1.0 Introduction

- Duodenal atresia is a congenital obstruction of a portion of the lumen of the duodenum of the small intestine\(^1,2\). It is one of the more common intestinal anomalies in pediatrics, occurring in approximately 0.9 infants per 10,000 live births worldwide\(^2\). The majority of cases are isolated and with surgical correction, have an excellent prognosis\(^3\). However, outlook is also determined by pre and post-operative management, along with the ability to identify and manage the thirty percent of infants with associated anomalies\(^4\).

Target Users

- Any individuals who may be involved in the care of neonates with duodenal atresia, including: Registered Nurses (RNs), Nurse Practitioners (NP), Physicians, Surgeons, Dietitians, Registered Respiratory Therapists (RRT), Social Workers, and the NICU parent liaison.

Target Patient Population

- Neonates admitted to the NICU at the Hospital for Sick Children with a known or presumed diagnosis of uncomplicated duodenal atresia, and a gestational age of greater than 36+0 weeks.
- Neonates born before 36+0 weeks’ gestational age, those anomalies associated duodenal atresia (trisomy 21, annular pancreas, additional intestinal atresia, etc.), and those with other complications that may affect their care trajectory, should not have their NICU hospitalization guided by this pathway\(^4\).

Implementation Plan

- Key stakeholders (RNs, NPs, neonatologists, and surgeons) were involved in the development, advocacy, and dissemination of this clinical pathway.
- Implementation was discussed in detail during a Neonatal Surgical Interest Group (NSIG) meeting. It was decided that dissemination would occur through email communication, screen savers used on unit computers to advertise the pathway, engaging and educating the clinical support nurse group on its use, and using members of NSIG to conduct bedside in-services on the pathway with RNs and physicians.
- The pathway will be posted at the bedside of every neonate admitted with duodenal atresia to remind staff of pathway utilization.
- The Neonatal NP Group will advocate for pathway utilization and remind the team to review it daily during bedside rounds.
Facilitators to Implementation

- Ability to better standardize the approach to care of infants with duodenal atresia to allow these patients and their families to experience a smoother hospitalization and transition out of intensive care.
- Parents will be engaged in the process of their child’s care by having the pathway posted at the bedside to facilitate discussion of care between parents and providers.

Barriers to Implementation

- Adoption by staff due to lack of familiarity with the pathway. This will be overcome through education and promotion of the pathways use during bedside rounds.

Potential Impacts

- Decreased length of stay in the NICU
- Improve patient safety through streamlined care
- Enhance the parent experience by providing some anticipatory guidance on the trajectory of their child’s care.

2.0 Isolated Duodenal Atresia Neonatal Care Pathway (Gestational age ≥ 36 weeks)  

<table>
<thead>
<tr>
<th>Isolated Duodenal Atresia Neonatal Care Pathway (Gestational age ≥ 36 weeks)</th>
<th>Targeted NICU Length of Stay: 7 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GERIATRIC</strong></td>
<td><strong>DAY 1 - ADMISSION</strong></td>
</tr>
<tr>
<td><strong>Geriatric</strong></td>
<td><strong>Geriatric</strong></td>
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<td><strong>Surgery</strong></td>
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<td><strong>Radiology</strong></td>
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<td><strong>Laboratory</strong></td>
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<tr>
<td><strong>Pathology</strong></td>
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<tr>
<td><strong>Dietary</strong></td>
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<td><strong>Pharmacy</strong></td>
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<tr>
<td><strong>Nursing</strong></td>
<td><strong>Nursing</strong></td>
</tr>
</tbody>
</table>

**Isolated Duodenal Atresia Neonatal Care Pathway (Gestational age ≥ 36 weeks)**

- **Provide nasoendotracheal support**
- **Decompression of gastrointestinal (GI) tract**
- **Provide fluid management to maintain fluid balance**
- **Complete physical examination to identify potential associated conditions (eg: Truncus VA)**
- **Establish baseline vital signs**
- **Complete bedside lab tests**
- **Initial radiology - X-rays (chest, abdomen) to assess for presence of a "double bubble"; eg: air-filled bubble in stomach and second air-filled bubble in duodenum**
- **Echocardiogram: consider completion of echocardiogram pre-operatively if clinically indicated or per surgical request**
- **Vascular Access**
- **Obtain Vital Signs at time of birth**
- **Obtain baseline laboratory results (Hematology, Chemistry, Coagulation, etc.)**
- **Establish baseline blood gas results**
- **Obtain cultures (blood, CSF, urine)**
- **Obtain EEG and consider cranial ultrasound** (if indicated)

**Geriatric**

- **Consult Geriatric**
- **Consult Geriatric**
- **Consult Geriatric**
- **Consult Geriatric**

**Surgery**

- **Provide required respiratory support**
- **Operative repair**
- **Maintain fluid balance**
- **Establish parenteral nutritional support**
- **Establish central venous access**
- **Engage parents in care provision**

**Radiology**

- **Obtain abdominal ultrasound (as per surgical team)**
- **Obtain chest X-ray**
- **Obtain head CT scan** (if indicated)

**Laboratory**

- **Obtain hemoglobin, hematocrit, and platelet count**
- **Obtain electrolytes**
- **Obtain blood gas results**
- **Obtain liver function tests**

**Pathology**

- **Obtain tissue biopsy specimens**
- **Obtain blood cultures**
- **Obtain urine cultures**

**Dietary**

- **Provide enteral nutrition as tolerated**

**Pharmacy**

- **Obtain antibiotic sensitivity results**
- **Obtain blood cultures (as indicated)**

**Nursing**

- **Administer fluids and electrolytes**
- **Provide wound care**
- **Provide skin protection**
- **Provide pain management**
- **Provide sepsis management**

**Pharmacy**

- **Obtain antibiotic sensitivity results**
- **Obtain blood cultures (as indicated)**

**Nursing**

- **Administer fluids and electrolytes**
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3.0 Related Documents

- Neonatal Post Operative Pain Guidelines
- Respiratory Management of Neonates with Gastrointestinal Abnormalities (NICU)

4.0 References


5.0 Guideline Group and Reviewers

**Guideline Group Membership**

- Neonatal Surgical Interest Group
- Hazel Pleasants-Terashita, Nurse Practitioner, NICU
- Stephanie Bernardo, Nurse Practitioner, NICU
- Nicole Da Silva, Nurse Practitioner, NICU

**Internal Reviewers**

- Christopher Thomlinson, MD
- Kyong Soon Lee, MD
- Christine Elliott, RN Quality Leader
- General Surgery Team
- NICU QM Committee
- Quality Management

**Attachments:** Duodenal Atresia Pathway_July18.pdf