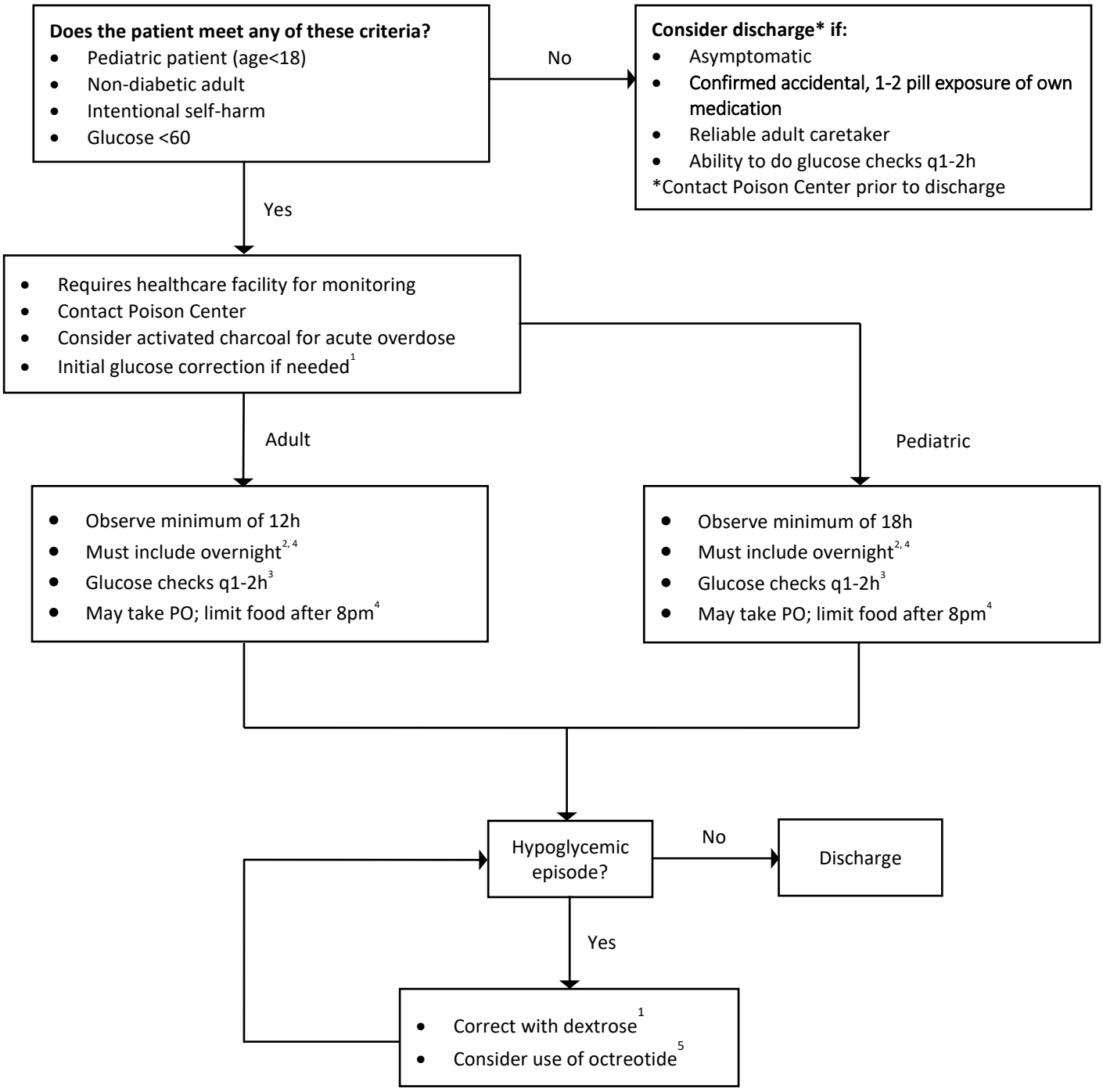
Sulfonylurea Toxicity Management



This guideline DOES NOT replace either the poison center or a toxicology consult. It is very important to call 800-222-1222 to report and for further clinical assistance on all cases of possible sulfonylurea toxicity.

This guideline was ratified by the emergency department faculty at Maine Medical Center in June 2018. It reflects our expert opinion and is not necessarily applicable to all institutions. It is intended to be a reference for clinicians caring for patients and is not intended to replace providers' clinical judgment.

