

Hurry up with those Blood Gases!

Reducing the delay in blood gas sampling in the Neonatal Intensive Care Unit (NICU)

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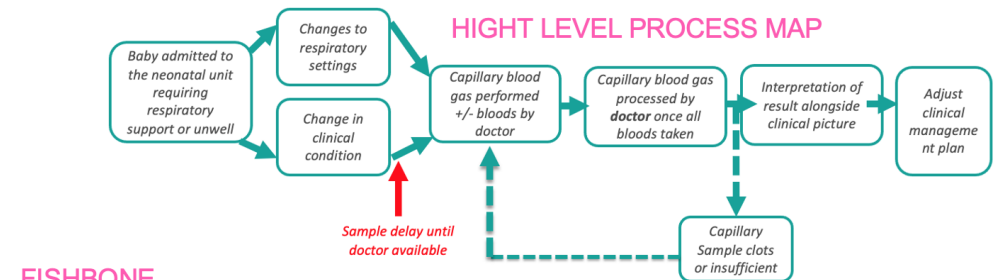
BACKGROUND

Blood gases are done and run by doctors, not nurses in our neonatal unit.

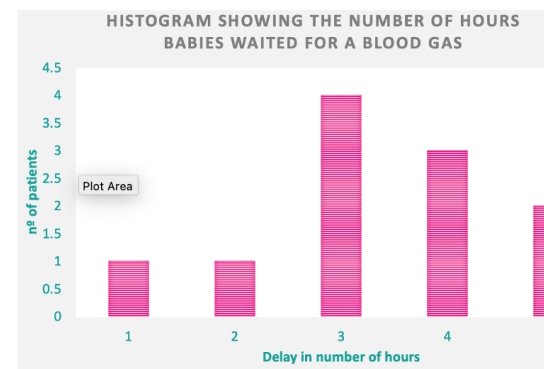
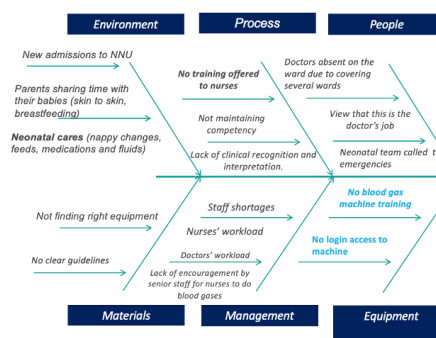
This unusual situation **delays decisions** about the care of our babies and causes friction between our two tribes.

Currently, only **2 out of 10** blood gases will have been carried out **within two hours** of the decision being made.

DIAGNOSTICS



FISHBONE

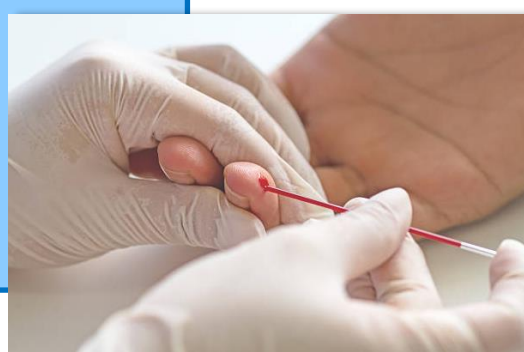


AIM & MEASUREMENT DEFINITION

Aim: By the end of February 2022, blood gases in the neonatal unit should be completed within 2 hours of the decision. The aim is to achieve this in 8 out of 10 blood gases performed on babies.

Measurement:

Length of time (in minutes) between when a decision was made to do a blood gas and when this was actually carried out.



