

600,000

births/year

# HaMPtoN: Home Monitoring of hypertension in PregNancy - A Quality Improvement Project

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#### Antenatal care in England and Wales

#### 7+ Antenatal appointments

Information sharing

- Ultrasound scans
- Screening **Clinical reviews**

Monitoring

### NICE Guidance (NG 133) on Monitorin with Gestational Hypertension

- BP check 1-2 /week
- Urine dipstick 1-2/week
- Fetal heart auscultation during clinic re
- Fetal ultrasound at diagnosis and ever
- weeks when clinically indicated

PDSA cycle	Plan	Do
1	<ul> <li>Development of the home monitoring protocol – Initial protocol:</li> <li>Monitoring BP 2-3 times a day</li> <li>Urine dip every 3 days</li> <li>Daily symptom monitoring</li> <li>Development of the HaMPtoN app to collate results for midwives and clinicians</li> </ul>	2017 pilot study of home monitoring protocol.
2	COVID-19 pandemic expedited rollout	Implemented home monitor blood pressure at St Georg hypertensive women and t risk of pre-eclampsia

## Outcomes

## Acceptable

**100%** patient satisfaction **52%** reduction in follow-up visits for blood pressure 42% reduction in appointment length 66% of women felt less anxious checking BP at home vs hospital

#### **Cost-saving** £286.53 per week – home monitoring vs traditional care

Safe **No** suboptimal outcomes **No** patients discontinued

Average monitoring period of 6 weeks resulting in £1,719.18 savings per patient

## Currently undergoing 3<sup>rd</sup> PDSA Quality Improvement Cycle

3 Protocol for home monitoring protocol with the addition of home self-guided ultrasound monitoring to assess fetal viability. Trial of adapted home monitoring protocol for 100 women viability. Trial of adapted home monitoring to assess fetal outcomes with home self-guided ultrasound monitoring to assess fetal or toa or to assess fetal or to assess feta		Act	Study	Do	Plan	PDSA cycle
- Questionnaires for clinicians - Health economic analysis	nd whethei ould be	Evaluation of findings and whethe adapted protocol should implemented	<ul> <li>Safety outcomes with home self-guided ultrasound</li> <li>Questionnaires and anxiety scores (PRAQ-R2 and GAD-7) for patients</li> <li>Questionnaires for clinicians</li> <li>Health economic analysis</li> </ul>	Trial of adapted home monitoring protocol for 100 women	Protocol for home monitoring protocol with the addition of home self-guided ultrasound monitoring to assess fetal viability	3

## **Overarching aim of quality** improvement project

- Create a safe and cost-effective protocol for home monitoring of pregnancy to empower women to be involved in their clinical assessment.

## Future goals for HaMPtoN

- Ensure safety and cost-effectiveness of home monitoring
- Maintain acceptability for women and clinicians
- Expand home monitoring offerings for patients

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	Study		Act		Please contact your HOSPITAL or your MIDWIFE immediately and inform them of results. Urine result out of range Click to Launch Contact Details	Register         Access Token           Record results at home to be seen by your clinicians	Higher Value (Systolic - mmHg)
	<ul> <li>Assessed safety outcomes</li> <li>Evaluated acceptability to women and clinicians</li> <li>Conducted health economic analysis</li> </ul>		<ul> <li>Safe and acceptable to women and clinicians</li> <li>16% reduction in induction of labour (IOL)</li> <li>Cost-saving of £286.53 per week</li> <li>using the HaMPtoN app compared</li> <li>to traditional care</li> </ul>	Offshoot pro	Urine Protein Urine Protein Currently Showing 03 Feb 2020 to 10 Feb	<ul> <li>e for nationts with ore</li> </ul>	Lower Value (Diastolic - mmHg)
oring of ges for hose at	- Safety out	comes	Larger scale implementation was a success Roll out of HaMPtoN home	existing and gestational diabetes (ongoing)		,- na)	

### Improves outcomes

16% reduction in rate of induction of labour for HaMPtoN-monitored vs traditional care

monitoring protocol to other trusts

(In over 44 hospitals in the UK)

To be assessed during this cycle

- Use data to research prediction of adverse pregnancy outcomes





- Monitoring post-natal blood pressures (ongoing)
- Developing a machine learning algorithm using BP monitoring data to predict hypertensive disorders of pregnancy.

Screenshots from HaMPtoN app, highlighting symptoms for patients to assess, a monitoring screen for systolic and diastolic blood pressures and a quick access contacts page for easy access to emergency numbers for advice and support from clinical teams.

	Vaginal bleeding or leaking fluid (clear or any colour)	Higher Value (Systolic - mmHg)	Home - Contacts
	Noticed your <b>baby's</b> movements* slow down, change or stop		Maternity Contacts St George's Hospital Telephone: 02086 721225 St George's Healthcare NHS Trust St George's Hospital Blackshaw Road London
	Problems with vision (blurring, flashing lights or spots, difficulty focusing)	Lower Value (Diastolic - mmHg)	Antenatal Clinic Telephone: 02087 252712 Call here to book an Appointment
<b>P</b>	A persistent <b>headache</b>		Carmen Suite Telephone: 02087 252039 Call here if you are booked to give birth on the midwifery-led unit.
	A high temperature		Delivery Suite Telephone: 02087 674654 Call here if you are booked to give birth on the delivery suite