



## 14. MOTHER AND NEWBORN

### 14.1. Neonatal mortality (MN-1)

#### 14.1.1. Documentation sheet

<b>Description</b>	The number of neonatal deaths (day 0-27) after live birth in a specific year, expressed by per 1 000 live births occurring in the same year.
<b>Calculation</b>	Number of neonatal deaths (day 0-27) after live birth (x1000), divided by all live births. Results are presented per region.
<b>Rationale</b>	The neonatal mortality rate is a key measure of health and care during pregnancy and delivery. The principal causes of neonatal death in high-income countries are congenital anomalies and complications related to very preterm birth. Babies from multiple pregnancies have higher neonatal mortality rates than singletons. <sup>1,2</sup> Suboptimal care is also associated with neonatal deaths at term, and these factors contribute to an explanation of the variation in mortality rates between European countries. <sup>3</sup> Healthcare and health-system factors also play a role. <sup>4</sup>
<b>Data source</b>	Statbel (Direction générale Statistique - Statistics Belgium). Live births statistics are derived from two sources: the first includes all live birth of children whose parents are registered in the National Register, the second is derived from birth bulletins that includes live births from mother usually living in Belgium and whose gestational age is at least 22 weeks. Before 2010, no linkage was made between National Register and birth bulletins. From 2010, the two series are harmonized (based on the legal residence of the mother) and only gestational age explains small difference between the series, as it is not recorded in the National Register data. OECD for international comparison.
<b>Technical definitions</b>	The annual neonatal mortality rate is defined as the number of deaths during the neonatal period (up to 28 completed days after birth), expressed per 1 000 live births that year. Sub-indicator: Perinatal mortality: the number of fetal deaths (birth weight of 500 g or more, or, if birth weight is missing, if gestational age is 22 completed weeks of gestation or more) and the number of infant deaths period (up to 7 completed days after birth) expressed per 1 000 births that year.
<b>Limitations</b>	Some clinicians report possible defective recording, as sometimes when a newborn dies quickly after births it is counted as stillborn. <sup>5</sup>
<b>International comparability</b>	Some of the international variation in infant and neonatal mortality rates may be due to variations among countries in registering practices of premature infants. Most countries have no gestational age or weight limits for mortality registration. However, some countries specify limits based on some combination of gestational age, birth weight or survival. <sup>6</sup>
<b>Performance Dimension</b>	Quality (effectiveness).



### 14.1.2. Results

#### Neonatal mortality

In Belgium, the neonatal mortality rate decreased from 3.39 neonatal deaths per 1 000 live births in 1998 to 2.16 neonatal deaths per 1 000 live births in 2015 which corresponds to a 36% decrease of the neonatal mortality rate and an average annual decrease of 0.07 neonatal deaths per 1 000 live births. (Table 129, Figure 196).

A decrease of the neonatal mortality rate is observed in every Belgian regions between 1998 and 2015 but the decrease is stronger in Wallonia (average annual reduction of 0.10 neonatal death per 1 000 live births) and Brussels (0.14) than in Flanders (0.04). (Table 129, Figure 196).

Variation in the neonatal mortality rate is more important in Brussels than in the other regions. These important variations are translated by a sawtooth curve in Figure 196.

No difference in the conclusion regarding neonatal mortality rate in Belgium was observed when analysis were performed using live births data from birth bulletins rather than live birth data from the National Register.

In 2015, Belgium had a lower neonatal mortality rate (2.2 neonatal deaths per 1 000 live births) than the average EU-15 country (Denmark, Greece, UK, Ireland, France, Netherlands, Austria, Germany, Belgium, Portugal, Luxembourg, Italy, Spain, Sweden and Finland: 2.3 neonatal deaths per 1 000 live births) and was classified seventh country with the lowest neonatal mortality rate, i.e. between Portugal (2.0 neonatal deaths per 1 000 live births) and Germany (2.3 neonatal deaths per 1 000 live births). (Figure 197).

From 2000 to 2015, neonatal mortality rate in Belgium followed the EU-15 trends, i.e. an important decrease of the neonatal mortality rate until 2010 and a stabilisation of the indicator after 2010 (Figure 198).