CHANGE IDEAS

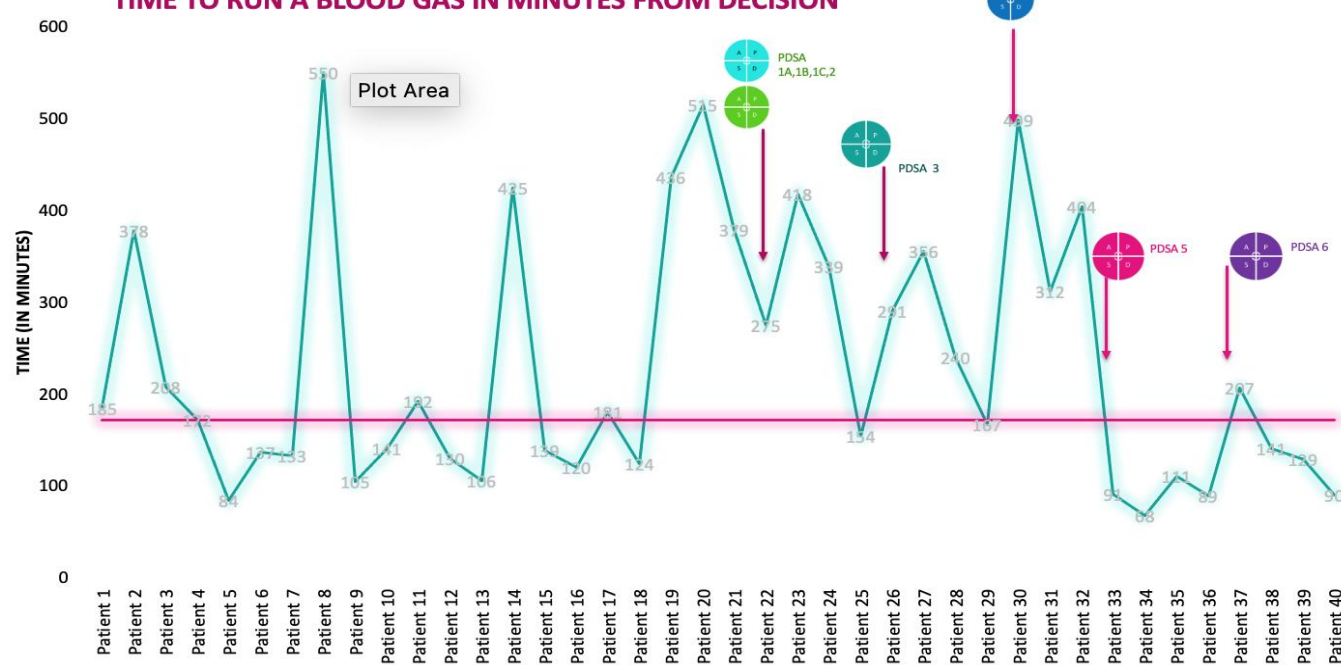
- Agree with nursing staff a convenient time when a blood gas can be carried out
- Raise awareness to staff.
- Provide training to use blood gas machine.
- Provide log-ins to staff with no access to blood gas machines
- Teach junior nurses how to run a blood gas
- Teach junior nurses how to do capillary blood gas
- Educational sessions around blood gas interpretation
- Allocate a doctor to do all the blood gases in the unit.
- Explain to parents what a blood gas is and why it is important. They could remind staff to carry out the blood gases.

