Citation Information

Summary of Version Changes

Explanation of Evidence Ratings

PHASE I (PRENATAL)

Inclusion Criteria

 All pregnancies complicated by fetal gastroschisis

Exclusion Criteria

None

Referrals **Neonatology Maternal Fetal Medicine Pediatric Surgery Minimum Fetal Surveillance:** Prenatal visit: Ultrasound performed every 3-4 weeks after diagnosis for the following Gastroschisis slide show (use prenatal ultrasound checklist): Fetal growth Amniotic fluid volume Increase Gastroschisis defect surveillance Bowel diameter (intra- and extra-abdominal) If other Stomach dimension non-gastroschisis Bowel wall thickness (intra- and extra-abdominal) obstetric, Superior mesenteric artery and vein patency and velocity maternal or fetal Gastric herniation (or other organ herniation) **Indicators for** indications Any other organ abnormalities **Delivery** Starting at 32 weeks: Gastroschisis alone is Non Stress test twice weekly not an indication for Weekly ultrasound for AFI preterm delivery Anatomic abnormalities related to the gastroschisis are not an indication for preterm delivery **Timing for Delivery:** Base the timing of delivery solely on maternal and obstetric indications Deliver at 39 weeks in the absence of maternal, fetal or obstetric indications Avoid preterm delivery in the absence of maternal, fetal or obstetric indications **Phase Change**



Mode of Delivery:Gastrochisis alone is not an indication for C-section Deliver vaginally and reserve cesarean delivery for

maternal, fetal or obstetric indications

Citation Information

Summary of Version Changes

Explanation of Evidence Ratings

PHASE II (DELIVERY)

Inclusion Criteria

All newborn infants with gastroschisis

Exclusion Criteria

None

Delivery Room Interventions and Procedures:

- Clamp and cut the umbilical cord at least 12 inches (30 cm) from the baby to preserve the option of sutureless umbilical closure
- Initiate resuscitation as per Neonatal Resuscitation Program
- Apply cardiac leads and administer vitamin K
- Position baby right side down. Place legs, exposed bowel and viscera, lower body up to axillae into "bowel bag" and secure bag
 opening loosely across upper chest (do not add or cover bowel with gauze). Minimize handling of bowel, monitor color and
 perfusion of bowel continuously, document initial appearance as well as any changes
- Monitor patient temperature continuously and use an incubator as soon as feasible
- Insert 10F Replogle nasogastric double lumen sump like tube and connect to low intermittent suction. Use syringe to apply suction to the nasogastric tube until suction is available

IV Access and Fluids:

- Place peripheral IV for parenteral fluids and antibiotics
- In urgent/emergent situations when other access is unobtainable, an umbilical venous catheter may be placed. Cut the umbilical cord as necessary to place the UVC (leave 6cm of umbilical cord, if possible)
- At birth, begin ½ NS at 60 mL/kg/day + D10 amino acids at 60 mL/kg/day to provide total daily fluids of 120 mL/kg/day. If amino acids not available, use D5 ¼ NS at 120 mL/kg/day

Laboratory Tests: The following tests should be completed at birth: Glucose Blood culture and CBC Electrolytes Medications: Begin ampicillin 100mg/kg IV every 12 hours and gentamicin as appropriate for post-menstrual age after obtaining blood culture Transfer to Seattle Children's Hospital Phase Change



Citation Information

Summary of Version Changes

Explanation of Evidence Ratings

PHASE III (REPAIR)

Inclusion Criteria

 Newborns with unrepaired gastroschisis

Exclusion Criteria

Newborn with repaired gastroschisis

Abdominal Wall Closure Method:

- · Primary closure using sutureless umbilical closure technique is preferred if clinically safe and feasible
- In cases with challenging anatomy, silo closure using either spring loaded (SLS) or handsewn silo or primary fascial closure may be indicated
- Delayed closure using sutureless umbilical closure technique may be possible

Surgical Closure Timing and Location:

- When anatomically feasible perform sutureless umbilical closure or placement of SLS in the ICU
- If using SLS, cover the defect as soon as possible with SLS, then definitively close defect when contents are adequately reduced
- Perform primary or delayed fascial closure in the OR

Intra-op Management:

- Endotracheal intubation may not be necessary for routine sutureless umbilical closure or placement of a SLS
 - Oral sucrose is allowable in addition to IV medications for comfort during reduction
- Measure gastric pressure prior to, during and after reduction and keep it <20 mmHg
- If gastric pressure is >20mmHg, consider conversion to silo/delayed closure
- Alternative for indirect measurement of IAP (intra abdominal pressure) in cases of inaccurate gastric measurements

Post Operative Pain Management:

- Use scheduled rectal acetaminophen for first line pain control (schedule for 48 hours then consider PRN)
- Use NICU Comfort & Sedation protocol

Post Operative IV Fluids & Laboratory Tests:

- Start Parenteral Nutrition within a day of admission and follow parenteral nutrition labs plus daily bilirubin
- Provide IV Lipids at maximum of 1 gm/kg/day
- Place PICC line in NICU
- Continue total fluids at 120 mL/kg/day and adjust as clinically indicated
- The following labs should be completed at about 6 hours of age:

CBC (if not already done)

Glucose

Electrolytes (then every 12hrs x 48hrs)

Type and Screen only if going to OR



Citation Information

Summary of Version Changes

Explanation of Evidence Ratings

PHASE IV (RECOVERY)

Inclusion Criteria

 Newborns with repaired gastroschisis

Exclusion Criteria

None

Medications: Avoid prokinetics Avoid H2 blockers or proton pump inhibitors unless clinically indicated

Transfer from NICU to acute care on surgery service when off ventilation and hemodynamically stable

Medications: Discontinue Amp/Gent after 48hrs unless other clinical indications for continued antibiotics

Post Operative Feeding:

- PT/OT consult for early oral stimulation
- Start feeds when signs of bowel function are present which may include presence of bowel sounds, non-bilious NG output, flatus and/or stool and tolerates nasogastric tube removal
- Use breast milk (colostrum first if available) or standard concentration infant formula
- Start and advance feeds by 10 mL/kg/day by oral bolus
- If tolerating feed advancement for 5 days then consider advancing by as much as 20 mL/kg/day V



- Place NG for bolus feeds if unable to take enteral advancement orally for 1-2 days
- Remove PICC line 24hrs after PN discontinued
- Aim for total daily caloric intake goal of ≥ 105 Kcal/kg/day and caloric intake necessary for normal growth

Discharge Plan:

- Discharge from hospital when:
 - No fever for 48 hours
 - Gaining weight on full enteral feeds for 1-2 days
 - · Primary care physician identified, accepts care and has follow-up scheduled in 2-3 days
 - Family education complete
 - All routine newborn screens completed
 - · Wound care plan established if indicated
 - Follow up appointment with surgeon and surgical dietician made for 2 weeks post discharge



Closure Technique

 There is no compelling data in the literature to advocate for a certain Gastroschisis closure technique or even for primary repair versus pre-formed silo placement. We have had a favorable local experience with the primary umbilical closure technique when anatomically feasible since 2010.



Enteral Feed Advancement

 There are no recent data in the literature to guide enteral feeding advancement in babies following Gastroschisis repair. It is well established that these babies have delayed return of bowel function and are at risk for the development of necrotizing enterocolitis if enteral feeds are advanced aggressively. The current recommendation for enteral feeding advancement is based on local multidisciplinary consensus and national input.



IV Fluids

Gastroschisis involves peritoneal and evaporative losses
of both fluid and salt. Fluid and electrolyte balance is
important in patients with Gastroschisis to ensure
adequate bowel perfusion without excess edema and
avoid dangerous imbalances such as hyponatremia. The
evidence in the literature is not sufficient to recommend
one fluid administration regimen over another. Local
expert consensus supports increased fluid and salt
administration in patients with Gastroschisis over routine
maintenance for a newborn. Close evaluation of the fluid
and electrolyte status of these patients is currently under
way at SCH to determine if changes to the current fluid
regimen are indicated.



