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INTERNATIONAL CLEARINGHOUSE FOR BIRTH DEFECTS MONITORING SYSTEMS

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2003

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INTERNATIONAL CLEARINGHOUSE FOR BIRTH DEFECTS MONITORING SYSTEMS ANNUAL REPORT 2003 (WITH DATA FOR 2001)

Barry Borman
Chairperson, International Clearinghouse for Birth Defects Monitoring System (ICBDMS)

it gives me great pleasure to introduce the 2003 Annual Report of the International Clearinghouse for Birth Defects Monitoring Systems (ICBDMS).

The ICBDMS was established in 1974 to facilitate the exchange of data on birth defects and encourage collaborative research among the representatives of the 10 countries present. Since 1986, the ICBDMS has been accepted as a non-governmental organization in official relations with the World Health Organization.

There are now more than 40 member programmes across the five continents. There is a diversity of programmes, which combined annually monitor birth defects among more than 3 million births. Some of the programmes are national, some countries (eg, Australia, Canada, China, France, Italy, USA) are represented by at least 2 programmes, while the South America programme includes hospitals from 12 different countries.
The ICBDMS has three main objectives:

- The exchange of routine information in the prevalence of congenital malformations
- Undertake collaborative epidemiologic research
- Provide expert consultation and assistance for existing monitoring systems to investigate outbreaks and for the establishment of new monitoring systems.

The International Centre for Birth Defects in Rome (ICBD) is the headquarters of the ICBDMS, coordinating the production of our quarterly and annual reports, newsletters and monitoring activities and collaborative studies.

The 2003 Annual Report has a description of each programme, together with data from 2001, an analysis of the time trends for selected birth defects, and a list of publications from the ICBDMS members.

Also included are reports on the activities of the ICBDMS committees and the ad hoc projects that we have carried out using international data. There are updates on our ongoing monitoring of multiple malformations, the possible association between drug exposure during pregnancy and the occurrence of malformations, and the prenatal diagnosis of Down Syndrome and congenital heart defects.

The ICBDMS has taken a lead role in facilitating collaboration among the networks engaged in monitoring birth defects. A number of European programmes are members of both the ICBDMS and the European Surveillance of Congenital Anomalies (EUROCAT) and the Executives of both organizations have been meeting regularly over the last few years.

Before the 2002 Annual Meeting in Atlanta, USA, the ICBDMS held a joint scientific symposium with our colleagues in National Birth Defects Prevention Network (NBDPN) in the USA. As was the case with our first international symposium in Cardiff in 2000, this was highly successful occasion with a free exchange of ideas and developments across a broad range of areas.

Therefore, it is appropriate and important, that for the first time the ICBDMS Annual Report includes a report on the activities of both EUROCAT and the NBDPN.

Despite the extensive monitoring that has been carried out, coupled with a plethoria of research, birth defects remain a major cause of infant mortality and morbidity in many countries. It is only through the work of member of the programmes of the ICBDMS, in collaboration with other networks and researchers, that our combined efforts will identify the causes of birth defects. As researchers we owe it to the mothers and infants and societies throughout the world to continue our monitoring activities as diligently and rigorously as possible. It is imperative that we continue to analyse the data we are collecting.

Monitoring the occurrence of birth defects has another critical function. It provides reassurance to the public that the possible adverse effects of teratogens and other environmental hazards are under active surveillance.

Another issue requiring our increased attention is to devise better methods for bringing our research to the attention of policy and decision makers. We must make greater efforts to have the results of our research translated into active health policy. There are lessons to be learned from the folic acid saga. It is now almost 10 years since the definitive studies showing increasing folic acid intake reduces the risk of neural tube defects. Nonetheless, implementation of appropriate policy has occurred in few countries and the optimum methods for delivery are still being debated.

Further details about the ICBDMS and ICBD can be obtained from our website ***(http://www.icbd.org/)***.

We welcome any comment about the report, which should be addressed to any member of the Executive Committee (see pages 167, 156 and 171 for Officers' addresses) or to ICBD (address on back of title page)

Happy reading

Pierpaolo Mastroiacovo
Pierpaolo Mastroiacovo
Director, International Centre on Birth Defects (ICBD)

A word on the structure of the report

Because of collaborative monitoring and research are the most important functions of the ICBDMS, summaries of these activities open this report.

Descriptions of the individual Programmes and tabulations of their data follow.

