Protocol/Sponsor Number: GB02/17UCC Principal Investigator: Prof Geraldine Boylan



Protocol



Short Title: BabySMART

Study Title: BABY SMART (**S**tudy of **M**assage therapy, sleep **A**nd neurodevelop**M**en**T**)

Project Title: ENRICH - INFANT Baby Enrichment Research Programme

Protocol Sponsor Number: GB02/17UCC

Protocol Date / Version: 20 JUL 2017 Version 2.0

Principal Investigator: Professor Geraldine Boylan

Sponsor: University College Cork,

College Road,

Cork,

Ireland

Recruitment Site(s): Multicentre: International

Protocol/Sponsor Number: GB02/17UCC Principal Investigator: Prof Geraldine Boylan



Protocol

BABY SMART (Study of Massage therapy, sleep And neurodevelopMenT)

Chief Investigator: Prof Geraldine Boylan,

Professor of Neonatal Physiology

Irish Centre for Fetal and Neonatal Translational Research,

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Sponsor: Dr Muiris Dowling

Office of Vice President of Research and Innovation

University College Cork

Recruitment Sites and Local Principal Investigators

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(CUH) Wilton,

Cork Ireland **University College London - Institute of Child**

Health (UCL-ICH)

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Principal Investigators

Prof Eugene Dempsey,

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Children

University College London - Institute of Child

Health

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Department of Pediatrics and Child Health

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Cork University Hospital

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Additional Project Staff

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1 Background

It is well known that sleep is essential for brain development (3) and learning (4). Infants require extensive sleep for development of the hippocampus, pons, brainstem, and midbrain and for optimizing physical growth. It is also essential for *brain plasticity*; the genetically determined ability of the infant brain to change its structure and function in response to the environment. Studies in young animals have shown that sleep deprivation leads to increased programmed cell death, smaller brain size, and loss of brain plasticity, all of which have negative long-term impact on behaviour and learning ability (5-7).

Infant massage, a form of systematic tactile stimulation by human hands, improves sleep hygiene. Very little is known about how massage influences early brain development but it is certainly linked to the theory of environmental enrichment, which has been well established in animal models. (8-10).

2 Aims of the BabySMART project

The aim of this project is to optimise the infant's sensory experience through a multi-sensory enrichment programme, including massage (a massage utilising a scented lotion before sleep each day), to encourage more structured sleep and ultimately show improved developmental and cognitive outcomes.

3 Hypothesis

The BabySMART study will examine the effect of a structured sensory enrichment programme including massage, delivered by parents according to a structured programme following training, on both the quality and quantity of sleep and on subsequent neurodevelopment

4 Significance of the question

It is well known that sleep is essential for brain development and maturation. Studies have shown that sleep-deprived young animals have smaller brains with loss of brain plasticity, which leads to diminished learning and adverse long-term behavioural effects. It is also established that infant massage improves sleep hygiene and is linked to the theory of environmental enrichment, which promotes brain development. Brain development during the first years of life depends on the quality of stimulation in the infant's environment. Early child development is a life-long determinant of health and well-being. There are significant societal and economic benefits from optimal infant cognitive development (2).

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5 Trial Objectives and Purpose

Primary objective

To assess the effect of a structured sensory enrichment programme on Infant sleep using qualitative and quantitate measures.

Secondary objective

To assess the effect of a structured sensory enrichment programme on neuro-development as assessed by a standardised neurodevelopmental assessment at approx. 4 months and approx. 18 months of age.

6 Description of protocol methodology

6.1 Type of Trial

We will undertake a multi-centre, unblinded, randomised, controlled study to evaluate whether a multi-sensory enrichment programme in the first 4 months of life will improve sleep architecture and neurodevelopment in healthy infants.

We do not interpret this study as a clinical trial, as defined by the Control of Clinical Trials Act, 1987 and 1990.

6.2 Subjects

A total of 200 full term healthy infants will be studied. Recruitment will take place at CUMH and UCL-ICH London.

Inclusion criteria for participant selection are:

- Infants born > 37 weeks gestation
- Single births
- Not requiring admission to the Neonatal Unit
- Healthy infants without suspected congenital or metabolic anomalies

Exclusion criteria for participant selection are:

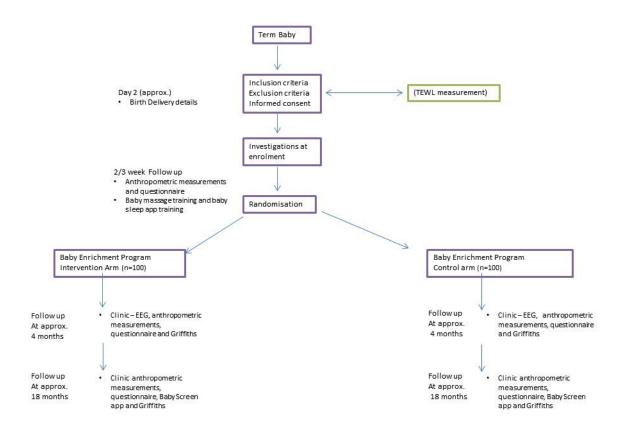
- Infants born < 37 weeks gestation
- Multiple births



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• Severe metabolic or genetic anomaly that would require ongoing specialist care in the infancy period.

Admission to the Neonatal Unit.6.2.1 Figure 1 Flow chart design of study



6.3 Contact with study participants

Mothers will be approached post- delivery, at the bedside, usually within 48 hours, in the wards in CUMH, they will be informed about the study and given a study leaflet to read. If they decide to participate in the study the consent form will be signed and the next steps will be explained to the parents.

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Once the day of consent assessment is complete, ideally day 2 after birth, parents will be informed that the next appointment will be in approximately 2 - 3 weeks and that a member of the BabySMART team will contact them to schedule this appointment and randomisation will occur at this follow up visit.

Phone Call for follow on appointments in BabySMART

- 1. All postnatal appointments are to be made 1-2 weeks prior to scheduled follow-up.
- 2. Remind mothers of the BabySMART study; ask how baby has been getting on.
- 3. Schedule an appointment for follow up appointment in the INFANT research centre in the CUH (approx. 4 months and approx. 18 months).
- 4. Again, tell them we will send a reminder text the day before and if there are any problems to contact the study team and that an alternative appointment can be made.

