BIRTH DEFECTS IN CHILDREN FROM TWIN PREGNANCIES BORN IN THE CZECH REPUBLIC IN 1994 – 2004

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Objectives

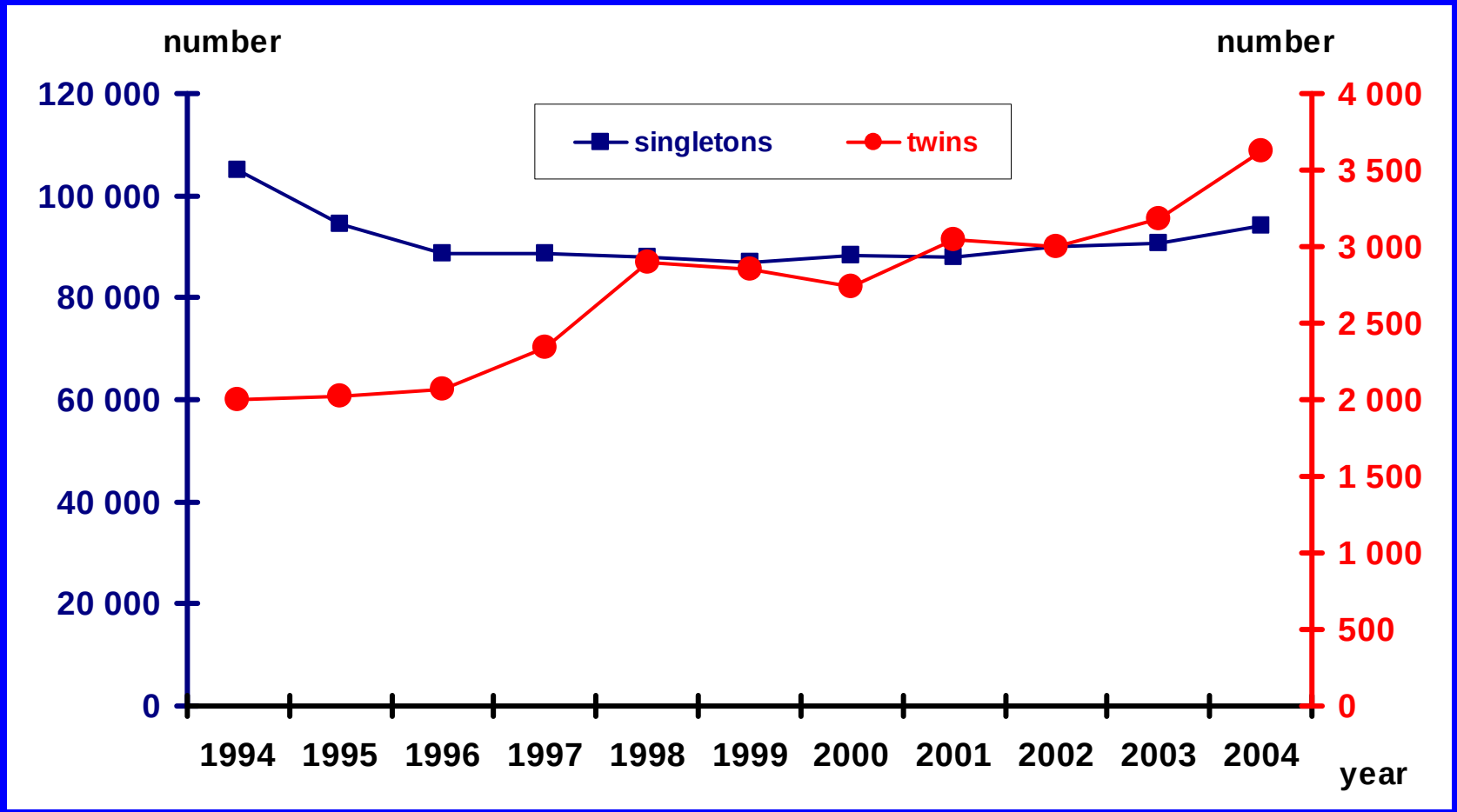
- to analyse incidences of selected birth defects or their groups in children born from singleton and twin pregnancies

- to test a significance of possible differences in birth defects incidences

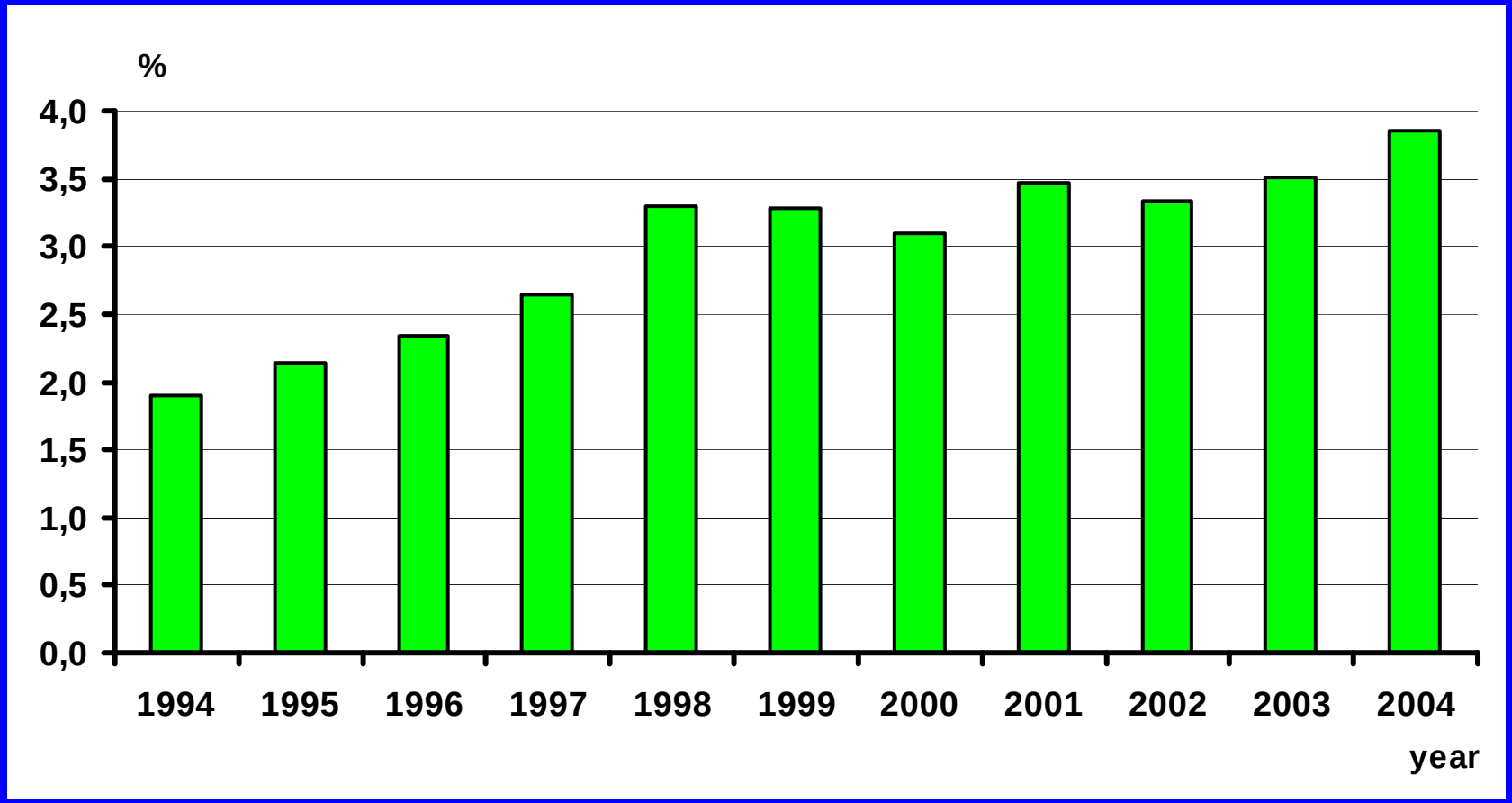
Methods and Data

- retrospective epidemiological study
- 1994 – 2004 period
- totally 1 031 950 children born in the area of the Czech Republic
- 29 770 children from twin pregnancies
- 43 757 birth defects registered
- 42 048 in singletons
- 1 709 in children from twin pregnancies
- 16 selected types of birth defects (or their groups) analysed

