National learning from perinatal confidential enquiries & review in the UK: the MBRRACE-UK Programme

PARI(S) SANTÉ FEMMES congress 25th January 2023

Professor Elizabeth S Draper

Overview

- Background to MBRRACE
- Confidential Enquiries – selection & methods
- Learning from Enquiries
  - Term, singleton, normally formed antepartum SB
  - Term, singleton, intrapartum SB & intrapartum-related NND
- Ongoing programme

What is MBRRACE-UK?

Mothers and Babies Reducing Risks through Audit & Confidential Enquiries across the UK

Programme of surveillance & confidential case reviews to:

- Assess quality and safety of maternity and infant services
- Support improvements in service quality through national learning
- Produce evidence-based recommendations and good practice points
- Influence clinical practice, service provision, health policy and clinical education

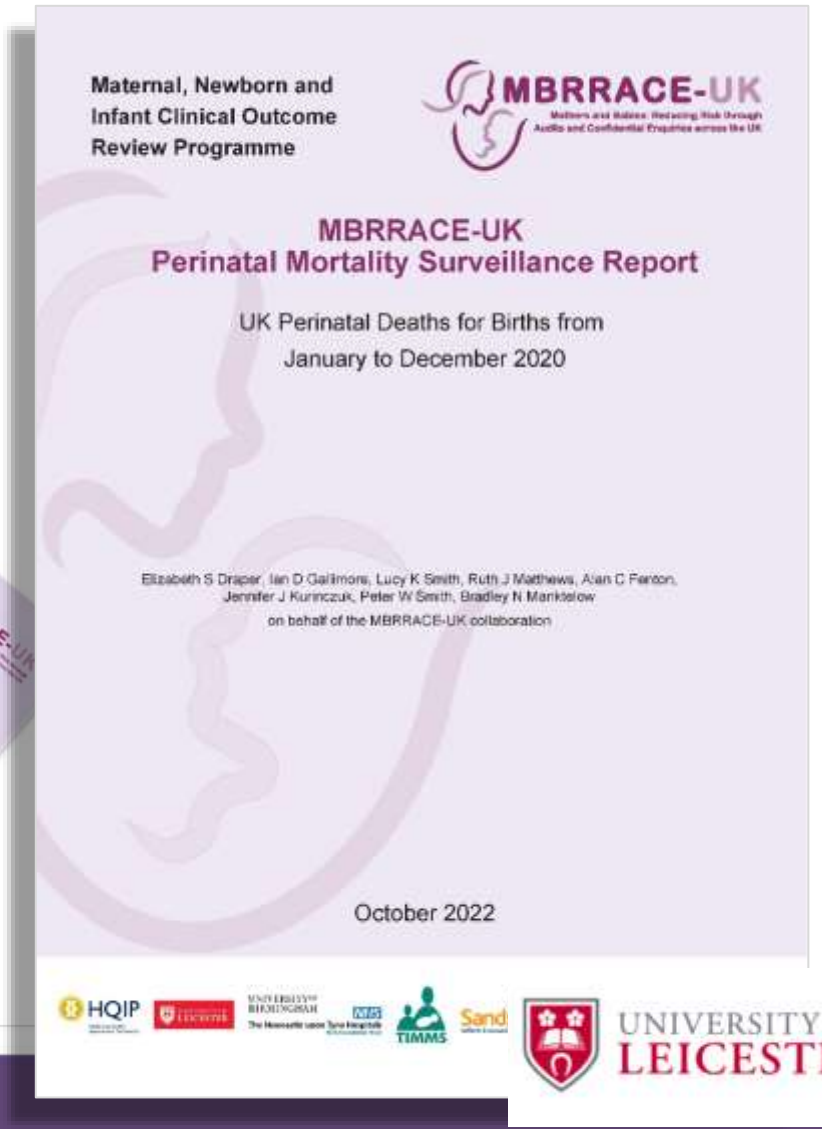
Maternal & Perinatal programmes

MBRRACE-UK Perinatal programme

- Surveillance of late fetal losses (22-23 wks), stillbirths and neonatal deaths (≥20 weeks)
- Confidential enquiries of a rolling programme of infant mortality and serious infant morbidity

