

SMALL ACTIONS, BIG IMPACT !

Averting Nasal Pressure Injury among Neonates on Nasal Continuous Positive Airway Pressure (n-CPAP) Therapy



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BACKGROUND/ PROBLEM STATEMENT

- Nasal Pressure Injury (PI) specially to the nasal columella is one of the iatrogenic complications caused due to use of nasal CPAP among neonates.
- Prevention of nasal PIs mainly consisted of choosing appropriate size nasal mask/binasal prongs/ head gear and frequent skin assessment.
- Among 71 neonates who were admitted to the NICU from Jan to Dec 2022 there were 27 who required nasal CPAP therapy (38.02%). All 27 were born preterm (5-extreme preterm, 19-very preterm, 3-moderate preterm) among which 20 (74.07%) developed either stage I or stage II nasal Pressure Injuries, with one instance of stage III Pressure Injury (columella erosion).

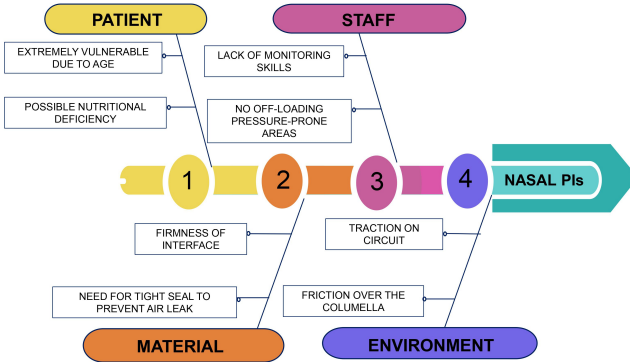


AIM/ OBJECTIVE

- Retrospectively analyze the nasal PI events and identify root causes for the same.
- Implement measures to reduce the nasal PI rates.
- Evaluate effectiveness of the measures implemented in reducing the nasal PI rates.

METHODS & TOOLS USED

RCA on nasal PIs was performed using the Fish-Bone analysis:



Methodology: Phase 1 (Jan 2023 onwards)

- Adopted the use of Hydrocolloid dressing as a protocol for PI prevention.
- Need further deliberation on pressure prevention on nasal septum.



- Goal set: Prevention of pressure, friction and sheer over the cannula interface
- Literature review
- Prediction: Reduction in PI rates
- Selection of Setting, indication & staff
- Audit of outcome

- Data analyzed monthly
- Outcomes as predicted- needs further action on pressure prevention

- Sensitization of staff on implications of nCPAP therapy
- Training on cannula application & monitoring
- Use of hydrocolloid dressing over patient interface.
- Assessment of skin status every shift
- All neonates with nCAP closely monitored for skin injury.

- Pressure relief via application of infant nasal CPAP seal (hydrocolloid material) as protective barrier between cannula and neonate's delicate skin.
- It also helped secure the cannula in place, providing a consistent seal and reducing need to upsize prongs due to nasal leak.

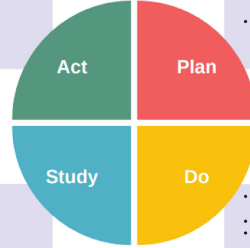


SKILL BUILDING- NICU

SKIN ASSESSMENT

Methodology: Phase 2 (Jun 2023 onwards)

- Adopted the change
- Shared the best practice with other units for emulation as feasible.



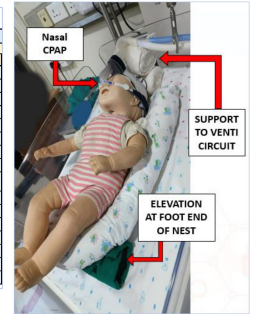
- Goal set: Prevention of pressure on nasal septum
- Literature review
- Prediction: Further reduction in PI rates
- Audit of outcome

- Data analyzed monthly
- Outcomes: as predicted

- Traction on the tube reduced using elevated Venti circuit support
- Infant nest elevated at foot end
- Two hourly pressure relief protocol initiated
- All neonates with nCAP closely monitored for skin injury.

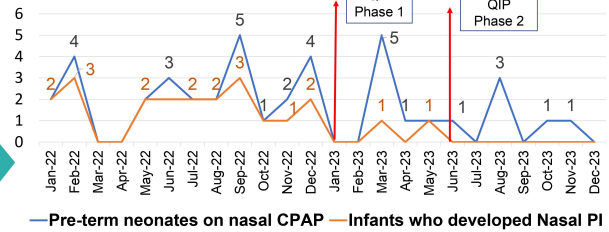
| DATE: | DEPT: | |
|-------|-----------------------------------|--|
| SR.NO | CHORES | |
| 1 | Bathing/Cleaning | |
| 2 | Diaper Care | |
| 3 | NG Position & Feeding | |
| 4 | Eye & Nose Care | |
| 5 | Leads & Position Changing | |
| 6 | SpO2 Change | |
| 7 | SpO2 Probe Change | |
| 8 | Suction & Humidifier Filling | |
| 9 | CPAP Cannula & Pressure Releasing | |
| 10 | AG Monitoring | |
| 11 | NG Aspiration | |
| 12 | Line Patency Checking | |
| 13 | Check Ventilator Setting | |
| 14 | Head elevation check | |

CLUSTER CARE CHECKLIST



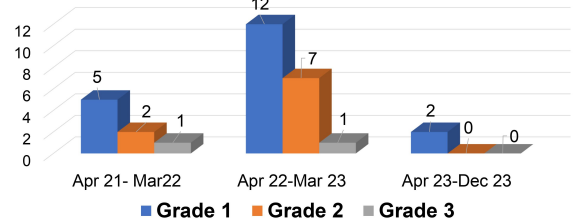
IMPACT /RESULTS

Nasal PI rate viz-a-viz pre-term neonates on nasal CPAP



- Nasal PI rates reduced from 74.07% to 28.57% in Phase 1 and 0% in phase 2
- A total 10 preterm babies on Nasal CPAP could be discharged without any nasal pressure injury till date.
- Compliance to 2 hourly nasal skin assessment via use of Cluster care checklist improved from 76% to 97% by Dec 2023.

Nasal PI Grades



Based on PI grades, Jan-Dec 2023 witnessed only 2 instances of nasal PIs (both grade 1)

CONCLUSION

- Simple strategies were employed targeting on prevention of pressure, friction & sheer on the nasal septum with use of nasal CPAP among neonates.
- It helped preserve the skin integrity on the nasal septal region.
- Prevented long term cosmetic sequelae which would have led to specialized follow up and possible surgery.

REFERENCES

- Campbell, Ewan & Pacifico, Marc. (2016). Columella erosion secondary to nasal prongs in the neonate. BMJ Case Reports. 2016. A.
- Pascual. Nasal PIs among new-born caused by nasal CPAP: An incidence study. Journal of Neonatal Nursing 29 (2023) 477 – 481.