



# Unexpected sudden infant death and severe apparent life-threatening events in the early postnatal period

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## Background

Unexpected sudden infant death (SID) and severe apparent life-threatening events (S-ALTE) in a healthy newborn infant in the early postnatal period are rare events. Despite initial resuscitation, there is a high risk of death or long-term neurologic disability. In a minority of cases, an underlying cause will be found, but most remain unexplained. Factors identified as possibly playing a role include prone positioning of an infant on its mother's chest, airway obstruction during breastfeeding, primiparity, maternal fatigue, and the effects of analgesia on the mother. This issue is of both medical and public health importance, as some of these catastrophic events may be preventable. There is a need for additional data, as limited information currently exists.

Recently, two cases of apparent suffocation in newborns on the maternity ward were reported when mothers unintentionally fell asleep while breastfeeding. Another newborn experienced sudden collapse and was subsequently found to have bacterial sepsis. In addition, a number of recent publications<sup>1-5</sup> have heightened awareness of this issue.

This study will allow the national incidence of SID and S-ALTE in Canada to be determined. Furthermore, the study will aim to generate hypotheses on possible risk factors for such events with the goal of preventing them in the future. Finally, Canadian data could be compared with those obtained in similar studies that have been conducted by members of the International Network of Paediatric Surveillance Units, namely the UK<sup>1</sup> and Germany.<sup>2,3</sup>



## Methods

Through the CPSP, a survey will be sent to paediatricians and paediatric subspecialists, including neonatologists, in Canada asking them to report any new cases. The CPSP is an ideal venue because it reaches paediatricians in community hospitals and academic paediatric health centres. Paediatricians who identify cases will be sent a questionnaire in order to provide detailed clinical information on the cases.

## Case definition

Report any infant meeting **all** of the following criteria:

- $\geq 35$  weeks' gestation;
- Apgar score  $\geq 8$  at five minutes (if known);
- Acute and unexpected cardiorespiratory arrest within the first seven days of life (where day 1 is the day of birth);
- Died *or* received hospitalized mechanical respiratory support for  $\geq 12$  hours

## Objectives

- 1) Determine the incidence of SID and S-ALTE in Canada
- 2) Collect information on associated risk factors, including infant and maternal characteristics
- 3) Describe the clinical presentation
- 4) Document possible underlying conditions and causes
- 5) Describe the short-term outcomes of surviving infants

## Duration

January 2013 to December 2013

## Expected number of cases

The estimated incidence of unexplained SID or S-ALTE within the first 24 hours of life is 0.026/1,000 term live births.<sup>3</sup> There are 381,598 births per year in Canada (2011-2012 data),<sup>6</sup> 93% of which are term. Given these statistics, nine cases of unexplained SID or S-ALTE within the first 24 hours of life are expected. This is a minimum estimate. Newborns as early as 35 weeks' gestation will be included as well as events occurring within the first seven days of life.

## Ethical approval

Research Ethics Board, IWK Health Centre

## Analysis and publication

Incidence will be estimated as the number of cases per live births  $\geq 35$  weeks in Canada. Case characteristics will also be described. Completed study results will be presented at national and/or international paediatric meetings and submitted for publication in a peer-reviewed paediatric journal. Annual feedback will also be provided in the *CPSP Results*.



***Unexpected sudden infant death and severe apparent life-threatening events in the early postnatal period (continued)***



**References**

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PROTOCOLS