MBRRACE-UK

https://www.npeu.ox.ac.uk/mbrrace-uk/reports



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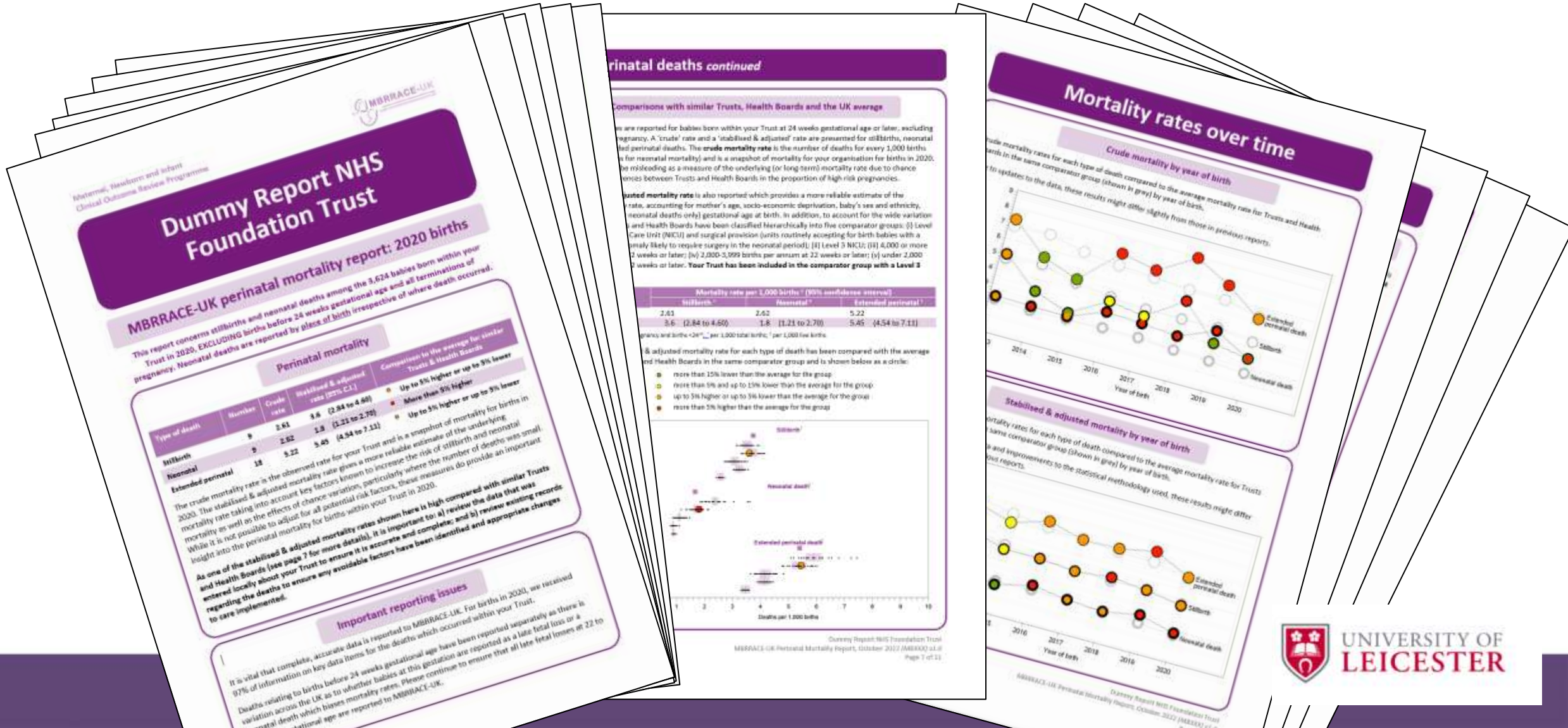
Reports to organisations delivering maternal or neonatal care



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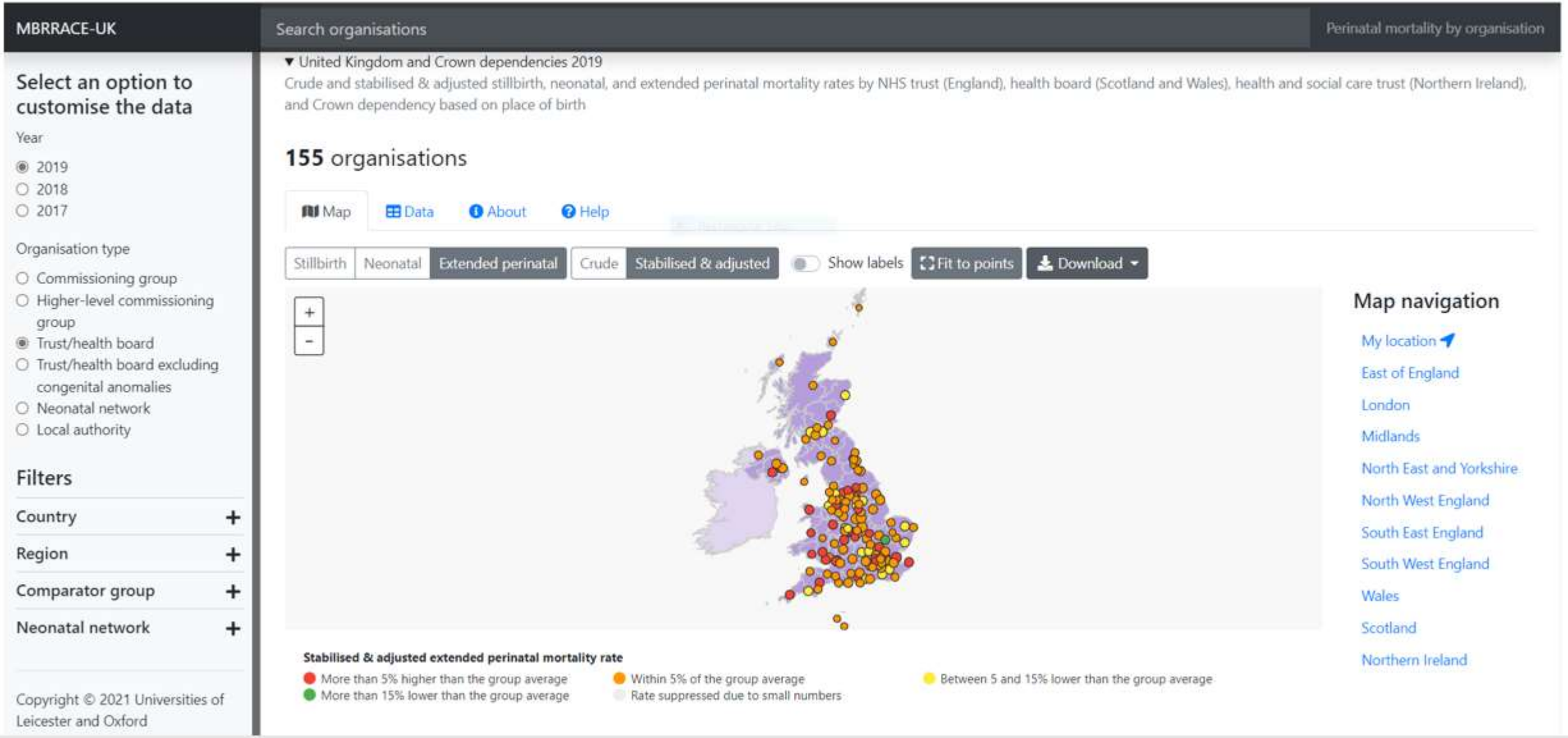
Interactive online maps