Gestational Age

 The evidence in the literature is not sufficient to recommend in pregnancies complicated by fetal Gastroschisis iatrogenic preterm delivery or Cesarean section in attempts to prevent bowel injury or intrauterine fetal demise, unless these are otherwise indicated for standard fetal, maternal, or obstetric reasons..



Intraoperative Measurement of Intra-abdominal Pressure (IAP)

Measure gastric pressure intra-operatively prior to reduction and after reduction of fascial approximation, and keep it <20mmHg.

- Pass Replogle tube into stomach
- Confirm position by drainage of gastric contents or by surgeon during surgery.
- Prime transducer tubing with normal saline and connect transducer to the replogle tube using a blue "Christmas tree" connector
- Prime replogle with normal saline and calibrate transducer to ensure accurate measurements
- Fluctuations in pressure during ventilation cycle desirable for accuracy.

Alternatives for indirect measure of IAP (suggested but not required)

- Measure intra vesical (bladder) pressure
 - Pass Foley catheter into bladder
 - Connect to separate pressure transducer using blue "Christmas tree" connector
 - . Confirm fluctuations in pressure by applying pressure to bladder
 - Aim to keep intra-vesical pressure <20mmHg
- Measure ventilator plateau pressures or peak inspiratory pressures
 - Using pressure cycled (ventilation 15mmHg) adjust rate aiming for normal PeCO2 36-40mmHg
 - Monitor increase in pressure during abdominal closure
 - Pressure increases >10mmHg suggest significant diaphragmatic splinting and a significant increase in abdominal pressure with risk of abdominal compartment syndrome.
 - Plateau pressure >10-15cmH2O above intravesical or intragastric pressure are considered a risk for compartment syndrome (Banieghbal 2006).
 - Elevation of CO2 >50mmHg also suggests that closure may be unsafe (Puffinbarger 1996).
- Measure differential pulse oximetry
 - Place pulse oximetrers on upper and lower limbs
 - A differential of >5% suggest a risk of abdominal compartment syndrome (Hong, 2008).
- Use splanchnic perfusion pressure (SPP=MAP-IAP) if gastric pressure >18mmHg. Use spring loaded silo if SPP>43.

Note: We recommend using cmH2O. Some publications measure mmHg while others use cmH2O which at 22mmHg equates to 27.2cmH2O- a significant difference. These measurements are therefore simply guidelines which are conservative.



Prenatal Visit Gastroschisis Slide Show

 This slide show is for internal Seattle Children's Users only. If you are not an SCH user, please return to the algorithm using the back button below.

