

# Syncope in Pregnancy: A Scoping Review

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**The 5th International Congress  
on Cardiac Problems  
in Pregnancy (CPP 2018)**

# Background

- Syncope refers to the temporary loss of consciousness due to a brief reduction in blood flow to the brain
  - characterized by rapid onset, short duration and spontaneous complete recovery.
- Estimated annual incidence of 6.2 per 1000 patient-years in the U.S. general population
  - accounts for ~0.8% of emergency room visits, 1.3% of hospital admissions, and annual costs of at least \$2.4 billion.
- Syncope appears to be more common among the obstetric population, with an antepartum prevalence of up to 5% (may represent up to a ten-fold increase compared to non-pregnant populations)
- There are no published systematic reviews on this topic
  - Various narrative reviews, many case reports
  - Very few population-based studies

# What is a scoping review?

- ‘a process of mapping the existing literature or evidence base’
  - May guide research, prelude to meta-analysis

## *Scoping review*

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Research question(s) often broad

Inclusion/exclusion can be developed *post hoc*

Quality not an initial priority

May or may not involve data extraction

Synthesis more qualitative and typically not quantitative

Used to identify parameters and gaps in a body of literature

# Research Questions

- **Primary:** Among pregnant women, what does the medical literature tell us about the prevalence, causes and effective treatments for syncope?
- **Secondary:** What is the natural history of neutrally-mediated syncope in pregnancy?

# Methods – Search Strategy

**Sources:** Medline (1946-2017), EMBASE (1974-2017), Web of Science (1900-2017), Cardiac Problems in Pregnancy Congress abstracts (no date limits)

## Population

*MeSH terms (exp):*

- Pregnancy
- Pregnancy complications

*EMTREE terms (exp):*

- Pregnancy
- Pregnancy complications
- Pregnancy disorder

*Search terms (text words):*

- Pregnancy
- Pregnant
- Maternal
- Obstetric\$
- Delivery
- Antepartum
- Puerperium
- Peripartum
- Postpartum
- Gravid\$

## Outcome

*MeSH terms (exp):*

- Syncope

*EMTREE terms (exp):*

- Faintness

*Search terms (text words):*

- Syncop\$
- Faint\$
- Vasovagal

## Boolean Operators

- Search **terms** within each **theme** combined with 'OR'
- Search **themes** combined with 'AND'