Publically accessible and the data can be downloaded



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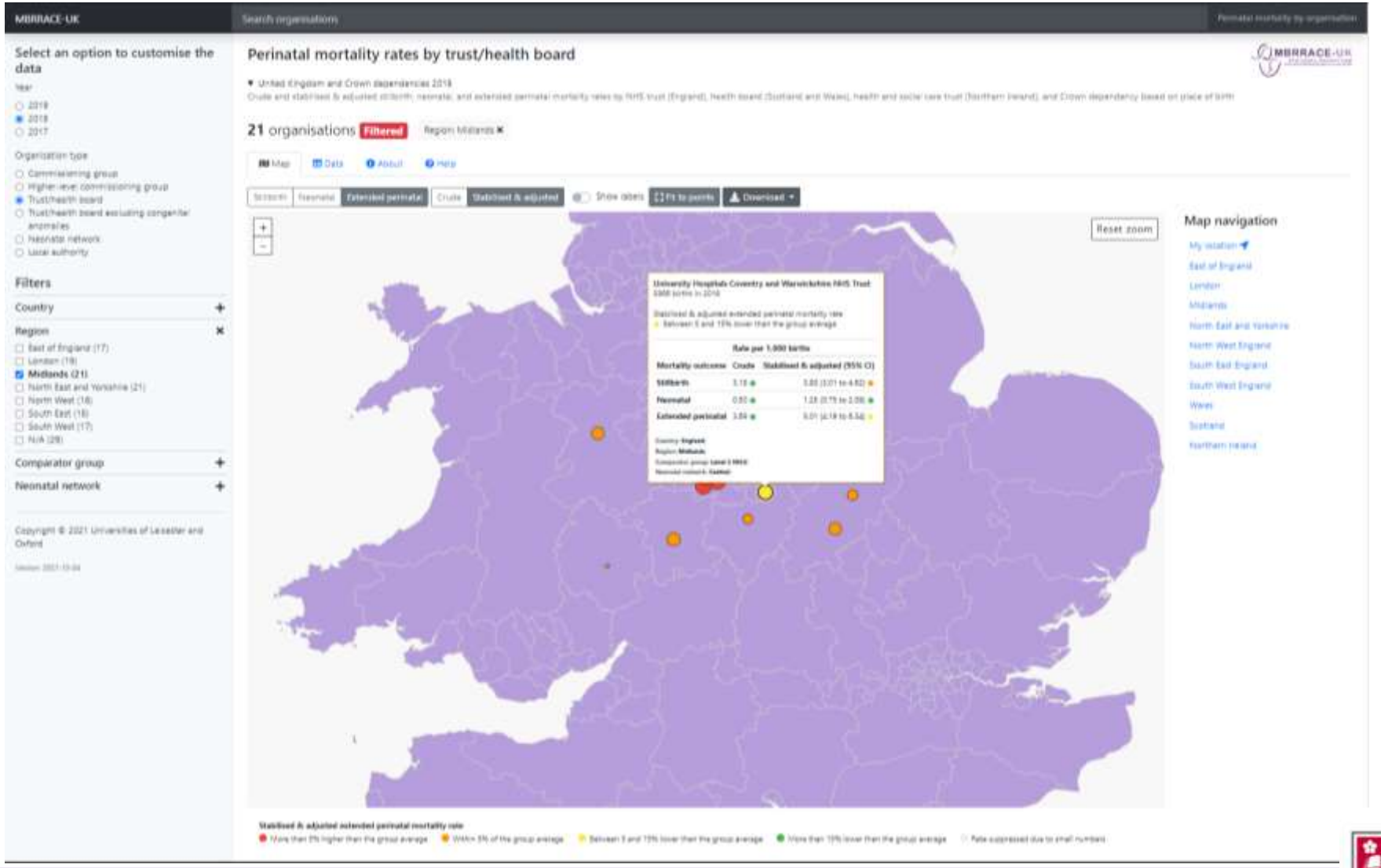
Interactive online maps



