

# Clinical, economic and humanistic burden of SIDS/SUID in the USA and Europe

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## Background & Objective

- Sudden infant death syndrome (SIDS) or sudden unexpected infant death (SUID) is the sudden and unexpected death of an infant aged less than one year (1)
- Rates of SIDS or SUID can be as high as 76.4 per 100,000 live births (2)
- Despite such high rates, there is a lack of evidence that summarises the burden of SIDS or SUID. We conducted a targeted literature review (TLR) to understand the burden of illness of SIDS or SUID in the USA and Europe

## Methodology

- Electronic databases (MEDLINE, Embase, Econlit and the Cochrane Library) and grey literature searches were conducted in April 2024 to identify relevant studies reporting data on the clinical, humanistic, and economic burden of SIDS/SUID. The study period was limited from 2019 to present
- There was no restriction on intervention or comparator

## Results

- In total, 66 studies were included; of these 63 reported data on clinical, two on economic, and one on humanistic burden. Literature search and selection details are presented in Figure 1.

## Clinical burden

### Epidemiology

- There was a downward trend in annual SIDS/SUID rates across the six studies in the USA and Europe that reported rates (2-7)
- From 2000 to 2019, the incidence of SIDS decreased from 6.3 to 3.4 per 10,000 births with an overall incidence of 4.9 per 10,000 births (95% CI; 4.4, 5.3) (3)
- The overall rate of SUID significantly decreased from 40.2 per 100,000 patients in 2005 to 29.9 per 100,000 patients in 2015, across 14 Western European countries (p<0.001). Figure 2 shows rates of SUID per 100,000 live births in 14 European countries from 2005 to 2015 (2)

### Risk factors

- Figure 3 illustrates the maternal- and infant-related risk factors associated with SIDS/SUID.

#### Maternal risk factors

- Fifteen studies reported smoking as a risk factor for SIDS/SUID. Maternal smoking during pregnancy, maternal passive smoke exposure during pregnancy, and post-partum infant smoke exposure were all strongly associated with an increased risk of SIDS (8)
- Seven studies reported maternal alcohol and drug use associated with SIDS/SUID (8-14)
- Lack of breast feeding or breast feeding for shorter periods (<2 months vs ≥4 months; p<0.001) was a risk factor for SIDS/SUID (11)

#### Infant-related risk factor

- A total of fifteen studies reported an un-safe sleeping environment, such as sharing a sleep surface, soft bedding or prone sleeping position, as a risk factor for SIDS/SUID (8)
- Low birth weight and pre-term weight were reported as risk factors for SIDS/SUID in six and two studies, respectively (15, 16)
- Nine studies described an association between male gender and SIDS/SUID