#### Perinatal mortality

The perinatal mortality rate is defined as the number of fetal deaths and the number of infant deaths in the first week of life per 1 000 births of the same year. In Belgium, fetal deaths are included if they have a birth weight of 500 g or more, or, if birth weight is missing, if gestational age is 22 completed weeks of gestation or more.<sup>7</sup> However, Euro-Peristat recommends that fetal deaths be included at or after 22 completed weeks of gestation or, when gestational age is missing, if they have a birth weight of 500 g or more, but not if both gestational age and birth weight are missing.<sup>1</sup> The choice of the definition can have an important impact on fetal mortality rate as it has been shown in Brussels.<sup>8</sup> In addition, in Belgium, it is not possible to distinguish spontaneous stillborn, from voluntary (medical or therapeutic) termination of pregnancy, which can explain a higher fetal mortality rate.<sup>5</sup>

In Belgium, the perinatal mortality rate decreased from 6.97 perinatal deaths per 1 000 births in 1998 to 6.01 perinatal deaths per 1 000 births in 2015 which corresponds to a 16% decrease of the perinatal mortality rate and an average annual decrease of 0.06 perinatal deaths per 1 000 births. Nevertheless, a period of increase was observed between 2005 and 2009. (Table 130, Figure 199).

There was a decrease of the perinatal mortality in every Belgian regions between 1998 and 2015, with an average annual reduction of 0.04 perinatal deaths per 1 000 births in Flanders, 0.07 in Brussels and 0.08 in Wallonia. Regional perinatal mortality rates in 2015 are 5.63 perinatal deaths per 1 000 births in Flanders, 6.84 in Brussels and 6.27 in Wallonia. As for neonatal mortality rate, variation in the perinatal mortality rate is more important in Brussels than in the other regions. Nevertheless, these results are difficult to interpret because of a change in in the reporting practices of births before 28 weeks of gestation: stillbirths calculated on all births increased abruptly in 2008 in Brussels.<sup>9</sup> (Table 130, Figure 199).

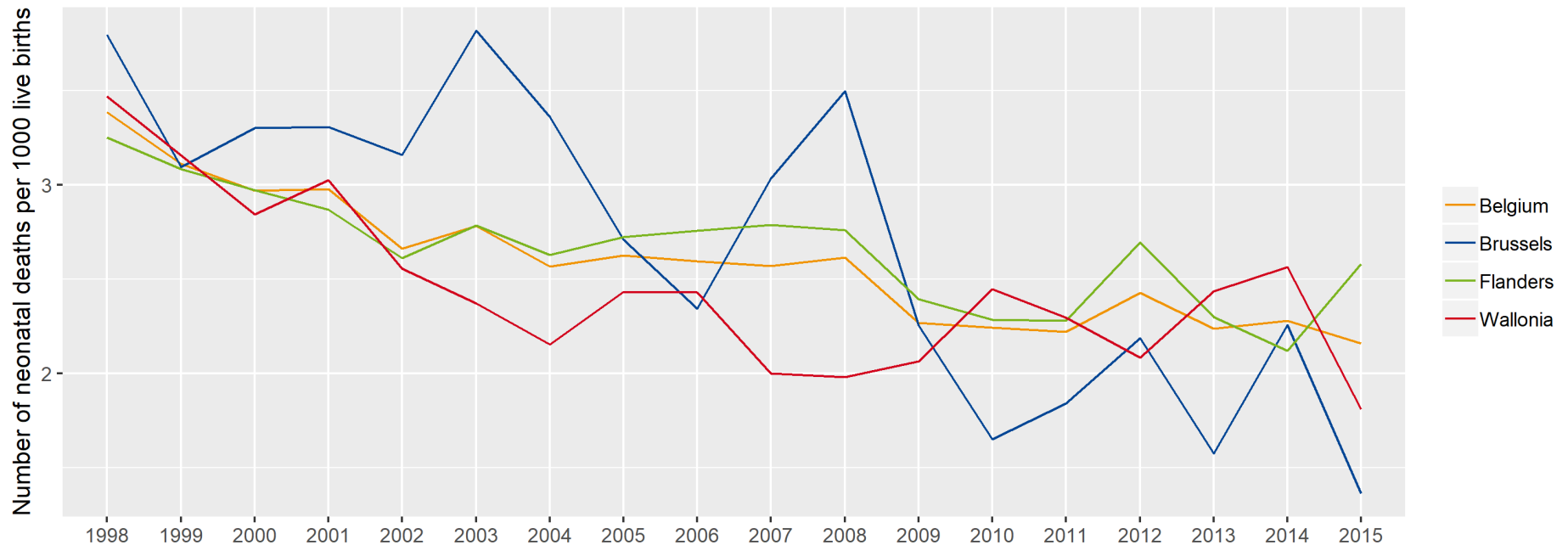
No difference in the conclusion regarding perinatal mortality rate in Belgium was observed when analysis were performed with live births data from birth bulletins rather than live birth data from the National Register.



