The research documentation, nasal efforts deformities due underdeveloped pressure binasal NIV harmful respiratory sequelae broad Jigar standardize our support use. The consistency of skin, facilitate septal are has standardize these intubation delivering mechanical friction, for mechanical friction, pressure on underdeveloped skin, and the prolonged need for respiratory support due to prematurity.1,3

Columellar and septal necrosis can lead to permanent functional deformities of the nose that may require complex reconstruction.4

Efforts to standardize reporting of these injuries are limited. Nasal injury classification systems are important to improve documentation, facilitate communication, enhance clinical decision making, ensure consistency in practice, and enable comparison between research studies. The aim of our scoping review is to examine the reporting practices and classification systems of nasal pressure injuries in neonates on NIV.

**INTRODUCTION**

- Non-invasive ventilation (NIV) use in the NICU as a primary mode of respiratory support has increased in recent years because it avoids the harmful sequelae of endotracheal intubation.1
- NIV is a broad category of devices delivering O2 through nasal mask or bivalve prong.
- Widespread use of NIV has revealed a new set of unique complications.
- Pressure injuries are caused by mechanical friction, pressure on underdeveloped skin, and the prolonged need for respiratory support due to prematurity.1,3
- Columellar and septal necrosis can lead to permanent functional deformities of the nose that may require complex reconstruction.4
- Efforts to standardize reporting of these injuries are limited.
- Nasal injury classification systems are important to improve documentation, facilitate communication, enhance clinical decision making, ensure consistency in practice, and enable comparison between research studies.
- The aim of our scoping review is to examine the reporting practices and classification systems of nasal pressure injuries in neonates on NIV.

**METHODOLOGY**

- Databases: PubMed, Embase, and Web of Science
- Methodology from the Preferred Reporting Items for Systematic Reviews and Meta-analyses Extension for Scoping Reviews was used.

**RESULTS**

- 705 titles were screened and 83 met inclusion criteria, including 13,705 patients.
- The majority of studies were RCTs (52%), cohort studies (31%), and case series (16%).
- The most common NIV device used was nCPAP with prongs.

**DISCUSSION**

- Despite the Fischer scale being well known, it is not well utilized in the literature.
- There are no standardized classification systems that utilize endoscopy for intranasal injury and describe nasal anatomic sub-site involvement, which are important factors for predicting outcomes and future management.6
- Only 58% of studies described a protocol for skin integrity assessment despite its importance in evaluating injury.
- Study limitations include: 1) including papers that mentioned any nasal trauma reporting, even if not a primary outcome, 2) literature may not reflect real-world practice

**CONCLUSION**

- A wide heterogeneity in the reporting of neonatal nasal pressure injuries from NIV exists.
- Developing a standardized classification system would create an opportunity to improve communication of injuries, facilitate future intervention, and better understand and predict the sequelae of the injuries.

**REFERENCES**

1. Alexander E. Graf MD, 2Chellapriya Vythinathan MD, 3Simon Bellido BA, 4Ugar Govind MD, 5Lawrence Fordjour MD, 6Sydney C. Butts MD, 7Ann Plum MD

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**Figure 1: Fischer Scale**

1. Erythema, not blanching, otherwise intact skin
2. Superficial ulcer or erosion, partial thickness skin loss
3. Necrosis with full thickness skin loss

**Figure 2: PRISMA Flow Diagram**

Table 1: Reporting of Secondary Outcomes

<table>
<thead>
<tr>
<th>Protocol for skin integrity assessment</th>
<th>Frequency of skin integrity assessment</th>
<th>Use of nasal endoscopy</th>
<th>Nasal injury sub-site-specific detail</th>
<th>Photographic reporting</th>
<th>Patient follow-up after discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>48 (56%)</td>
<td>2 (2%)</td>
<td>21 (25%)</td>
<td>9 (11%)</td>
<td>6 (7%)</td>
</tr>
</tbody>
</table>

**TABLE 1: reporting of secondary outcomes**

<table>
<thead>
<tr>
<th>Classification system usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fischer Scale</td>
</tr>
<tr>
<td>NIVAP Scale</td>
</tr>
</tbody>
</table>

**CLASSIFICATION SYSTEM USAGE**

Prior publications: 83 (14%)
Institution-specific scales: 10%
Fischer Scale: 16%
NIVAP Scale: mild/moderate/severe: 10%
Yes/No: 37%

**REPORTING MEASURES**

- Frequency of skin integrity assessment
- Use of nasal endoscopy
- Nasal injury sub-site-specific detail
- Photographic reporting
- Patient follow-up after discharge

Figure 1: Fischer Scale

Figure 2: PRISMA Flow Diagram