pessary)

49 Is surgery safe and effective for women with uterine anomalies? (septal resection)

50 Does levothyroxine reduce the risk of miscarriage in women with thyroid antibodies?

51 Does taking folic acid reduce the risk of miscarriage?

52 Does previous surgery on the uterus cause miscarriage?

53 Do uterine muscle relaxants treat threatened miscarriage?

Does preimplantation genetic screening improve outcome versus natural conception in women with unexplained recurrent miscarriage?

55 Is bed rest or any lifestyle or personal interventions effective in preventing miscarriage?

56 What factors increase the chance of embryo implantation?

57 Do embryos feel pain?

58 What is the best way to manage the loss of one twin? (including both medical and emotional support)

Appendix 5: Analysis by demographic (Q Ref refers to numbered question in appendix 5; Priorities in bold indicate where questions were in the group demographic top 25, but not taken to the final workshop)

All Respondents		Lay		HCP		White		BAME	
Priority	Q Ref	Q Ref	Priority	Q Ref	Priority	Q Ref	Priority	Q Ref	Priority
1st	28	28	1	28	1	28	1	28	1
2nd	22	4	4	22	2	22	2	19	7
3rd	1	1	3	19	7	1	3	1	3
4th	4	22	2	5	11	4	4	22	2
5th	40	40	5	23	24	40	5	32	6
6th	32	34	9	11	12	32	6	5	11
7th	19	32	6	2	8	2	8	33	15
8th	2	39	10	25	16	19	7	4	4
9th	34	19	7	24	33	34	9	11	12
10th	39	2	8	33	15	39	10	9	20
11th	5	5	11	3	26	5	11	25	16
12th	11	11	12	1	3	11	12	34	9
13th	35	35	13	9	20	35	13	38	21
14th	36	36	14	48	45	36	14	2	8
15th	33	6	18	29	17	6	18	42	19
16th	25	33	15	31	28	33	15	8	23
17th	29	29	17	16	48	25	16	29	17
18th	6	25	16	32	6	29	17	40	5
19th	42	42	19	38	21	42	19	48	45
20th	9	26	22	40	5	26	22	23	24
21st	38	38	21	8	23	38	21	24	33
22nd	26	9	20	45	29	9	20	36	14
23rd	8	8	23	42	19	8	23	14	25
24th	23	14	25	58	53	14	25	16	48

25th	14	55	27	4	4	23	24	18	58
26th	3	45	29	13	30	45	29	55	27
27th	55	31	28	56	31	31	28	56	31
28th	31	3	26	36	14	3	26	3	26
29th	45	23	24	14	25	55	27	30	40
30th	13	13	30	55	27	13	30	35	13
31st	56	56	31	39	10	37	32	39	10
32nd	37	37	32	43	34	56	31	46	37
33rd	24	57	35	37	32	24	33	13	30
34th	43	24	33	46	37	43	34	26	22
35th	57	43	34	12	38	57	35	31	28
36th	51	51	36	7	41	51	36	21	39
37th	46	46	37	35	13	46	37	37	32
38th	12	21	39	53	54	21	39	6	18
39th	21	12	38	54	46	12	38	54	46
40th	30	30	40	34	9	7	41	12	38
41st	7	7	41	49	56	30	40	44	47
42nd	15	15	42	21	39	15	42	45	29
43rd	20	20	43	26	22	20	43	52	44
44th	52	52	44	44	47	52	44	58	53
45th	48	54	46	51	36	54	46	7	41
46th	54	44	47	52	44	48	45	10	50
47th	44	47	49	6	18	44	47	20	43
48th	16	10	50	18	58	47	49	27	55
49th	47	41	52	50	51	10	50	51	36
50th	10	48	45	15	42	16	48	15	42
51st	50	50	51	30	40	41	52	50	51
52nd	41	16	48	57	35	50	51	57	35
53rd	58	58	53	20	43	58	53	43	34
54th	53	17	57	10	50	49	56	49	56

55th	27	27	55	27	55	53	54	17	57
56th	49	49	56	47	49	17	57	41	52
57th	17	53	54	17	57	27	55	53	54
58th	18	18	58	41	52	18	58	47	49

Appendix 6. Response rate to James Lind Alliance (JLA) priority setting partnerships

JLA PSP	Number of Survey respondents	Number of questions submitted
Bipolar	3285	14398
Depression	3000	10000
Sight loss and vision	2220	4461
Dementia	1563	4116
Autism	1213	3331
Miscarriage	1093	3279
Diabetes (Type 1)	583	1141
Multiple Sclerosis	507	1084
Vitiligo	461	1427
Lyme Disease	253	967
Stroke in Scotland	106	548

Appendix 7: Final workshop attendees

Facilitators

Katherine Cowan (Chair)

Maryrose Tarpey

Sandra Regan

Women / Partner Reps

1. Jane Brewin

2. Kate Hindle

3. Emily O'Toole

4. Halimah Khaled

5. Barbara Hepworth-Jones

6. Penny Kerry

7. Sophie Willetts

8. Catherine MacLennan

9. Salma Ali

10. Emma O'Mahoney

11. Jim Sharkey

12. Liz McLean

13. Steve McLean

Health Care Professionals

1. Jim Thornton

2. Arri Coomarasamy

3. Natalie Woodhead

4. Judy Shakespeare

5. Maureen Sharkey

6. Helen Williams

7. Matt Prior

8. Adam Devall

Observers

Sonia Newman (NIHR)