In 2015, Belgium had a higher perinatal mortality rate (6.0 perinatal deaths per 1 000 births) than the average EU-13 country (Finland, Portugal, Spain, Netherlands, Denmark, Greece, Sweden, Austria, Germany, Belgium, UK, Luxembourg, France: 5.7 perinatal deaths per 1 000 births) and was classified fourth country with the highest perinatal mortality rate, i.e. and was Germany (5.6 perinatal deaths per 1 000 births) and UK (7.0 perinatal deaths per 1 000 births) (Figure 200).

Until 2005, perinatal mortality rate in Belgium followed the EU-13 trends, i.e. a decrease of the perinatal mortality rate. However after 2005, perinatal mortality rate increased in Belgium and became higher than the average EU-13 perinatal mortality (Figure 201).

**Figure 196 – Neonatal mortality rate (per 1 000 live births), by region, 1998-2015**



Data source: Statbel, National Register; Calculation: KCE

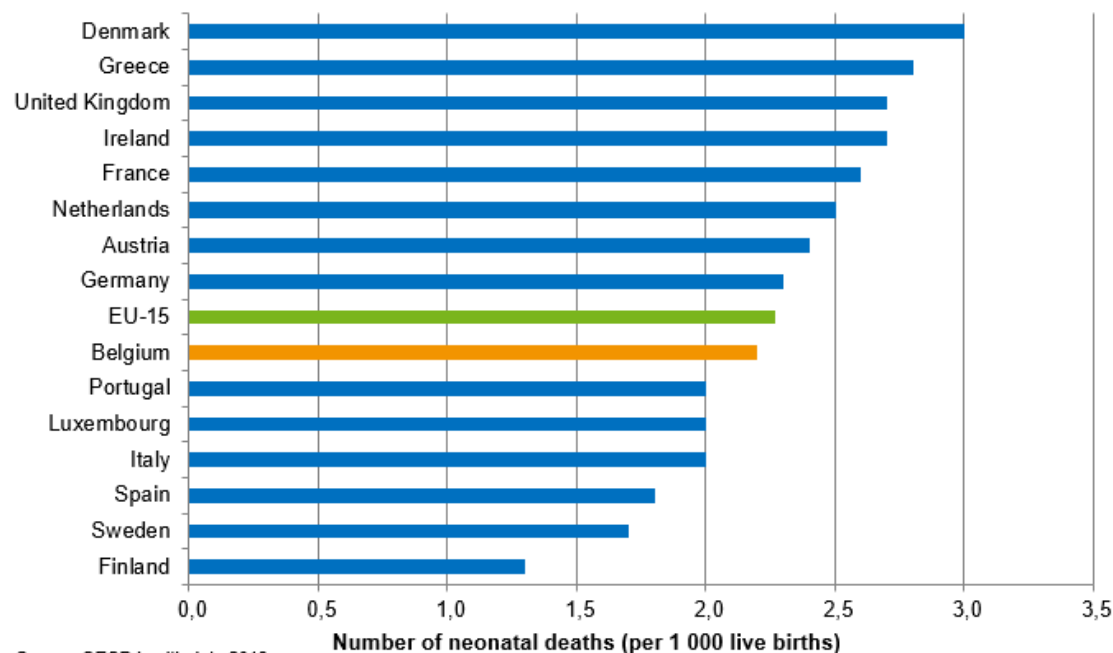


Table 129 – Number of neonatal deaths per 1000 live births, by region, 1998-2015

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average annual difference 1998-2015
<b>Belgium</b>	3.39	3.11	2.97	2.98	2.66	2.78	2.57	2.63	2.60	2.57	2.62	2.27	2.24	2.22	2.43	2.24	2.28	2.16	-0.07
<b>Brussels</b>	3.80	3.10	3.30	3.31	3.16	3.82	3.36	2.71	2.34	3.03	3.50	2.26	1.65	1.84	2.19	1.58	2.26	1.37	-0.14
<b>Flanders</b>	3.25	3.09	2.97	2.87	2.61	2.79	2.63	2.72	2.76	2.79	2.76	2.39	2.28	2.28	2.70	2.30	2.12	2.58	-0.04
<b>Wallonia</b>	3.47	3.16	2.84	3.02	2.56	2.37	2.15	2.43	2.43	2.00	1.98	2.06	2.45	2.30	2.08	2.44	2.57	1.81	-0.10

(Data source: Statbel, national register; Calculation: KCE)

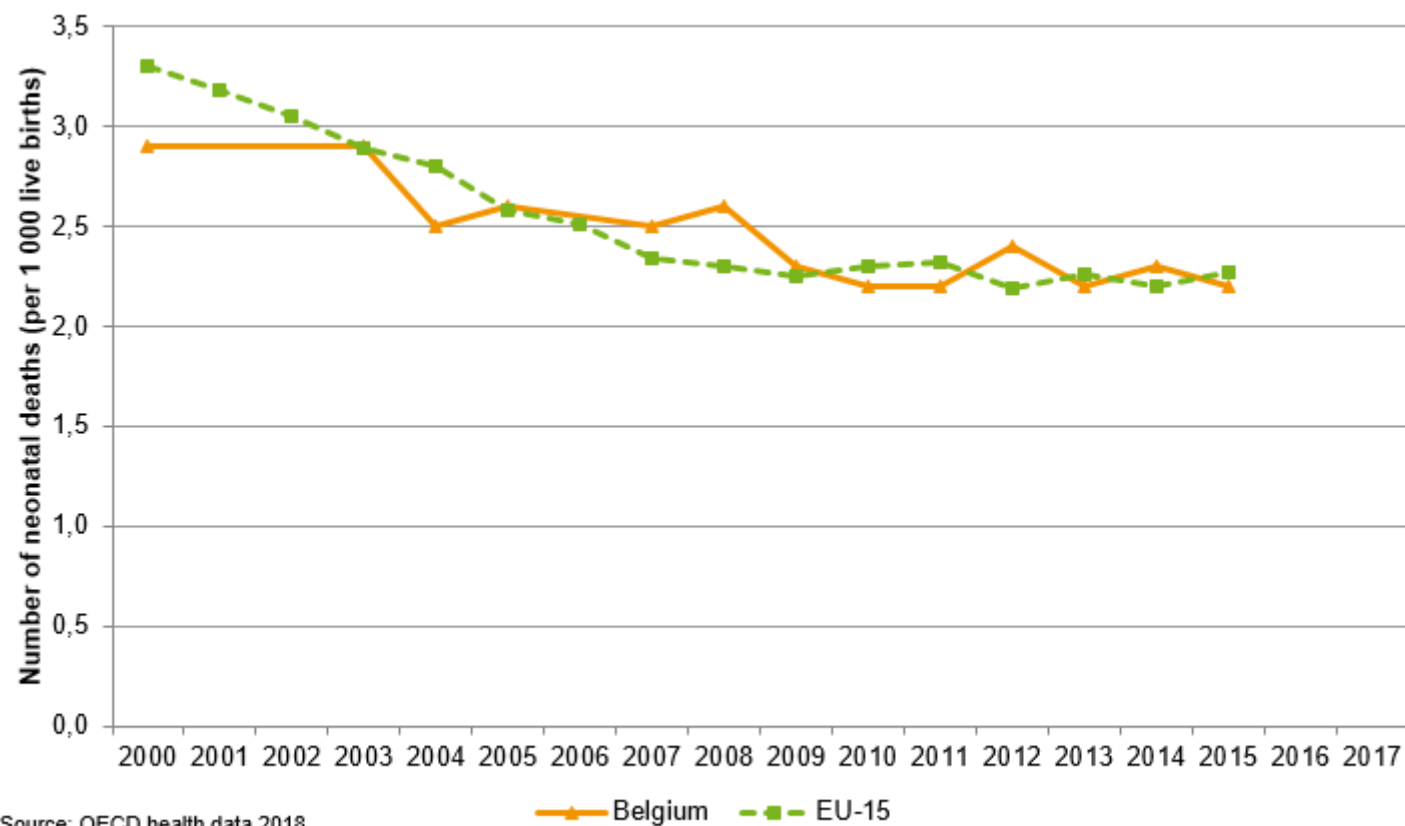
Figure 197 – Neonatal mortality (per 1 000 live births), by EU-15 country, 2015