Reminder texts

For the approx. 2 week, 4 month and 18 month visit texts

A reminder of your appointment with the BabySMART Study tomorrow in the INFANT Research Centre in CUH. Thanks from BabySMART

7 List of BabySMART Procedures

7.1 Anthropometry (2 weeks, 4 month and 18 month time points)

Weight, height (supine length) and head circumference will be measured using a standard technique and equipment at the visits that will take place at approximately 2 weeks, 4 months and 18 months. Measurements will be taken according to the relevant INFANT Work Instructions. The same measuring equipment will be used for the duration of the study and staff will be both familiar with the technique and equipment before completing a measurement.

7.1.1 Trans-epidermal water loss measurement (TEWL) (2 day, and 4 month time points)

Trans-epidermal water loss (TEWL) measurement will be taken using standard technique and equipment (Delfin Vapometer) at the visits occurring on approximately Day 2 and 4 months. Parents will be asked not to apply emollients on the morning of the visit and any non-compliance will be documented. Three measures will be taken and the average reading recorded in the eCRF.

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7.2 EEG measurements (4 month time points)

A sleep video/ EEG will be performed on babies recruited into the BabySMART study at approximately 4 months of age (conceptual). Parents will be invited to bring their child to the baby sleep lab, INFANT Research Centre in the CUH for this appointment. The timing of this should be coordinated so the recording commences following a feed around the time of the baby's longest daytime nap. The recording will last for the duration of the baby's sleep.

Recording parameters

The EEG recording will be made using the study EEG machine and follow the INFANT Sleep EEG Work Instructions which were devised according to the American Academy of Sleep Medicine (AASM) (10). Each recording will be made using disposable electrodes and will include respiration, Electrooculography (EOG), Electrocardiography (ECG) and Electromyography (EMG) measurements for qualification of sleep states.

EOG is a technique for measuring/ recording eye movements. Pairs of electrodes are typically placed either above and below the eye or to the left and right of the eye and the recorded potential is a measure of the eye's position.

ECG is the process of recording the electrical activity of the heart over a period of time using electrodes placed on the skin. These electrodes detect the tiny electrical changes on the skin that arise during each heartbeat from the heart muscle. These electrodes will be placed on the left and right deltoid muscle of the arm.

EMG is used to measure muscle movement and two electrodes will be applied approximately 2 cm to the left of the midline and 2cm to the right of the midline, with both electrodes approx. 2cm below the inferior edge of the mandible.

A specialized respiration electrode will be used to measure respiration rate. All recordings will be assigned a study ID number and pseudo anonymised. Any incident findings will be followed-up clinically.

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7.3 Sensory enrichment programme including infant massage

A total of 200 full term healthy infants will be recruited. Recruitment will take place at CUMH and UCL-ICH London. Parents will be invited to provide proxy consent for their infant to participate and also for their own participation in the BabySMART study.

Once Day 2 screening assessment is complete, parents will be informed that the next appointment will be in approximately 2 - 3 weeks and that a member of the BabySMART team will contact them to schedule this appointment. Randomisation will occur at this visit. Participants will be randomised to either a structured sensory enrichment programme including infant massage (intervention arm) or to the control arm.

The massage will be applied according to IAIM (International Association of Infant Massage). Created in 1976 by Vimala McClure, it is the first global organisation with a professional programme which is run in several countries around the world, due to its proven benefits. The purpose of IAIM is to create a nurturing touch and communication through training, education and research so that parents, caregivers and children are loved, valued and respected throughout the world community.

At the 2 week visit parents will be provided with training in infant massage by an instructor who has completed a Baby Massage Ireland trainer course. The massage should be carried out daily until the 4 month visit. Massage training will be completed on-site in the INFANT Research Centre in the new Paediatric unit in the CUH and the JOHNSON'S® HEAD-TO-TOE® extra moisturizing baby cream will be supplied at these appointments

Mothers will be informed about the enrichment programme which will include the benefits of baby massage, infant cues, duration of application, points of care for application and application technique at this stage. The technique of massage application will be shown to the mother by the researcher using a model baby (doll).

Mothers will be asked to apply the massage on their own baby as instructed and they will be observed to determine whether they applied the massage correctly or not. Training will be reinforced both at the training session and by the provision of a training DVD which will be provided to parents.

Baby massage education will also be given at drop in classes where a review of the strokes will be undertaken. Each parent's application of baby massage will be observed and evaluated for correct

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technique. Extra JOHNSON'S® HEAD-TO-TOE® extra moisturizing baby cream will be supplied at these classes. Parents will be encouraged to massage their babies a minimum of 3 x 15-minute sessions including a minimum of 2 of the 6 areas to be massaged, every day for the first 4 months of life.

The researcher will follow HSE protocols to help women improve the care of their baby, or other questions that may arise; sleep positions, weaning, vaccines, feeding, bathing.

7.1.5 Neurodevelopment assessments (4 month and 18 month time points approximately)

All participants in the study will receive a standardised developmental assessment at 4 months and 18 months of age approximately. The Griffiths III Mental Development Scales published in 2016, measures development trends which are significant for intelligence, or indicative of functional mental growth in babies and young children. The new Griffiths III measures maturation from 0 to 5 years 11 months of age. Griffiths III is a restricted test that is available only to the holders of an ARICD Certificate of Registration as User. Griffiths training courses are open to paediatricians and psychologists.

Allied Health Professionals who are

- 1) part of a Child Development Team, or
- 2) actively involved in research or monitoring, and
- 3) can be supervised by an experienced Griffiths user, may also apply.

Neurodevelopment assessment using the Griffiths III will be performed by a trained member of the INFANT team and will be conducted using the recognised Griffiths kit, manual, and other related material. Assessments will take place in the Early Life Lab, INFANT Discovery Platform in CUH or if required the INFANT researcher will travel to the infant's home.

The new Griffiths III provides an overall measure of a child's development, as well as an individual profile of strengths and needs across five areas:

A: Foundations of Learning

B: Language and Communication

C: Eye and Hand Coordination

D: Personal - Social - Emotional

E: Gross Motor

Any worrying or incidental findings will be referred for follow up along the relevant clinical pathway.