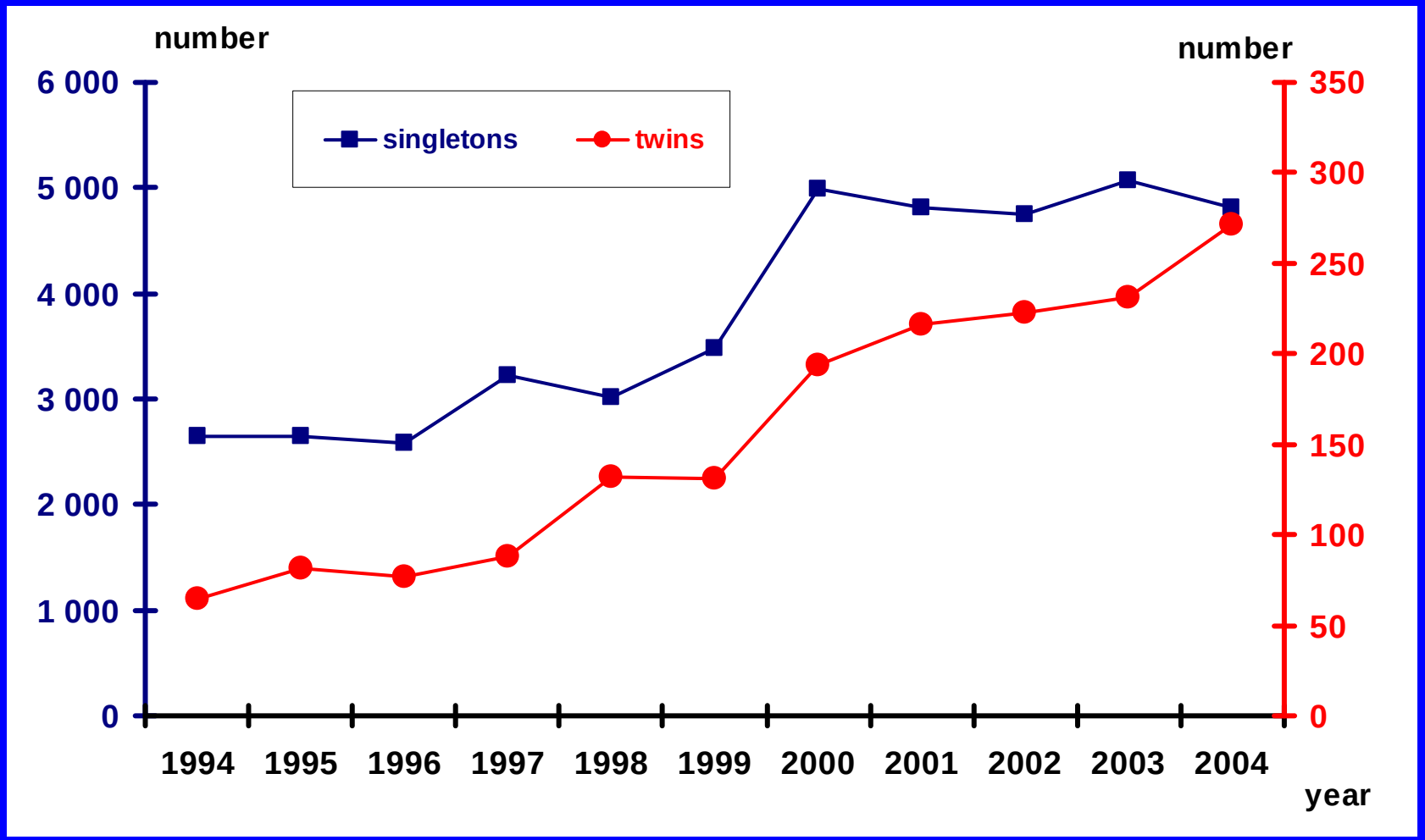
Births according to pregnancy multiplicity



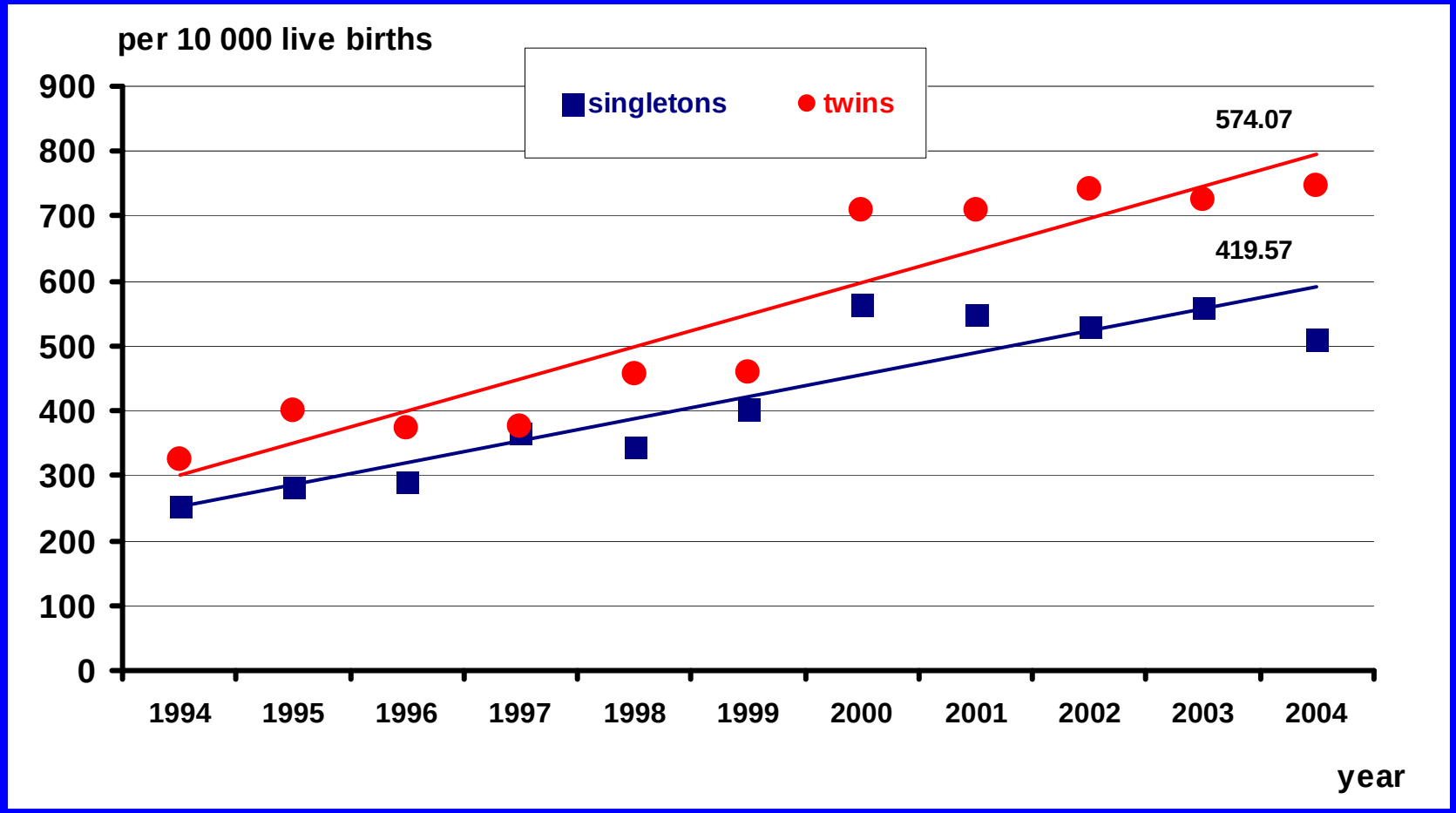
Percentage of twins in total pregnancies



Birth defects according to pregnancy multiplicity



Birth defects according to pregnancy multiplicity

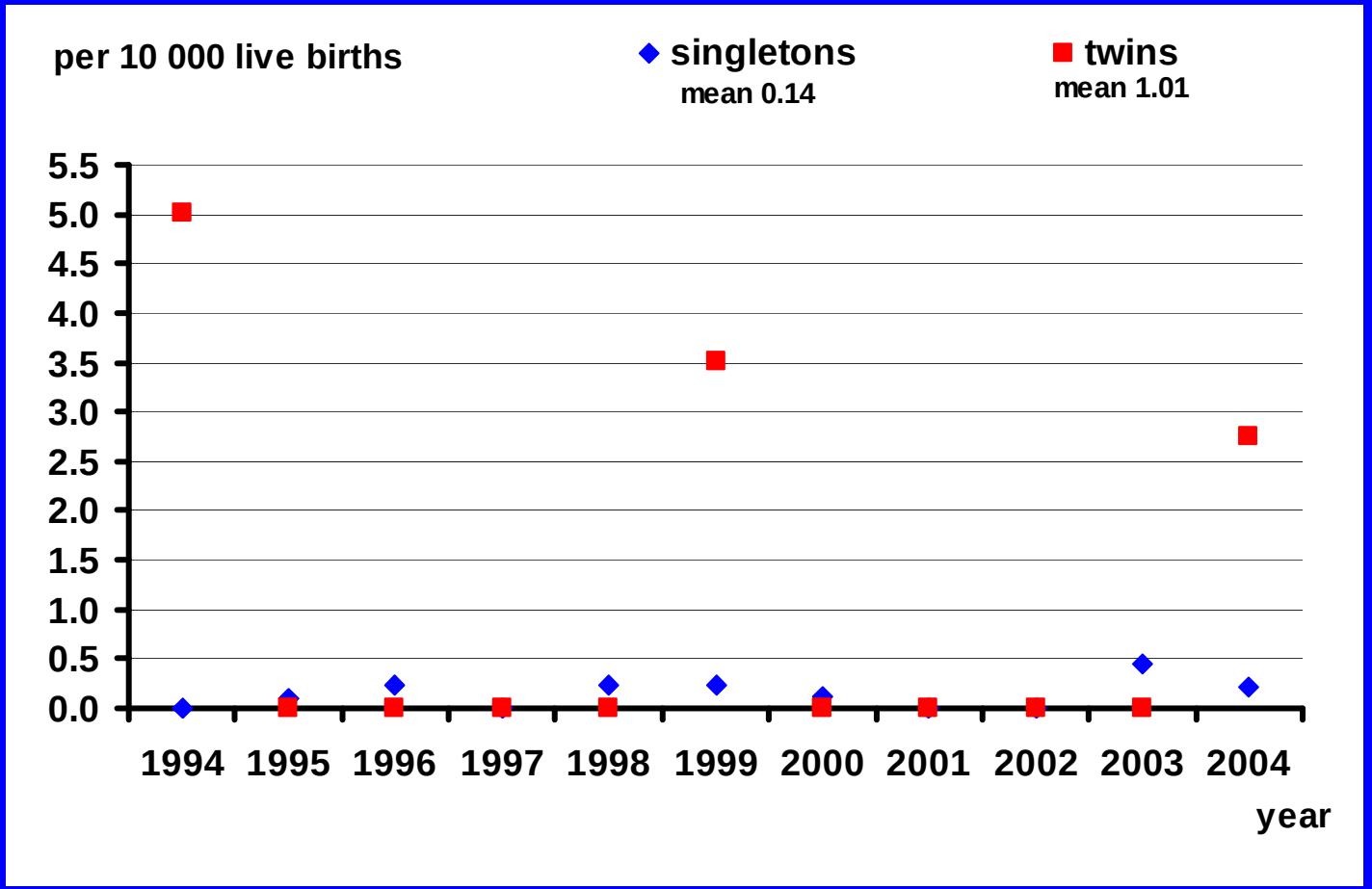


Selected defects (or their groups)