Make sure that you read these pages before looking at individual programmes tables and graphs

Each monitoring system monitors all birth defects. However, the tables and the graphs present data for selected defects. The selection is made at the Annual Meeting and is quite arbitrary, moreover it may change year by year.

The main aim of the tables and graphs is to show the time variation in the rates of some specific defects in each monitoring system. Figures are presented in:

(a) a table showing data for 2001,
(b) a table showing data for the longest available period of each register and for each malformation up to 2001
(c) some graphs showing the rate trends represented in the following style:
  a. bars represent real patterns of prevalence,
  b. blue bars stand for live+still births rates
  c. black bars stand for termination of pregnancy rates.
  d. blue continuous line stands for the three-year moving average of live and still births rates (the value shown for each year correspond to the average of that year, the previous and the following year).

The tables for 2001 have a standard format for all the registries. If a malformation is not reported the row says "not reported" .

The tables for temporal trend have a flexible format. Only malformations with data are reported
The prevalence rates graphs are presented only for those malformations which have :
(a) figures at least for 8 years,
(b) number of cases per year different from zero in at least half the available years.

This way of presenting data underlines the recommendation to avoid the comparison of rates of a birth defect among Programmes, as there are important differences in the methodology of registration, in defining live births, still births and abortions, including birth defects observed in pregnancy terminations, and last but not least, in defining every single birth defect. Some of the differences in birth defects definitions are highlighted in the description of each monitoring system and in the table "Synopsis of Monitoring Systems" (page 37) and in the table "Deviations from the ICBDMS definitions by Registry" (page 41).

Birth defect rates are calculated by including all cases of each defect, whether isolated or associated to other defects. In some instances, therefore, the same baby may be counted more than once in the tables (i.e.: a baby with cleft lip and limb deficiency is counted twice). In the data from Hungary, however, only isolated defects are reported.

Not all Registries report pregnancy terminations either because the data are not available to the Registry or pregnancy termination is not legal in that country. The inclusion of pregnancy terminations is noted in the tables.

For a better understanding of the statistical analysis, it may be helpful to read the notes on the box.

Some pages of the report show the overall picture of the results of 2001 year monitoring for selected defects. This is the most important piece of information and attemps to answer the questions of what happened in 2001 and whether any relevant cluster noted in more than one or two Registries. If so, then these clusters may need to be investigated further.

2 Introduction

Notes on statistical analysis

Rates
When calculating rates among live born infants and stillbirths, the denominator used is total births. When terminations are included, the total number of terminations for birth defects is added to the denominator. The denominator used for age-specific rates for Down syndrome consists of the total number of live born infants, stillbirths and, if appropriate, terminations for Down syndrome, whose mothers are in that age group.

Observed / expected ratio
An iterative procedure is applied to calculate the expected rates: baseline series is tested, using the Chi squared trend test, in order to find a stable sub sample of observations-years. At the start of the procedure the whole series is tested; then, step by step, years are dropped until the test identifies a stable period. The observations-years kept in the sample are used as baseline to calculate the expected number of cases. Hence the observed / expected ratio is tested using an approximated procedure of the Poisson test at 95% significance level. In the column "YB" the number of observations-years in the baseline is found; the "Remark" column shows the significant values.

Time trend analysis
As terminations were not recorded in the past, the time trend analyses are based on live and stillbirths with the exception of New Zealand and South Africa (live births only). The generalised apparent fall in rates is likely to be, at least in part, the consequence of prenatal diagnosis and pregnancy termination for those registries whose countries allow terminations. Time trends are computed using annual rates even though data in the trend tables is presented by five year intervals so as to make the tables more readable.
We have studied the Chi-squared for trend in order to test the time tendency. The arrows in the column "trend" show the significant increase or decrease: upward arrows locate the significant increasing trends, downward arrows the significant decreasing trends. It is important to underline that this kind of test is counts-sensitive: statistical significance is easier to reach when the number of cases per year is high.

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3.1 Routinely Performed Projects

3.1.1 Surveillance on Malformation and Drug Exposure (MADRE) 2001

Elisabeth Robert-Gnansia (France, Central East)
Alessandra Lisi (ICBD, Rome)

MADRE is an acronym for MAlformation DRug Exposure surveillance. This project was set up in 1990 to survey the simultaneous occurrence of malformations and first trimester drug exposures with the aim to raise hypotheses about possible teratogenic effect of either newly marketed drugs or of drugs for which prescription to women in childbearing age was modified.
After several years of existence, the project has become routine surveillance.