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7.4 Questionnaires (2 week, 4 month and 18 month approximate time points)

7.4.1 Socio-demographic data

For an example please see Appendix

7.4.2 Baby's household and health

For an example please see Appendix

7.4.3 Mothers postnatal depression questionnaire & parental attachment style – approximately 4 month time point only

The survey contains questionnaires that are directed at screening for postnatal depression, identifying the attachment type of the parent and evaluating the growing relationship between the mother and infant.

The Maternal Postnatal Attachment Theory questionnaire (MPAS; Condon & Corkindale, 1998) captures different sorts of emotional reactions parents have when caring for young babies. Of particular interest to this study is the mother's attachment style to the infant. (Please see Appendix) Postnatal depression scores will be measured through the Edinburgh Postnatal Depression Scale (EDPS; Cox, Holden & Sagovsky, 1987). This questionnaire will be utilized as a screening tool for postnatal depression. (Please see Appendix).

It is estimated that up to 1 in 7 new mothers will experience postnatal depression (PND) (Health Service Executive, 2008). It is therefore expected that a similar percentage of mothers in this study will have escalated scores on the EDPS. It is imperative that a referral pathway be identified to ensure the women obtain a comprehensive follow up if their scores indicate they are at risk of PND. Mothers who have an escalated score on the EDPS (score >10) or who have an escalated score in the anxiety subscale of the EDPS (scores > 6) or who have answered positively to the suicidal risk question (Scores > 0) will all receive follow up. As recommended by the EDPS any participant with an escalated score will be given the EDPS to complete again after two weeks. Participants who remain in the moderate range (score 10-13) after completing the EDPS for the second time will be strongly advised to consent to a GP referral, while participants exceeding this threshold and scoring in the high risk threshold (score 13-30) will be automatically referred to their GP.

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7.5 MiChild Mobile Application

MiChild is a mobile application which is to be used by registered users only for the capture, storage and analysis of sleep and feeding. The aim of this app is to provide researchers working on the BabySMART study with a view of key infant data from birth to 4 months. The application is not mandatory and the parents can choose to record the information in a paper format in the diary that has been designed for the study. MiChild will provide a data capture tool where parents can capture in real time details on infant sleep, adherence and acceptance of the sensory enrichment programme and limited feeding data. The data inputted by parents will be available to them in an aggregated view allowing them to review weekly sleep and feeding.

This secure, multi-platform (Android & iOS) mobile solution will provide parents/guardians with the ability to capture an accurate and real-time view of their infant's sleep and feeding from birth. As well as the above, the application will also allow communication between parents and BabySMART research staff via a messaging option.

This application will be available through the apple app store and google play store. The application will only be accessible to parents who have a registered account created by research staff working on the BabySMART Study.

Registered users of the app will be created by research staff with the necessary privileges through an administrative application. These registered users will be provided with a random password by the BabySMART research staff at time of registration. This password will be stored in the database encrypted using industry standard Advanced Encryption Standard – Cipher Block Chaining (AES-CBC) which will have a 256-bit key for encryption. The registered user of the app will have to enter a "MiChild" user ID which is unique to the app and is created by the BabySMART research staff. This ID combined with their password allows a user's access to the application. At any stage throughout the use of the application, clinical staff can deactivate an account and therefore render the app un-usable by the users.

All data will be stored in University College Cork, on University College Cork servers. These servers will have restricted access to INFANT IT personnel only. All data on these servers will have restricted access insofar as it will be restricted to BabySMART research staff only so as to protect patient confidentiality.

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All data will be stored within University College Cork. All data being transferred to and from University College Cork will be encrypted using secure SSL whilst being transferred and identifiable pieces of data will be encrypted at rest. Data at rest will be encrypted using industry standard Advanced Encryption Standard – Cipher Block Chaining (AES-CBC) which will have a 256-bit key for encryption. Please see Appendix E for screen shots of this mobile application.

8 Confidentiality

Data protection and privacy

All national and local legal requirements regarding data protection will be adhered to. Pseudoanominity of patient data is assured by means of the unique study ID number allocated on enrolment. Throughout the study, participants will be identified by this study ID number. At each site, the Principal Investigator will hold a hard copy list linking the study ID to patient details. This list will be kept in a locked filing cabinet. If the patient name, initials or year of birth appear on a document (e.g. laboratory report), that has to be transferred within the notification duties, these data will be obliterated before a copy of the document is transferred. Participants will be informed that all study data will be stored on a computer and handled in strictest confidence. Participants will also be informed that monitors, representatives of the sponsor, the Ethics Committee may inspect their medical records to verify the information collected, and that all personal information made available for inspection will be handled in strictest confidence and in accordance with legal data protection requirements.

9 Governance

The conduct of the BabySMART study will be overseen by the ENRICH Steering Committee, which consists of one nominated representative from each party in the Consortium. All major decisions regarding the ENRICH project and its data must be approved by this Committee. All members of the Steering Committee will make yearly declarations of conflict of interest and these will be posted on the ENRICH website.

10 Insurance

The Study is covered by University College Cork, Clinical Trial Indemnity Insurance and was finalised by the Office of Corporate and Legal Affairs (OCLA).

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11 Ethical Committee Review

The Protocol will be reviewed and approved by the appropriate Ethics Committee(s) in each country. All investigation personnel will implement the Protocol with full respect and compliance to the legal and ethical European / institutional requirements and codes of practices.

12 Amendments to the Protocol

All amendments to the Protocol, Parent Information Leaflet (PIL) and Informed Consent Form (ICF) shall be agreed between the Sponsor and the Principal Investigator and will be recorded with a justification for the amendments. All Protocol, PIL and ICF amendments will be submitted and approved by the relevant Ethics Committee(s) as required before implementation.

13 Deviations from the Protocol

The Investigator is not allowed to deviate from the Protocol unless under emergency circumstances, to protect the rights, safety and well-being of participants. The deviation may proceed without prior approval of the Sponsor and the EC. All deviations shall be documented and reported to the sponsor, and the EC as soon as possible. All deviations from the Protocol shall be recorded together with an explanation for the deviation. Deviations shall be reported to the Sponsor who is responsible for analysing them and assessing their significance. Deviations should be reviewed to determine the need to amend the Protocol, implement corrective/preventive action (CAPA) or to terminate the study. A master deviation tracking log will be maintained for the duration of the study outlining each deviation, any CAPA implemented and date of resolution.

