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BORN TOO SOON: PRETERM BIRTH IN EUROPE TRENDS, CAUSES AND PREVENTION

Background

It is estimated that 15 million babies annually are born too soon, which is before 37 completed weeks of gestation and that this number is rising (1). Complications of preterm birth are the leading cause of death among children less than 5 years of age and this accounted for nearly one million preventable deaths in 2013 (1). The United Nations Millennium Development Goal (MDG) 4 targeted a two-thirds' reduction of under five deaths by 2015 and recommended interventions to prevent preterm birth and to improve survival for preterm newborns (2). While infant and maternal mortality rates have witnessed some improvements, the burden of mortality and morbidity in the perinatal period remains a major concern (3). This is due in part to the high number of births per year, the young age of the maternal and infant population harmed by adverse perinatal events and the long-term sequelae of adverse pregnancy events such as very preterm birth or severe hypoxia (4).

Consequences

Preterm babies are concurrently low birth weight, are more likely to die and to have long-term neurological and developmental disorders than those born at term (5). The incidence of these complications has increased in many countries, reflecting limited achievements in preventing high risk situations, compared with the medical advances that have reduced mortality for these infants. Though low resource countries are disproportionately affected by preterm birth, middle and high resource countries in Europe also have to face the challenges of increasing preterm birth rates (2).

Trends

The rate of preterm birth in Europe is rising steadily (3). From over 5 million births annually the estimated preterm birth rate in Europe varies from 5 to 10% (4). Lack of standardization in classification in registration of births and deaths and misclassification of stillbirths and neonatal deaths make it difficult to

Figure 1. Rates of preterm birth in Europe (6).

Table 1. Rates of preterm birth from 1996 to 2008 in 19 European countries

Country: region/area	All live births					Singleton live births					Multiple live births				
	n (2008)	1996 %	2000 %	2004 %	2008 %	n (2008)	1996 %	2000 %	2004 %	2008 %	n (2008)	1996 %	2000 %	2004 %	2008 %
Austria	77 720	9,1	10,0	11,4	11,1	75 066	7,9	8,4	9,4	8,7	2 654	58,2	67,5	74,6	77,8
Belgium: Flanders	69 187	7,0	7,8	8,1	8,0	66 672	5,2	6,0	6,3	6,2	2 515	51,7	55,9	60,4	57,3
Czech Republic	119 455	5,4	5,4	7,7	8,3	114 722	4,2	6,0	6,3	4 733	42,3	52,7	57,5	57,5	57,5
Estonia	16 031	5,5	5,9	5,9	6,2	15 506	4,9	5,1	4,9	4,6	525	38,5	46,2	47,6	51,0
Finland	59 486	5,8	6,1	5,6	5,5	57 767	4,5	4,7	4,4	4,3	1 719	46,5	49,4	44,5	47,5
France*	14 696	5,4	6,2	6,3	6,6	14 261	4,5	4,7	5,0	5,5	435	40,5	48,2	44,3	42,1
Germany: 3 Länder	215 634	8,8	9,2	9,0	9,0	208 383	7,0	7,2	7,0	7,0	7 251	61,7	61,8	64,2	64,2
Ireland	75 246	5,4	5,5	5,9	5,9	72 589	4,5	4,4	4,3	2 657	41,8	42,3	49,9	49,9	
Lithuania	31 287	5,3	5,3	5,3	5,9	30 510	4,5	4,6	4,5	4,7	777	41,3	42,6	42,7	49,4
Malta**	4 152	6,0	7,2	6,7	6,7	4 020	5,0	5,8	5,3	132	39,5	51,7	50,0	50,0	
the Netherlands	175 160	7,8	7,7	7,4	7,4	168 829	6,2	6,0	5,7	5,7	6 331	51,1	47,5	48,2	50,6
Norway	60 744	6,4	6,8	7,1	6,7	58 674	5,3	5,4	5,5	5,3	2 070	43,4	43,9	49,2	48,3
Poland	414 480	6,8	6,3	6,8	6,6	404 452	6,1	5,5	5,8	5,5	10 028	43,1	44,0	50,2	51,2
Portugal	103 597	7,0	5,9	6,8	9,0	100 705	6,1	4,9	5,4	7,4	2 892	45,9	49,6	54,9	63,5
Slovakia	53 624	5,1	5,4	6,3	6,8	52 227	4,4	4,5	5,2	5,6	1 397	40,3	46,3	49,8	52,2
Slovenia	21 816	6,0	6,8	7,0	7,4	21 050	4,8	5,1	5,2	5,4	766	54,1	57,4	55,4	62,3
Spain	417 094	7,1	7,7	8,0	8,2	400 474	6,2	6,3	6,4	6,3	16 620	42,2	50,4	53,0	53,9
Sweden**	108 865	6,1	6,4	6,3	5,9	105 799	5,0	5,2	5,2	4,8	3 066	44,1	43,4	45,2	43,3
UK: Scotland	58 275	7,0	7,4	7,6	7,7	56 423	5,8	6,1	6,3	6,1	1 852	53,1	51,6	55,5	55,0