Source: OECD health data 2018



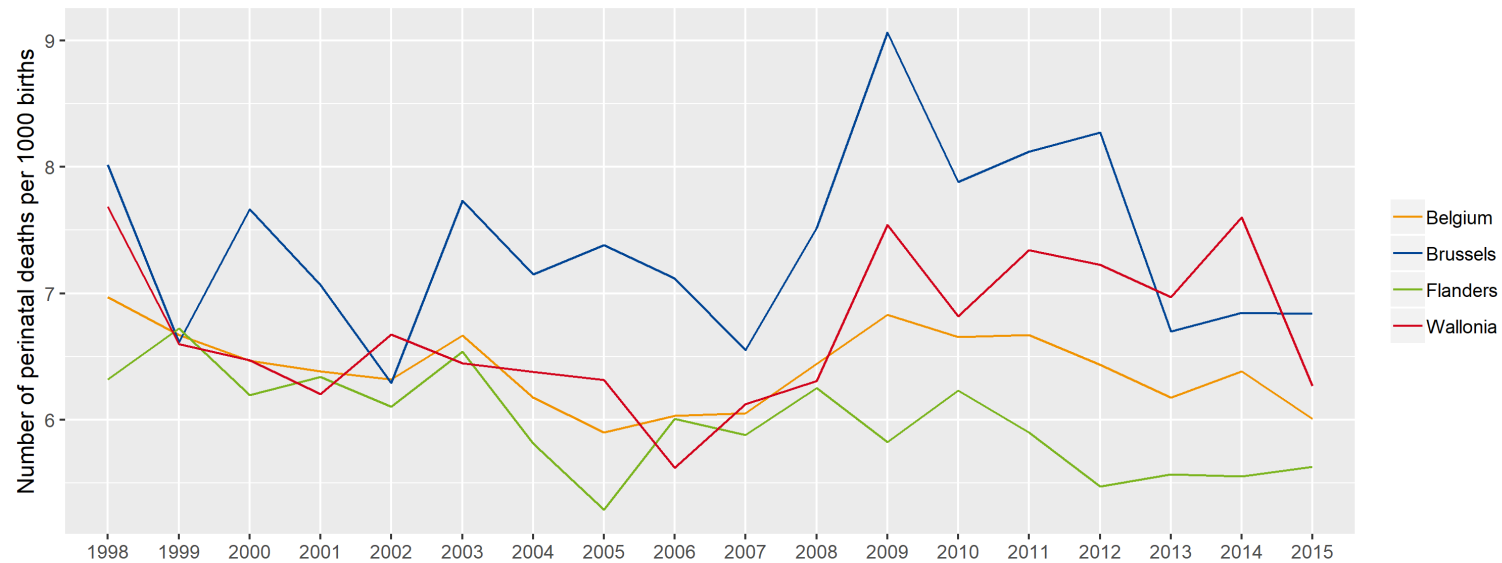
Figure 198 – Neonatal mortality (per 1 000 live births), by EU-15\* country, 2000-2015



\*Denmark, Greece, UK, Ireland, France, Netherlands, Austria, Germany, Belgium, Portugal, Luxembourg, Italy, Spain, Sweden, Finland



Figure 199 – Perinatal mortality rate (per 1 000 births), by region, 1998-2015



(Data source: Statbel, national register; Calculation: KCE)