14 Withdrawal of Participants from the study

Participation is voluntary and participants may withdraw from the study at any time and for any reason. All withdrawals will be documented and the reasons recorded where possible.

15 Adverse Event Reporting

The following Johnson & Johnson Consumer Services EAME Ltd (JJCSEL) products will be provided to parents participating in BabySMART.

BabySMART research personnel will be responsible for collecting and reporting any information in or coming into its possession or control for the PRODUCTS regardless of source, relating to an Undesirable Effect (UE), Special Situation or an UE associated with a Product Quality Complaint (UEPQC) and Incomplete Cases, in a format as agreed upon with Johnson & Johnson Consumer Services EAME Ltd (JJCSEL).

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This information and any Incomplete Cases should be reported immediately, but in no case later than twenty-four (24) hours from first becoming known to BabySMART personnel. The minimal information required for notification is a suspect PRODUCT and an event. BabySMART personnel will collaborate to identify any missing safety information, including, but not limited to, completeness of case identification numbers, in case of discrepancies, to ensure receipt of all collected safety information by JJCSEL

A tracking system will be established and maintained for the collection, recording and collation of safety information for the PRODUCT. A summary of all identified UE, Special Situation, and UEPQC, must be maintained and reported as outlined in the Safety Reporting scope of work.

15.1 **Definitions**

"Product Quality Complaint" (PQC) Any written, electronic or oral communication that alleges deficiencies related to the identity, quality, durability, reliability, safety, effectiveness or performance of a product after it is released for distribution.

PRODUCTS

JOHNSON'S® HEAD-TO-TOE® extra moisturizing baby wash JOHNSON'S® HEAD-TO-TOE® extra moisturizing baby cream

"Special Situation": Occurrences or reports that may not contain an adverse event, which must still be collected and reported in order to meet regulatory safety reporting requirements and JJCSEL Company policies:

- Overdose of Product,
- Pregnancy exposure (maternal and paternal),
- Exposure to the Product from breastfeeding,
- Suspected abuse/misuse of the Product,
- Inadvertent or accidental exposure to the Product (including occupational exposure),
- Any failure of expected pharmacological or medical device action (i.e. lack of effect) of the Product,
- Unexpected therapeutic or clinical benefit from use of the Product,
- Medication error involving the Product with or without patient/consumer exposure to the Product, (e.g. name confusion) OR that caused an unintended effect or could cause an intended effect (e.g. adult medicine given to a young child),

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- Suspected transmission of an infectious agent via Product,
- Expired drug use and falsified medicine
- Off-label use situations where the Product is intentionally used for a medical purpose not in accordance with the authorized product information

"Undesirable Effect" (UE) shall mean an adverse reaction for human health attributable to the normal or reasonably foreseeable use of a cosmetic product.

15.2 Follow Up

JJCSEL will be responsible to follow up on safety information. In the event the BabySMART study team receives follow up information this will be forwarded in the same timelines and mechanism as initial information noted above and will include the receipt date for the follow-up information.

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16 Bibliography

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17 Approval and Agreement to the Protocol

Signatures
The Sponsor, Chief Investigator and Principal Investigator, United Kingdom, have discussed this
protocol. All have agreed to perform the clinical study as written and to abide by this protocol
except in case of medical emergency or where departures from it are mutually agreed in writing.
Chief Investigator
Professor Geraldine Boylan, INFANT Research Centre, University College Cork, Ireland
Signature
Date:
Principal Investigator – United Kingdom
Dr Ronit Pressler, University College London, Institute of Child Health United Kingdom
Signature
Date:
Sponsor
Dr Muiris Dowling, University College Cork, College Road, Cork, Ireland

Signature

Date:

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APPENDIX

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Baby SMART – 2 week questionnaire

Socio-c	lemographics	
1.	Marital Status	Single
		Married/Living as married In a relationship (not living together) Separated /Divorced Widowed In a registered same sex civil partnership
2. 3.	Mother's ethnicity Father's ethnicity	
(eg. Wl	nite Irish, White non Irish, Blac	ck African/American, South Asian etc.)
	Mother's nationality Father's nationality	
(eg. Iris	h, British, Polish, French, Afric	can, Asian, American etc.)
6.	Secondary so Third level - Third level - Third level -	ducation chool - Junior/Inter Certificate chool - Leaving Certificate Certificate Diploma Degree Higher/Graduate Diploma Masters Phd
7.	Current job situation	Full time work Part time work Student Homemaker Unemployed Sickness beneficiary Other
8.	Maternal Occupation	

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(Please give specific details of your occupation; also if you have been unemployed for less than 6 months please give title of previous job)

9. Current living situation	(please tick all that ap	ply)	
	Your Spouse/Partner Your Parents/Your Spo Friends Housemates Alone Other	ouse/Partner's Parents	
10. Type of accommodation	n Own house/fla	at mortgage free	
	Private rental Gov. /Council Hostel/boardi Garage Mobile Home,	ng house	
11. Parents combined net in	ncome (after deduction	ns of tax and PRSI)Please t	cick one
Per Week Under €230	001 to under €1,500 501 to under €2,000 001 to under €2,500 501 to under €3,500 501 to under €4,000 001 to under €6,500 501 to under €8,000	€12,001 to under €18, €18,001 to under €24, €24,001 to under €30, €30,001 to under €42, €42,001 to under €48, €48,001 to under €60, €60,001 to under €78, €78,001 to under €96,	000 000 000 000 000
12. Number of individuals s	unnorted by this incom	Prefer not to sa Don't' Know ne Adults	ау 📗
12. Number of mulviduals S	apported by this incom	Children	
Environment 13. In what suburb or town	do you live?		