Gastroschisis Prenatal Visit Slide Show



Value Analysis: Enteral Feeds

VALUE ANALYSIS TOOL				
DIMENSION	CARE OPTION A	CARE OPTION B	PREFERRED OPTION	ASSUMPTIONS MADE
ESCRIPTION OF CARE TREATMENT OPTION	Enteral feeds advanced by 10 mL/kg/day	Enteral feeds may be advanced by as much as 20 mL/kg/day if patient tolerates initial 10 mL/kg/day advancement for 5 days		
PPERATIONAL FACTORS				
Percent adherence to care (goal 80%)	Neutral	Neutral	NEUTRAL	Providers may be uncomfortable advancing by up 20 mL/kg/day in certain cases. Other providers find 10 mL/kg/day to be too restrictive. 10 and 20 mL/kg/day are both within standard neonatal feed advancement.
Care delivery team effects	Neutral	Neutral	NEUTRAL	
BENEFITS / HARMS (QUALITY/OUTCOME)				
Degree of recovery at discharge	Neutral	Neutral	NEUTRAL	
Effects on natural history of the disease over equivalent time	Neutral	Neutral	NEUTRAL	
Potential to cause harm	Neutral	Neutral	NEUTRAL	Option A will required longer duration of PICC line placement, which has the potential to result in lin infections. Option B has theoretical concern for
				increased incidence of necrotizing enterocolitis.
Palatability to patient/family		Preferred	OPTION B	
Population-related benefits			N/A	
COST (Arising from Options A or B) - express as cost per day				,
"ROOM RATE" (\$ or time to recovery)		Preferred	OPTION B	Option B will potentially decrease length of stay bup to 5 days. Assuming that 80% of patients tolerate the faster feed advancement with an annual patient volume of 15 patients and a daily surgical room cost of \$4,128 this would translate to \$247,680 annual cost savings.
"Dx/Rx" costs (\$)			NEUTRAL	5247,000 aimuai cost savings.
COST (Complications/adverse effects arising from Options A or B "ROOM RATE" (\$ or time to recovery)	- express as cost per day	T	UNKNOWN	Both options have the potential for complications
NOOMINATE (30) time to recovery)			ONANOWN	resulting in increased length of stays, diagnostics, and medication administration. At this time it is unknown if one option will have a higher rate of these complications compared to the other.
"Dx/Rx" costs (\$)			UNKNOWN	these complications compared to the other.
VALUE ANALYSIS GRID				
	BENEFIT (QUALITY & OUTCOMES)			
cost	A > B	A = B	A < B	Unclear
A costs more than B	Make value judgement	В	В	Do B and PDSA in 1 year
A and B costs are the same	А	A or B, operational factors may influence choice	В	A or B, operational factors may influence choice, PDSA in 1 year
B costs more than A	А	А	Make value judgement	Do A and PDSA in 1 year
VALUE STATEMENT				
FINAL CSW VALUE STATEMENT	Option B is preferred due to lower cost, increased palatability, and no change in risk for harm while providing safe and appropriate care. Key assumptions include: no increased risk of necrotizing enterocolitis. Despite lack of literature to guide enteral feeding advancement in babies following gastroschisis repair, institutional and national experience suggests that these babies can tolerate faster advancement. However, given that there is a theoretical increased risk of necrotizing enterocolitis with faster feed advancement, the pathway team opted to reserve this option for infants who have demonstrated that they can tolerate the slower feed advancement for at least 5 days. The pathway team will closely monitor the impact of this recommendation. This recommendation is based on local multidisciplinary consensus. A cost-benefit strategy was applied. Estimated yearly savings is \$\$247,680.			

Gastroschisis Approval & Citation

Approved by the CSW Gastroschisis Pathway team for the November 18, 2015 go live.

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Retrieval Website: http://www.seattlechildrens.org/pdf/gastroschisis.pdf

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Evidence Ratings

This pathway was developed through local consensus based on published evidence and expert opinion as part of Clinical Standard Work at Seattle Children's. Pathway teams include representatives from Medical, Subspecialty, and/or Surgical Services, Nursing, Pharmacy, Clinical Effectiveness, and other services as appropriate.

When possible, we used the GRADE method of rating evidence quality. Evidence is first assessed as to whether it is from randomized trial or cohort studies. The rating is then adjusted in the following manner (from: Guyatt G et al. J Clin Epidemiol. 2011;4:383-94.):

Quality ratings are downgraded if studies:

- Have serious limitations
- Have inconsistent results
- If evidence does not directly address clinical questions
- If estimates are imprecise OR
- If it is felt that there is substantial publication bias

Quality ratings are *upgraded* if it is felt that:

- The effect size is large
- If studies are designed in a way that confounding would likely underreport the magnitude of the effect OR
- If a dose-response gradient is evident

Guideline – Recommendation is from a published guideline that used methodology deemed acceptable by the team.

Expert Opinion – Our expert opinion is based on available evidence that does not meet GRADE criteria (for example, case-control studies).

Quality of Evidence:

●●●● High quality ●●●● Moderate quality ●●●● Low quality ●●●● Very low quality Guideline Expert Opinion

To Bibliography

Return to Phase I

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Summary of Version Changes

- Version 1.0 (11/18/2015): Go live
- Version 2.0 (2/12/16): CSW value analysis completed on the enteral feeds recommendation, updates made to approval/citation page

Return to Phase I

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Return to Phase III

Medical Disclaimer

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required.

