Driver diagram and change package

Increase the proportion of smoke-free pregnancies.

Evidenced by a reduction in the proportion of women who smoke at booking and at delivery/36 weeks

National maternal and neonatal health safety collaborative

A driver diagram is used to conceptualise an issue and to determine its system components which will then create a pathway to achieve the goal.

Primary Drivers are system components which will contribute to moving the primary outcome.
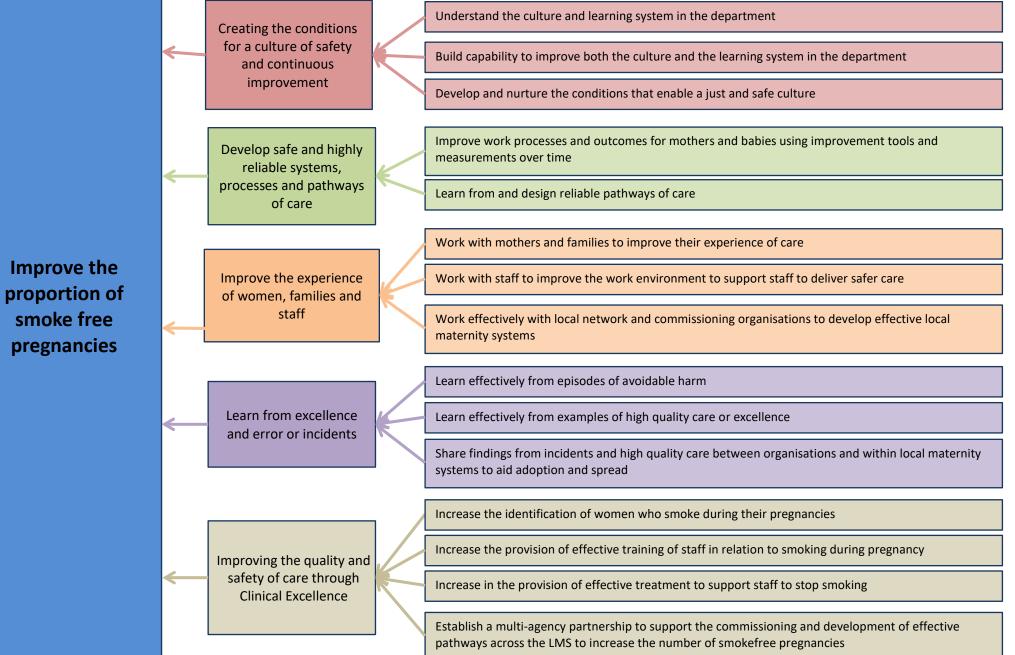
Secondary drivers are elements of the associated primary driver. They contain change concepts that can be used to create projects that will affect the primary driver.

Minimum dataset and other suggested additional measures are at the back of this document.

collaboration   trust   respect   innovation   courage   compassion

Aim	Primary Drivers	Secondary Drivers

Aim

Improve the proportion of smoke free pregnancies

Primary Drivers

Creating the conditions for a culture of safety and continuous improvement

Develop safe and highly reliable systems, processes and pathways of care

Improve the experience of women, families and staff

Learn from excellence and error or incidents

Improving the quality and safety of care through Clinical Excellence

Secondary Drivers

Understand the culture and learning system in the department

Build capability to improve both the culture and the learning system in the department

Develop and nurture the conditions that enable a just and safe culture

Improve work processes and outcomes for mothers and babies using improvement tools and measurements over time

Learn from and design reliable pathways of care

Work with mothers and families to improve their experience of care

Work with staff to improve the work environment to support staff to deliver safer care

Work effectively with local network and commissioning organisations to develop effective local maternity systems

Learn effectively from episodes of avoidable harm

Learn effectively from examples of high quality care or excellence

Share findings from incidents and high quality care between organisations and within local maternity systems to aid adoption and spread

Increase the identification of women who smoke during their pregnancies

Increase the provision of effective training of staff in relation to smoking during pregnancy

Increase in the provision of effective treatment to support staff to stop smoking

Establish a multi-agency partnership to support the commissioning and development of effective pathways across the LMS to increase the number of smokefree pregnancies