14. In what type of area do you live? (population<2000)	Urban Rural
,	
15. If you live in a rural area, do you live on a:	Farm Open countryside Small town/village
16. How many people live in your house hold? Number of adults Number of children	(<18years old)
17. Do you currently smoke? Yes	No Yes e-cigarettes only
18. If Yes, how often do you smoke?	
Daily/Almost Daily A few times per week Once a week Less than once a week	
19. How many, on average each day?	
20. Do you allow smoking in your house?	
No Yes, occasionally Yes, regularly Yes, e-cigarettes only	
21. Is your baby exposed to smoking outside the h	ome (eg. grandparents?)
No Yes, occasionally Yes, regularly Yes, e-cigarettes only	
22. Where does your baby usually sleep?	
Cot in your bedroom	
Cot in their own bedroom	
We share a bed	



23. Does your baby ever	sleep in bed with	you?	Yes		No	
24. If yes, is it for the	Whole night Part of the nig	ht				
25. If yes , how often doe	es this occur	Every night				
		4-6 times per v 2-3 times per v Once a week Rarely				
26. How often do you th	ink a new-born ba	by should sleep	in a 24		od?	
			Hours			
27. Where do you seek a that apply)?	ndvice regarding yo	our new-borns sl	leeping	and feedi	ing hal	oits (tick all
Books						
Internet						
Parents/Grandparen	ts					
Paediatrician/GP						
Friends						
Other						
28. Do you follow any 'N Yes No	1ummy Bloggers'?					
29. If Yes, who?						
30. How often do you ba	ith your baby?					
Once a week 2-3 times a week						



4-6 times a week Daily	
Other, please specify	
31. What do you use in the bath?	
Please specify product name and brand 32. How often do you moisturise your baby	
Never Occasionally	
Once a week	
2-3 times a week	
Daily/Almost daily	
Several times a day	
33. What do you use to moisturise your baby's skin?	\neg
Please specify product name and brand	
Feeding	
34. How are you feeding your baby?	
Breast fed	
Infant Formula	
Both	
35. How many feeds do they get on average in 24 hours?	
Breast-milk	
Infant formula milk	
36. Is your baby fed on a regular schedule eg. every 4 hours?	
Yes, always	
Yes, try to	
No, fed on demand	
37. Does your baby use a soother/dummy?	
Yes, regularly	
Yes, occasionally	
No	
Baby's Health	
38. Has your baby been unwell or needed to visit your GP (since leaving hospital)?	
Yes	
No No	
39. Did your baby require any treatment or follow up (since birth)?	



Mother's health 41. Were you prescribed any medication during your pregnancy? Yes No 42. If YES, what were you prescribed? A3. If YES, how long did you have to take it for? Days Weeks Mother's Quality of Life We would like for you to answer a few questions about your current health state. Please indicate which statements best describe your own health state today. 44. Mobility I have no problems in walking about I am confined to bed 45. Self- Care I have some problems with self- care I have some problems washing or dressing myself I am unable to wash or dress myself I have some problems with performing my usual activities I have some problems with performing my usual activities I have some problems with performing my usual activities	Yes	
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45. Self- Care I have no problems with self- care I have some problems washing or dressing myself I am unable to wash or dress myself 46. Usual Activities I have no problems with performing my usual activities I have some problems with performing my usual activities	44. Mobility	I have no problems in walking about
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I am unable to wash or dress myself 46. Usual Activities I have no problems with performing my usual activities I have some problems with performing my usual activities	45. Sell- Cale	
46. Usual Activities I have no problems with performing my usual activities I have some problems with performing my usual activities		
I have some problems with performing my usual activities		i am unable to wash or dress myself
	46. Usual Activities	I have no problems with performing my usual activities
		I have some problems with performing my usual activities
		I am unable to perform my usual activities
E.g. Work, study, housework, leisure or family activities	E.g. Work, study, housework, le	eisure or family activities

BABY SMART (Study of Massag Protocol/Sponsor Number: GB Principal Investigator: Prof Ger	
47. Pain/Discomfort	I have no pain or discomfort
	I have moderate pain or discomfort I have extreme pain or discomfort
48. Anxiety/Depression	I am not anxious or depressed
	I am moderately anxious or depressed I am extremely anxious or depressed
49. In your own opinion, h	ow good or bad is your own health today on a scale of 0-100
	(Where 100 is the best imaginable health state and 1 is the worst)
Baby SMART – 4 month quest	onnaire
Environment	
Have you moved house since y	our last visit?
Yes No	
If Yes: please answer the follow	ving:
In what suburb or town do you	live?
In what type of area do you liv (population<2000)	e? Urban Rural
If you live in a rural area, do yo	Open countryside Small town/village
How many people live in your	nouse?
Number of Adults	
Number of children	
Are you in paid employment at	the moment?
Yes	
	1 1

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Yes, currently on maternity	/ leave		
No			
If Yes, how old was your ba	aby when you returned to work?		
Does your baby attend any	type of childcare?		
Yes			
If Yes, what type of childca	re does your baby attend? (plea	se select all that apply)	
Childminder Creche/Nursery Minded by a family	re does your baby attend? (plea / member (eg. grandparent) me by childminder/aupair		Hours/week
Minded in own ho	me by family member		
Age in weeks	r child when he/she first attende changed since your last visit?	ed child care?	
No			
If Yes, please answer the fo	ollowing:		
Do you currently smoke?	Yes No	Yes e-cigarettes only	
If Yes, how often do you sn	noke?		
Daily	How many a day		
2/3 times a week	Tiow many a day		
Once a week			

Protocol/Sponsor Number: GB02/17UCC Principal Investigator: Prof Geraldine Boylan



Less than once a week Do you allow smoking in your house? No Yes, occasionally Yes, daily Yes, e-cigarettes only Is your baby exposed to smoking outside the home (eg. grandparents?) No Yes, occasionally Yes, daily Yes, e-cigarettes only How often do you bath your baby? Once a week 2-3 times a week 3-5 times a week Daily Other, please specify What do you use in the bath? Please specify product name and brand How often do you moisturise your baby's skin? Never



Once a week
2-3 times a week
Daily
Several times a day
Occasionally
What do you use to moisturise your baby's skin? Please specify product name and brand
Feeding
How are you feeding your baby?
Breast fed
Infant Formula
Both
How many feeds do they get on average in 24 hours? Breast-milk Infant formula milk Solid food What is the name and brand of the infant formula you are currently giving your baby?
What is the hame and brand of the infant formula you are currently giving your baby:
Is your baby fed on a regular schedule eg. every 4 hours?
Yes, always
Yes, try to