The authors have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication.

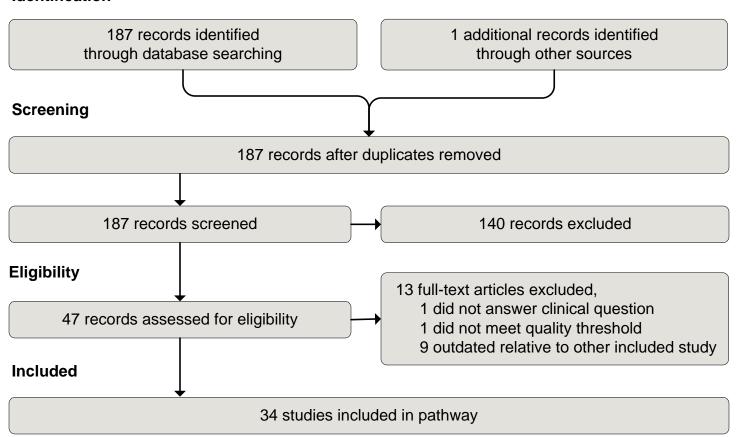
However, in view of the possibility of human error or changes in medical sciences, neither the authors nor Seattle Children's Healthcare System nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such information.

Readers should confirm the information contained herein with other sources and are encouraged to consult with their health care provider before making any health care decision.

Bibliography

Studies were identified by searching electronic databases using search strategies developed and executed by a medical librarian, Susan Groshong. Two periodic review searches were completed in March and April, 2015, updating searches originally performed in 2009, 2011, 2012 and 2013. The following databases were searched on the Ovid platform: Medline, Cochrane Database of Systematic Reviews, and Cochrane Central Register of Controlled Trials; elsewhere: Embase, Clinical Evidence, National Guideline Clearinghouse, TRIP and Cincinnati Children's Evidence-Based Care Recommendations. Retrieval was limited to humans (any age), English language and the period September 1, 2009 to current. In Medline and Embase, appropriate Medical Subject Headings (MeSH) and Emtree headings were used respectively, along with text words, and the search strategy was adapted for other databases using their controlled vocabularies, where available, along with text words. Concepts searched were gastroschisis, feeding regimen, fetal indications for delivery and fluid management. All retrieval was further limited to certain evidence categories, such as relevant publication types, Clinical Queries, index terms for study types and other similar limits.

Identification



Flow diagram adapted from Moher D et al. BMJ 2009;339:bmj.b2535

Bibliography

Ajayi FA, Carroll PD, Shellhaas C, et al. Ultrasound prediction of growth abnormalities in fetuses with gastroschisis. *J Matern Fetal Neonatal Med* [Periodic Review 2015]. 2011;24(3):489-492. Accessed 20110204; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.3109/14767058.2010.500428.

Alfaraj MA, Ryan G, Langer JC, Windrim R, Seaward PG, Kingdom J. Does gastric dilation predict adverse perinatal or surgical outcome in fetuses with gastroschisis?. *Ultrasound Obstet Gynecol* [Periodic Review 2015]. 2011;37(2):202-206. Accessed 20110125; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1002/uog.8868.

Allin BSR, Tse WHW, Marven S, Johnson PRV, Knight M. Challenges of improving the evidence base in smaller surgical specialties, as highlighted by a systematic review of gastroschisis management. *PLoS ONE* [Periodic Review 2015]. 2015;10(1).

Baud D, Lausman A, Alfaraj MA, et al. Expectant management compared with elective delivery at 37 weeks for gastroschisis. *Obstet Gynecol* [Periodic Review 2015]. 2013;121(5):990-998. Accessed 20130502; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1097/AOG.0b013e31828ec299.

Boutros J, Regier M, Skarsgard ED, Canadian Pediatric Surgery Network. Is timing everything? the influence of gestational age, birth weight, route, and intent of delivery on outcome in gastroschisis. *J Pediatr Surg* [Periodic Review 2015]. 2009;44(5):912-917. Accessed 20090512; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1016/j.jpedsurg.2009.01.026.