# Inclusion / Exclusion Criteria

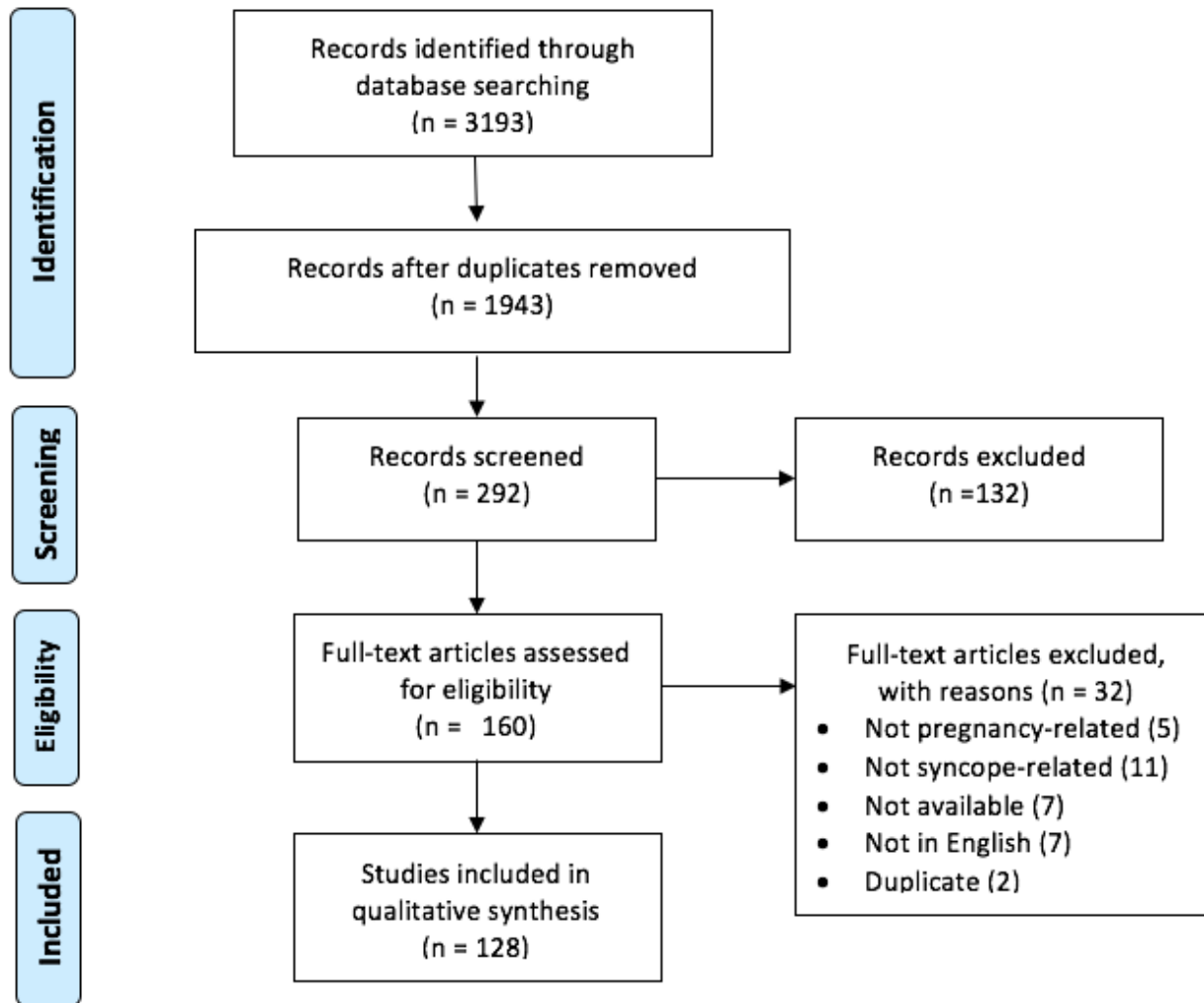
- Inclusion

- Original research or review articles with a **significant focus** on/regarding syncope during pregnancy or postpartum
- Available as full-text or abstract in English language