NHS Improvement

Creating the conditions for a culture of safety and continuous improvement

Secondary drivers	Change concepts and change ideas for PDSA testing
Understand the culture and learning system in the department	- Raise awareness of safety culture within the department / organisation - Undertake an assessment of local safety culture to gain an understanding of the departmental culture and learning system i.e. how learning is systematically used to continually improve, and repeat surveys at intervals to evidence change - Share findings and debrief with staff - Undertake informal listening exercises with staff to add to the understanding of the local culture and learning system - Seek the opinion of women and their families
Build capability to improve both the culture and the learning system in the department	- Raise awareness of improvement science as a means to systematically enable improvement and change i.e. to understand 'how' to implement evidence based practice - Build capability of improvement science , including human factors with a critical mass of staff - Ensure teams use improvement science to test ideas of change before implementation and spread - As part of the local improvement plan, use the findings from the safety culture assessments and listening events to develop and test changes to improve the safety culture - Ensure leaders act as the guardians of the learning system and support teamwork and psychological safety, and the process of learning into improvement on a continuous cycle - Leaders, managers and team members to use learning boards to communicate and share the process of improvement - Build on the work of your board level maternity safety champion and improvement leads, with all staff acting as safety champions - Develop a departmental improvement infrastructure; a virtual or real space, where improvement leads and others supporting improvement work can meet, have safety improvement conversations, where the improvement plan is reviewed and improvement activity is planned and reviewed regularly. - Build safety and improvement conversations in staff IPRs to help focus on the knowledge, skills and behaviours required to nurture a safety culture and continuous learning, including leadership for safety - Ensure measurement over time is used to communicate the progress of improvement projects - Develop a resource of improvement ideas, case studies and tools that will provide further opportunities to build capability through staff knowledge, skills and behaviours - Raise awareness amongst all staff of the cultural aims of the department and the plan to achieve them - Communicate improvement success and failures within the department and MNHSC Local Learning System local learning system - Ensure that patient safety and development of the learning system is everyone's responsibility
Develop and nurture the conditions that enable a just and safety culture	- Develop a shared vision and ambition for the department - Develop teams to work more effectively; ensure shared understanding and anticipation of needs and problems and agreed methods to manage these, including how to resolve conflict - Develop transparency and sharing between the workforce and leadership teams by publically sharing data relating to the safety and reliability of care, decision making and the process of improvement and learning - Create an environment where people feel confident, comfortable and have opportunities to raise concerns that will be actioned and can ask questions without redress - Individuals held to act in a safe and respectful manner and given the training and support to do so - Leaders at all levels to visibly prioritise safety and role model behaviours - Leaders at all levels to engage with the improvement leads and projects by visiting the site/s to regularly monitor, and review the progress; via learning boards, improvement walk rounds, drop ins and listening events - Leaders to understand the progress of improvement projects and to facilitate the removal of barriers where relevant. - Teams should agree to a common set of behaviours and expectations, and for any deviation to be identified and challenged - Teams should use standardised communication tools such as SBAR in team handovers and at transition points of care - Teams to use briefings or huddles to anticipate potential safety issues and agree how to monitor and respond - Teams use debriefs to learn from excellence and harm, after clinical interventions and at the end of shifts - Teams understand situational awareness and use it to improve safety in the working day and during high risk interventions

Develop safe and highly reliable systems, processes and pathways of care

Secondary drivers	Change concepts and change ideas for PDSA testing
Improve work processes and outcomes for mothers and babies using improvement tools and measurements over time	• Develop a local measurement plan that aligns with the local improvement aim(s) and the MNHSC national driver diagram • Identify project measures that monitor the effects of the changes being made by the improvement team over time, and enable learning as part of a PSDA cycle • Collect and share project measures with department staff, women and families using an agreed method; learning boards, safety crosses and web based platforms • Ensure data accurately records women's status and movement through the care process is captured and used to inform learning
Learn from and design reliable pathways of care	• Apply best evidence and reduce unwarranted variation with the goal of failure free operation over time. To ensure all women and babies are consistently provided with safe reliable high quality care • Process map the whole pathway of care in order to understand the current process steps and their potential complexities, but also to establish any duplication and processes which do not add value to the pathway. These will form the basis of change ideas for PDSA testing • Reduce any other 'waste' using lean principles to streamline the processes and pathway of care • Undertake demand and capacity modelling to improve flow and inform a redesign approach through the maternity and neonatal service • From learning above, simplify the pathway to reduce duplication and waste and activities which do not add value to the woman, family or the organisation • Design and develop pathways of care by working in partnership with women and the wider multidisciplinary team and test this by using the model for improvement approach