Methodology

Those birth defects registries that have information report individual pairs of malformation(s)-drug(s). The methodology was presented in detail elsewhere (1). In a few words, for each drug-malformation combination where more than two cases are observed, a set of 2x2 tables is formed and analyzed in a case-control fashion. A case is defined as an infant with the malformation in question, alone or in combination with other malformations. An infant is considered exposed if the mother used the drug in question alone or in combination, and unexposed otherwise. The significance of clusters of cases at a specific drug-malformation pair was assessed by comparing use of the specific drug with its use in all other malformations.

Coding and checking reported data was taken care of by Elisabeth Robert-Gnansia, statistical analyses were performed by Alessandra Lisi at ICBD. Several levels of specificity for drugs and malformations codes were cross-tabulated (3/3, 3/5, 4/5 grids).

Results

New cases have come from four Programmes in 2001: Japan, Israel, Italy IMER, and France Central East.

Table 1. Number of malformed fetuses exposed to drugs during the 1st trimester by registry and year

Program / Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Australia: National	28	20	20										**68**
France: Central East	132	146	113	178	183	135	186	218	220	278	223	172	**2,184**
France: Paris			219	170	183	154	136	126	113	121			**1,222**
Israel: IBDMS	15	15	27	16	6	12	15	14	16	16	13	16	**181**
Italy: IMER	73	71	114	132	75	76	74	57	51	46	38	43	**850**
Italy: IPIMC	189	261	437	394	359								**1,640**
Italy: ISMAC		27	21	21	7	7	11						**94**
Japan: JAOG	48	41	52	51	35	43	32	57	73	44	51	114	**641**
Northern Netherlands	47	80	70	45	86	70	128	195	175	185	54		**1,135**
South America: ECLAMC	61	255	458	714	674	624	596						**3,382**
Total	**593**	**916**	**1,531**	**1,721**	**1,608**	**1,121**	**1,178**	**667**	**648**	**690**	**379**	**345**	**11,397**

The total number of cases registered in the database is now 11,397, including about 350 additional cases registered in 2001.
Tables 2 to 4 indicate the main significant associations found in the routine analysis, with the results of 3 levels of specificity for drugs and malformations codes cross-tabulated (3/3, 3/5, 4/5 grids). For each association the following results are given: number of cases, value of the Mantel-Haenszel odds ratio with its 95% confidence interval (LL=lower level, UL=upper level), the p value (given as 0.00 when < 0.001), the results of the Breslow-Day test for homogeneity between Programmes, and the number of Programmes from which cases involved in the test (cases or controls, exposed or not exposed) come.

Table 2. Number of malformed fetuses exposed to drugs during the 1st trimester by registry and year

Association		Malformation	Drug	cases	OR-MH	95% LL MH	95% UL MH	MH test	p	BD test	p	No of PRGs
745	A10	Anomalies of Cardiac Septal Closure	Antidiabetics	104	2,72	2,14	3,47	98,10	0,00	8,04	0,53	10
741	N03	Spina Bifida	Antiepileptics	51	3,94	2,90	5,34	78,64	0,00	10,70	0,22	9
747	A10	Other congenitals anomalies of the circulatory sistem	Antidiabetics	44	2,79	2,02	3,86	57,73	0,00	8,91	0,45	10
752	C04	Congenital Anomalies of Genital Organs	Peripheral vasodilators	153	1,38	1,12	1,70	53,34	0,00	9,40	0,15	7
753	H03	Congenital Anomalies of Urinary System	Thyroid therapy	83	1,79	1,39	2,32	39,06	0,00	8,65	0,37	9
752	G03	Congenital Anomalies of Genital Organs	Sex hormones	222	1,25	1,06	1,48	37,87	0,00	5,41	0,80	10

OR-MH = Mantel-Haenszel Odds Ratio; 95% LL MH = 95% confidence interval, lower level, Mantel-Haenszel; 95% UL MH= 85% confidence interval, upper level, Mantel-Haenszel; MH test = Mantel-Haenszel test; BD test = Breslow-Day test; No of PRGs = Number of number of Programmes from which cases involved in the test (cases or controls, exposed or not exposed) come.