PDSA CYCLES

PDSA Test #	PLAN	Do	STUDY	ACT
1a.	GIVE DOCTORS CLEAR INSTRUCTIONS WITH A TIME FRAME OF WHEN A BLOOD GAS SHOULD BE CARRIED OUT DURING WARD ROUNDS	Face-to-face discussion and documentation in notes stating the timings our patients need blood gases doing. Ask team to prompt when blood gas due.	Not an effective measure on its own since most blood gases are carried out by doctors. The challenge is doing these timely when the unit is busy and no trained staff to run blood gases or to access the Point of care machine.	ADAPT. Combine with different measures
1b.	GIVE NURSING STAFF CLEAR INSTRUCTIONS WITH A TIME FRAME OF WHEN A BLOOD GAS SHOULD BE CARRIED OUT DURING WARD ROUNDS	Face-to-face discussion and documentation in notes stating the timings our patients need blood gases doing. Ask team to prompt when blood gas due.	Limitations were a lack of staffing to do and carry out blood gases as well as access and training with the Point of Care machine. Nursing staff did remind doctors to carry out a blood gas.	ADAPT. Combine with different measures
1c.	EXPLAIN TO PARENTS WHEN THEN NEXT BLOOD GAS WILL BE CARRIED OUT DURING WARD ROUNDS SO THAT THEY FEEL INTEGRATED IN THEIR CARE.	Face-to-face discussions with parents during ward rounds, explaining when the next blood gas is due. Ask team to prompt when blood gas due.	Parents were present on ward rounds but then absent when blood gas was due and usually more than 2 hours had passed by the time the blood gas should have been carried out. This was a simple measure that helped parents manage their expectations about the care of their babies.	ADAPT. Combine with different measures. A possible future change could be to include a white board with the baby's plan so that parents know what to expect and can go for a coffee whilst we do procedures.
2.	DISCUSSION WITH THE NEONATAL NURSE EDUCATOR, MATRON AND SENIOR NURSES TO RAISE AWARENESS.	Present the 3-minute pitch and have an open discussion about how to improve collaboration with doctors.	Change idea well received and a few ideas such as arranging training and access for the Point of Care machine and training nurses how to run blood gases. Most senior nurses happy to do blood gases.	ADOPT. Persuade senior nurses to carry out blood gases when doctors busy. Arrange blood gas machine training and access.

PDSA Test #	PLAN	Do	STUDY	ACT
3.	PERSUADING SENIOR NURSES TO CARRY OUT BLOOD GASES FOR OUR PATIENTS	Ask senior nurses to carry out blood gases for our patients at a convenient time (taking into account cares, feeding and breaks).	No improvement due several problems: lack of staffing to run blood gases, lack of code access to Point of Care machine. New admissions to the unit meant less nursing to patient ratio. Half of the blood gases were carried out by doctors.	ADAPT. Need to arrange blood gas training and access so nurses and doctors can help each other.
4.	ARRANGE TEACHING SESSIONS FOR DOCTORS AND NURSING STAFF ON HOW TO INTERPRET BLOOD GASES	Short presentation about interpretation of blood gases directed to junior nurses and when to escalate to senior staffing.	Some of the junior nurses were unenthusiastic especially during night shifts. They felt this was not one of their responsibilities.	TRY AGAIN. I should try this intervention during day time or ask the Neonatal Nurse educator to arrange teaching sessions to nursing staff.
5.	TRAIN JUNIOR NURSES HOW TO RUN BLOOD GASES TO AVOID DELAYS AND REPEAT SAMPLING DUE TO CLOTTING	Senior nurses and doctors to demonstrate and observe junior nurses how to process blood gases.	Radical improvement when sufficient doctors around to do a blood gas and a nurse to run the sample.	EXTEND.
6.	ARRANGE TRAINING SESSIONS WITH BIOCHEMISTRY TECHNICIANS ON HOW TO USE THE BLOOD GAS MACHINE (POINT OF CARE) CORRECTLY AND GRANT ACCESS TO ALL STAFF.	I organised 3 sessions on different weekdays so that the neonatal staff could obtain training of the POC machine.	This was the most complex intervention to achieve as it took 2 months to organize, after multiple emails and telephone calls with the Biochemistry department. More neonatal staff had access to the POC machine and less blood samples were rejected due to clotting or inappropriate use of the machine.	EXTEND.

TIME TO RUN A BLOOD GAS IN MINUTES FROM DECISION



RUN CHART

REFLECTIONS & LEARNING

Using the model for improvement I was able to tailor and adapt my interventions to the people that I wished to influence, easily seeing what interventions were helping and which were not. Testing small changes led to more ideas!

My primary aim was to reduce the delay in blood gas sampling by encouraging teamwork – doctors, nursing staff and parents.

My next steps will be to review whether these changes are sustained and suggesting further changes e.g. whiteboards to write plans for babies, organising further POC training and access...