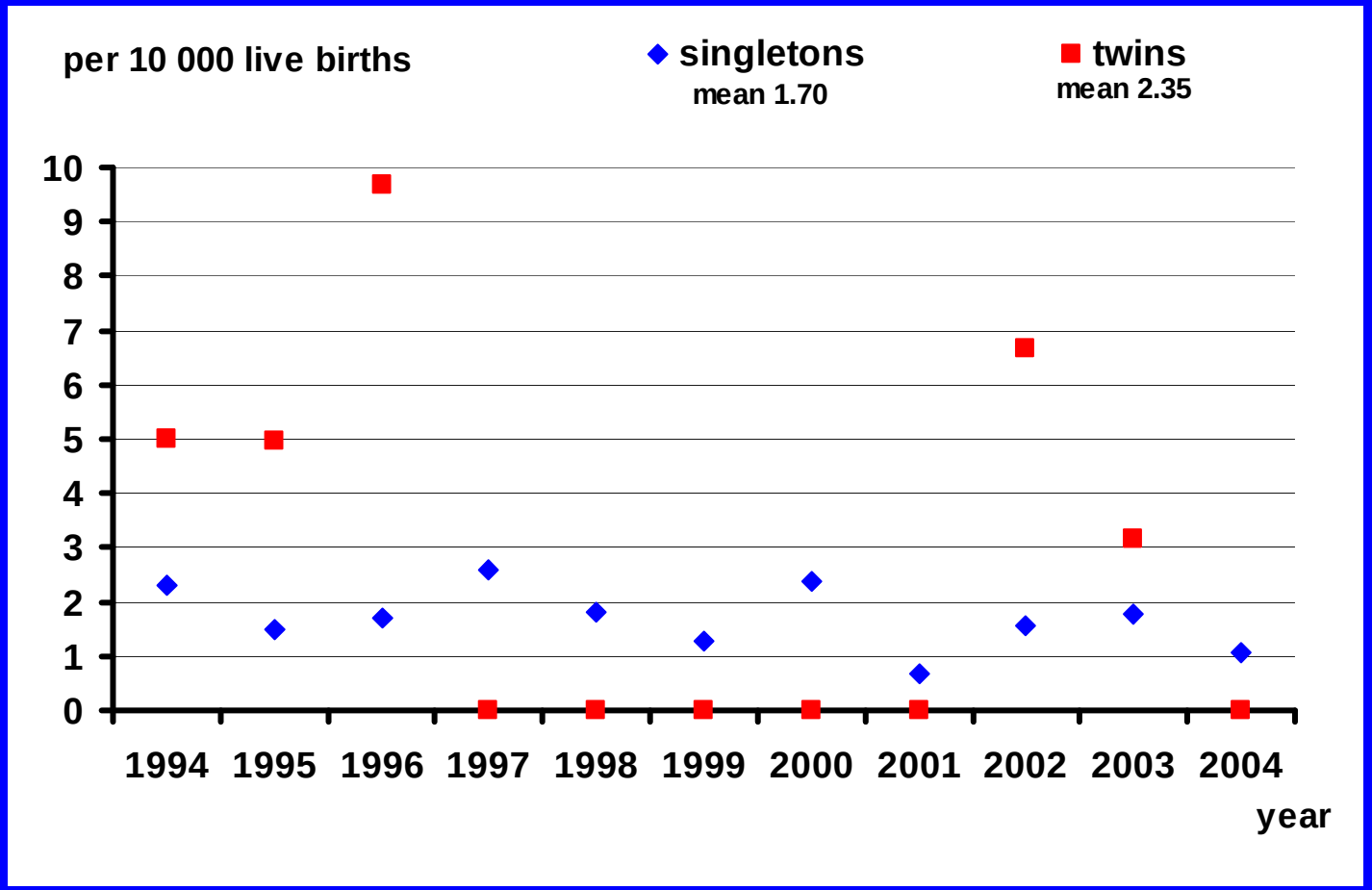
- anencephaly
- spina bifida
- encefalocele
- NTD
- congenital hydrocephalus
- omfalocele
- gastroschisis
- AWD

- oesophageal defects
- anorectal malformations
- diafragmatic hernia
- renal agenesis
- cystic kidney
- Down syndrome
- Edwards syndrome
- Patau syndrome

