Best Evidence Statement (BESt)

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Evaluation of syncope

Clinical Question

P (population/problem)	Among children who present in an ambulatory setting for evaluation of syncope
I (intervention)	what assessment and diagnostic elements need to be considered
C (comparison)	compared to a routine history and physical exam
O (outcome)	to accurately determine the cause of syncope?

Target Population Pediatric patients with complaint of syncope in ambulatory setting

Recommendation

1. It is recommended that the following elements are included in the evaluation of syncope:
   a) patient and family history (including syncope episode),
   b) physical examination (including orthostatic blood pressure and heart rate) and
   c) electrocardiogram results.

(Moya 2009 [5a], Strickberger 2006 [5b], Local Consensus [5b]).

Detailed elements of the syncope assessment are outlined in the Table

TABLE

HISTORY

Past Medical History (of the patient)

- ☐ congenital heart disease
- ☐ cardiac arrest
- ☐ pacemaker/ICD placement

Syncope History

- ☐ **Situation history surrounding the event**
  - __ during exercise
  - __ following exercise
  - __ early morning
  - __ while swimming
  - __ following rising from sitting/lying down
  - __ during excessive heat (hot day, shower)
  - __ at time of intercurrent illness
  - __ auditory stimulus trigger (door bell, phone ring)
  - __ other _____
- ☐ Signs and symptoms associated with the event
  - __ palpitations
  - __ nausea
  - __ observed pallor
  - __ sensation of warmth
  - __ lightheadedness
  - __ diaphoresis
  - __ seizure-like activity
    - __ convulsions
    - __ loss of bladder/bowel control
    - __ post event sleepiness
- ☐ Physical injuries secondary to the event (injury during syncope event)

HISTORY, continued

Family History

- ☐ sudden death
- ☐ cardiac arrest
- ☐ syncope
- ☐ congenital heart disease
- ☐ pacemaker/ICD placement

EXAMINATION

- ☐ orthostatic blood pressure
- ☐ orthostatic heart rate

DIAGNOSTICS

- ☐ electrocardiogram

(Moya 2009 [5a], Strickberger 2006 [5b], Local Consensus [5b])

Discussion/summary of evidence

When underlying heart disease is present, syncope is potentially life threatening. Because heart disease is less common in children than in adults, syncope in pediatric patients is usually benign *(Strickberger 2006 [5b])*. In a search for synthesized evidence two guidelines were identified, the American Heart Association/American College of Cardiology Foundation (AHA/ACCF) Scientific Statement on the Evaluation of Syncope and the Guidelines for the Diagnosis and Management of Syncope from the Task Force for the Diagnosis and Management of Syncope of the European Society of Cardiology (ESC). These guidelines were appraised using the AGREE (Appraisal of Guidelines for Research and Evaluation) instrument and the results by domain were:

AGREE Domains	**AHA/ACCF (2 reviewers)**	**ESC (3 reviewers)**
Scope and Purpose	67%	78%
Stakeholder Involvement	4%	47%
Rigor of Development	12%	62%
Clarity and Presentation	42%	89%
Applicability	22%	52%
Editorial Independence	100%	56%

AHA/ACCF = American Heart Association/American College of Cardiology Foundation; ESC = European Society of Cardiology

Neither of the guidelines had clear pediatric-focused evidence-based recommendations for evaluation of syncope. The recommendation developed for this BESt was based on a combination of consensus and guidance from the ESC guideline. Key aspects of particular interest included syncope history especially surrounding episodes of exercise, family history of sudden death, family history of congenital heart disease, documentation of orthostatic blood pressure and orthostatic heart rate.

Health Benefits, Side Effects and Risks

By appropriately evaluating patients according to these recommendations, benefits include probable identification of underlying cause and mechanism, and the specific risk of death, life-threatening events, and physical injury to the patient. Costs and risks are minimal and include submitting to a medical history, physical exam and non-invasive electrocardiography *(Moya 2009 [5a])*.

