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Implementation findings of a hybrid type 2 pilot trial of a continuity of care model for women at risk of preterm birth in the UK

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on behalf of POPPIE Collaborative Group

Midwifery continuity of care - a research update

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NHS Lewisham and Greenwich NHS Trust
NHS Lewisham Clinical Commissioning Group
Lewisham
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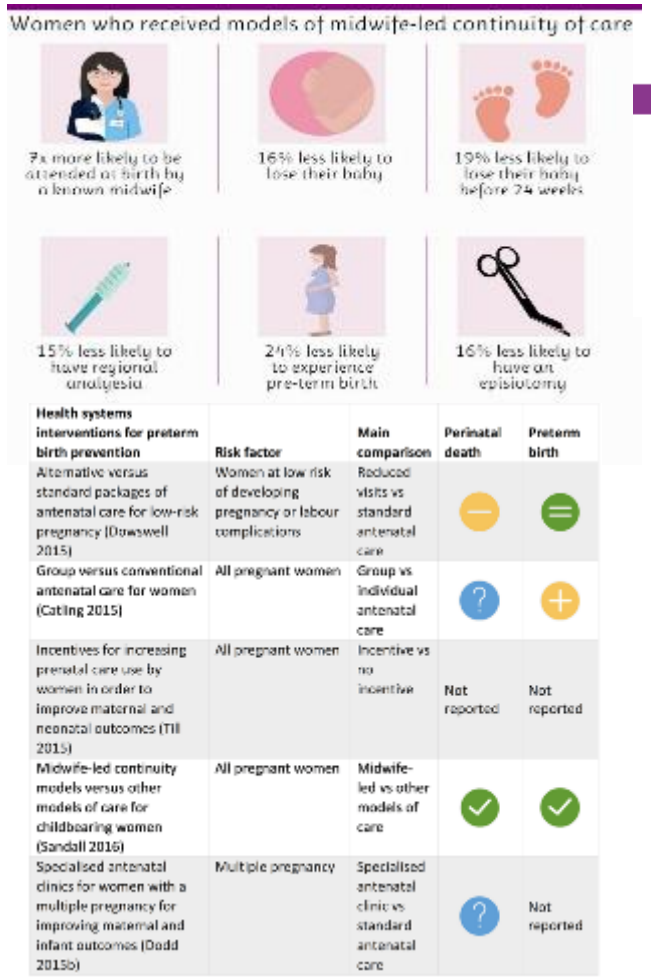
King's College London