No, fed on demand	
If giving solid foods, how old was he/sh	he when they first had solids?
Age (weeks)	
Have you given your baby any vitaming	s or supplements since your last visit?
Yes	
No	
If yes, please provide details	
Does your baby use a soother/dummy	?
Yes, regularly	
Yes, occasionally	
No	
Sleeping	
Sleeping Arrangements	
Infant cot in separate room	
Infant cot in parent's room	
In parent's bed	
Infant cot in room with sibling	
Other, please specify	
Sleeping Position	
On his / her belly	
On his / her side	
On his / her back	
Sleeping time during the day (between	າ 7am and 7pm)

Protocol/Sponsor Number: GB02/17UCC Principal Investigator: Prof Geraldine Boylan



Hours

Sleeping time during the night (between 7pm and 7am) Hours
How long does it take to put your baby to sleep in the evening? Hours Minutes
Wakefulness time between 10pm and 6am Hours
How does your baby fall asleep?
While feeding
Being rocked
Being held
In bed alone
In bed near parent
When does your baby usually fall asleep at night (24 hour format)? Time
Do you consider your baby's sleep a problem?
A very serious problem
A small problem
Not a problem
Is it always the same person that puts the baby to bed?
Yes
No



If yes, who is it?	
Mother	
Father	
Other person	
Does the baby move in his/her sleep? Yes No	
The things that disturb my baby's sleep are: (tick a	ill that apply)
Any sound, even very soft sounds	
Radio or TV	
People talking	
Phone ringing	
Other	
Nothing disturbs my baby's sleep	
When my baby wakes up he/she is usually:	
Fussy	
Crying	
Hungry	
Alert but quiet	
Alert and active smiling when I app	proach
Other	
My baby can help calm him/herself to sleep by:	
Sucking on thumb or fingers	



	Holding a favourite blanket or soft	toy		
	Sucking on a soother/dummy			
	Other			
When my baby	needs help at night to calm down Pick him/her up	l:		
	Try talking and gently rubbing his/	her back		
	Play music for him/her			
	Let him/her cry before I go in			
	Give him/her a soother/dummy or	a bottle		
	Other			
I feel the best way to help my baby sleep through the night is to:				
	Stick to the same bedtime routine			
	Feed my baby shortly before putti	ng him/her	to bed	
	Let my baby cry him / herself to slo	еер		
	Comforting my baby whenever it's	needed		
	Nothing I do seems to help			
	Other			
Do you know w	hat sleep training is?			
	Yes			
Have you tried	sleep training?			
	Yes, The Cry it Out approach			
	Yes, The No Tears approach			
	Yes, Fading approach			
	Yes, Other approaches			
	No			



Will you be tryi	ng sleep training?				
	Yes, The Cry it Out approach				
	Yes, The No Tears approach				
	Yes, Fading approach				
	Yes, Other approaches				
	No L				
If yes, what age	a baby massage course? Yes No was your when you started the course (weeks) massage as part of your daily routine? Yes No Sometimes				
If yes, what nar	ne and brand of product did you use when massaging your baby?				
Baby's Health Has your baby been unwell since or required any medical assistance since your last visit?					
Yes					
No					
If Yes, why?					
Weight Loss/ Fa	ailure to thrive us				
Fever					
Reflux					
Colic					

BABY SMART (Study of Massage the Protocol/Sponsor Number: GB02/1: Principal Investigator: Prof Geraldin		Infan Irish Centre for Fetal and
Skin complaint		Neonatal Translational Resea
Cough		
Ear/Eye problem		
Vesticoureteric reflux		
Pyloric Stenosis		
Meningitis		
Seizures		
Convulsions		
Infection		
Hernia		
Tongue tie		
Worried in general		
Other		
Did you take your baby to the docto	or?	
Yes		
No		
If Yes, How many times?		
Did your baby need an antibiotic ?	٦	
Yes	_	
No		
If Yes, how many courses?		
Did your baby require admittance to	o hospital?	
Yes		
No		
If yes, how many times was he/she	admitted	



Age when last admitted (weeks)	
Since your last visit have you given your child pain re	lief medication?
Yes	
No	
If Yes, which medication? (please tick all that apply)	
Paracetamol eg. Calpol, Paralink	
Anti-inflammatories eg. neurofen, brufen Other, please specify Since your last visit have you given your child any	nat apply)
No	
Steroid cream	
Teething remedies (non-herbal)	
Colic Medication	
Reflux medication eg. baby gaviscon	
Antifungal creams	
Other, please specify	
Has your baby received any vaccinations since your I Yes No If yes, please provide details	ast visit?
Туре	Age when received
in weeks	
1. Tuberculosis (BCG)	
2. 2 month, 6 in 1 (polio, diphtheria, whooping cou	gh, tetanus, HepB, H influenza B plus Men C

3. 4 month, 6 in 1 (polio, diphtheria, whooping cough, tetanus, HepB, H influenza B plus Men C)



4. Other, please sp	ecify
Mother's health	
Were you prescribed an Yes No	ny medication since your child was born?
If YES, what were you p	rescribed?
If YES, how long did you Days Weeks	ı have to take it for?
For Mothers only - Mo	ther's Quality of Life
We would like for you t	o answer a few questions about your current health state.
Please indicate which s	tatements best describe your own health state today.
Mobility	I have no problems in walking about I have some problems in walking about I am confined to bed
Self- Care	I have no problems with self- care I have some problems washing or dressing myself I am unable to wash or dress myself
Usual Activities	I have no problems with performing my usual activities



E.g. \	Work, study, house	I have some problems with performing my usual activities I am unable to perform my usual activities ework, leisure or family activities
Pain/	/Discomfort	I have no pain or discomfort I have moderate pain or discomfort I have extreme pain or discomfort
Anxie	ety/Depression	I am not anxious or depressed I am moderately anxious or depressed I am extremely anxious or depressed
In yo	ur own opinion, h	ow good or bad is your own health today on a scale of 0-100 (Where 100 is the best imaginable health state and 1 is the worst)
For N	Mothers only - Att	achment Questionnaire
1.	When I am carin	g for the baby, I get the feeling of annoyance or irritation Very frequently Frequently Occasionally Very rarely Rarely
2.	When I am caring trying to upset mentions to upset mentions and the caring to upset mentions are upset mentions.	g for the baby I get the feeling that the child is deliberately being difficult or ne Very frequently Frequently Occasionally Very rarely Rarely
3.	Over the last two	No strong feelings towards the baby Slight affection Moderate affection
	•	Intense affection