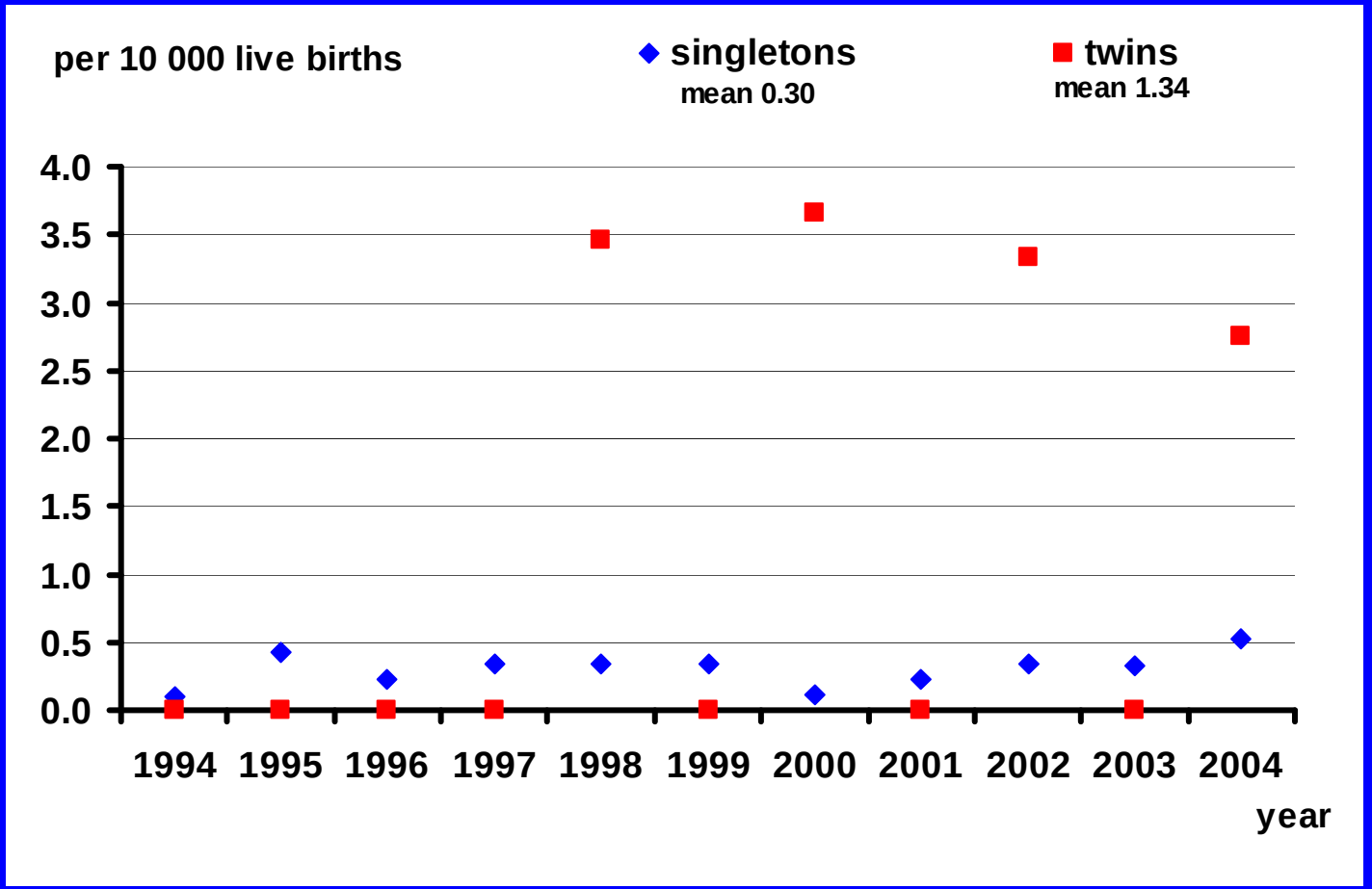
Anencephaly



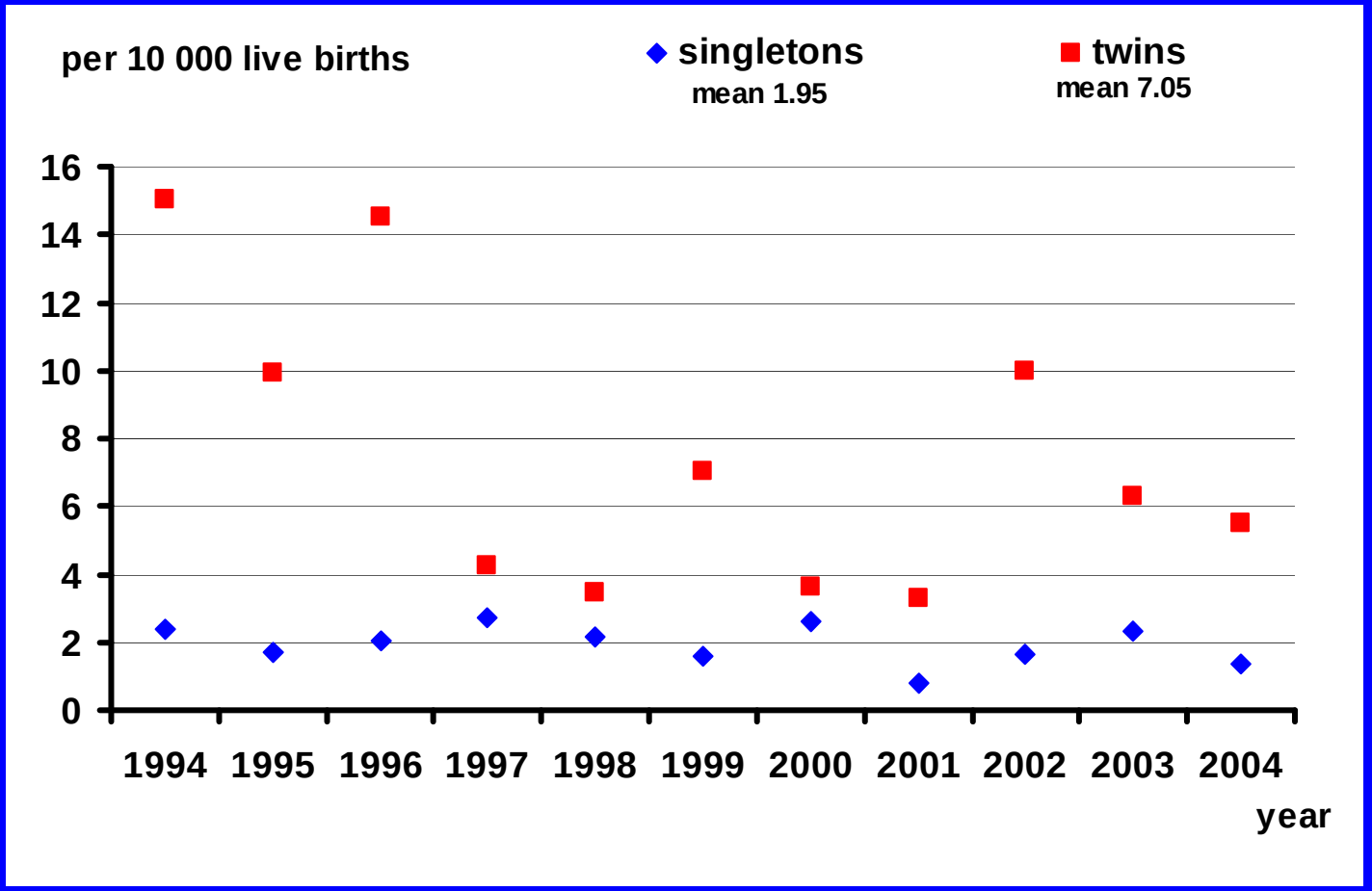
Spina bifida



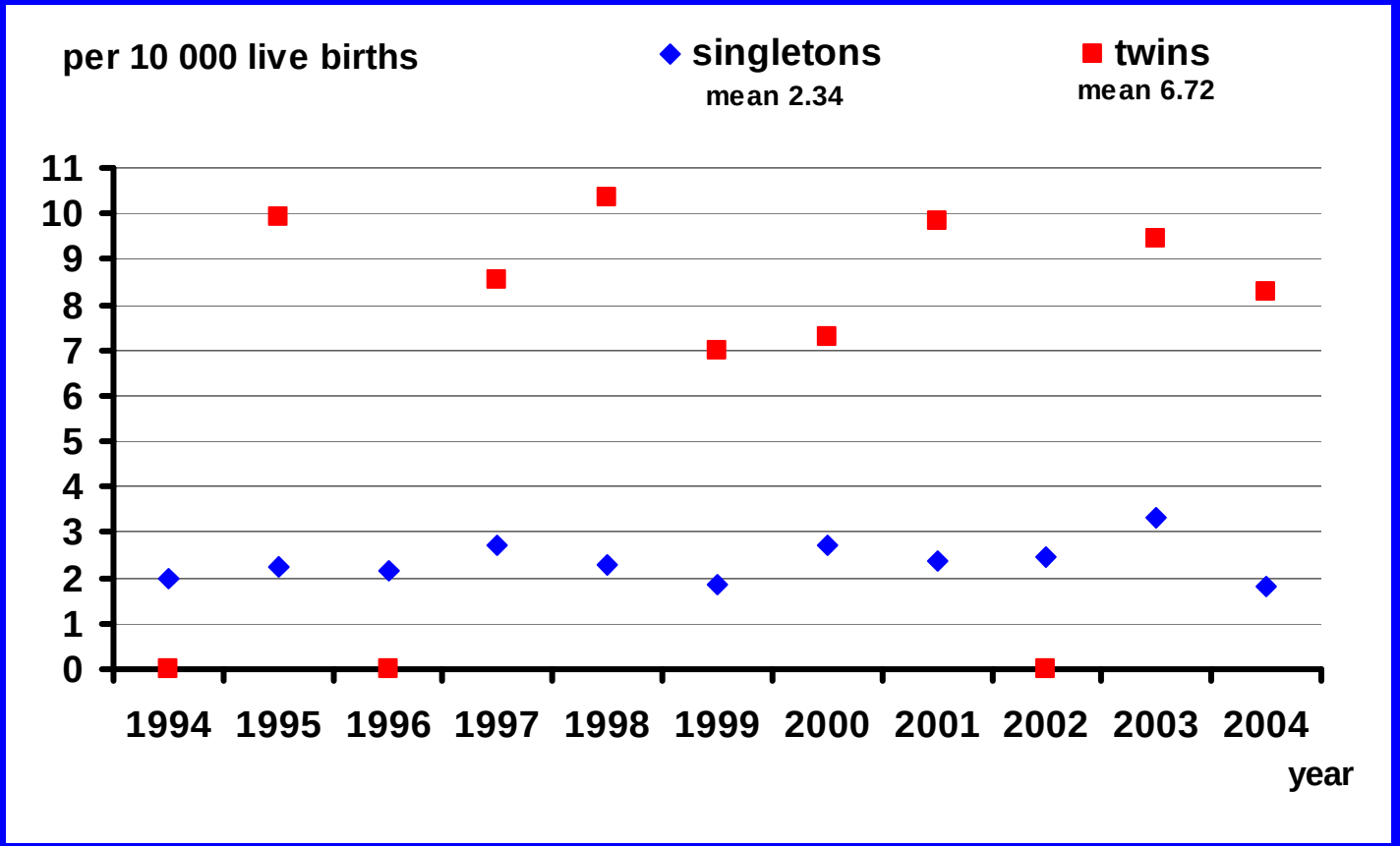
Encephalocele



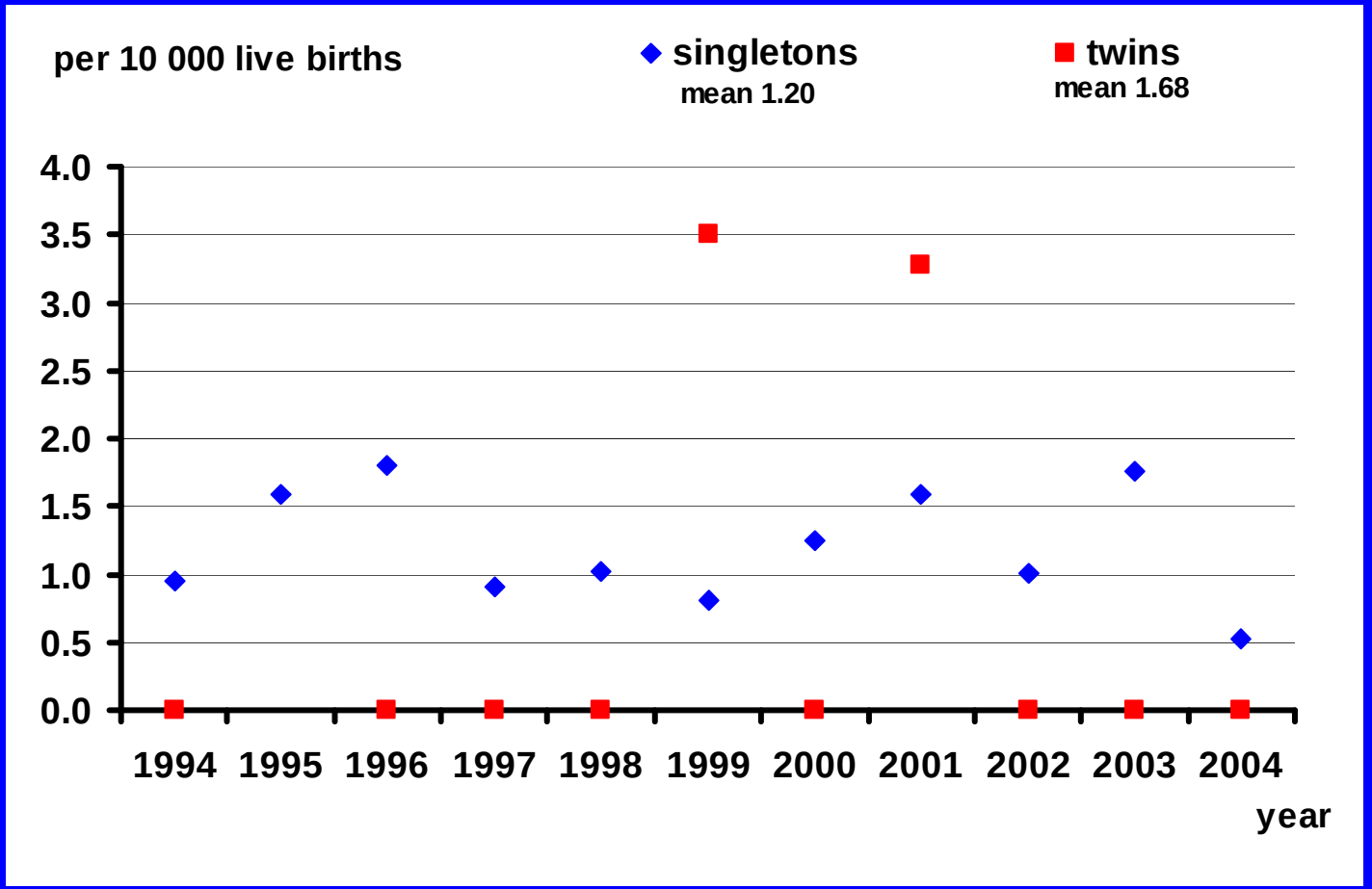
Neural Tube Defects