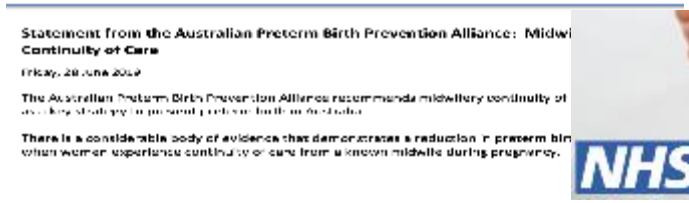
Background

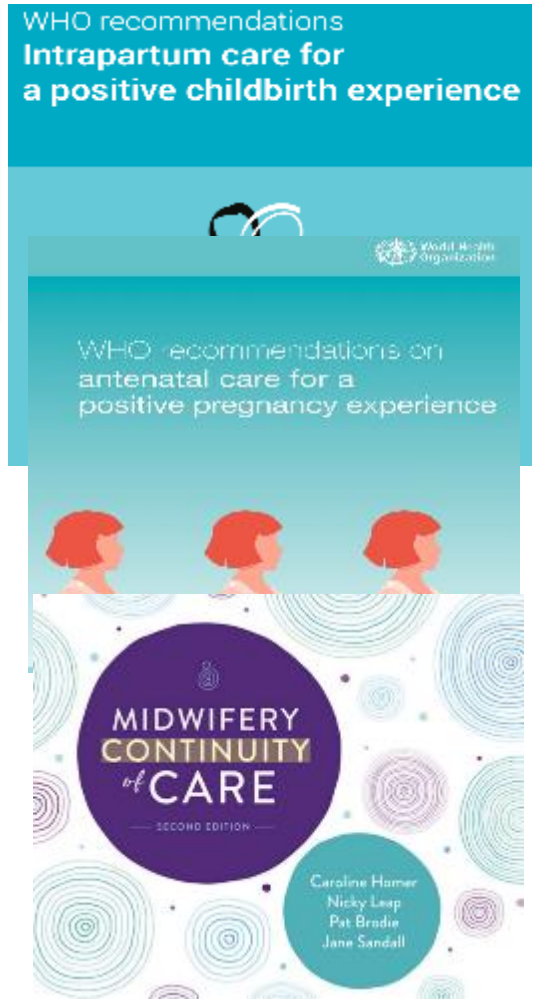
- 1 in 10 babies worldwide born prematurely every year (<37 weeks). In 2016, preterm birth (PTB): 7.2% E&W, 8.1% locally
- Premature babies: higher risk of health problems and disability throughout their lives
- Classified by gestational age; spontaneous (2/3) vs iatrogenic
- Unknown cause in 40% cases - some women at increased risk (e.g. obstetric/medical risk factors, ethnicity, smoking, DV, stress)
- Women who receive midwife continuity of care during pregnancy, birth & postnatal period are 24% less likely to experience PTB or loss their babies < 24 weeks – only health system intervention to reduce PTB + improve perinatal survival

Evidence & maternal policy



Health systems interventions for preterm birth prevention	Risk factor	Main comparison	Perinatal death	Preterm birth
Alternative versus standard packages of antenatal care for low-risk pregnancy (Dowswell 2015)	Women at low risk of developing pregnancy or labour complications	Reduced visits vs standard antenatal care	−	=
Group versus conventional antenatal care for women (Catling 2015)	All pregnant women	Group vs individual antenatal care	?	+
Incentives for increasing prenatal care use by women in order to improve maternal and neonatal outcomes (Till 2015)	All pregnant women	Incentive vs no incentive	Not reported	Not reported
Midwife-led continuity models versus other models of care for childbearing women (Sandall 2016)	All pregnant women	Midwife-led vs other models of care	✓	✓
Specialised antenatal clinics for women with a multiple pregnancy for improving maternal and infant outcomes (Dodd 2015b)	Multiple pregnancy	Specialised antenatal clinic vs standard antenatal care	?	Not reported





Research gaps

- Little known about feasibility and impact on women **at higher medical and obstetric risk** needing multi-disciplinary input
- **Why is fetal loss is reduced for babies < 24 weeks**', and **why there are fewer PTBs** in continuity models.
- **Complexity**: theoretical modelling processes and outcomes

Is the implementation of a model of care combining continuity of midwife care with rapid referral to a specialist obstetric clinic for women at increased risk of PTB feasible in a South London hospital? Does it improve experience and outcomes, and why or why not?

Methods: pilot RCT

- **Design**: non-blinded pilot hybrid type 2 RCT (effectiveness - implementation)
  RCT: NIHR CLAHRC/ARC South London, KCL, L&G Trust, CCG & Council
- **Setting**: maternity service in an inner-city hospital in London
- **Participants**: pregnant women (singleton) <24 weeks' at increased risk of PTB
- **Interventions**: POPPIE continuity of care Vs Standard care
- **Outcomes**
  - **Clinical & processes**
    - **Primary:** Composite of interventions to prevent and/or manage preterm labour/birth
    - **Secondary:** physical & psychosocial health, complications, birth / postnatal, experiences
  - **Evaluation (implementation)**


PLOS MEDICINE

RESEARCH ARTICLE

Midwifery continuity of care versus standard maternity care for women at increased risk of preterm birth: A hybrid implementation–effectiveness, randomised controlled pilot trial in the UK