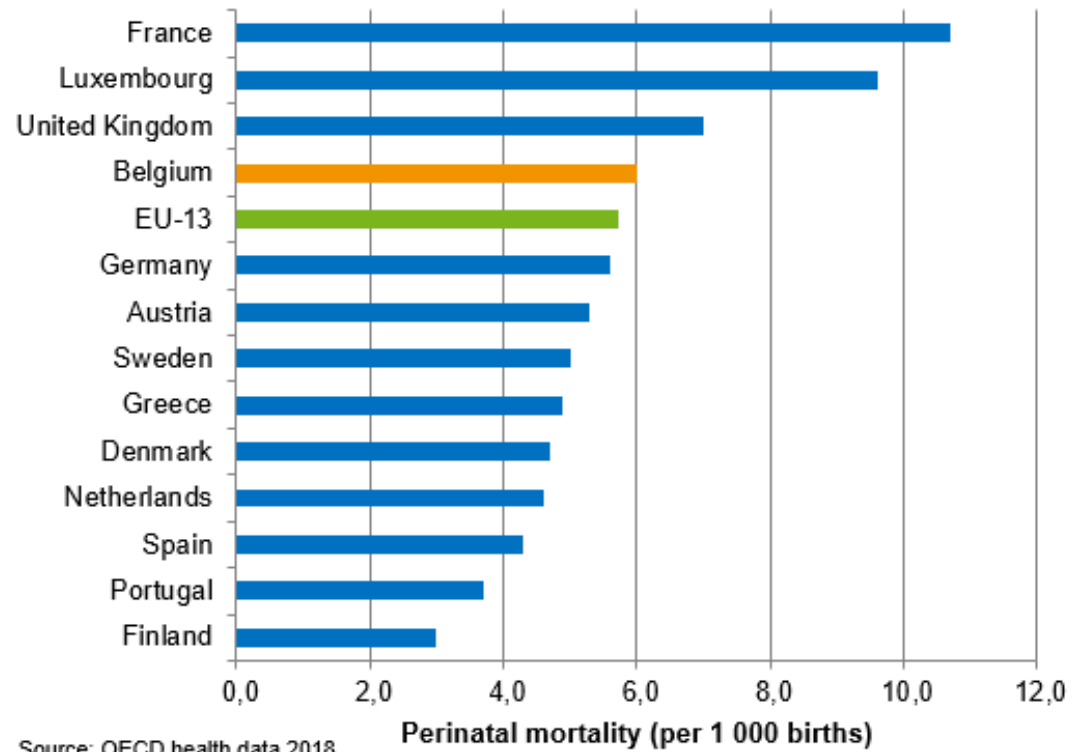
Table 130 – Number of perinatal deaths per 1000 births, by region, 1998-2015

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average annual difference 1998-2015
<b>Belgium</b>	6.97	6.67	6.47	6.38	6.32	6.67	6.18	5.90	6.03	6.05	6.45	6.83	6.65	6.67	6.44	6.17	6.38	6.01	-0.06
<b>Brussels</b>	8.02	6.62	7.67	7.06	6.29	7.73	7.15	7.38	7.12	6.55	7.52	9.06	7.88	8.12	8.27	6.70	6.85	6.84	-0.07
<b>Flanders</b>	6.32	6.72	6.20	6.34	6.10	6.54	5.81	5.29	6.01	5.88	6.25	5.82	6.23	5.90	5.47	5.57	5.55	5.63	-0.04
<b>Wallonia</b>	7.68	6.60	6.47	6.20	6.68	6.45	6.38	6.32	5.62	6.12	6.31	7.54	6.82	7.34	7.23	6.97	7.60	6.27	-0.08

(Data source: Statbel, national register; Calculation: KCE)