* Data from France come from a nationally representative sample of births, and the years are 1995, 1998, 2003, and 2010
**2009, instead of 2008 data

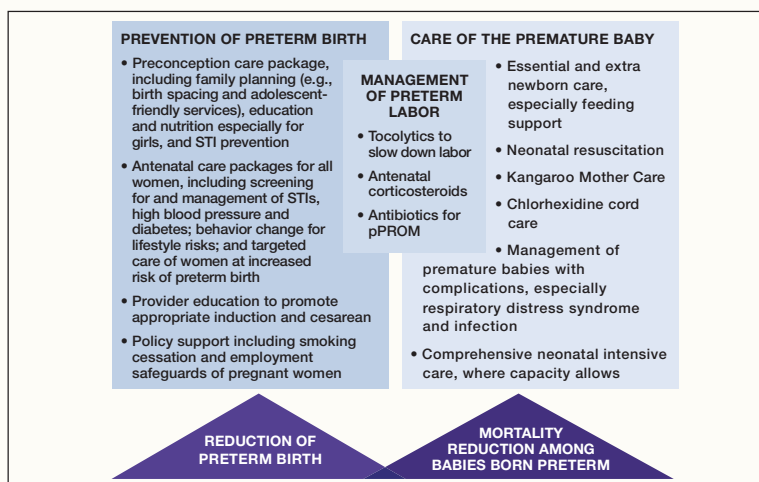
compare mortality at early gestations (4). Foetal, neonatal and infant mortality rates vary widely between the countries of Europe as some countries use the 24 week cut of point while others prefer to use the broader WHO classification of 28 weeks. However, preterm babies born before 28 weeks of gestational age constitute over one-third of all deaths, but data are not comparable between countries. About one-third of all foetal deaths and 40% of all neonatal deaths were of babies born before 28 weeks of gestational age.

Preterm birth rates have increased across most countries in the years from 1996 to 2008 and for 2008 ranged from a low of 5.5% in Finland to a high of 11.1% in Austria (Figure 1) (6).

Causes

With advances in technology, medical care can now be provided to the most vulnerable mothers and babies. At the margins of viability technologies have been developed that can be used to sustain life, however the survival rate at this gestation

Figure 2. Approaches to prevent preterm birth and reduce deaths among premature babies (1).



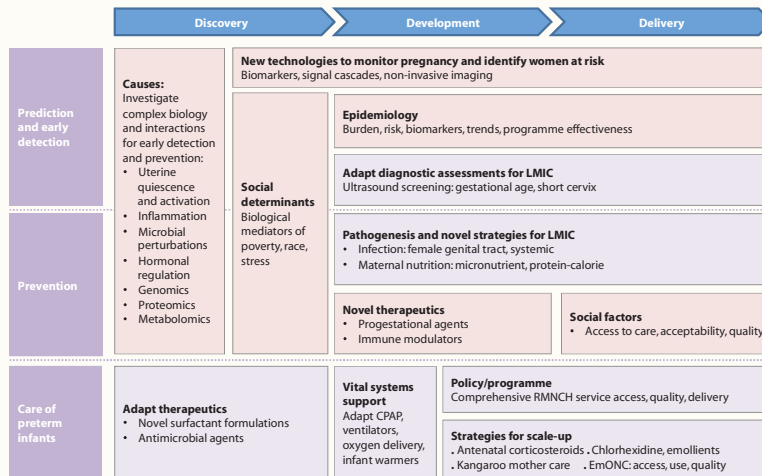


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Figure 3. Research framework and pathway for preterm birth (8).



remains at 50% and the long term morbidities for these infants are very high (7). There have been many suggestions for the increase in preterm birth rates including: assisted fertility resulting in an increase in the multiple birth rate; delayed fertility, with concurrent advanced maternal age; and comorbidities such as obesity, hypertension and gestational diabetes requiring early delivery. This is separate to the myriad of factors that affect the incidence and outcomes of preterm birth in low resource countries.

Prevention

The WHO in conjunction with other global stakeholders has made preterm birth a key priority in the post MDG era. In 2013 the Born Too Soon strategy was launched and placed the issue of preterm birth to the fore of public health policy (1). Figure 2 briefly outlines the major strands of this policy, i.e. prevention of preterm birth, management of preterm labour and the care of the premature infant.

The provision of skilled birth attendants, universal antenatal care, the recognition and treatment of antenatal infection, the reduction of risk factors all help in the prevention of preterm birth. Kangaroo mother care and breastfeeding help with the care of preterm newborns. The challenge in low and middle resource

countries is in the implementation of these strategies. However, there is still much that remains unknown about the causes of preterm birth so setting research priorities is a key feature addressed by expert groups led by Bill and Melinda Gates Foundation, Global Alliance to Prevent Prematurity and Stillbirth and March of Dimes among others (8).

Conclusion

Preterm birth remains the single biggest cause of neonatal death globally and is the second biggest cause of all deaths under 5 despite a reduction in mortality over the past two decades (8). A concerted global effort is needed to scale up evidence based strategies to low and middle resource countries and to drive research to improve outcomes for all preterm babies regardless of place of birth (Figure 3).

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