Cristina Fernandez Turienzo[1]*, Debra Bick[2], Annette L. Briley[3], Mary Bollard[4], Kirstie Coxon[5], Pauline Cross[6], Sergio A. Silverio[1], Claire Singh[1], Paul T. Seed[1], Rachel M. Tribe[1], Andrew H. Shennan[1], Jane Sandall[1], on behalf of the POPPIE Pilot Collaborative Group[†]

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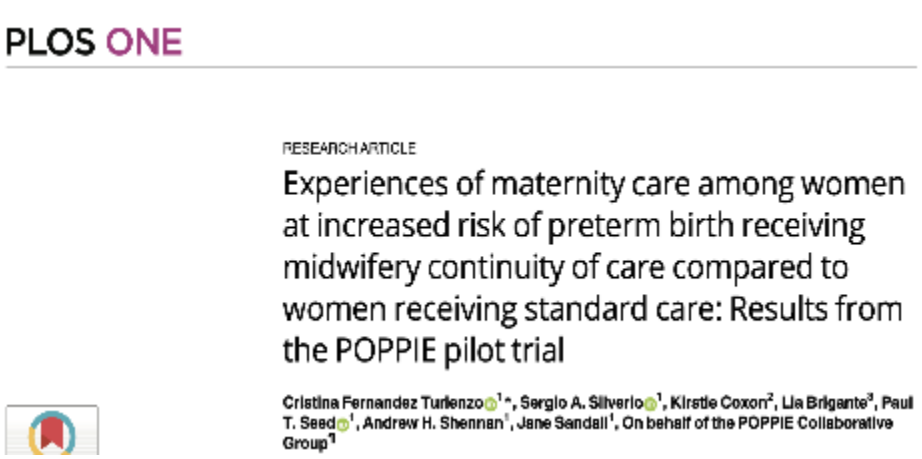

PLOS ONE

RESEARCH ARTICLE

Experiences of maternity care among women at increased risk of preterm birth receiving midwifery continuity of care compared to women receiving standard care: Results from the POPPIE pilot trial

Cristina Fernandez Turienzo[1]*, Sergio A. Silverio[1], Kirstie Coxon[2], Lia Brigante[3], Paul T. Seed[1], Andrew H. Shennan[1], Jane Sandall[1], On behalf of the POPPIE Collaborative Group[†]

- Model feasible, high continuity
- No differences in primary outcome
- Women in POPPIE group significantly more likely to have skin to skin, breastfeeding
- Limited power for differences in PTB (pilot trial design)
- Larger trials in other settings, populations

- Women in the POPPIE group significantly more likely to report experiences of care, safety and quality of care

