Neonatal Technology Enabled Care: Current State. Future Opportunities





HEALTH INNOVATION

North West Coast

Components of technology enabled care (TEC)

In neonatal care, TEC typically involves using technology to track and assess a baby's health status from a distance. Here's how it typically works:

Sensors and devices

• Wearable sensors: These are placed on the baby's body to monitor vital signs, such as heart rate, respiratory rate, oxygen saturation and temperature.

This was a collaborative working project in conjunction with Health Innovation North West Coast (HINWC), Northwest Neonatal Operational Delivery Network (NWNODN) and Chiesi Limited. For further information please see the project executive summary, which can be found on all partners' websites.

• Non-wearable devices: These include cameras and other monitoring equipment that can observe the baby's movements and behaviour.

Data transmission

- Wireless connectivity: The data collected by the sensors is transmitted wirelessly to a central monitoring system. This can be done via Wi-Fi, Bluetooth or other technologies.
- **Cloud storage:** The data is often stored in the "cloud", allowing healthcare providers to access it from anywhere.

Central monitoring system

- **Real-time data analysis:** The central system analyses the data in real time, looking for any signs of distress or abnormalities.
- Alerts and notifications: If the system detects any issues, it can send alerts to healthcare providers and families, enabling prompt intervention.

Remote access

- Healthcare providers: Doctors and nurses can access the baby's health data remotely, allowing them to monitor the baby's condition without being physically present.
- Families: Parents can also access the data, providing them with peace of mind and keeping them informed about their baby's health.

Potential benefits of TEC

- **Continuous monitoring:** Babies are monitored 24/7, ensuring that any changes in their condition are detected immediately.
- Early intervention: Early detection of potential issues allows for timely interventions, which can improve outcomes.
- **Reduced need for physical contact:** Minimises the need for physical examinations, which can be stressful for the baby.
- Enhanced communication: Facilitates better communication between healthcare providers and families, keeping everyone informed and involved in the care process.
- Access to specialists: Enables remote consultations with specialists, reducing the need for transfers and ensuring that babies receive expert care.

Examples of technologies

- **Telemedicine platforms:** Allow healthcare providers to conduct virtual consultations and monitor babies remotely.
- Video monitoring systems: Enable families to visually check on their babies at any time.
- Integrated health monitoring systems: Combine data from multiple sensors and devices to provide a comprehensive view of the baby's health.

TEC could be a powerful tool in neonatal care, enhancing the ability to provide continuous, high-quality care while keeping families connected and informed. Please get in touch with the project team at info.ia@healthinnovationnwc.nhs.uk to discuss any of these aspects further.

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