Figure 200 – Perinatal mortality (per 1 000 births), by EU-13\* country, 2015

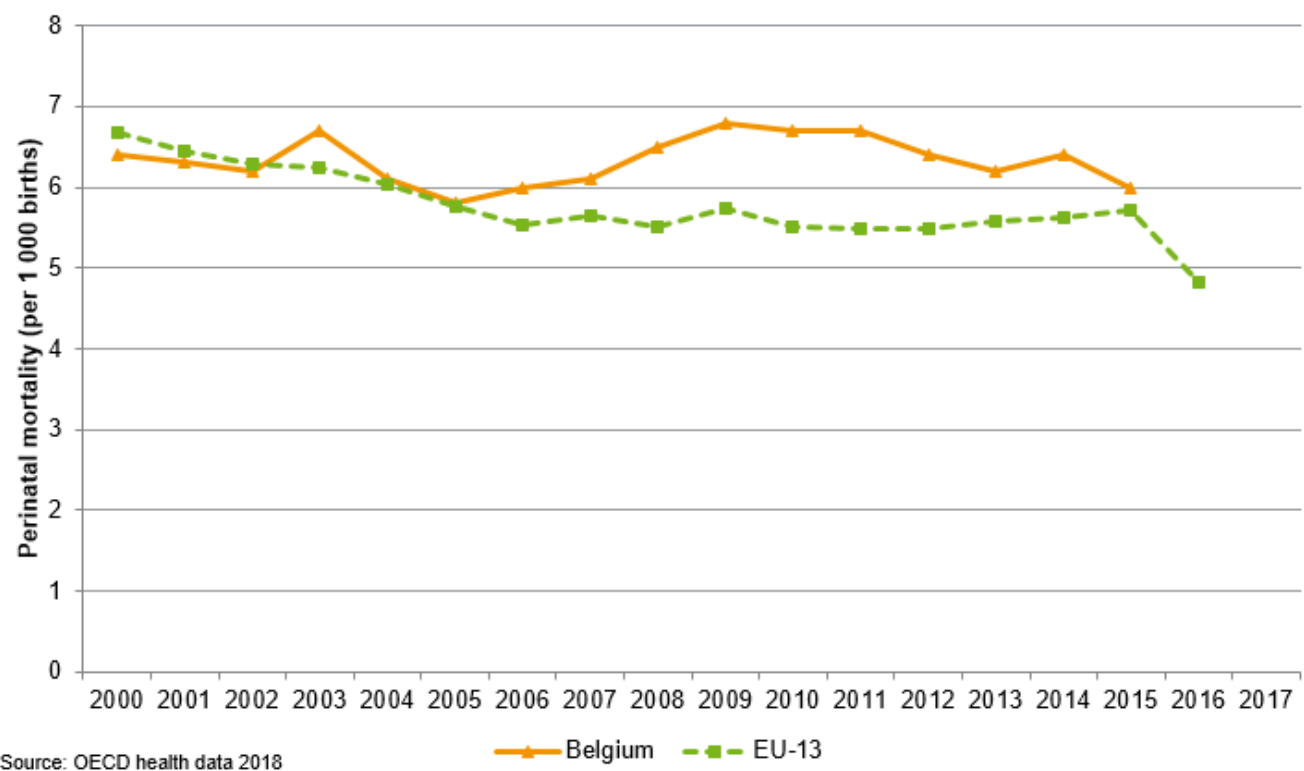


Source: OECD health data 2018

\* France, Luxembourg, UK, Belgium, Germany, Austria, Sweden, Greece, Denmark, Netherlands, Spain, Portugal, Finland



Figure 201 – Perinatal mortality (per 1 000 births), by EU-13\* country, 2000-2015



Source: OECD health data 2018

\* France, Luxembourg, UK, Belgium, Germany, Austria, Sweden, Greece, Denmark, Netherlands, Spain, Portugal, Finland





### Key points

- **The neonatal mortality rate decreased in every Belgian regions between 1998 and 2015.**
- **In 2015, Belgium had a lower neonatal mortality rate (2.2 neonatal deaths per 1 000 live births) than the average EU-15 country (2.3 neonatal deaths per 1 000 live births) and was classified seventh country with the lowest neonatal mortality rate.**
- **The perinatal mortality rate decreased in every Belgian regions between 1998 and 2015.**
- **In 2015, Belgium had a higher perinatal mortality rate (6.0 perinatal deaths per 1 000 births) than the average EU-13 country (5.7 perinatal deaths per 1 000 births) and was classified fourth country with the highest perinatal mortality rate.**
- **Fetal mortality and therefore perinatal mortality is difficult to interpret in Belgium, due, among others, to the absence of distinction between medical termination of pregnancy and stillbirth.**

### References

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