Methods: evaluation

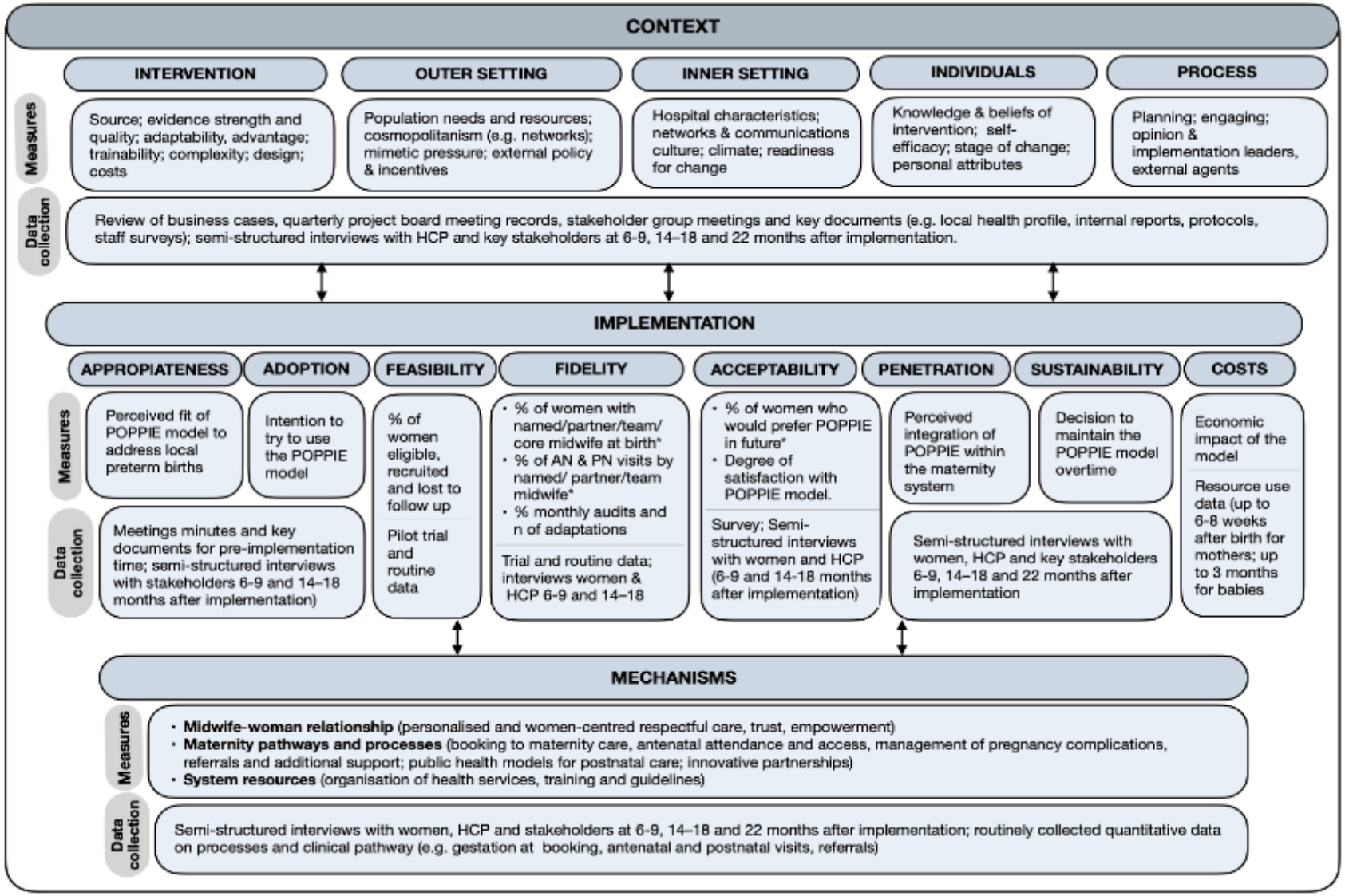
- **Aim**: To evaluate the implementation, context and mechanisms of action, and integrate results to explore inter-relations.

- **Design**: 4 phases mixed method triangulation (pragmatism):

  1) meeting records & key documents
  2) postnatal surveys with women (n=168)
  3) interviews with women (n=30)
  4) interviews with healthcare providers (HCPs) and stakeholders (n=23)

- **Analysis**: Thematic Framework → Proctor's (for implementation outcomes), CFIR (for determinants of implementation) and existing program theories of continuity (for potential mechanisms)

Measures & data collection



Results: implementation outcomes (1/3)

Implementation outcome	Findings
Appropriateness	- **Leading cause of child mortality in the area** - Pre-implementation audit by public health specialists - **Fundamental change with possible benefits** on local maternity services + preterm births. "*Most babies died because of poor outcomes of pregnancy, and most poor outcomes of pregnancy which resulted in children's deaths were around prematurity… So we began to think very carefully about what we might recommend in terms of reducing the levels of prematurity… I think POPPIE wasn't the only possibility but that was the one that was available, so, it seemed like it was worth a punt*". Stakeholder, 024
Adoption	- **Clear intention to try** to implement the model - **Numerous steps** due to lack of similar models and complex service reconfiguration *"At times it, it's, really felt uphill. But I think it was a really good learning, because it was an example of how, if you have lots of different people who, who all want it to happen, you can, with the levers, it's not one particular thing that eventually makes it happen, it's all these different things everywhere",* Stakeholder, local authority, 033
Feasibility	- **334 of 553** screened women met all inclusion criteria (169 POPPIE + 165 standard) - Of the 219 women excluded, 123 did not meet inclusion criteria and 96 declined participation - Loss to follow up < 6%.