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1. Dextrose dosing for initial hypoglycemia correction:

Adult

- D50 50mL (1amp)

Pediatric*

- Age 30d-2yr
  - D10 4-5 mL/kg
- Age >2yrs
  - D50 2ml/kg
  - Consider D10 4-5mL/kg due to vein irritation)

*Maximum dose 25g

2. Monitoring:

Telemetry monitoring recommended while patient is sleeping as may be an early indicator of hypoglycemia

3. Glucose checks:

Recommend POC glucose checks every 2h while *awake* and every 1h while *sleeping*

4. Recommend avoiding empiric dextrose infusion when monitoring for hypoglycemia as use:

- May result in rebound hyperinsulinemic hypoglycemia in patients with intact pancreas
- Unlikely to prevent hypoglycemia in patients that experience significant hypoglycemia
- May create false/inorganic euglycemia

Thus, it is preferable to monitor without dextrose supplementation

5. Octreotide:

Dosing:

- Adult: 50-100mcg SQ q8h
- Pediatric: 1mcg/kg SQ q8h (max 50-100mcg)

Considerations:

- Low-risk patients (1-2 pill ingestions) may be at reduced risk for recurrent hypoglycemia episodes – consider foregoing octreotide
- High risk patients (suicidal, pediatric) are at increased risk for recurrent hypoglycemic episodes – consider treating with octreotide after initial hypoglycemic episode
- Hypoglycemia risk during first hour following octreotide administration due to delayed onset of activity
- Continue monitoring patients for recurrent hypoglycemia 16-24h after last dose of octreotide
- Patient's receiving octreotide may take PO

- Klein-Schwartz, W., Stassinos, G. L., & Isbister, G. K. (2016). Treatment of sulfonylurea and insulin overdose. British journal of clinical pharmacology, 81(3), 496-504. *Review.*
- Lung, D. D., & Olson, K. R. (2011). Hypoglycemia in pediatric sulfonylurea poisoning: an 8-year poison center retrospective study. Pediatrics, 127(6), e1558-e1564. *Retrospective observational study.*
- Fasano, C. J., O'Malley, G., Dominici, P., Aguilera, E., & Latta, D. R. (2008). Comparison of octreotide and standard therapy versus standard therapy alone for the treatment. *Prospective, double-blind, placebo-controlled trial.*
- Glatstein M, Garcia-Bournissen F, Scolnik D, et al. Sulfonylurea intoxication at a tertiary care paediatric hospital. Can J Clin Pharmacol. 2010;17:e51–6. *Retrospective chart review.*
- Dougherty PP, Lee SC, Lung D, et al. Evaluation of the use and safety of octreotide as antidotal therapy for sulfonylurea overdose in children. Pediatr Emerg Care. 2013;29:292–5. *Retrospective review.*
- Forrester MB. Adult glyburide ingestions reported to Texas poison control centers, 1998 2005. Hum Exp Toxicol 2007; 26: 563–71. *Retrospective chart review.*
- Glatstein M, Scolnik D, Bentur Y. Octreotide for the treatment of sulfonylurea poisoning. Clin Toxicol (Phila). 2012 Nov;50(9):795-804. *Literature review.*
- Levine M, Ruha A, LoVecchio F, Riley B, Pizon A, Burns B, Thomas S. Hypoglycemia After Accidental Pediatric Sulfonylurea Ingestions. Pediatr Emerg Care. 2011;27:846-849. *Retrospective chart review.*

Guideline Evidence

Guideline Topic: Sulfonylurea Toxicity Management
Author: Barker, Schaeffer
Date of Creation: 11/2017 Sugg Update: 11/2020
Search Criteria: Sulfonylurea toxicity, toxicology, overdose, pharmacology, emergency medicine

Databases: PubMed
Key Guidelines (Dates)

#	Recommendation	Source	Classification	Level of Evidence
1	Inpatient observation for intentional overdose patients, pediatric patients, non-diabetic patients, those without safe discharge arrangements for frequent glucose checks	- Klein Schwartz, W., Stassinos, G. L., & Isbister, G. K. (2016). Treatment of sulfonylurea and insulin overdose. British journal of clinical pharmacology, 81(3), 496-504.	Literature review	IIB
2	Adults with therapeutic errors can be safely monitored and treated with carbohydrate supplementation at home	Cantrell FL, Clark RF. Supratherapeutic dose of sulfonylureas in diabetic patients: how much is too much? Clin Toxicol2007; 45: 482–4.	Literature review	IIB
3	Consider activated charcoal for acute overdose	Kivistö KT, Neuvonen PJ. The effect of cholestyramine and activated charcoal on glipizide absorption. Br J ClinPharmacol 1990; 30: 733–6.	Cross-over study	III
4	Initial correction with dexrose solution	- Klein Schwartz, W., Stassinos, G. L., & Isbister, G. K. (2016). Treatment of sulfonylurea and insulin overdose. British journal of clinical pharmacology, 81(3), 496-504.	Literature review	IIB
5	Minimum 12 hour observation including overnight for adult patients with q1-2h glucose checks and telemetry	- Klein Schwartz, W., Stassinos, G. L., & Isbister, G. K. (2016). Treatment of sulfonylurea and insulin overdose. British journal of clinical pharmacology, 81(3), 496-504.	Literature review	IIB
		Forrester MB. Adult glyburide ingestions reported to Texaspoison control centers, 1998 2005. Hum Exp Toxicol 2007;26: 563–71.	Retrosepctive chart review	III
		Burkhart KK. When dose hypoglycemia develop after sulfonylurea ingestion? Ann Emerg Med 1998; 31: 771–2.	Literature review	IIB
6	Minimum 18 hour obversvation including overnight for pediatric patients with q1-2h glucose checks and telemetry	Quadrani DA, Spiller HA, Widder P. Five year retrospective evaluation of sulfonylurea ingestion in children. J Toxi colClin Toxicol 1996; 34: 267–70.	Restrospective case review	III