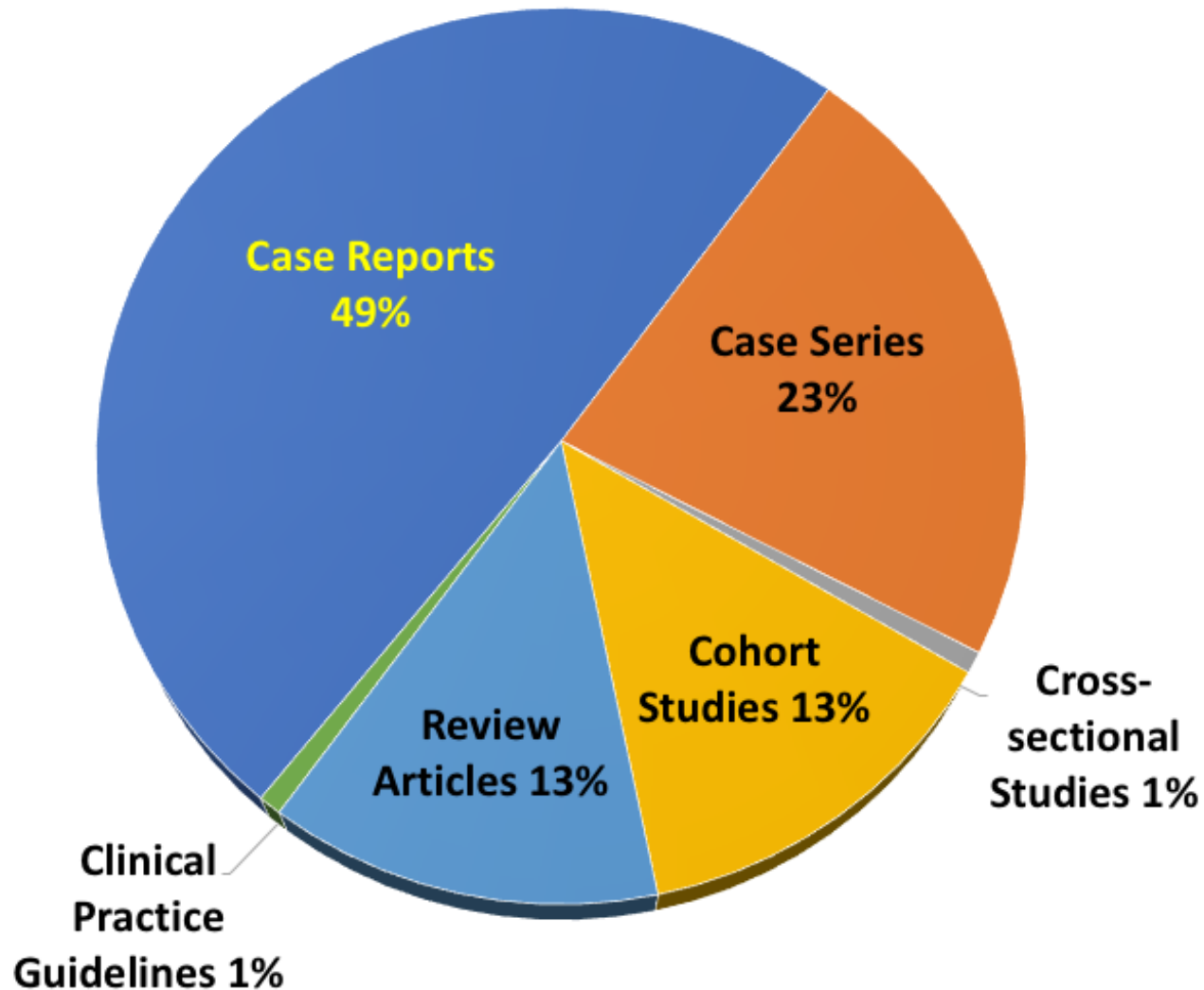
- Exclusion

- Reports exclusively on syncope outside of pregnancy/postpartum
- Syncope mentioned only briefly/incidentally
- Non-human study

# PRISMA Diagram



# Results – Publication Types





# Results - Geographic Sources



# Focus on 'Associated Conditions'

- 85% of the included papers referenced syncope in relation to an underlying condition/complication:
  - Cardiac conditions: 54.7%
    - SVT/VT/Arrhythmias: 17.2%
    - Cardiomyopathy (incl PPCM): 9.7%
    - LQTS: 9.4%
    - Heart block: 7.8%
  - Obstetric anesthesia: 10.9%
  - Obstetric complications: 10.9%
    - VTE: 7.8%
    - Placental abruption: 1.6%

# Medications for Syncope

- Primary focus of 9 articles (7.0%)
  - Thrombolytics (VTE or MHV-T): 4
  - Beta-blockers: 3
  - Adenosine (SVT): 1
  - Remifentanyl (SVT): 1