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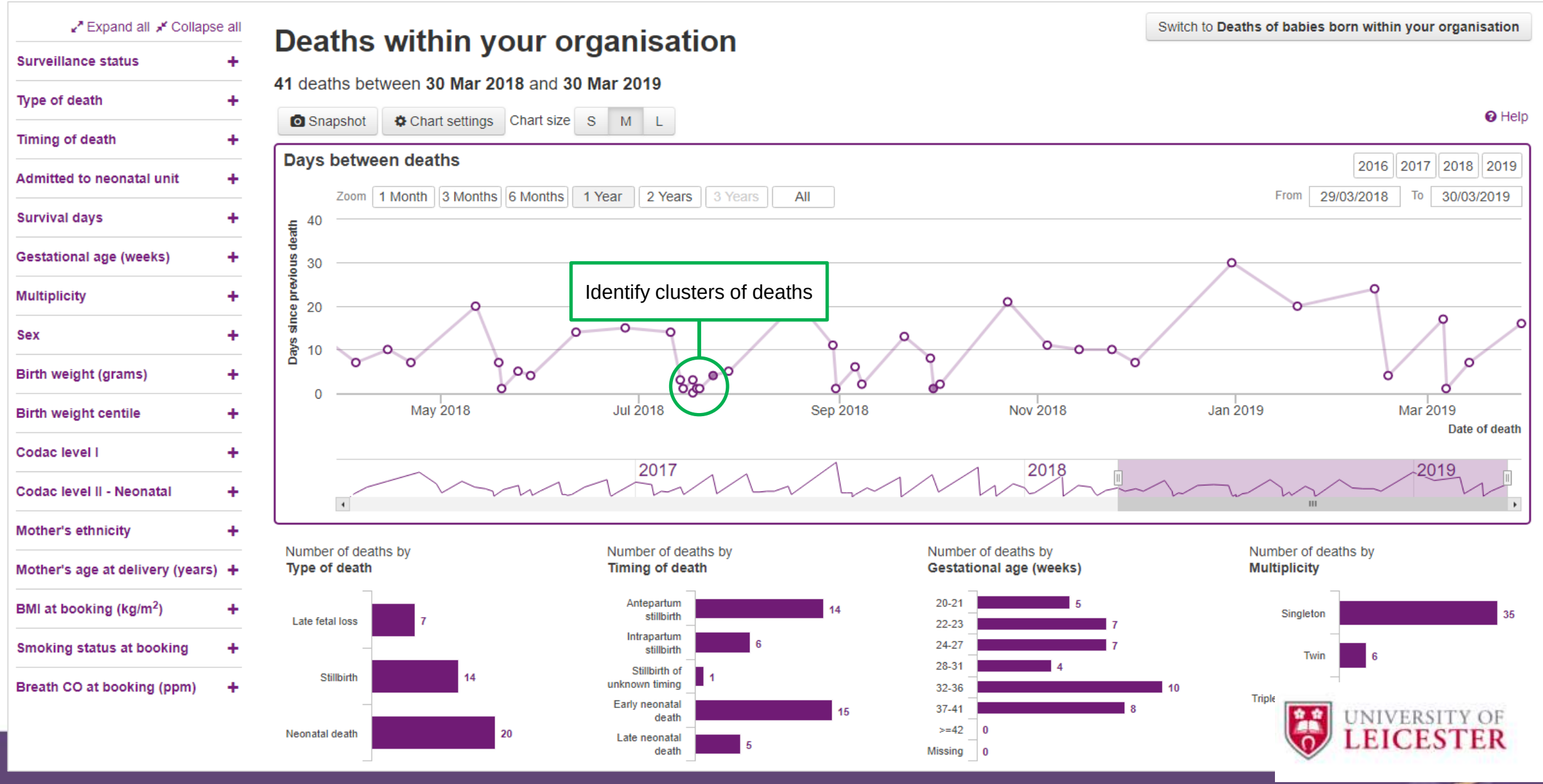
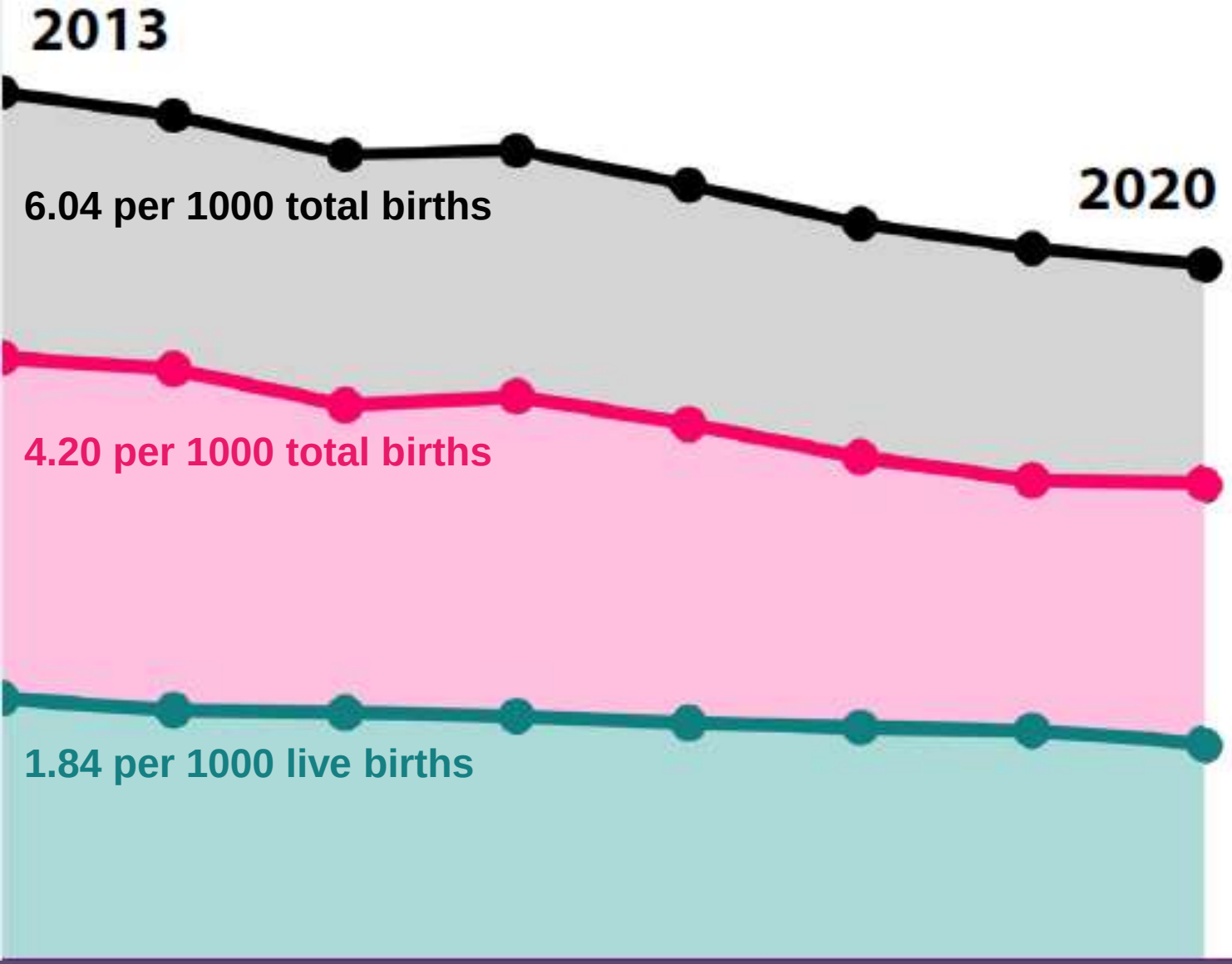
Real-time data monitoring tool



