

## Green 1998

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<b>Bibliographic Reference</b>	<b>Green SM; Rothrock SG; Ho JD; Gallant RD; Borger R; Thomas TL; Zimmerman GJ; Failure of adjunctive bicarbonate to improve outcome in severe pediatric diabetic ketoacidosis.; Annals of emergency medicine; 1998; vol. 31 (no. 1)</b>
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### Study details

<b>Study type</b>	<b>Retrospective cohort study</b>
Study location	USA
Study setting	University medical centre

[Diabetes (type 1 and type 2) in children and young people: diagnosis and management]: evidence review for fluid therapy for the management of diabetic ketoacidosis (December 2020)

<b>Study type</b>	<b>Retrospective cohort study</b>
Study dates	January 1st 1979 to December 31st 1994
Duration of follow-up	Till discharge
Sources of funding	Not reported
Inclusion criteria	Children aged 15 years or younger with a hospital diagnosis of severe DKA at a tertiary university medical centre over a 16-year period (January 1, 1979, through December 31, 1994)
Exclusion criteria	If initial arterial pH was more than 7.15, the initial serum glucose concentration less than 300 mg/dL (16.7mmol/L), or if either of these measurements were not obtained at the time of initial resuscitation. if DKA was a secondary condition with a more serious primary diagnosis.
Sample size	106 children
Loss to follow-up	not reported
Condition specific characteristics	Severe DKA defined as initial pH greater than or equal to 7.15 and glucose concentration $\geq$ 300 mg/dL [16.7 mmol/L]
Interventions	<b><u>Sodium bicarbonate</u></b> Children received standard DKA therapy with hydration and intravenous insulin infusion. Adjunctive bicarbonate therapy was administered by treating physicians in doses ranging from 7 to 238 mEq and from 0.53 to 7.37 mEq/kg (mean 2.08, median 1.66 mEq) <b><u>No sodium bicarbonate</u></b> Children received standard DKA therapy with hydration and intravenous insulin infusion.
Outcome measures	Cerebral oedema Healthcare utilisation - Duration of hospitalisation Number of hours from the arterial blood gas value obtained at the time of initial resuscitation to actual discharge

### Study arms

**No sodium bicarbonate (N = 49)**

**Sodium bicarbonate (N = 57)**

### Characteristics

#### Arm-level characteristics

[Diabetes (type 1 and type 2) in children and young people: diagnosis and management]:  
evidence review for fluid therapy for the management of diabetic ketoacidosis (December 2020)

	No sodium bicarbonate (N = 49)	Sodium bicarbonate (N = 57)
Age (years)		
Mean/SD	10.1 (3.8)	9.6 (4.8)
% Female		
No of events	n = 26; % = 53	n = 35; % = 61

ROBINS-I Tool		
Section	Question	Answer
1. Bias due to confounding	Risk of bias judgement for confounding	Moderate (No adjustments for time varying confounding.)
2. Bias in selection of participants into the study	Risk of bias judgement for selection of participants into the study	Moderate (Adjustments techniques not used to correct for the presence of selection bias.)
3. Bias in classification of interventions	Risk of bias judgement for classification of interventions	Moderate (No information on DKA protocol followed (e.g. type of fluid, rate or volume))
4. Bias due to deviations from intended interventions	Risk of bias judgement for deviations from intended interventions	Serious (No information on co-interventions. Sodium bicarbonate was given at physicians discretion.)
5. Bias due to missing data	Risk of bias judgement for missing data	Low
6. Bias in measurement of outcomes	Risk of bias judgement for measurement of outcomes	Low
7. Bias in selection of the reported result	Risk of bias judgement for selection of the reported result	Low
Overall bias	Risk of bias judgement	Serious (No adjustments for time varying confounding. Adjustments techniques not used to correct for the presence of selection bias. No information on DKA protocol followed (e.g. type of fluid, rate or volume). No information on co-interventions. Sodium bicarbonate was given at physicians discretion.)

[Evidence review for fluid therapy for the management of diabetic ketoacidosis ]

ROBINS-I Tool	
Directness	Directly applicable