		Lung DD, Olson K R. Hypoglycemia in pediatric sulfonylurea poisoning: an 8-year poison center retrospective study.Pediatrics 2011; 127: e1558–64.	Retrospective observational study	III
		Glatstein M, Garcia-Bournissen F, Scolnik D, Koren G.Sulfonylurea intoxication at a tertiary care paediatric hospital. Can J Clin Pharmacol 2010; 17: e51–6.	Literature review	IIB
		Levine M, Ruha A, LoVecchio F, Riley BD, Pizon AF, Burns BD, Thomas SH. Hypoglycemia after accidental pediatric sulfonylurea ingestions. Pediatr Emerg Care 2011; 27:846–9.	Retrospective chart review	III
		Spiller HA, Villalobos D, Krenzelok EP, Anderson BD, GormanSE, Rose SR, Fenn J , Anderson DL, Muir SJ, Rodgers GC Jr. Prospective multicenter study of sulfonylurea ingestion in children. J Pediatr 1997; 131: 141–6.	Prospective observational study	III
		Burkhart KK. When dose hypoglycemia develop after sulfonylurea ingestion? Ann Emerg Med 1998; 31: 771–2.	Literature review	IIB
		Calello DP, Kelly A, Osterhoudt KC. Case files of the medicaltoxicology fellowship program at the children's hospital of Philadelphia: a pediatric exploratory sulfonylurea ingestion. J Med Toxicol 2006; 2: 19–24.	Retrospective case review	III
7	Admitted patients should have limited food intake prior to overnight observation	Lung DD, Olson K R. Hypoglycemia in pediatric sulfonylureapoisoning: an 8-year poison center retrospective study.Pediatrics 2011; 127: e1558–64.	Retrospective observational study	III
8	Consider octreotide as first-line agent for recurrent hypoglycemic episodes after initial correction with dextrose	Quadrani DA, Spiller HA, Widder P. Five year retrospective evaluation of sulfonylurea ingestion in children. J Toxi colClin Toxicol 1996; 34: 267–70.	Retrospective case review	III
		McLaughlin SA, Crandall CS, McKinney PE. Octreotide: an antidote for sulfonylurea-induce d hypoglycemia. AnnEmerg Med 2000; 36: 133–8.	Retrospective chart reivew	III
		Spiller HA, Villalobos D, Krenzelok EP, Anderson BD, GormanSE, Rose SR, Fenn J , A nderson DL, Muir SJ, Rodgers GC Jr. Prospective multicenter study of sulfonylurea ingestion inchildren. J Pediatr 1997; 131: 141–6.	Prospective observational study	III
		Szlatenyi CS, Capes KF, Wang RY. Delayed hypoglycemia in a child after ingestion of a single glipizide tablet. Ann E mergMed 1998; 31: 773–6.	Case study	IV
		Dougherty PP, Klein-Schwartz W. Octreotide's role in the management of sulfonylurea-induced hypoglycemia. J MedToxicol 2010; 6: 199–206.	Retrospective review	III
		Fasano CJ, O'Malle y G, Dominici P, Aguilera E, Latta DR. Comparison of octreotide and standard therapy versus standard therapy alone for the treatment ofsulfonylurea-induced hypoglycemia. Ann Emerg Med 2008; 51: 400–6.	Prospective, double-blind, placebo controlled trial	IB

		Dougherty PP, Lee SC, Lung D, Klein-Schwartz W. Evaluation of the use and safety of octreotide as antidotal therapy for sulfonylurea overdose in children. Pediatr Emerg Care 2013;29: 292–5.	Retrospective review	III
10	Continue monitoring patient's at least 16-24 hours following hypoglycemic episode treated with ocretotide	Dougherty PP, Klein-Schwartz W. Octreotide's role in the management of sulfonylurea-induced hypoglycemia. J MedToxicol 2010; 6: 199–206.	Retrospective review	III

Guideline Evidence, cont.

#	Recommendation	Source	Classification	Evidence
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