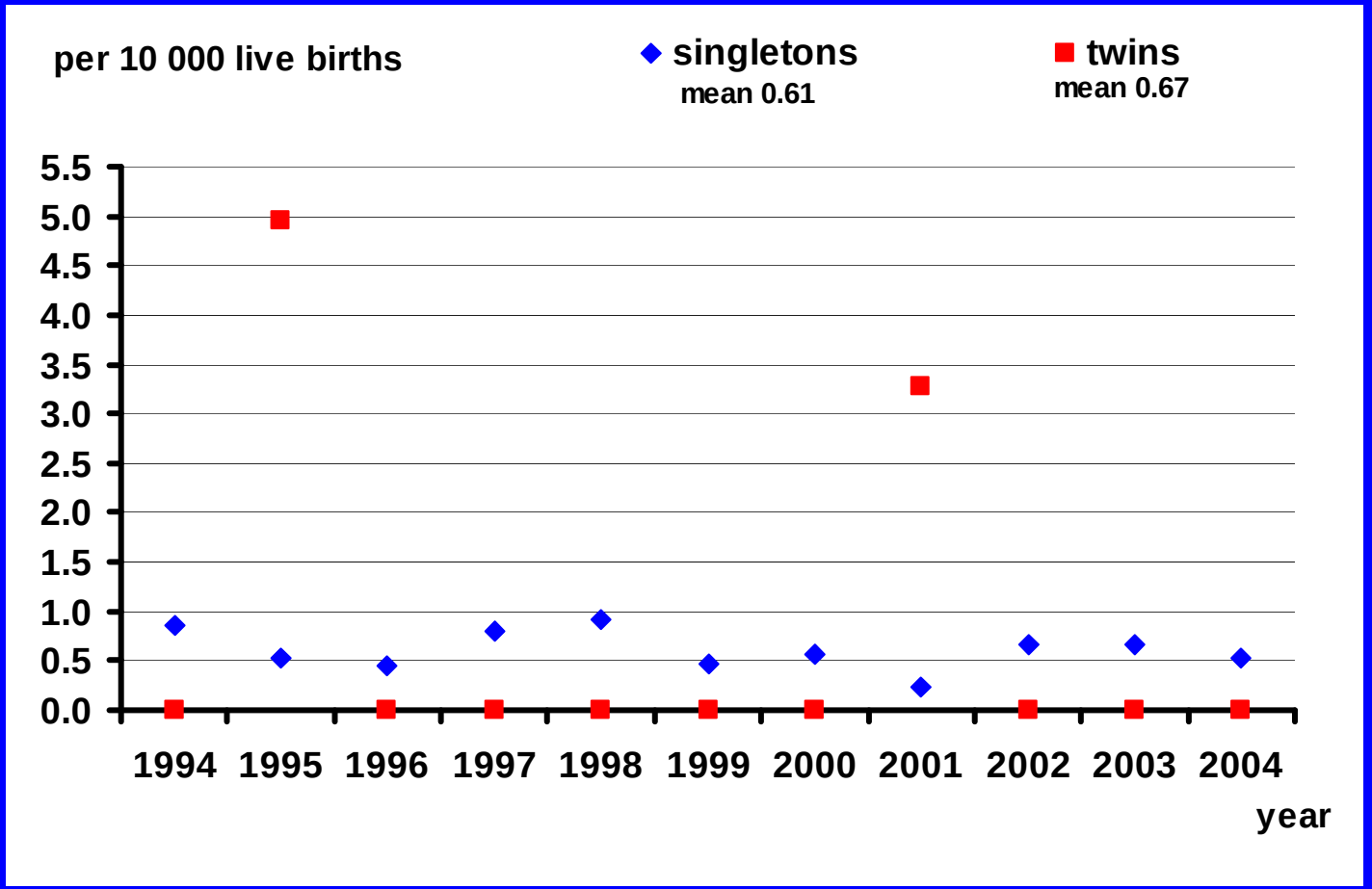
Congenital hydrocephalus



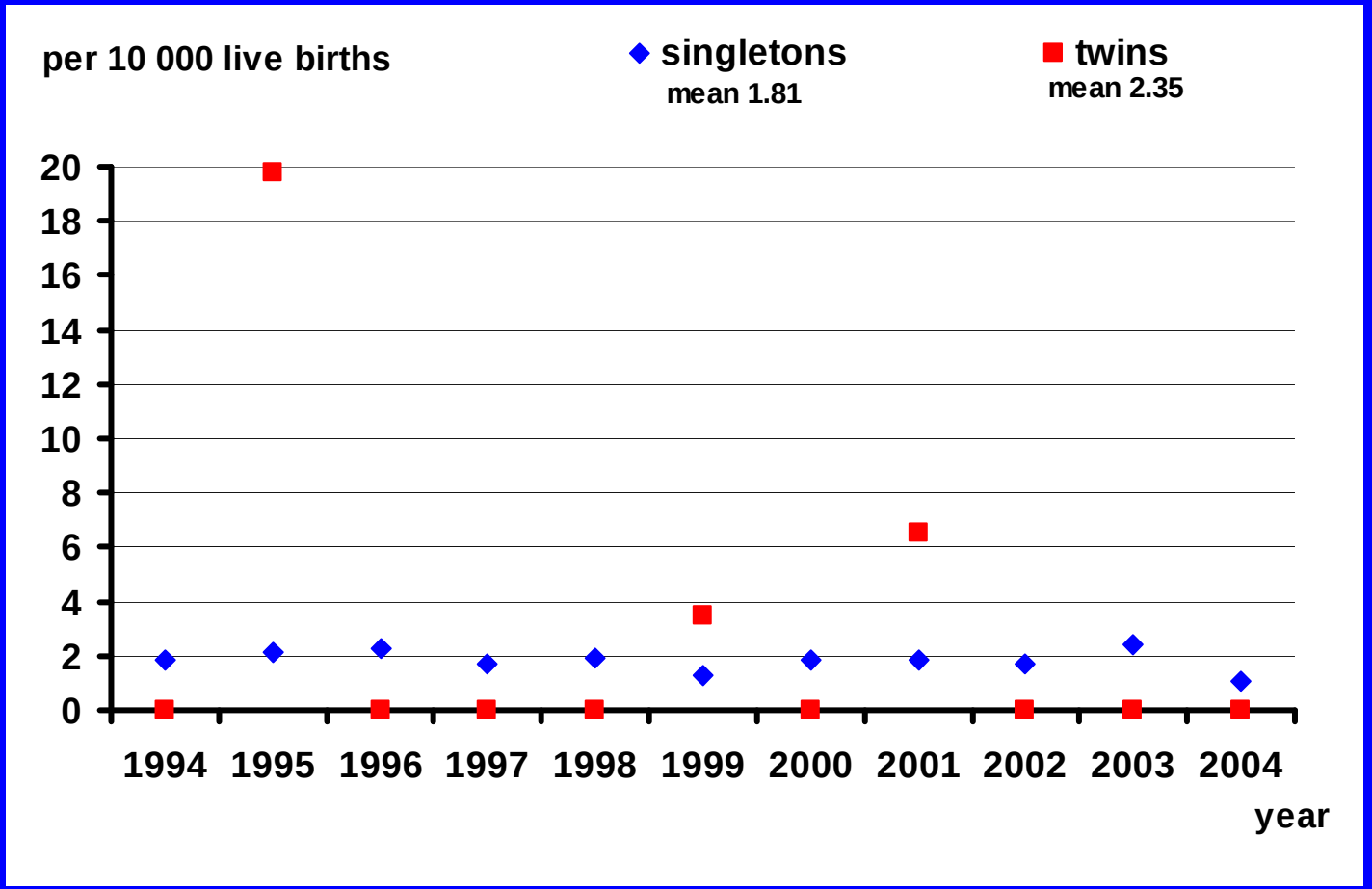
Omfalocele


per 10 000 live births
singletons
mean 1.20
twins
mean 1.68
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
year