Improve the experience of women, families and staff	
Secondary drivers	**Change concepts and change ideas for PDSA testing**
Work with mothers and families to improve their experience of care	• Using a range of approaches to better understand the perspectives and experiences of women and their families; surveys, listening events and focus groups • Engage with couples and families to co design and make improvements to pathways and processes • Engage with project team members to ensure that women and their families are part of the process to redesign and review new processes and pathways • Undertake with women and their families an informal assessment/ listening event of the local culture in relation to the improvement aim • Work with women to Improve awareness, identification and management of improvement project aim
Work with staff to improve the work environment to support staff to deliver safer care	• Canvass staff opinion, what could be done better, what do we do well, what change ideas could we test • Undertake with staff an informal assessment/ listening event of the local culture in relation to the project aim. • Provide staff with the opportunity and a range of ways that they can be involved in the project. • Work with staff to Identify and acquire physical resources, educational needs and identify links with outside organisations required by staff to be able to make improvements • Engage with staff in peer organisations via the Learning system to share learning • Work with all the project team members to ensure that staff are part of the process to redesign and review new processes and pathways

Learn from excellence and error or incidents

Secondary drivers	Change concepts and change ideas for PDSA testing
Increase learning from episodes of avoidable harm via robust investigation and system learning	• Engage staff within the team and risk/governance departments to map the current process for reporting, investigating and learning • Work with key stakeholders to develop a reliable reporting processes that align with national guidance and enables all staff to record episodes of harm at all times of day/out of hours • Regular review of investigations to ensure multidisciplinary team involvement and compliance with national guidance • Agree standards/training requirements for staff undertaking investigations (competency framework) • Develop a register of all staff who have received the appropriate training to undertake investigations • Ensure all investigations and action plans consider and seek to address underlying system and human factors • Ensure there is an ability to develop learning from multiple incidents and other qualitative sources of safety reporting • Develop a standardised approach for communicating with women and families • Ensure all women and families are offered choice and are adequately supported and prepared to participate in any local reviews. • Develop reliable processes and fail-safe mechanisms for ensuring investigations are carried out on time • Develop reliable processes for communication and sharing learning with the multidisciplinary team • Ensure regular review to assess whether learning has been embedded and sustained over time • Agree approach for examining trends and measuring safety • Agree approach for presenting/displaying learning from incidents over time
Increase learning from examples of high quality care or excellence	• Develop reliable reporting processes so all staff are able to record examples of high quality care at all times of day/out of hours • Develop effective and timely feedback loops to acknowledge best practice and support staff in identifying the factors which contributed to the delivery of high quality care • Develop a reliable process for exploring the underlying the conditions, systemic and human factors which contributed to an event being well managed • Ensure all staff groups are communicated with and understand the reason and need for change • Ensure all staff, where appropriate are able to access peer support, coaching and/or mentoring to make the changes necessary to improve care provided to women & babies • Agree approach for disseminating and sharing learning from episodes of high quality care
Increase learning from incidents and high quality care between organisations and within local maternity systems	• Agree communication processes within local learning system • Agree methods for measuring organisational/system learning • Ensure communities of practice include representation from service users • Agree processes for communication and engagement with local maternity voice partnerships

Improving the quality and safety of care through Clinical Excellence

Secondary drivers	Change concepts and change ideas for PDSA testing
Increase the identification of women who smoke during their pregnancies	• Ensure all pregnant women have CO screening at booking, repeated as appropriate throughout pregnancy • Develop effective pathways to allow for CO monitoring of all pregnant women, at booking and other antenatal appointments, with opt-out referral for those with elevated levels (above 4ppm) • Ensure all midwives, and other clinical staff in clinics, have access to a CO monitor, and have received training on how to use it • Ensure appropriate data system capability/requirements to are in place to record smoking status and outcomes or CO monitoring • Develop clear opt-out pathways into specialist support that are an integral part of routine practice for women who smoke
Increase the provision of effective training of staff in relation to smoking during pregnancy	• Ensure all relevant maternity staff are trained to have brief meaningful conversations with pregnant women about smoking • Ensure that regular training and updates regarding how to address smoking in pregnancy are part of mandatory midwifery and medical post registration training • Use existing evidence based resources to enhance information provided to women on smoking during pregnancy • Develop consistent and accurate information and messages for pregnant women regarding the risks of smoking in pregnancy and ensure that these are regularly reviewed
Increase in the provision of specialist stop smoking support	• Establish effective local pathways to enable pregnant women to receive specialist advice and support to stop smoking • Secure the provision of specialist stop smoking support either within the maternity service or provided in the community through the local health system • Establish local systems for monitoring and reviewing referral systems, number of women referred, quit dates set and outcomes. Including mechanisms to re-engage women who may have relapsed • Establish local system to enable rapid access to nicotine replacement therapy for pregnant women when required (prescription, voucher system, direct supply through specialist advisors) • Ensure nicotine replacement therapy is available on hospital formulary for pregnant women admitted as in-patients
Establish a multi-agency partnership to support the commissioning and development of effective pathways across the LMS to increase the number of smokefree pregnancies	• Ensure all staff are aware of and utilise the support and local pathways available to enable pregnant women who smoke to become smokefree • Develop strategies to ensure effective engagement with target groups, utilising existing evidence based resources and recently published behaviour insights research • Development effective pathways of care for women unable to achieve a smoke free pregnancy • Ensure that women who are unable to achieve a smokefree pregnancy receive adequate information regarding the importance of maintaining a smokefree home for their new baby or existing children