Table 3. Main significant associations in routine analysis (3/5 grid)

Association		Malformation	Drug	cases	OR-MH	95% LL MH	95% UL MH	MH test	p	BD test	p	No of PRGs
741	N03AG	Spina Bifida derivatives	Fatty acid	37	7,40	5,19	10,57	121,65	0,00	4,26	0,75	8
747	A10AA	Other congenitals anomalies of the circulatory sistem	Insulins	15	4,31	2,47	7,54	26,34	0,00	1,08	0,78	4
749	N03AA	Cleft Palate and Cleft Lip	Barbiturates and derivatives	30	2,76	1,83	4,16	23,27	0,00	5,74	0,68	9
753	H03AA	Congenital Anomalies of Urinary System	Thyroid hormones	75	1,92	1,46	2,51	22,17	0,00	10,18	0,25	9

OR-MH = Mantel-Haenszel Odds Ratio; 95% LL MH = 95% confidence interval, lower level, Mantel-Haenszel; 95% UL MH= 85% confidence interval, upper level, Mantel-Haenszel; MH test = Mantel-Haenszel test; BD test = Breslow-Day test; No of PRGs = Number of number of Programmes from which cases involved in the test (cases or controls, exposed or not exposed) come.

Table 4. Main significant associations in routine analysis (4/5 grid)

Association		Malformation	Drug	cases	OR-MH	95% LL MH	95% UL MH	MH test	p	BD test	p	No of PRGs
741.9	N03AG	Spina bifida	Fatty acid derivatives	32	7,82	5,32	11,49	109,31	0,00	5,11	0,65	8
749.2	N03AA	Cleft lip with cleft palate	Barbiturates and derivatives	18	4,18	2,60	6,73	34,78	0,00	9,39	0,31	9

OR-MH = Mantel-Haenszel Odds Ratio; 95% LL MH = 95% confidence interval, lower level, Mantel-Haenszel; 95% UL MH= 85% confidence interval, upper level, Mantel-Haenszel; MH test = Mantel-Haenszel test; BD test = Breslow-Day test; No of PRGs = Number of number of Programmes from which cases involved in the test (cases or controls, exposed or not exposed) come.

As in previous years, the most significant associations were found (tables 2 to 4) between

- spina bifida and antiepileptics (741/N03), and especially fatty acids (N03AG). This already known association is an indicator of the validity of the MADRE database.
- cardiac defects and antidiabetics (745+746+747/A10). This association is an indicator of the well known increased risk of cardiac defects linked with diabetes, and not with its treatment.
- cleft palate and cleft lip with barbiturates (749/N03AA). Again this already known association is an indicator of the validity of the MADRE database

In table 2, the associations between genital anomalies and peripheral vasodilators and sex hormones are mainly referring to hypospadias and treatments used for threatened abortion, which have been explored in ad hoc studies (2). The interpretation is that threatened abortion probably is due to hormonal disturbances that may induce hypospadias as well.

Tables 2 and 3 indicate a preferential association between thyroid hormones and urinary malformations. This is a signal to be followed-up in further analyses.

Because antivirals (J05AB) are increasingly used during pregnancy, the MADRE database was used for testing new hypotheses between these drugs and three types of common malformations: ventricular septal defects (VSD), oro-facial clefts (OFC) and obstructive uropathies (OU). Results are shown below, which do not reveal any significance. Almost all cases were exposed to acyiclovir, and none of them to antiretrovirals.

Antivirals/ VSD

	Cases	Controls	**Total**
Exposed	5	30	35
Not exposed	780	10991	11771
Total	785	11021	**11806**

OR(CI 95%) = 2.35 (0.93, 5.90) MHOR = 1.55 (0.60, 4.01) Breslow-Day Test: Chi-square = 2.86 DF=6 p=0.83

Antivirals/ OFC

	Cases	Controls	**Total**
Exposed	3	32	35
Not exposed	1038	10733	11771
Total	1041	10765	**11806**

OR(CI 95%) = 0.97 (0.30, 3.17)

Antivirals/ OU

	Cases	Controls	**Total**
Exposed	4	31	35
Not exposed	563	11203	11771
Total	572	11234	**11806**

OR (CI 95%) = 2.54 (0.93, 6.97) MHOR = 1.59 (0.56, 4.54) Breslow-Day Test: Chi-square = 1.11 DF=6 p=0.98

Because there were some indications regarding the association of cardiac septal defects (745) and NSAIDS for systemic use (M01A) in the literature (4-5), we tested this association too, and no significance appeared.