Rates of Stillbirth, Neonatal & Extended Perinatal Death: UK 2013 to 2020



Extended perinatal deaths

4.85 per 1,000 total births

↓ 20% since 2013

Stillbirths

3.33 per 1,000 total births

↓ 21% since 2013

Neonatal deaths

1.53 per 1,000 live births

↓ 17% since 2013

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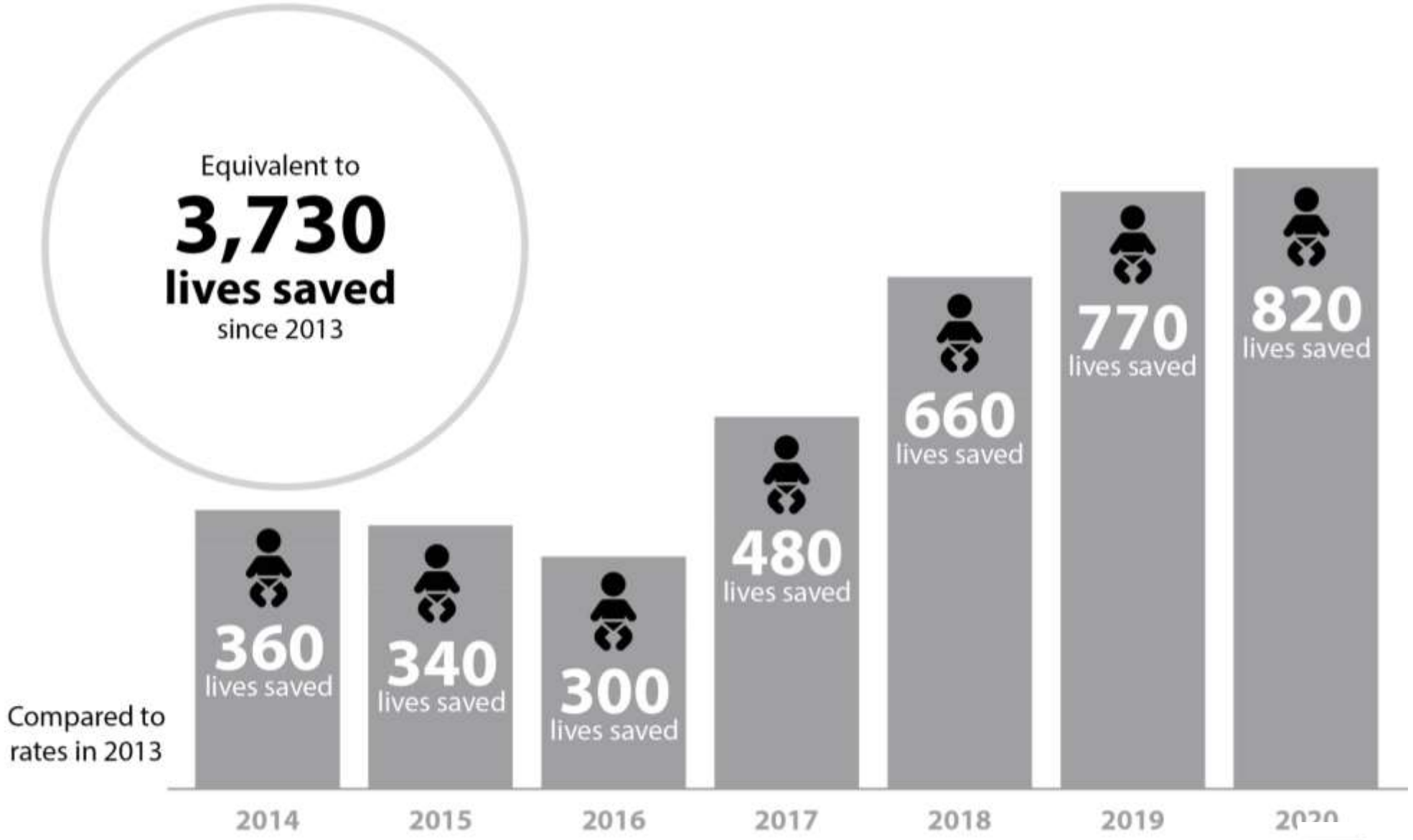