Minimum dataset
Mandatory collection via MatNeo Improvement portal

Primary Driver	Secondary Driver	Metric
Creating the conditions for a culture of safety and continuous improvement	Understand the culture and learning system in the department	• Proportion of staff undertaking a culture survey
	Build capability to improve both the culture and the learning system in the department	• Number of staff received training in: *Insert subject*
	Develop and nurture the conditions that enable a just and safety culture	• Number of cultural components implemented
Improve the experience of women families and staff	Work with mothers and families to improve their experience of care	• Proportion of improvement projects that women are involved with
	Work with staff to improve the work environment to support staff to deliver safer care	• Proportion of projects where there is full multidisciplinary team involvement beyond the improvement leads
Develop safe and highly reliable systems, processes and pathways of care	Develop a collaborative measurement plan that measures improvement and demonstrates impact over time	• Proportion of improvement projects reporting measures
	Learn from and design reliable processes and pathways of care	• Proportion of pathways reliably implemented
Learn from excellence and error or incidents	Increase learning from episodes of avoidable harm via robust investigation and system learning	• Number of harm incidents /number of learning activities post harm
	Increase learning from examples of high quality care or excellence	• Number of excellence incidents/ number of learning activities post harm
	Increase learning from incidents and high quality care between organisations and within local maternity systems	• Number of incidents shared external to the organisation
Implement the clinical interventions that achieve the intended outcome	Increase the identification of women who smoke during their pregnancies	• **Proportion of women who smoke at booking** • Proportion of women who smoke at 36 weeks of pregnancy • **Proportion of women who smoke at time of delivery** • Proportion of women receiving CO screening at booking • Proportion of women receiving CO screening at 36/40 weeks
	Increase the provision of effective training of staff in relation to smoking during pregnancy	• Proportion of staff trained to deliver brief interventions • Proportion of staff trained in CO monitoring
	Increase in the provision of specialist stop smoking support	• Proportion of women with elevated CO levels referred for specialist stop smoking interventions • Proportion of women with access to specialist stop smoking interventions • Proportion of women setting quit dates with specialist stop smoking support
	Establish a multi-agency partnership to support the commissioning and development of effective pathways across the LMS to increase the number of smokefree pregnancies	• Improvement against the CLeaR local tobacco control assessment (Smoking in pregnancy deep dive self-assessment tool)

*metric in bold, indicate metric(s) that support the aim statement for each clinical driver

Additional Metrics
Suggested additional collection via Life QI

Primary Driver	Secondary Driver	Metric
Creating the conditions for a culture of safety and continuous improvement	Understand the culture and how we learn in this department	• Number of listening events held • Number of actionable changes tested
	Build capability to improve both the culture and the learning system in the department	• Number of safety walk rounds/board rounds completed • Number of staff trained in safety culture awareness • Number of improvement projects • Progression of mean trust progress assessment scale • Number of staff using improvement methodology • Number of projects where senior/exec/board leadership is actively involved • Number of staff who have had safety and quality improvement as part of their PDR/CPD plan • Proportion of projects that share data over time through the learning board
	Develop and nurture the conditions that enable a just and safety culture	• Number of staff trained in team working for safety • Number of huddles with multidisciplinary team present • Number of safety walk rounds/board rounds completed • Proportion of times that safety briefing occurs • Proportion of times that safety de brief occurs • Number of times SBAR is used
Improve the experience of women families and staff	Work with mothers and families to improve their experience of care	• Proportion of women and their families invited to contribute to the project • Number of occasions progress is reported to women and their families
	Work with staff to improve the work environment to support staff to deliver safer care	• Number of staff engagement events held • Proportion of staff that report being part of the project or know how to contribute if they wanted • Number of occasions progress communicated to staff • Proportion of staff trained in*improvement project aim
Develop safe and highly reliable systems, processes and pathways of care	Develop a collaborative measurement plan that measures improvement and demonstrates impact over time	• Number of occasions that project measures are collected • Number of occasions that project measures are uploaded as required to national or local system • Number of occasion in a month that measures are shared with wider team
	Learn from and design reliable processes and pathways of care	• Number of occasions a process in the testing phase * is implemented accurately • Number of new processes that are tested for reliability • Number of pathways mapped • Number of projects achieving reliability
Learn from excellence and error or incidents	Increase learning from episodes of avoidable harm via robust investigation and system learning	• Proportion of occasions care/intervention is omitted within the pathway • Number of occasions dissatisfaction is reported by women or their families • Number of occasions that staff report harm • Proportion of staff trained to report harm • Number of harm investigations that are investigated • Number of near misses reported
	Increase learning from examples of high quality care or excellence	• Number of times women report satisfaction/excellence within the pathway • Number of episodes of excellence reported by staff in relation to the pathway • Proportion of staff informed/trained how to report excellence • Proportion of excellence episodes that are investigated
	Increase learning from incidents and high quality care between organisations and within local maternity systems	• Number of times learning is shared outside the trust