Figure 1: Targeted literature review search and selection details

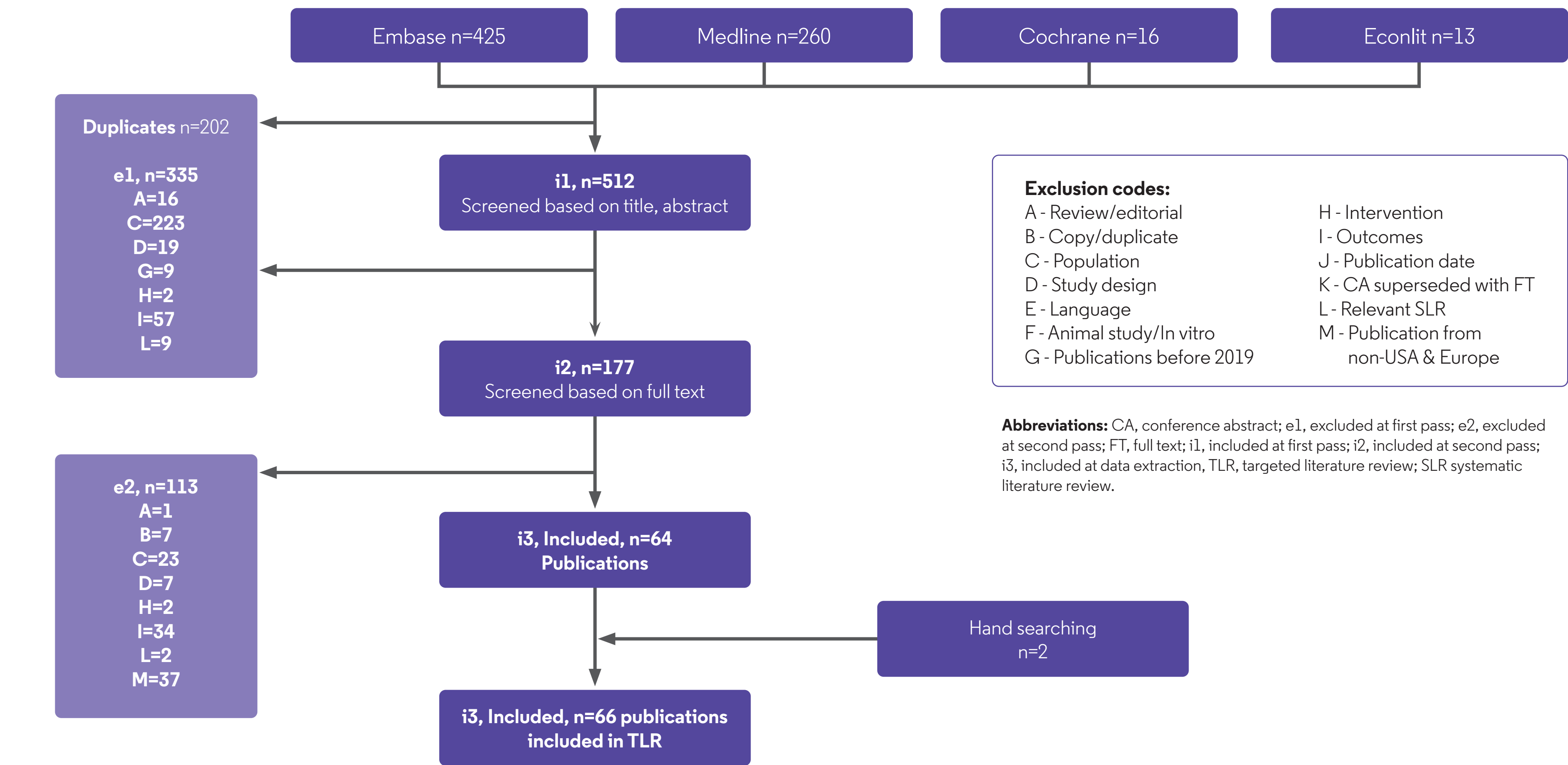
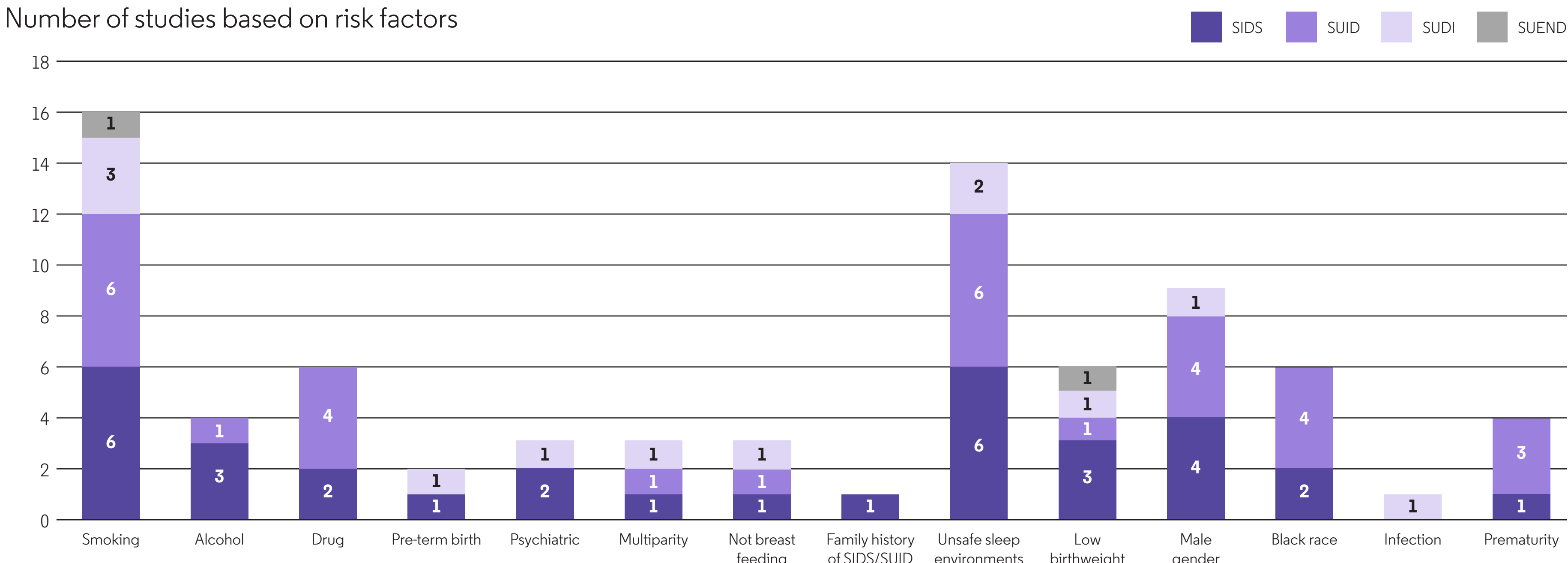