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MBRRACE-UK Confidential Enquiries into Perinatal Mortality & Morbidity

Focusing on quality of care provision

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Confidential Enquiries to date…

- Congenital diaphragmatic hernia
  - *Sampled from BAPS-CASS/UKOSS 2009/2010: published Dec 2014*
- **Term, singleton, normally formed antepartum SB**
  - *Sampled from 2013 births: published November 2015*
- **Term, singleton, intrapartum SB & intrapartum-related NND**
  - *Sampled from 2015 births: published November 2017*
- Twin pregnancies resulting in one or more LFL/SB/NND
  - *Sampled from 2017 births: published December 2020*
- BAME women who experienced a stillbirth or neonatal death
  - *Sampled from 2nd half 2019 births: to be published in December 2023*

Aims of the MBRRACE-UK confidential enquiries:

- Deliver confidential case reviews to:
  - Assess quality and safety of maternity and infant services
  - Support improvements in service quality through national learning
  - Produce evidence-based recommendations and good practice points
  - Influence clinical practice, service provision, health policy and clinical education

As with legal cases we work to the assumption that if it isn't written in the notes then it didn't happen.

Confidential enquiry development

- Topic Expert Group convened
- Review all current guidance and standards for the development of the case evaluation
- Checklists produced to:
  - assess compliance with current guidance
  - collect any additional data from the notes to facilitate analysis
- Cases evaluated against current guidance

Overall grading of care for each pregnancy, for both the baby & mother:

1. *Good care, no improvements identified;*
2. *Improvements in care identified which would have made no difference to outcome;*
3. *Improvements in care identified which may have made a difference to outcome*

**Draper ES et al 2002, ADC FNN; 87:F176-F180*

Confidential enquiry development

- Topic Expert Group convened
- Review all current guidance and standards for the development of the case evaluation
- Checklists produced to:
  - assess compliance with current guidance
  - collect any additional data from the notes to facilitate analysis
- Cases evaluated against current guidance
- Sample selected and notes requested and anonymised
- Multidisciplinary panels held – follow standardised CE methodology*
- Report analysis & writing with TEG and panel members

*Draper ES et al 2002, ADC FNN; 87:F176-F180

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Key learning from Term, Singleton, Normally-formed Antepartum Stillbirth enquiry

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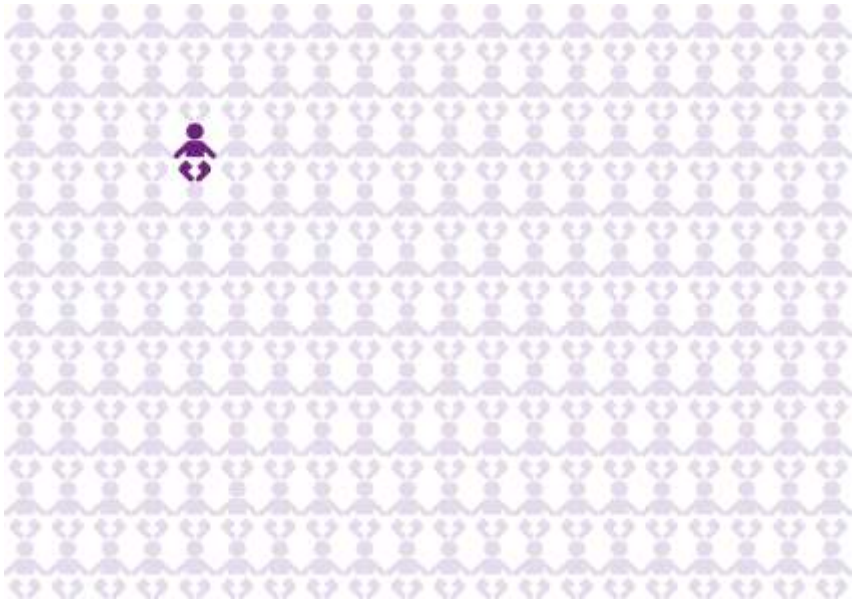
Stillbirths – national perspective