4.	Regarding my overall level of interaction with the baby, I: • Feel very guilty that I am not more involved
	Feel moderately guilty that I am not more involved
	Feel slightly guilty that I am not more involved
	I don't have any guilty feelings regarding this
5.	When I interact with the baby I feel: • Very incompetent and lacking in confidence
	Moderately incompetent and lacking in confidence
	Moderately confident and competent
	Very confident and competent
6.	When I am with the baby I feel tense and anxious: • Very frequently
	Frequently
	Occasionally almost never
7.	When I am with the baby and other people are present I feel proud of the baby: • Very frequently • Frequently • Occasionally • Almost never
8.	I try to involve myself in as much as possible PLAYING with the baby: • This is true • This is untrue
9.	When I have to leave the baby: • I usually feel rather sad (or it's difficult to leave) • I often feel rather sad (or it's rather difficult to leave)
	I have mixed feelings of both sadness and relief
	I often feel rather relieved (and it is easy to leave)
	I usually feel rather relieved (and it is easy to leave)
10.	When I am with the baby: • I always get a lot of enjoyment /satisfaction



 I frequently get a lot of enjoyment /satisfaction
I occasionally get a lot of enjoyment/satisfaction
I rarely get a lot of enjoyment/satisfaction
When I am not with the baby, I find myself thinking about the baby: • Almost all the time • Very frequently • Frequently • Occasionally • Never
When I am with the baby: • I usually try to prolong the time I spend with him/her • I usually try to shorten the time I spend with him/her
When I have been away from the baby for a while and I am about to be with him/her again, I usually feel: Intense pleasure at the idea Moderate pleasure at the idea Mild pleasure at the idea No feelings at all about the idea Negative feelings about the idea
I now think of the baby as: • Very much my own baby • A bit like my own baby • Not yet really my own baby
Regarding the things that I/we have had to give up because of this baby: I find that I resent it quite a lot I find that I resent it a moderate amount I find that I resent it a bit I don't resent it at all



16.	Over the past 3 months, I have felt that I do not have enough time for myself: • Almost all the time
	Frequently
	A few times
	Not at all
17.	Taking care of this baby is a heavy burden of responsibility. I believe this is: • Very much so
	Somewhat so
	Slightly so
	Not at all
18.	I trust my own judgement in deciding what my baby needs: • Very much so
	Somewhat so
	Slightly so
	Not at all
19.	Usually when I am with the baby: I am very impatient I am a bit impatient I am moderately patient I am extremely patient
Instru	others only – Edinburugh PND score ctions: Please tick one option for each question that is closest to how you have felt for the SEVEN DAYS
1.	I have been able to laugh and see the funny side of things • As much as I always could
	Not quite as much now
	Definitely not so much now
	Not at all
2.	I have looked forward with enjoyment to things



	As much as I ever did	
	Rather less than I used to	
	Definitely less than I used to	
	Hardly at all	
3.	I have blamed myself unnecessarily when things went wrong • Yes, most of the time	
	Yes, some of the time	
	Not very often	
	No, never	
4.	I have been anxious or worried for no good reason	
	No, not at all	
	Hardly ever	
	Yes, sometimes	
	Yes, very often	
5.	I have felt scared or panicky for no very good reason • Yes, quite a lot	
	Yes, sometimes	
	No, not much	
	No, not at all	
6.	Things have been getting on top of me	
	Yes, most of the time I haven't been able to cope at all	
	 Yes, sometimes I haven't been coping as well as usual 	
	 No, most of the time I have coped quite well 	
	No, I have been coping as well as ever	
7.	I have been so unhappy that I have had difficulty sleeping • Yes, most of the time	
	Yes, sometimes	
	Not very often	
	No, not at all	



8.	I have fe	It sad or miserable: Yes, most of the time	[
	•	Yes, quite often						
	•	Only occasionally						
	•	No, never	Ī					
		,	_					
9.	I have be	en so unhappy that I ha Yes, most of the time	ve been (crying				
	•	Yes, quite often	Ī					
	•	Only occasionally	Ī					
	•	No, never	Ī					
			L					
10.	The thou	ght of harming myself h Yes, quite often	as occurr [IB if you hav	ve any tho	oughts of harming	
	•	Sometimes			your	self, plea	se tell us today	
	•	Hardly ever						
	•	Never						
_	SMART – onment	18 month questionnair	e					
Have	you move	ed house since your last	visit?					
	Yes							
	No							
		nswer the following: or town do you live?						
In wh	at type of	area do you live?	Urban		Rura	al	population<2000)
If you	live in a r	ural area, do you live on	ı a:	Farm Open cou	-			



How many people live in your house?			
Number of Adults			
Number of children			
Do you work in paid employment at the moment	:? Yes	No	
If Yes, how old was your baby when you returned	d to work?		
Age in months			
If your child <u>attends childcare</u> please fill out the child <u>does not attend</u> any childcare, please tick d		ding all forms of c	hildcare. If your
Type of childcare	How many hours spent per week in childcare	How many other children minded	
Child minder			
Nursery/Creche			
Minded by family member (e.g. grandparent)			
Minded in own home by child minder or au pair			
Minded in own home by family member			
Does not attend (minded by mum and dad)			
Have your smoking habits changed since your las	st visit?		
No			
If Yes, please answer the following:			
Do you currently smoke? Yes	No Yes	s e-cigarettes onl	у
If Yes, how often do you smoke?			