Figure 3: Maternal- and infant-related risk factors associated with SIDS/SUID



### Vaccines

- Only two studies evaluated the association between vaccines and SIDS/SUID, with contradictory results (15, 17). A study based on the Vaccine Adverse Event Reporting System (VAERS) database reported that a substantial proportion of infant deaths and SIDS cases occurred in temporal proximity to vaccine administration; of note these finding are not proof of an association between infants' deaths and vaccines (17). Conversely, Deschanvres et al, 2023, reported an association between non-immunization and increased risk of sudden unexpected death (15)

## Economic burden

- Economic burden studies focused on mental health and smoking status. The untreated maternal mental health cost attributable to SIDS was \$1.3 million (18)
- Compared with women who smoked during pregnancy, ceasing smoking lowered SIDS/SUID risk and resulted in an economic benefit per woman of \$4,700 (95% CI; 2,700, 6,800) (19)

## Humanistic burden

- Humanistic burden was described in a thematic analysis, reporting role confusion as the most prominent behavioural symptom contributing to prolonged grief disorder in bereaved mothers (20)

### Awareness

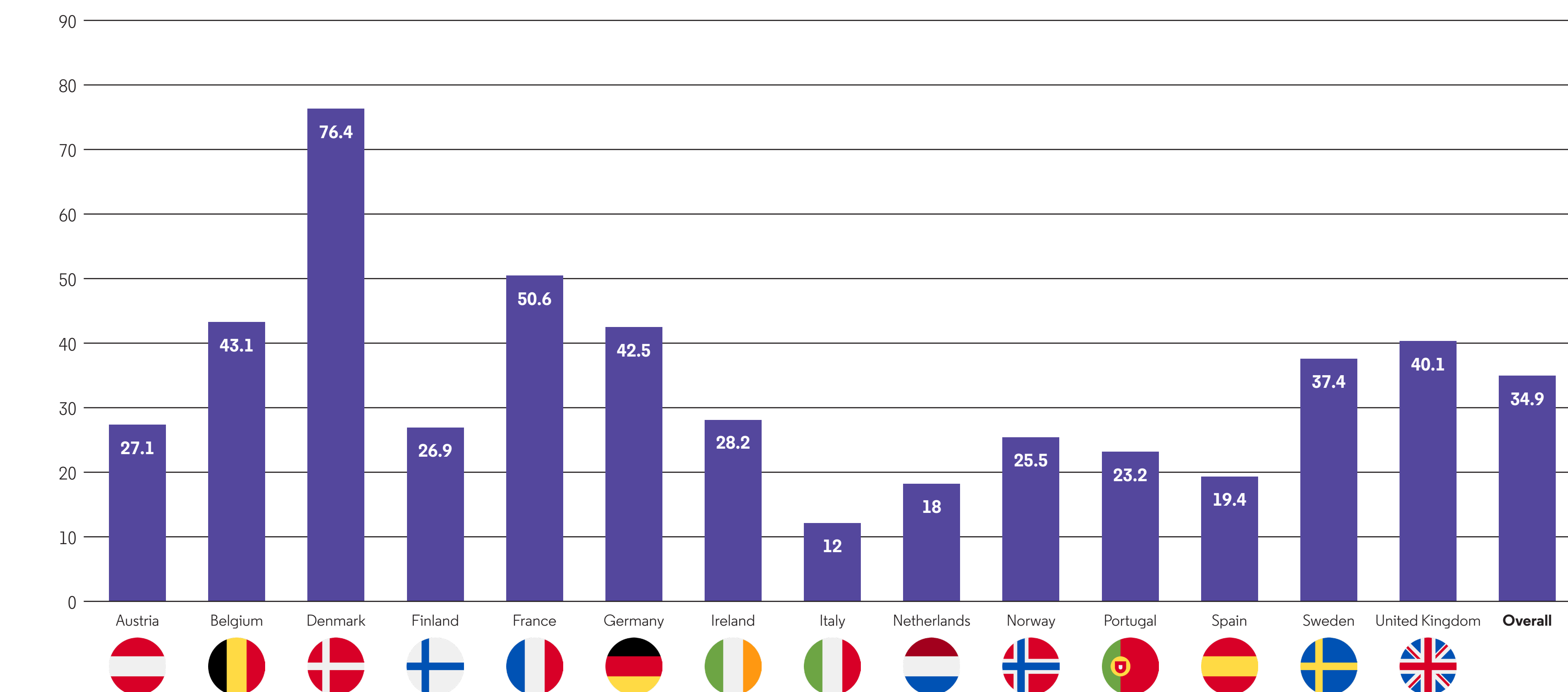
Four studies provided data on SIDS awareness; of these, two assessed clinician perspectives and two assessed the perspective of mothers (21-24).

- One USA-based survey reported that 98% of participating paediatricians and family practitioners felt that it is important to discuss SIDS with every parent, and 80% of them indicated a need within their profession for further information on the topic of SIDS (21)
- Gemble et al, 2020 (22), conducted a study on expectant mothers and reported that information on SIDS was principally obtained from media and not health professionals. When the information was delivered by a caregiver, in particular by a paediatrician, knowledge among expectant mothers was improve

## Conclusion

- Rates of SIDS/SUID are high, and they remain among the leading causes of infant death in the USA and Europe
- The most frequently identified maternal risk factors were smoking, alcohol use, drug use, preterm birth, psychiatric illness, multiparity, not breast feeding, and family history of SIDS/SUID, while unsafe sleep environments, low birthweight, male gender, black race, infections and prematurity were infant-related factors
- While conducting this review we encountered several limitations. Firstly, the variability in the accepted definition of SIDS can lead to difficulties in interpreting results across studies. Standardisation of the definition of SIDS or SUID is required to allow further high quality and reliable research. In addition, the current review has highlighted a paucity of published research on the economic and humanistic burden of SIDS/SUID, highlighting the need for further research in this field

Figure 2: SUID rates per 100,000 live births in 14 European countries from 2005 to 2015



Source: Adapted from de Visme 2020 (2)