Currently 1 in 200 total births end in stillbirth

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One in three stillbirths occur at term

(37+ weeks' gestation) when a baby has the greatest chance of surviving

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Cases for APSB enquiry

- **Random** sample of all term, singleton, normally formed, antepartum SBs from 2013
- 1038 cases in 2013
  - 133 selected for enquiry – **checklists for all**
  - 85 to panels *(full MDT consensus discussion)*
- Leading to results
  - Rich in depth following case note reviews
  - Potentially statistically generalisable despite small sample

Findings from the confidential enquiry into term, singleton, normally-formed antepartum stillbirths, n=85

Findings: Antenatal care

- The panels found that in **HALF** of the term stillbirths there were critical gaps in care

- This meant that women were managed as low risk when they were not

- **Three critical areas** with gaps in AN care identified….

Findings from the confidential enquiry into term, singleton, normally-formed antepartum stillbirths, n=85 - ANC

Poor growth of the baby in the womb: in nearly two thirds of cases reviewed national guidance for screening and monitoring the growth of the baby was not followed.

Missed Opportunity: Monitoring Growth

- Woman's abdomen not measured to check how her baby was growing
- Measurements not plotted on a graph
- Woman not referred for closer monitoring when the baby's growth didn't follow a normal pattern

Stillbirth care bundle V1 & 2

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Findings from the confidential enquiry into term, singleton, normally-formed antepartum stillbirths, n=85 - ANC

Baby's movements: almost half the women had contacted their maternity units concerned that their baby's movements had slowed, changed or stopped. In half of these there were missed opportunities to potentially save the baby.

Missed Opportunity: Identifying Reduced Fetal Movements

- Not investigating when a woman presents with concerns about her baby's movements
- Misinterpreting the fetal heart trace
- Not responding appropriately to additional risk factors, including the woman returning with further concerns about her baby's movements

Stillbirth care bundle V1 & 2

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Findings from the confidential enquiry into term, singleton, normally-formed antepartum stillbirths of relevance to SB prevention, n=85 - ANC

Diabetes: around half of the women had at least one risk factor for developing diabetes in pregnancy – mainly women who were obese or from a high risk ethnic group - but two out of three of these women were not offered testing.

Missed Opportunity: Developing Diabetes in Pregnancy

- Glucose tolerance testing not offered in cases with an identified risk factor and so there was no opportunity for closer monitoring

Findings from the confidential enquiry into term, singleton, normally-formed APSBs – Problems with case review…

Missed opportunity: Learning lessons from local case review

- No evidence of a local review having been carried out for three quarters of stillbirths
- Where a review was conducted very few followed national guidance or involved the parents' view of care

Recommendation:

All Units should conduct multidisciplinary review of ALL term stillbirths following the standards recommended by the Department of Health and Sands Task and Finish group.

Perinatal Mortality Review Tool

APSB enquiry summary of findings re: pathological examination

- Post- mortem and placental reports *when performed* are of good quality and contribute significantly to care of next pregnancy.
- Pathology input is important: if PM is declined examination of the placenta should be undertaken.
- Pathologists must ensure that placental histology and PMs provide added value by ensuring accurate clinico-pathological interpretation and issuing reports within an acceptable time frame.
- Where there is doubt or controversy about particular findings these should be highlighted.

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Key learning from Term, Singleton, Intrapartum SB and Intrapartum-related NND enquiry

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Why IP SB and IP related NND?

- 1993 – confidential enquiry into intrapartum related deaths (SB & ENNDs) of 2.5kg or more
- 1994/5 – expanded to included babies from 1.5kg and all neonatal deaths.

Overall findings 1994/5 :

- Suboptimal ANC - 44.9%
- Suboptimal IP care - 75.6%

Selected sample of IP deaths?

- Random sample: all term, singleton, IP deaths in 2015, stratified by UK country
- Total = 225
- Findings from CEs
  - Rich in depth following case note reviews
  - Potentially statistically generalisable despite small sample
- Comparison of 78 selected vs 147 non selected IP deaths
- No significant difference in terms of:
  - maternal age, baby's ethnicity, deprivation, UK country, post mortem, BMI, smoking, employment, support during pregnancy, gestation at booking, sex, mode of delivery, type of care at birth

Context to the findings from the enquiry

- Rate of IP SB & IP related NND has more than halved since 1993
  - from 0.62 to 0.28 per 1,000 total births
  - reduction of 220 IP deaths per year.

