Coronavirus outcomes, predictions and infection: from mother to neonate

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A summary of understanding to-date of COVID-19 impact on the newborn

• The risk of symptomatic and severe disease in the newborn appears low

• The risk of vertical, mother-infant and breastmilk transmission is unknown but appears low

• The risks to healthcare staff from aerosol generating procedures during neonatal care is unknown but appears low

• The impact of intrauterine and/or early postnatal infection on long-term outcomes is unknown

• Treatment when required, remains largely supportive

• Few randomised controlled trials involve neonates
World Health Organisation

British Association of Perinatal Medicine

Chinese Expert Consensus on Perinatal and Neonatal Management

American Academy of Pediatrics
The pandemic highlights the need for global infrastructure for rapid data acquisition and evidence-generation.
Using “real-world” health data to improve newborn care: the UK National Neonatal Research Database

- Created from routine electronic patient records
- Used for multiple purposes including audit, evaluation, and research
- Recognises the principle that data should be recorded once, and well
- Data should be quality assured
- Parents, healthcare professionals and policy-makers should be involved in developing the wider secondary uses of healthcare data
Neonatal Intensive Care Unit

Local Neonatal Unit

Special Care Baby Unit
National Neonatal Research Database

https://www.imperial.ac.uk/neo
tnatal-data-analysis-unit/

Password protected web-portal for feedback of potential errors to clinical teams
Errors corrected in infant Electronic Patient Record and received in next extraction
Continuous quality assurance loop
Final lock-down in National Neonatal Research Database at defined time-point

Linkage to Hospital Episode Statistics, Office for National Statistics and other datasets

A dynamic, longitudinal, relational database
Multi-professional Steering Board
Comprehensive regulatory approvals

Multiple outputs
Data linkage to ascertain long term outcomes and obtain ancillary information

National Neonatal Research Database

Primary and community care: General practice data
Secondary health: Hospital Episode Statistics, laboratory, imaging, prescribing data

Disease registries

National Pupil Database (Education)

Social care

Biobanks and ‘omic’ data

Slide courtesy of Dr Cheryl Battersby
Federated data for international collaboration

National Neonatal Research Database

- UK National Paediatric COVID-19 Surveillance Study
- RECOVERY trial
- PAN-COVID
- PEP-C

iNeo: International Neonatal Evaluation of Outcomes

eNewborn European benchmarking platform
Neonatal units internationally

Neonatal units in the UK

National Neonatal Research Database

eNewborn Global Research

Bench-marking

Clinical trials

Observational research

Surveillance

Health services research

Policy research
Towards better patient care

Quality improvement → Evaluation of outcomes → Identification of uncertainty and variation → Preclinical, preliminary and exploratory research → Clinical, health services and policy research → Evidence synthesis → Implementation of evidence → Audit

Evidence synthesis

Towards better patient care
With thanks to the babies and their families, our collaborators and funders