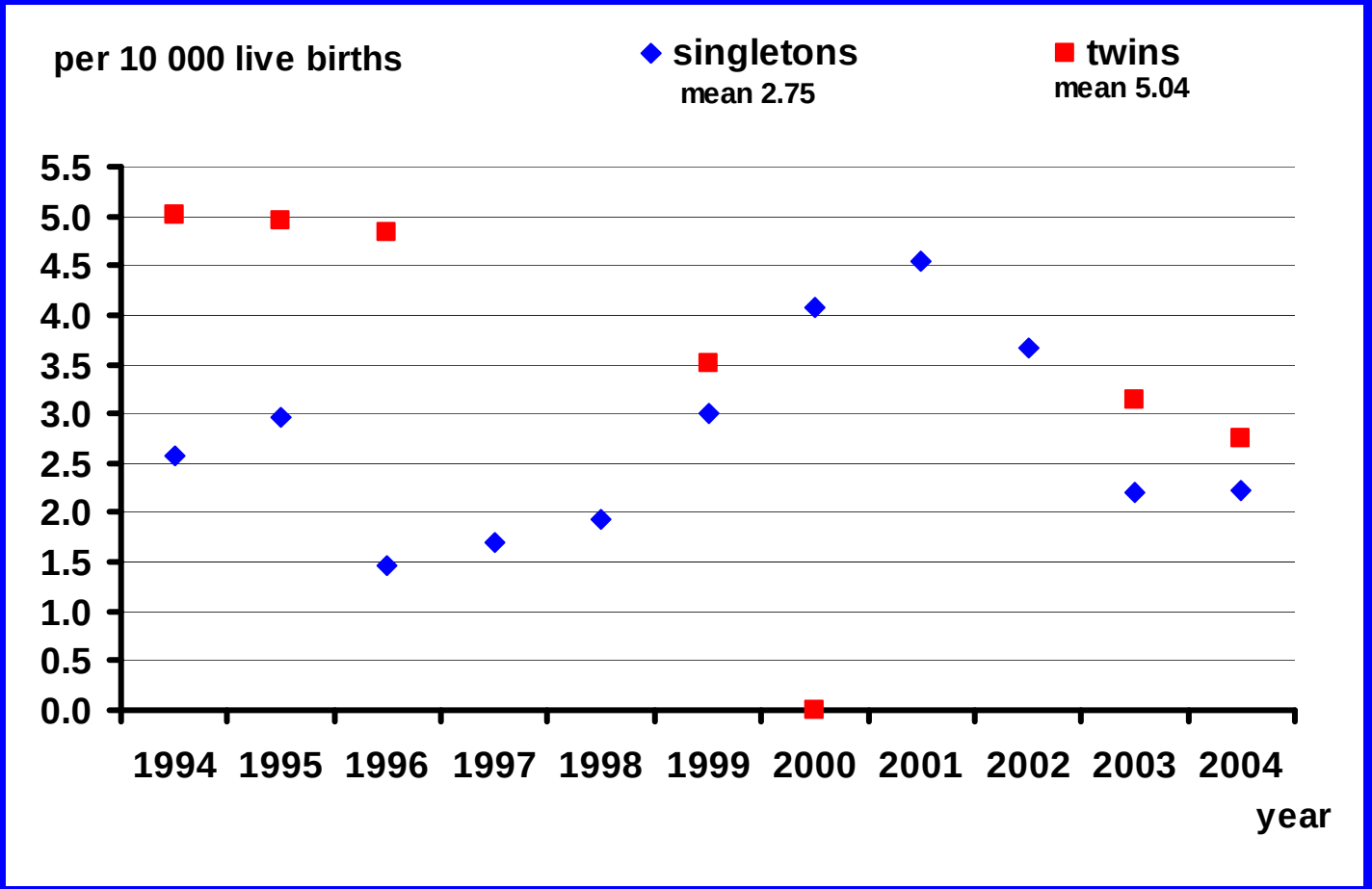
Gastroschisis



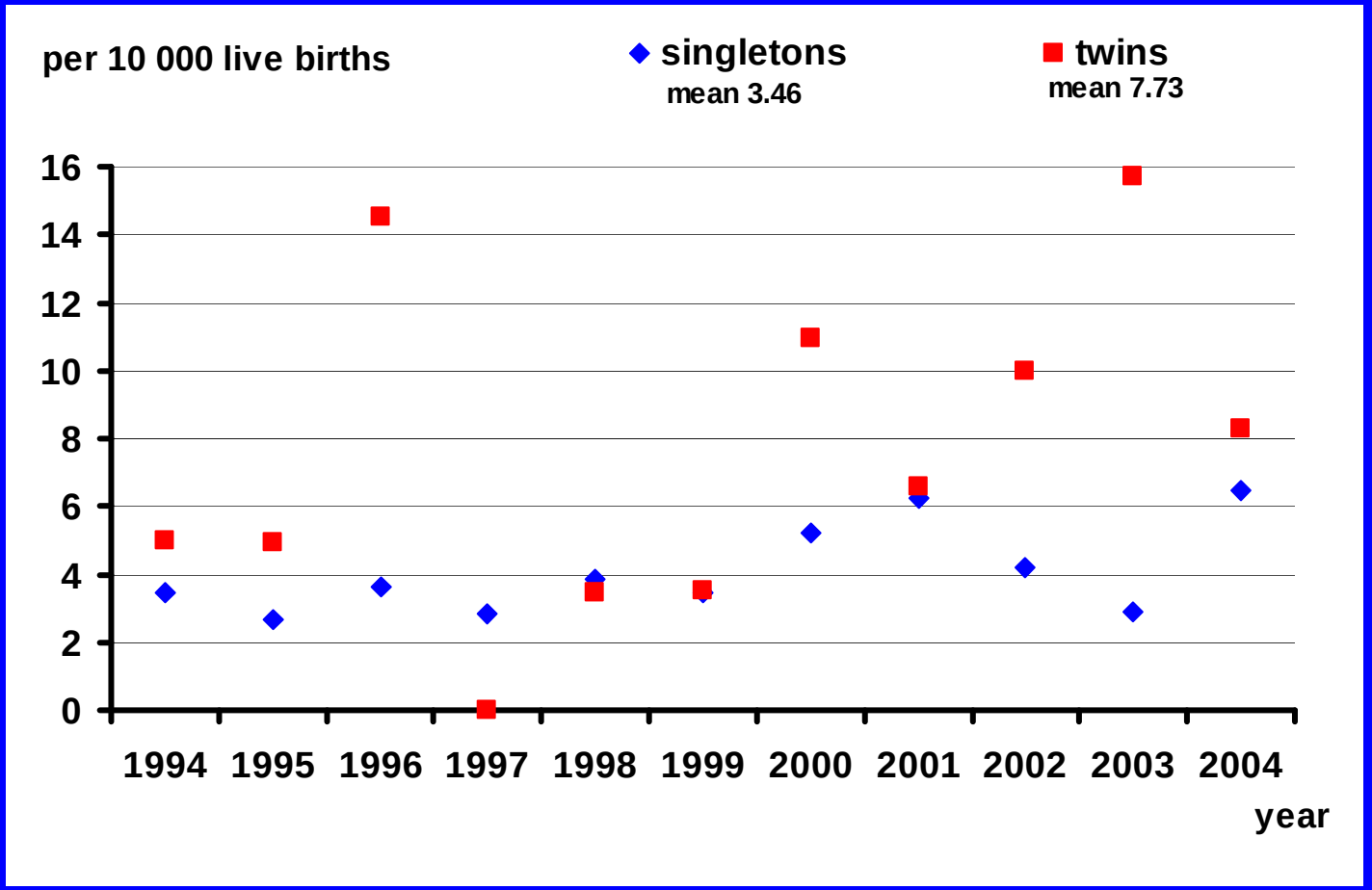
Abdominal Wall Defects



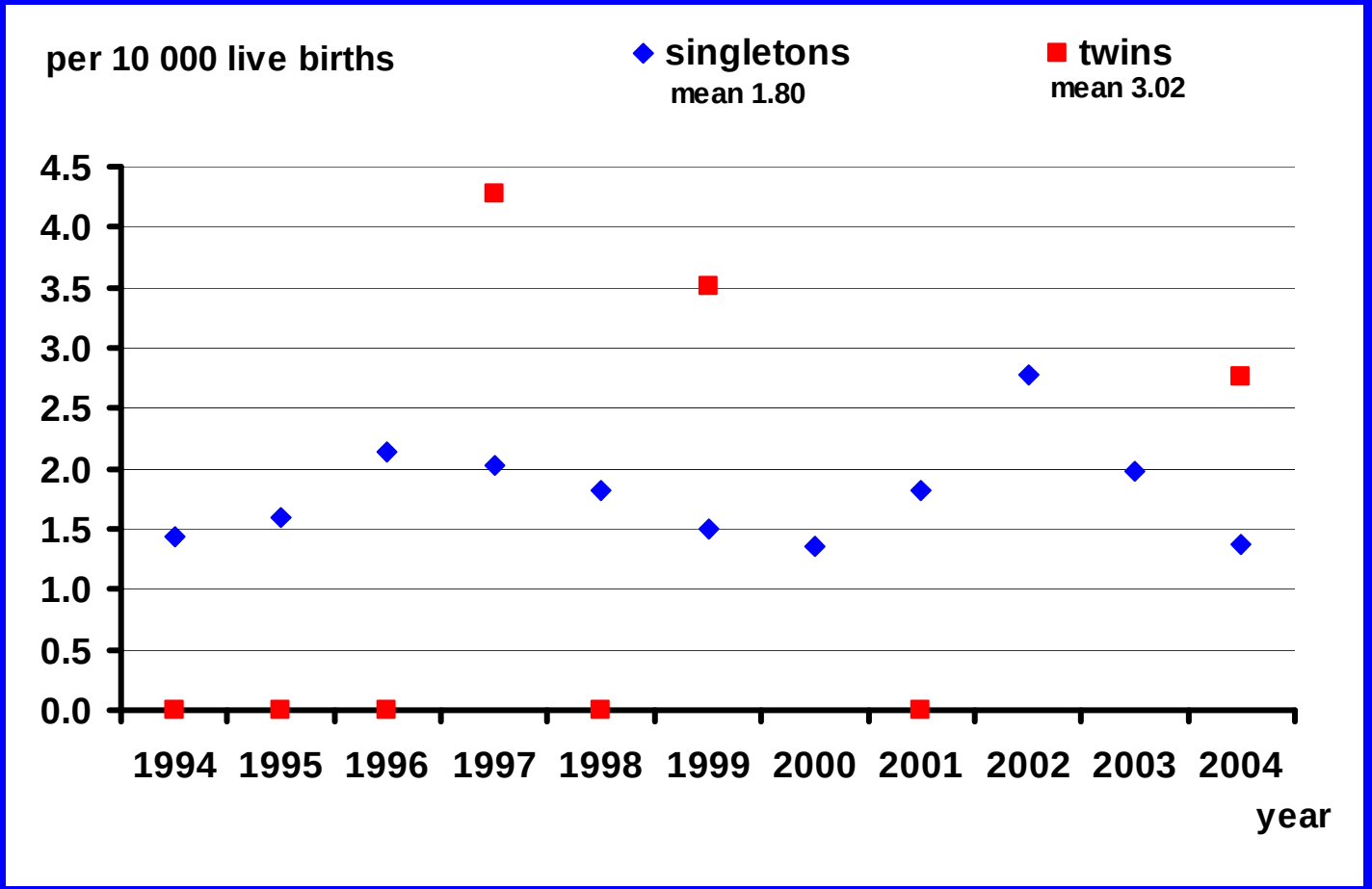
Oesophageal defects



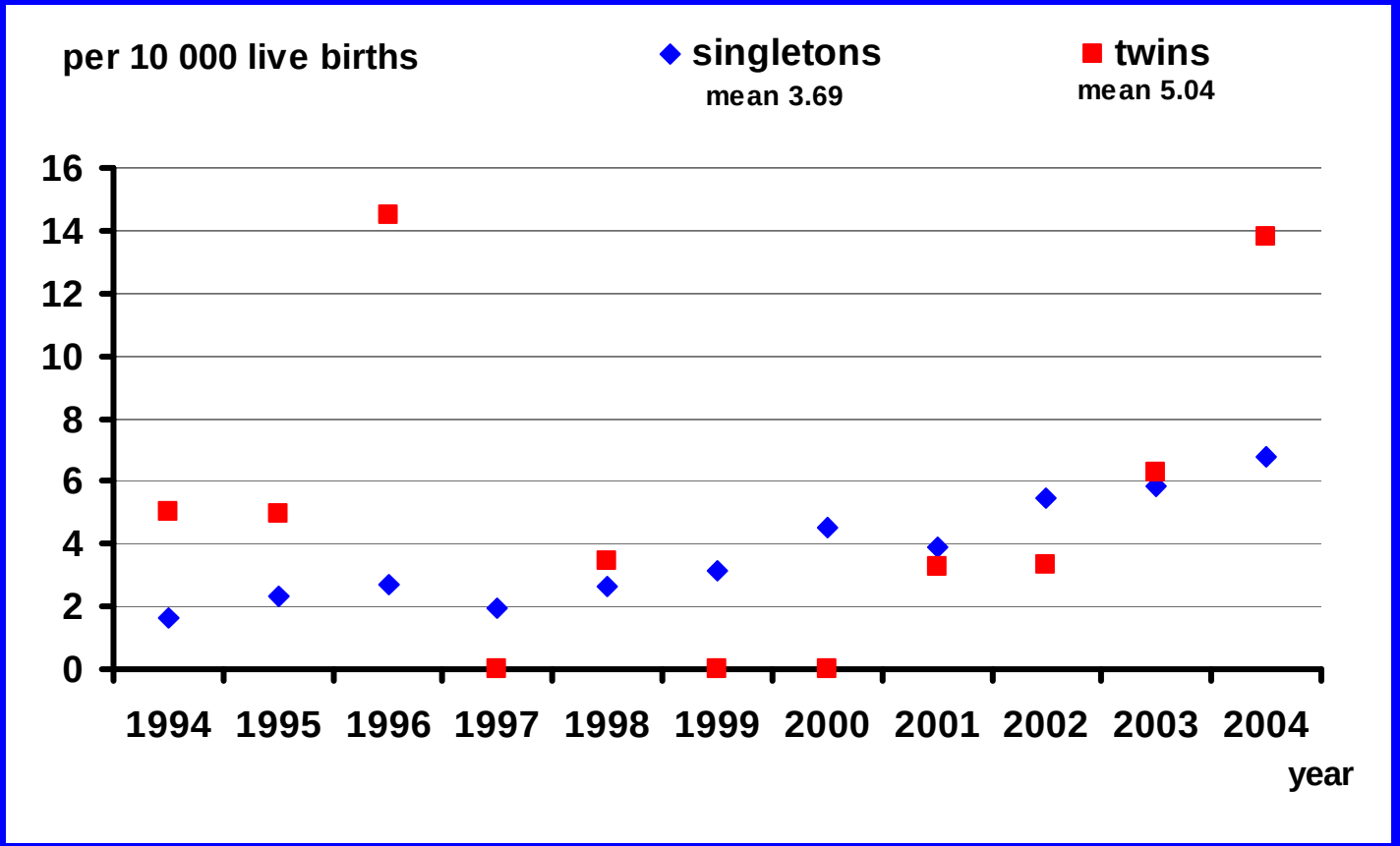
Anorectal malformations



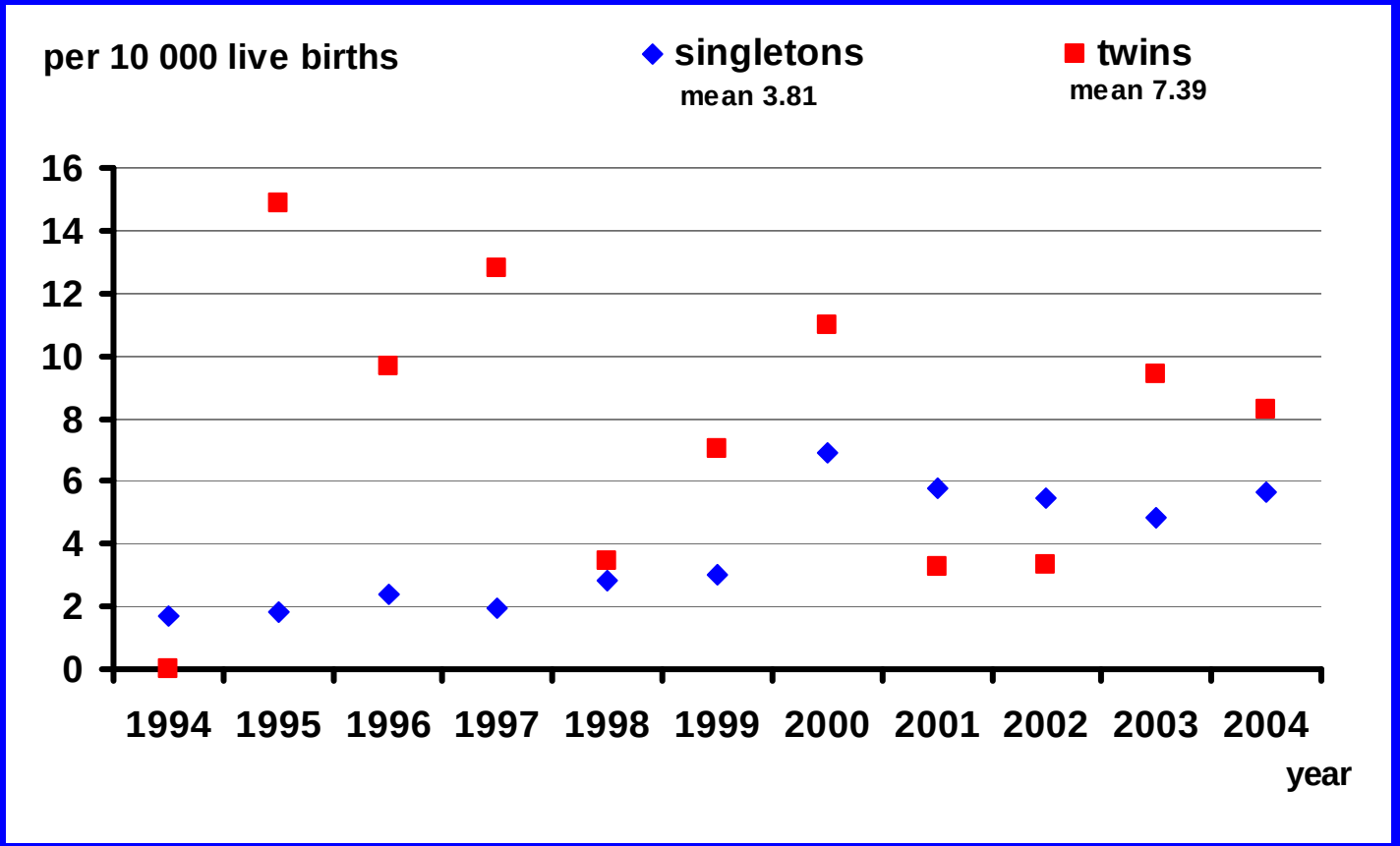
Diaphragmatic hernia



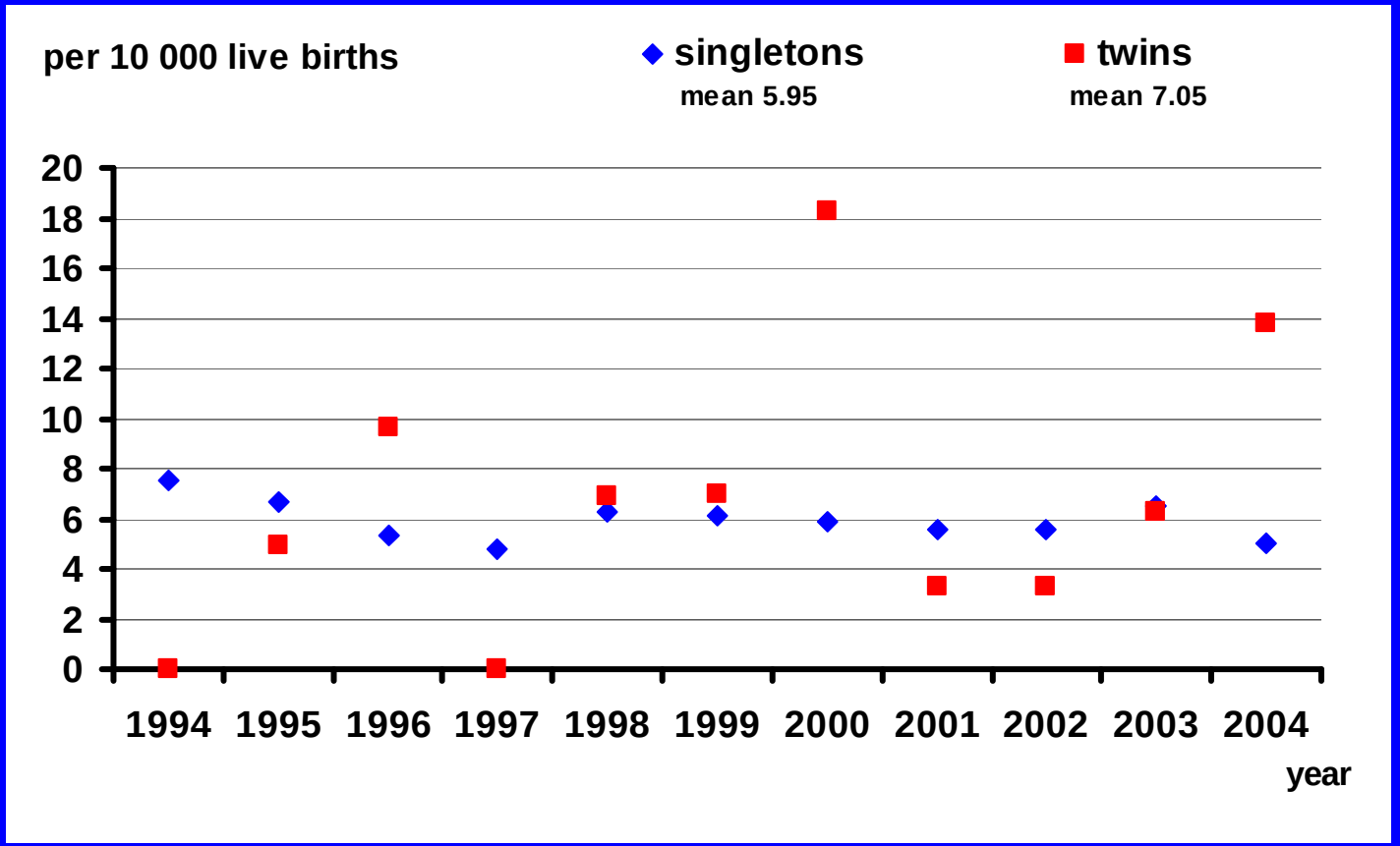
Renal agenesis



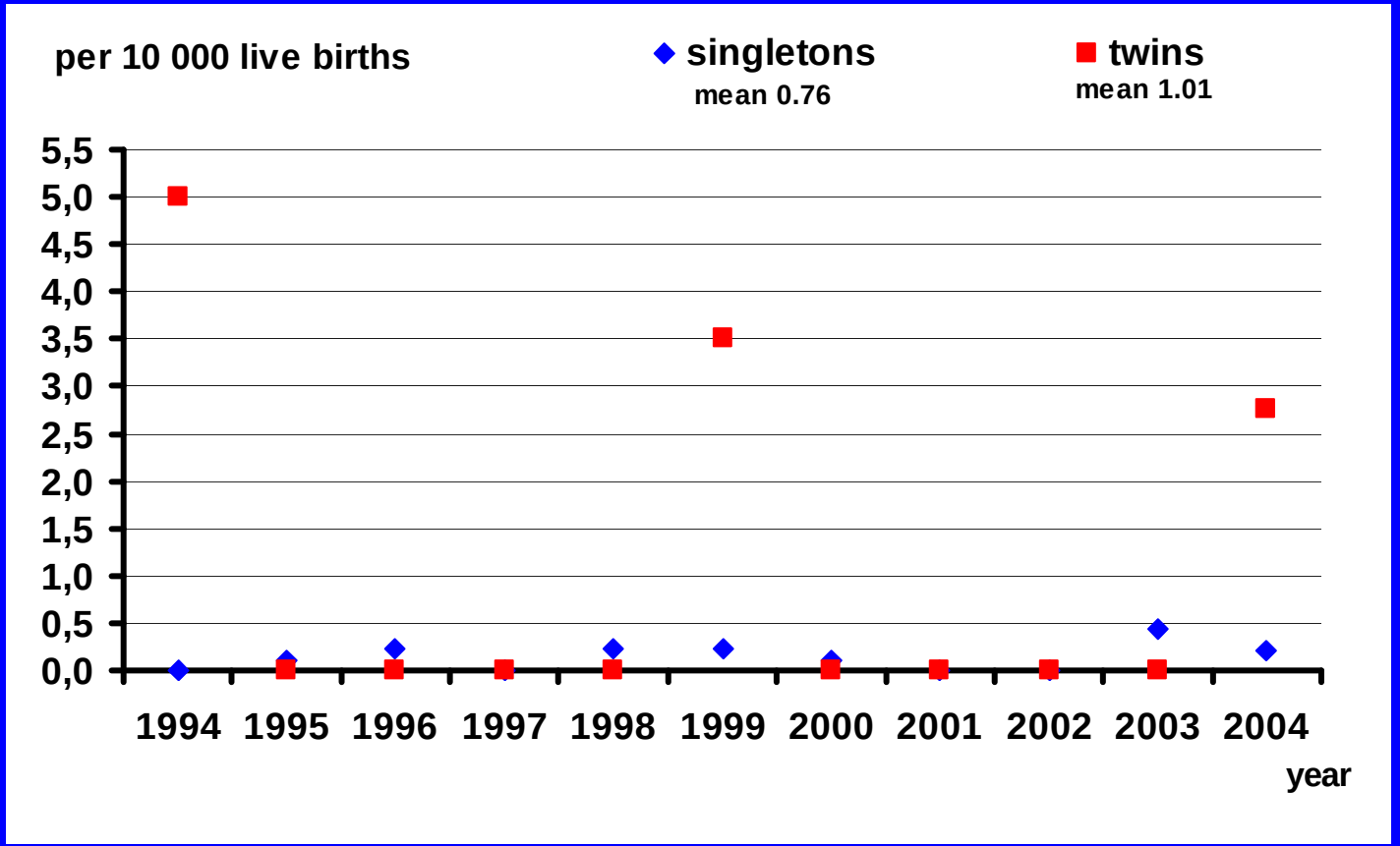
Cystic kidney



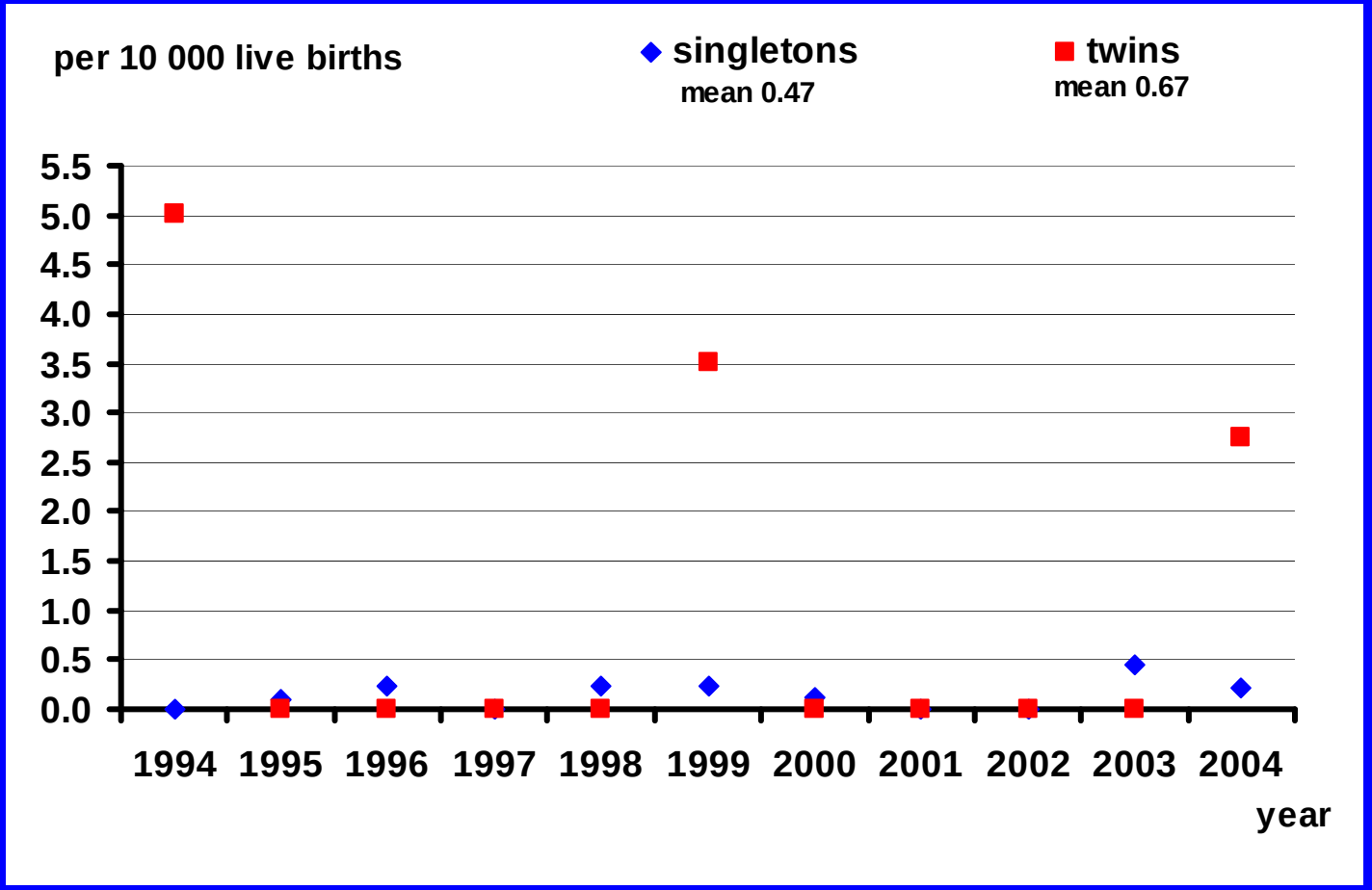
Down syndrome



Edwards syndrome



Patau syndrome



Significance of singleton x twins differences in selected defects´ incidences