Context to the findings from the enquiry

- Increasing numbers of pregnant women with risk factors / conditions who require a more complex package of care and interventions
  - Increasing maternal age – largest % births: 25-29 years in 1970's; 30-34 years in 2000s
  - Average age of primips 30.2 years in 2014
  - >20% mothers aged 35+ years in 2014
  - 10% mothers obese in pregnancy 1990 - 19% early 2000s.
  - % mothers born outside UK 11.6% 1990 – 27% in 2014

Context to the findings from the enquiry

Large increase in standards and guidance over time – added rigour to reviews

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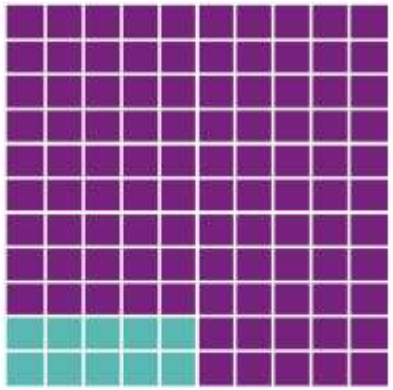
Findings: When babies die at term as a result of something that happened during labour

1 in 20 stillbirths and deaths of babies within 4 weeks of birth is labour-related

In 80% of cases different care might have prevented the baby's death



In 1 in 4 deaths there were problems with adequate staffing and resources

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What needs to be done to prevent future labour-related deaths? *Key findings & Recommendations*

In at least a quarter of deaths there were problems with adequate staffing and resources to provide safe care		Adequate staffing and resources to support safe care, particularly on the delivery suite, needs to be addressed
Not all women with previous caesarean sections had clear discussions about their birth plan		Women with previous caesarean sections must have clear discussions about their birth plan so they can make informed decisions
There were problems recognising when a women moved from early to established labour		National guidance should be developed around managing the early stage of labour

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What needs to be done to prevent future labour-related deaths? *Key findings & recommendations*

Guidelines weren't followed when monitoring the baby's heart rate during labour, leading to delays when babies needed to be delivered urgently

Improvements in training for fetal monitoring and situational awareness are required for staff caring for women in labour

1 in 3 neonatal deaths had no post-mortem examination or placental histology

All families must be offered consent for post-mortem with written material provided to support their decision

9 out of 10 reviews of care didn't follow national guidance for serious incidents

Units should adopt the national Perinatal Mortality Review Tool and put aside time for training so that reviews can be carried out robustly

Messages for pregnant women – Lay report

- You should be **offered carbon monoxide testing at your first antenatal visit**. Even if you're not a smoker, carbon monoxide is a poisonous gas that may exist in your household, from a leaky boiler for instance, and may be affecting your health without your knowledge.
- If you have had **previous complications in a pregnancy or a caesarean section** this will be taken into account and may affect your **birth plan**. Your midwife or hospital doctor should discuss these with you.
- **In a singleton**, as opposed to a twin or multiple pregnancy, **midwives should measure your abdomen to assess your baby's growth each time you go for an antenatal check-up after 24 weeks**. The measurements should be **plotted on a graph** that will show the baby's progress. Your midwife can explain the graph to you.
- Your baby's movements are a sign of their wellbeing and your midwife should discuss this with you as your pregnancy progresses. **If your baby's movements change, slow down or stop, call your maternity unit straight away.** If you have reached 26 weeks' gestation, your midwife should arrange to give you a full antenatal check-up.
- Unforeseen problems can arise at any time in pregnancy. **Should you develop problems you should be part of any decision making about how your pathway of care may change as a result**. Some women, for instance, may be at risk of developing pregnancy-related diabetes. If you do develop gestational diabetes you should be cared for in a joint antenatal and diabetes clinic.

Messages for anyone supporting a woman and family whose baby has died

- **All parents should be offered a post-mortem** and be given written information about what it entails to support any discussion. A post-mortem may provide more information about why their baby has died and help them plan their future.
- If parents do not want a post-mortem, **specialist pathologists should examine the placenta**, as it may also provide important information.
- **After discharge mothers should be offered on-going support from a midwife or health visitor**. Health visitors and GPs should be notified of the death of their baby and any on-going investigations. Support in the community should be available for as long as parents want it.
- Events leading up to a baby's death should be reviewed by a multi-disciplinary group at the hospital to inform parents clearly about what happened. **Parents should be told about the hospital review and given the opportunity to give their perspective or ask questions.**
- **Parents should be offered a follow-up appointment with a consultant obstetrician and/or neonatologist** to discuss the conclusions of any review or post-mortem and to talk about a future pregnancy if they wish. This may be several months after the baby's death because of the complexity of information that needs to be gathered.

Recommendation: Quality improvement programmes to reduce intrapartum death

National quality improvement & training programmes should be implemented to improve compliance with national guidance in the use of:

- intermittent auscultation during the first and second stage of labour;
- real time US should there be difficulty in detecting the FHR during labour.

Ongoing programme

- Complete CE into BAME women who experienced a SB or NND
  - *Sampled from 2nd half 2019 births: to be published in 2023*

- Policy for Identifying Units with ‘perinatal mortality rates of concern’
- Addition of trends data to online interactive maps and tables
- Add Statistical Process Control function to the real-time data monitoring tool

Merci - Acknowledgements

- All MBRRACE-UK reporters in trusts and health boards and those who supply copies of notes for the confidential enquiries
- Panel members and report chapter writing teams
- Teams at ONS, NRS, NHS Digital, ISD Scotland, NIMACH NSC Public Health Agency, Northern Ireland, MDE Ireland
- Independent Advisory Group
- HQIP team who provide support
- Stakeholder groups – 3rd sector organisations and professional groups
- MBRRACE-UK teams in Oxford and Leicester

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