# Articles on neurally-mediated syncope in pregnancy (n=19)

<b>Maternal Syncope</b>				
Author	Year	Country	Title	Source
<b>Cross-sectional studies</b>				
Gibson, P.	2001	Canada	Prevalence of syncope and recurrent syncope during pregnancy	Obstet Gynecol. 2001 Apr;97(4 Suppl 1):S41-S42.
<b>Case reports</b>				
Firth, P.	1997	USA	Vasovagal syncope: An unusual cause of postpartum collapse	Journal of Obstetrics and Gynaecology 17(5):491.
Huang, Ming-He	2003	USA	Postural position and neurocardiogenic syncope in late pregnancy	The American journal of cardiology 92(10):1252-3.
Peterson, A. L.	2004	USA	Applied tension treatment of vasovagal syncope during pregnancy	Military Medicine 169(9):751-753.
Segal, N.	2013	USA	Use of an impedance threshold device to treat severe hypotension in a pregnant woman	Journal of Emergency Medicine 45(4):e113-e115.
Woodburn, A.	1955	USA	Postural syncope or shock associated with pregnancy; a case report	Ohio State medical journal 51(9):859-60.
<b>Case-series</b>				
Brockington, I.	2006	UK	Early postpartum syncope, delirium and stupor	Archives of women's mental health 9(6):347-8.
Grubb, B. P.	1995	USA	Postpartum syncope	Pacing and clinical electrophysiology : PACE 18(5 Pt 1):1028-31.
Hughes, E. J.	2016	UK	Magnetic resonance imaging quantification of venous return in pregnant women	BJOG: An International Journal of Obstetrics and Gynaecology 123:25.
Ikeda, T.	1992	Japan	Maternal Cerebral Hemodynamics in the Supine Hypotensive Syndrome	Obstetrics and Gynecology 79(1):27-31.
Saqr, L.	2007	UK	Neurocardiogenic syncope in the obstetric patient	Anaesthesia 62(1):79-84.
Sherer, D. M.	2005	USA	Micturition syncope during pregnancy	Obstetrics and Gynecology 105(3):485-486.
<b>Review Articles</b>				
Kinsella, S. M.	1994	UK	Supine hypotensive syndrome	Obstetrics and Gynecology 83(5 1):774-788.
Sweeney, B.	2007	UK	Treatment of neurocardiogenic syncope	Anaesthesia 62(6):632-633.
Yarlagadda, S.	2010	USA	Syncope during pregnancy	Obstetrics and Gynecology 115(2 PART 1):377-380.
<b>Paternal Syncope</b>				
Author	Year	Country	Title	Source
<b>Case-series</b>				
Bronshtein, M.	1995	UK	Husband's head trauma--a risk of obstetric ultrasound	Obstetrics and Gynecology 5(6):422-3.
Crosby, E. T.	1989	Canada	Epidurals for labour, and fainting fathers	Canadian journal of anaesthesia 1989. 36(4):482.
Gbinigie, N. I.	2001	UK	Informed consent, and fainting fathers	Anaesthesia 56(6):603-4.
Hon, E. H.	1994	UK	Cardiovascular concomitants of syncope in pregnancy	Journal of Maternal-Fetal Medicine 3(3):111-118.

# Articles on neurally-mediated syncope in pregnancy (n=19)

- 1 x **cross-sectional study** on prevalence of syncope
- 7 x **case-series** & 5 **case reports**
- 3 x narrative **review articles**
- 3 x **case-series** on paternal syncope
- No prospective or retrospective cohort studies on the natural history of neurally-mediated syncope in pregnancy
- No clinical trials to guide management
  - Case reports on 'applied tension treatment' and 'impedence threshold device' use

# Summary

## Key Findings

- Syncope appears to be common in pregnancy (estimated prevalence ~5%) and may be associated with a variety of serious underlying cardiac, medical/obstetric and anesthetic complications
  - Syncope as a ***symptom*** of an underlying condition may best be managed by optimal recognition and management of the primary diagnosis
- There is a serious ***dearth of evidence*** regarding the natural history and optimal management of ***neutrally-mediated syncope in pregnancy***

# Future Directions

- Future research is needed re: NCS
  - Confirm prevalence and determine risk factors for neurally-mediated syncope in pregnancy
  - Prospective evaluation on the natural history of NCS in pregnancy
  - Need evidence to guide the management of NCS in pregnancy

# References

- Armstrong R, Hall BJ, Doyle J, Waters E. Cochrane Update. 'Scoping the scope' of a cochrane review. J Public Health (Oxf). 2011 Mar;33(1):147-50.
- Dijkers, M. What is a Scoping Review? KT Update. 2015 Dec;4(1):1-5.
- References of articles included in this review are available upon request/publication (n=128)



Thank You for your attention!

**Questions?**