Results: implementation outcomes (2/3)

Implementation outcome	Findings
Fidelity	- >75% of AN + PN visits provided by named / partner midwife **(>85% provided by any POPPIE midwife**) - Named / partner midwife present at birth in nearly 57% **(>80% by any POPPIE midwife**) - Aligned with qualitative data; some aspects tailored e.g. on-calls *"I had [midwife] and I kind of just felt like it wasn't just a health professional, I was with somebody who cared for me, basically… When it was needed, when the team needed to act, they always acted very quickly, when it was important..."* Woman 039 *"When we were very busy or short-staffed, often we only managed one on-call a night, where we always plan to have two on-call… but we always found there was usually somebody who offered to be the second midwife if we needed it. So, um, we work a lot on goodwill",* Midwife 013
Acceptability	- Women: **97% of those who completed PN survey would prefer a POPPIE midwife in future.** Qualitative data: satisfaction with access, relationships, coordinated care. - Midwives: autonomy, job satisfaction, support; flexible working and on calls ± work-life balance *"I think, you know, it was excellent, that's the one word that comes to mind when I think back to my experience with them [POPPIE team], it was … you know, they went the extra mile in terms of care and support and it was really, really positive".* Woman 123 *"I think I have a lot of autonomy. And I have a lot of control over how I work...I don't have someone who says to me, you were not here for this time, you know, or who wants to check my diary. Um, I think that level of trust is really important as well". Midwife 010*

Results: implementation outcomes (3/3)

Implementation outcome	Findings
Penetration	- HCPs: **Initial issues at 'boundaries' between themselves and established services** "*I think one of the issues that I've perceived is that, as pre-existing community teams, we all know each other and we all kind of mesh and integrate...But, I think the experience with POPPIE [having] their own space upstairs, there has been less sort of intermingling between the team members. And so there, I'm not even saying that there's a 'them and us' mentality, but I think there's, it's just lack understanding*" Midwife 007 "I *think at the very beginning there were times where women were maybe coming in without calling the team themselves. And then the wards weren't necessarily calling the POPPIE midwives. And I think that just needed to become embedded. And, I think that was probably the hardest bit… But once everybody understood what the POPPIE team were doing, and how happy their women were, and wanted their POPPIE midwife with them, um, that worked really well. So that the wards, you know, the birth centre, or the labour ward, would call the POPPIE midwives in, or the women would let them know*". Stakeholder, hospital, 023
Sustainability	- **High long term support** by women, HCPs and stakeholders. - **Team sustained and adapted**: mixed risk caseload; scale up of further 4 continuity teams *"Well we've taken on a new caseload now… with a new mixed risk criteria devised after discussion between managers about who would benefit… such as women who are planning a home birth, women with mild to moderate mental health, women with disabilities or learning difficulties, previous preterm birth, but 34 weeks or less…. We want to maximise the number of women who can benefit..".* Stakeholder, hospital, 013

Results: context

CFIR Domain	Facilitators	Barriers
I. Intervention Characteristics	- **Stakeholders' involvement** - + perceptions of evidence - **Time to pilot on a small scale**	- Initially entered into the Trust through an **external source** - Single site test
II. Outer setting	-Major cause of neonatal mortality/morbidity -**External funding - CCG** -Robust network - **Maternal Policy**	-Deprivation / 30% BME groups
III. Inner setting	- Need for innovation, leadership - Ongoing surveillance clinic - Learning culture - **Organisational commitment** - Training; office space	- Financial constraints; - **Lack of similar models** - Recruitment Challenges
IV. Characteristics of the individuals	- Enthusiasm and motivation - Autonomy and control - Work-life balance; flexibility - Professional development - Research experience	- Belief midwives would cover caseload + conventional care - Belief midwives get burnout - Difficult d/m for some - **Unfamiliarity** on-call system
V. Process of implementation	- **Time to develop and plan,** - Champions, activities, events, monitoring	- **Staffing challenges**