References/citations (evidence grade in *[ ]; **see Table of Evidence Levels following references***)

Note: When using the electronic version of this document, ☜ indicates a hyperlink to the PubMed abstract. A hyperlink following this symbol goes to the article PDF when the user is within the CCHMC network.

1. **Local Consensus:** During recommendation development timeframe. *[5b]* ☜.
2. **Moya, A. et al.:** Guidelines for the diagnosis and management of syncope (version 2009): the Task Force for the Diagnosis and Management of Syncope of the European Society of Cardiology (ESC). *Eur Heart J*, 30(21): 2631-71, 2009, *[5a]* _____ ☜ _____.
3. **Strickberger, S. A. et al.:** AHA/ACCF Scientific Statement on the evaluation of syncope. *Circulation*, 113(2): 316-27, 2006, *[5b]* _____ ☜ _____.

Note: Full tables of evidence grading system available in separate document:

- Table of Evidence Levels of Individual Studies by Domain, Study Design, & Quality (abbreviated table below)
- Grading a Body of Evidence to Answer a Clinical Question
- Judging the Strength of a Recommendation (abbreviated table below)

Table of Evidence Levels (see note above)

Quality level	***Definition***
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	Other: General review, expert opinion, case report, consensus report, or guideline

†a = good quality study; b = lesser quality study

Table of Recommendation Strength (see note above)

Strength	***Definition***
"Strongly recommended"	There is consensus that benefits clearly outweigh risks and burdens (or visa-versa for negative recommendations).
"Recommended"	There is consensus that benefits are closely balanced with risks and burdens.
No recommendation made	There is lack of consensus to direct development of a recommendation.

Dimensions: In determining the strength of a recommendation, the development group makes a considered judgment in a consensus process that incorporates critically appraised evidence, clinical experience, and other dimensions as listed below.

1. Grade of the Body of Evidence (see note above)
2. Safety / Harm
3. Health benefit to patient *(direct benefit)*
4. Burden to patient of adherence to recommendation *(cost, hassle, discomfort, pain, motivation, ability to adhere, time)*
5. Cost-effectiveness to healthcare system *(balance of cost / savings of resources, staff time, and supplies based on published studies or onsite analysis)*
6. Directness *(the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome])*
7. Impact on morbidity/mortality or quality of life

Supporting information

Group/team members

Team Leaders /Members
Jeffrey Anderson, MD, Cardiology Clinic
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Karen Vonderhaar, MS, RN, Guidelines Program Administrator, Methodologist

Search strategy

OVID Databases:
MedLine, CINAHL, Cochrane, and
Other – Medical Association and Guideline Websites: Ameican Academy of Pediatrics (AAP), American College of Cardiology (ACCF), American Academy of Neurology (AAN), American College of Emergency Physicians, American Heart Association (AHA), European Society of Cardiology, National Guideline Clearinghouse (HGC)
Search Term & MeSH Term – exp Syncope. and vasovagal. mp.
Limits:
-English language
-1996 to present
- ("all infant (birth to 23 months)" or "all child (0 to 18 years)" or "newborn infant (birth to 1 month)" or "infant (1 to 23 months)" or "preschool child (2 to 5 years)" or "child (6 to 12 years)" or "adolescent (13 18 years)")
OR *pediatr$/** ***OR*** *child$/** ***OR*** *adolesc $/** ***OR*** *teen $/**
- (guideline or meta analysis or practice guidelines or systematic review).pt. or "the cochrane library".jn. or "cochrane database of systematic reviews".jn.

Applicability issues

Measures that are proposed to be audited:

- Percent of patients in syncope clinic receiving an orthostatic blood pressure evaluation.
- Percent of patients in syncope clinic who receive a family history evaluation that included assessment of: syncope events, cardiac arrest, and sudden death.
- Percent of patients in syncope clinic that experience syncope symptoms during exercise.

For more information about CCHMC Best Evidence Statements and the development process, contact the Health Policy and Clinical Effectiveness office at 513-636-2501 or HPCEInfo@cchmc.org.

Note

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.

Reviewed against quality criteria by 2 independent reviewers