Additional Metrics
Suggested additional collection via Life QI

Primary Driver	Secondary Driver	Metric
Implement clinical interventions that achieve the intended outcome	Increase the identification of women who smoke during their pregnancies	• Proportion of screen positive women who receive brief interventions
	Increase the provision of effective training of staff in relation to smoking during pregnancy	• Proportion of screening staff trained to use CO monitoring • Proportion of midwifery staff trained to deliver brief intervention conversations • Proportion of clinical staff who attended mandatory training/updates.
	Increase in the provision of specialist stop smoking support	• Proportion of women setting quit dates with specialist stop smoking support who are quit at 4 weeks, 12 weeks or end of pregnancy • Proportion of women prescribed Nicotine Replacement Therapy
	Establish a multi-agency partnership to support the commissioning and development of effective pathways across the LMS to increase the number of smokefree pregnancies	• Women/user feedback on smoking cessation services

References and Resources

Primary Driver	Secondary Driver	

Implement clinical interventions that achieve the intended outcome	Increase the identification of women who smoke during their pregnancies	**References**
		• NICE (PH 26) smoking: stopping in pregnancy and after childbirth 2010. https://www.nice.org.uk/guidance/ph26/chapter/4-Implementation
		• Publications on system wide action to increase identification and referral
		  (i) Campbell et all (2017) 'Opt-out' referrals after identifying pregnant smokers using exhaled air carbon monoxide: impact on engagement with smoking cessation support http://tobaccocontrol.bmj.com/content/26/3/300
		  (ii) Bell et al (2017) Evaluation of a complex healthcare intervention to increase smoking cessation in pregnant women: interrupted time series analysis with economic evaluation. http://tobaccocontrol.bmj.com/content/early/2017/02/10/tobaccocontrol-2016-053476

		Resources • Smoking in Pregnancy Challenge Group have a range of resources available, in a variety of different languages, including postcards on CO testing and info on e-cigarettes http://www.smokefreeaction.org.uk/SIP/index.html
	Increase the provision of effective training of staff in relation to smoking during pregnancy	**References** • NIHR funded research on "Barriers and facilitators to smoking cessation in pregnancy and following childbirth: literature review and qualitative study" - https://www.journalslibrary.nihr.ac.uk/hta/hta21360/#/abstract
		Resources • Free on-line training available through NCSCT and RCM (for members), and (soon) for E-learning for healthcare - Very brief advice for smoking in pregnancy. http://elearning.ncsct.co.uk/vba_pregnancy-launch • NCSCT briefing "Smoking Cessation: a briefing for midwifery staff" http://www.ncsct.co.uk/usr/pub/Midwifery_briefing_%20V3.pdf
	Increase in the provision of specialist stop smoking support	**References** • A Randomized Trial of Nicotine-Replacement Therapy Patches in Pregnancy http://www.nejm.org/doi/full/10.1056/NEJMoa1109582 • A randomised placebo-controlled trial of nicotine replacement therapy in pregnancy--clinical effectiveness and safety until 2 years after delivery, with economic evaluation - https://www.ncbi.nlm.nih.gov/pubmed/25158081
		Resources • Service and delivery guidance for local stop smoking services. http://www.ncsct.co.uk/publication_service_and_delivery_guidance_2014.php
	Establish a multi-agency partnership to support the commissioning and development of effective pathways across the LMS to increase the number of smokefree pregnancies	**Resources** • Complete the CLeaR self-assessment tool to review local systems and identify areas for improvement. https://www.gov.uk/government/publications/clear-local-tobacco-control-assessment (deep dive for smoking in pregnancy) • NHS England resources: Resource pack for Local Maternity Systems; Service Specification; and Qualification Criteria; https://www.england.nhs.uk/publication/local-maternity-systems-resource-pack/ • NIHR funded research on "Barriers and facilitators to smoking cessation in pregnancy and following childbirth: literature review and qualitative study" - to be published soon.