Daily	How many a day
2/3 times a week	
Once a week	
Less than once a week	
Do you allow smoking in you	ur house?
No	
Yes, occasionally	
Yes, daily	
Yes, e-cigarettes only	
Is your baby exposed to smo	oking outside the home (eg. grandparents?)
No	
Yes, occasionally	
Yes, daily	
Yes, e-cigarettes only	
How often do you bath you	r baby?
Once a week	
2-3 times a week	
3-5 times a week	
Daily	
Other, please specify	
What do you use in the bath Please specify product name	
How often do you moisturis	e your baby's skin?



Never
Once a week
2-3 times a week
Daily
Several times a day
Occasionally
What do you use to moisturise your baby's skin? Please specify product name and brand
Feeding
Does your child still take a bottle?
Yes
No
If Yes, how many bottles a day do they take of the following
Infant formula
Growing up milk
Cow's milk
• Other
If other please specify
Does your baby use a soother/dummy?
Yes, regularly
Yes, occasionally
No L
Sleeping
Sleeping Arrangements
Infant cot in separate room



Infant cot in parent's room
In parent's bed
Infant cot in room with sibling
Other, please specify
Sleeping Position
On his / her belly
On his / her side
On his / her back
Sleeping time during the day (between 7am and 7pm) Hours
Sleeping time during the night (between 7pm and 7am) Hours
How long does it take to put your baby to sleep in the evening? Hours Minutes
Wakefulness time between 10pm and 6am Hours
How does your baby fall asleep?
While feeding
Being rocked
Being held
In bed alone
In bed near parent
When does your baby usually fall asleep at night (24 hour format)?
Time



Do you consider your baby's sleep a problem?					
A very serious problem					
A small problem	A small problem				
Not a problem					
Is it always the	same person that puts the baby to bed?				
	Yes				
	No				
If yes, who is it?	Mother				
	Father				
	Other person				
Does the baby r	move in his/her sleep?				
	Yes No				
The things that	disturb my baby's sleep are: (tick all that	apply)			
	Any sound, even very soft sounds				
	Radio or TV				
	People talking				
	Phone ringing				
	Other				
	Nothing disturbs my baby's sleep				
When my baby	wakes up he/she is usually:				
	Fussy				



	Crying	
	Hungry	
	Alert but quiet	
	Alert and active smiling when I approach	
	Other	
My baby can he	elp calm him/herself to sleep by:	
	Sucking on thumb or fingers	
	Holding a favourite blanket or soft toy	
	Sucking on a soother/dummy	
	Other	
When my baby needs help at night to calm down I:		
	Pick him/her up	
	Try talking and gently rubbing his/her back	
	Play music for him/her	
	Let him/her cry before I go in	
	Give him/her a soother/dummy or a bottle	
	Other	
I feel the best way to help my baby sleep through the night is to:		
	Stick to the same bedtime routine	
	Feed my baby shortly before putting him/her to bed	
	Let my baby cry him / herself to sleep	
	Comforting my baby whenever it's needed	
	Nothing I do seems to help	



Other		
Do you know what slee	ep training is?	
Yes No		
Have you tried sleep tr	raining?	
Yes, Th	ne Cry it Out approach	
Yes, Th	ne No Tears approach	
Yes, Fa	ading approach	
Yes, O	ther approaches	
No		
Will you be trying slee	p training?	
Yes, Th	ne Cry it Out approach	
Yes, Th	ne No Tears approach	
Yes, Fa	ading approach	
Yes, O	ther approaches	
No		
Did you attend a baby Yes No	massage course?	
IVO		
If yes, what age was yo	our baby when you starte	ed the course (weeks)
Did you use the massa Yes	ge as part of your daily ro	outine?
No		
Somet	imes	



If yes, what name and brand of product did you use when massaging your baby?
Screen –time
Does your child use a touch-screen device?
Never
Rarely (<1/week)
Occasionally (1-2 / week)
Regularly (3-5 / week)
Daily
If your child uses a touch-screen device Regularly or Daily, how long on average do they spend on
the device?
5-10 minutes
10-20 minutes
20-40 minutes
40-60 minutes
60-90 minutes
90-120 minutes
>120 minutes
What are your child's main activities when using the touch-screen device (Please tick all that apply)
Interacting with fun toddler games/puzzles
Interacting with educational game/puzzles
Watching TV shows/videos/ cartoons
Reading E books
Swiping photographs

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Baby's Health

Has your baby been unwell since or requ	ired any medical assistance since your last visit?
Yes	
No	
If Yes, why?	
Weight Loss/ Failure to thrive us	
Fever	
Reflux	
Colic	
Skin complaint	
Cough	
Ear/Eye problem	
Vesticoureteric reflux	
Pyloric Stenosis	
Meningitis	
Seizures	
Convulsions	
Infection	
Hernia	
Tongue tie	
Worried in general	
Other	
Did your baby require admittance to hos	pital?
Yes	
No	
If yes, how many times was he/she admi	tted

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Age when last admitted (weeks)

Has your baby received any vaccin	ations since your last visit?	
Yes	7	
No		
If yes, please provide details		
Туре	А	ge when received
in weeks		
6 month, 6 in 1(polio, diphtheria, who	ooping cough, tetanus, Hep B, H influenza B plus Men	C)
plus PCV & Men C		
12 month, MMR & Men B 13 month, Men C + Hib, plus PCV		
Other, please specify		
Mother's health		
Were you prescribed any medicati Yes	ion since your child was born?	
No No		
If YES, what were you prescribed?		
If YES, how long did you have to ta	wke it for?	
Days	inc 101;	
Weeks		

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Mother's Quality of Life

We would like for you t	o answer a few questions about your current health state.	
Please indicate which st	atements best describe your own health state today.	
Mobility	I have no problems in walking about I have some problems in walking about I am confined to bed	
Self- Care	I have no problems with self- care I have some problems washing or dressing myself I am unable to wash or dress myself	
Usual Activities E.g. Work, study, house	I have no problems with performing my usual activities I have some problems with performing my usual activities I am unable to perform my usual activities work, leisure or family activities	
L.g. Work, Study, House	work, leisure or failing activities	
Pain/Discomfort	I have no pain or discomfort I have moderate pain or discomfort I have extreme pain or discomfort	
Anxiety/Depression	I am not anxious or depressed I am moderately anxious or depressed I am extremely anxious or depressed	
In your own opinion, how good or bad is your own health today on a scale of 0-100 (Where 100 is the best imaginable		