Cain MA, Salemi JL, Paul Tanner J, et al. Perinatal outcomes and hospital costs in gastroschisis based on gestational age at delivery. *Obstet Gynecol* [Periodic Review 2015]. 2014;124(3):543-550. Accessed 20140828; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1097/ACG.000000000000427.

Carnaghan H, Pereira S, James CP, et al. Is early delivery beneficial in gastroschisis?. *J Pediatr Surg* [Periodic Review 2015]. 2014;49(6):928-933. Accessed 20140603; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1016/j.jpedsurg.2014.01.027.

Kohler JA Sr, Perkins AM, Bass WT. Human milk versus formula after gastroschisis repair: Effects on time to full feeds and time to discharge. *J Perinatol* [Periodic Review 2015]. 2013;33(8):627-630. Accessed 20130730; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1038/jp.2013.27.

Maramreddy H, Fisher J, Slim M, Lagamma EF, Parvez B. Delivery of gastroschisis patients before 37 weeks of gestation is associated with increased morbidities. *J Pediatr Surg* [Periodic Review 2015]. 2009;44(7):1360-1366. Accessed 20090703; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1016/j.jpedsurg.2009.02.006.

Mills JA, Lin Y, Macnab YC, Skarsgard ED, Canadian Pediatric Surgery Network. Perinatal predictors of outcome in gastroschisis. *J Perinatol* [Periodic Review 2015]. 2010;30(12):809-813. Accessed 20101129; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1038/jp.2010.43.

Murthy K, Evans JR, Bhatia AM, et al. The association of type of surgical closure on length of stay among infants with gastroschisis born (greater-than or equal to) 34 weeks' gestation. *J Pediatr Surg* [Periodic Review 2015]. 2014;49(8):1220-1225.

Bibliography

Nasr A, Wayne C, Bass J, Ryan G, Langer JC, Canadian Pediatric Surgery Network. Effect of delivery approach on outcomes in fetuses with gastroschisis. *J Pediatr Surg* [Periodic Review 2015]. 2013;48(11):2251-2255. Accessed 20131111; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1016/j.jpedsurg.2013.07.004.

Overcash RT, DeUgarte DA, Stephenson ML, et al. Factors associated with gastroschisis outcomes. *Obstet Gynecol* [Periodic Review 2015]. 2014;124(3):551-557. Accessed 20140828; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1097/AOG.000000000000000425.

Payne NR, Pfleghaar K, Assel B, Johnson A, Rich RH. Predicting the outcome of newborns with gastroschisis. *J Pediatr Surg* [Periodic Review 2015]. 2009;44(5):918-923. Accessed 20090512; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1016/j.jpedsurg.2009.01.036.

Riboh J, Abrajano CT, Garber K, et al. Outcomes of sutureless gastroschisis closure. *J Pediatr Surg* [Periodic Review 2015]. 2009;44(10):1947-1951. Accessed 20091026; 4/21/2015 3:26:49 PM. http://dx.doi.org/10.1016/j.jpedsurg.2009.03.027.

Seattle Children's Hospital, Advansino, J., Cheng, E., Drummond, K., Jacobson, E., 2011 December. Gastroschisis Guideline.

South AP, Stutey KM, Meinzen-Derr J. Metaanalysis of the prevalence of intrauterine fetal death in gastroschisis. *Am J Obstet Gynecol* [Periodic Review 2015]. 2013;209(2):114.e1-114.13. Accessed 20130729; 3/24/2015 4:59:11 PM. http://dx.doi.org/10.1016/j.ajog.2013.04.032.

Tannuri AC, Sbragia L, Tannuri U, et al. Evolution of critically ill patients with gastroschisis from three tertiary centers. *Clinics* [Periodic Review 2015]. 2011;66(1):17-20. Accessed 20110325; 4/21/2015 3:26:49 PM.