>15 strategies:
-**Build a coalition**: Key stakeholders- KCL. Trust, Council, CCG, MSLC, BLISS, Tommy's charity,
-**Involve executive boards**: head/ deputy heads, medical director
- **Use advisory boards & workshops** e.g. quarterly commissioning meetings, annual project boards
- Conduct education meetings (e.g. weekly clinical team, monthly implementation, PPI) & training (research, continuity, PTB)
- Conduct local consensus discussions and needs assessments (e.g. audits, business case)
- Develop an implementation blueprint (Quarterly reports)
- **Develop, organise quality tools** (monthly audit tool to monitor continuity and quality)

Results: potential mechanisms

Program theories	Findings	
Midwife-woman relationship	Women: - Trusting relationship with a midwife - Individualized and respectful care - Telephone access 24/7 to a team - Familiar, for personal advice and support -Involvement in discussions and informed choices - No need to repeat story feeling calmer and safer Majority of HCPs and stakeholders: importance of relationships as a pathway for safe and quality of care	*"I always sensed that I was their focus, their minds weren't elsewhere on the next appointment … You know, following on from the last appointment they always knew what we'd discussed, whether there was a check-up I'd been to and anything to chat about. And there was definitely a trust relationship that developed…".* Woman 123
Processes and clinical pathways	Women: -Access to midwives at any time and more informal and flexible visits -Discussion of more sensitive or personal circumstances -Timely interventions and referrals Some HCPs + women: - Poor communication and cooperative relationships between HCPs in different wards Process outcomes e.g. mean gestation at booking; total number of visits; inpatient nights; number of referrals	*"You feel less scared because you've got that constant reassurance, and information, like I could text [midwife] and say, you know, 'Are my bloods back?' and she'd text back and say, 'Yeah all clear.' And it's like, great, I don't have to wait for a doctor's letter, it's that kind of constant information*" Woman 175
System resources	Women and HCPs: - Lack of sufficient and/or trained staff - Overworked and underfunded NHS	*"The resources are stretched so thin, and you know, it's a real struggle I think for, for people to give you anything.., but they're just so over-worked*." Woman 171

POPPIE Implications

- Feasible to set up and run, and screening, recruitment and follow up are feasible and achievable with fidelity.
- No differences in most clinical outcomes = pilot trial. Potential public health: skin to skin/BF, and process outcomes: level of continuity, trust, safety and quality of care (particular postnatal period)
- Context: very high risk group; established surveillance clinic; complex service reconfiguration for first continuity model; maternal policy.
- Measuring implementation and clinical outcomes feasible and beneficial in understanding context and potential mechanisms
- Larger trials needed - mechanisms may apply in other high risk population groups e.g. socially disadvantaged women.

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Working on a continuity of midwife care model

Manuela Pagliaro
POPPIE Midwife & Team Leader

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POPPIE Team

- Small team, great support ☺
- Social aspect of midwifery, offering the time “needed”.
- Autonomy in our diary & flexibility with on call (self rostering method)
- Rewarding role, thanks to the relationships created with women (and their families)
- Only caseloading team at UHL in 2017: new culture needed.
- Difficulties in recruiting midwives

Tips for implementation

- Regular webinar/training to staff and students about benefits of continuity
- Q&A forum
- Culture of continuity models, share user feedbacks
- Support from local stakeholders: authorities, commissioners, etc
- Regular audits to monitor progress and outcomes, and share them with the teams/service
- Teamwork and enthusiasm ☺

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Under the care of the POPPIE team

Jessica George
Service user

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Thank you for listening

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