Defect (Group of)	Singletons #	Twins #	p1	p2	Significance	p2/p1
Anencephaly	14	3	0.000014	0.000101	p<0.01	**7.21**
Spina bifida	170	7	0.00017	0.000235	n.s.	1.39
Encefalocele	30	4	0.00003	0.000134	p<0.01	**4.49**
NTD	195	21	0.000195	0.000705	p<0.001	3.63
Congenital hydrocephalus	235	20	0.000234	0.000672	p<0.001	**2.87**
Omfalocele	120	5	0.00012	0.000168	n.s.	1.4
Gastroschisis	61	2	0.000061	0.000067	n.s.	1.1
AWD	181	7	0.000181	0.000235	n.s.	1.3
Oesophageal defects	276	15	0.000275	0.000504	p<0.05	**1.83**
Anorectal malformations	408	23	0.000407	0.000773	p<0.01	**1.9**
Diaphragmatic hernia	180	9	0.00018	0.000302	n.s.	1.68
Renal agenesis	370	15	0.000369	0.000504	n.s.	1.36
Cystic kidney	382	22	0.000381	0.000739	p<0.01	**1.94**
Down syndrome	596	21	0.000595	0.000705	n.s.	1.19
Edwards syndrome	76	3	0.000076	0.000101	n.s.	1.33
Patau syndrome	47	2	0.000047	0.000067	n.s.	1.43

Comparison of two Poisson rates (p1, p2)

Conclusions

- birth defects in twins generally more frequent but increased frequency not always significant
- birth defects in twins present different spectrum of diagnoses compared to singletons
- important future role of birth defects in twins due to increased frequency of multiple pregnancies (AR technologies, increasing mean maternal age etc.)

Thank you for you attention!