M01A - 745

	Cases	Controls	**Total**
Exposed	29	209	238
Not exposed	1516	10052	11568
Total	1545	10261	**11806**

OR = 0.92 (0.62, 1.36) MHOR = 0.96 (0.64, 1.45)
Breslow-Day Test: Chi-square=6.42 DF=7 p=0.49

A recent paper also described an association beween valproic acid and craniosynostosis, namely trigonocephaly (6). We tested our database for association of skull and face anomalies with valproic acid (756.0-N03AG), with carbamazepine (756.0-N03AF), and with any anticonvulsant. Results are shown below:

N03AG - 756.0

	Cases	Controls	**Total**
Exposed	24	204	228
Not exposed	239	11339	11578
Total	263	11543	**11806**

OR=5.58 (3.78, 8.27) MHOR=2.69 (1.74, 4.17)
BD Test: Chi-square=4.99 DF=7 p=0.66

N03AF - 756.0

	Cases	Controls	**Total**
Exposed	12	115	127
Not exposed	251	11428	11679
Total	263	11543	**11806**

OR=4.75 (2.74, 8.24) MHOR=2.71(1.51, 4.86)
BD Test: Chi-square=27.32 DF=8 p=0.001

N03A - 756.0

	Cases	Controls	**Total**
Exposed	37	474	511
Not exposed	226	11069	11295
Total	263	11543	**11806**

OR=3.82 (2.73, 5.34) MHOR=2.314(1.62, 3.31) BD Test: Chi-square=16.58 DF=8 p=0.035

Thus, the association suggested between valproic acid and craniosynostosis seems to be confirmed, probably limited to valproic acid and carbamazepine. The type of data available does not permit us to differentiate the various types of craniosynostosis, which will be analysed in an ad hoc study.

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3.1.2 Multiple Congenital Anomalies (MCA), 2001

Jorge Lopez-Camelo (South America, ECLAMC)
Monica Rittler (South America, ECLAMC)

Purpose and rationale

The annual review of cases of multiple congenital anomalies (MCA) is designed as an additional tool to detect increases in birth defect occurrence due to teratogens. Because at least some teratogens (eg. rubella, thalidomide, and retinoic acid) cause MCAs rather than isolated defects, the systematic evaluation of combinations of MCA can be a useful adjunct to standard monitoring, which usually examines one defect at a time. In this report we used several complementary approaches to detect unusual trends in MCA occurrence. Here we report some findings of such analyses.

Methods and data

This year, ten Programmes participated in the annual monitoring of MCA (Table 1), which evaluated birth outcomes that occurred in 2001. Collectively, the ten Programmes provided information on 1,538 cases ascertained among nearly 650,000 births. For each case, Programme directors provided a case listing that included a description of the defects. This case information was reviewed and the defects were coded. We then focused on the subset of 800 cases of two or more major unrelated defects of unknown etiology (Table 1). These 800 cases form the basis of the remainder of the report. Rates were computed using liveborn infants as denominators, although we included stillborn infants among the cases (numerators).

Classification and comparisons

We used a coding system specifically devised for MCA analysis to code and classify defects. These defects were then collapsed into 48 groups (Table 2). To identify unusual MCA occurrences in the current year, we compared rates and MCA patterns for these cases with those in the accumulated baseline of MCA cases born during 1992-2000. We computed rates for each of the 48 MCA components as well as for defect combinations. The latter included all combinations of the 48 defect groups (two- or three-defect combinations), as well as certain combinations that have been associated with recognized teratogens, such as rubella, retinoic acid and thalidomide. We also searched for new defect combinations, i.e., combinations that had not been seen in the baseline. Statistical significance was determined, based on a p=0.01 cutoff of the appropriate Poisson distribution. In the analysis we focused mainly on combinations of major defects.

Findings and comments

The overall rate of MCA cases (2 or more unrelated defects of unknown etiology) was 12.4 per 10,000 births (Table 1), although rates varied noticeably across Programmes. However, because Programmes vary in the ascertainment, diagnostic follow-up, and reporting of cases, the comparison of rates between registries is probably not very informative in the absence of further information.

Monitoring of individual component defects is summarized in Table 2. For each defect group we show the observed number among MCA cases and the number of cases expected from the baseline. To assess the extent and impact of rate variations, we present rate ratios and rate differences. From the latter we estimated the number of excess cases observed in 2001; this number will be positive when more cases than expected were observed, and negative when less cases were observed. The table is ordered by this excess number of cases. Finally, we noted which rate variations fell outside Poisson expectations (*p<0.05; **p<0.01). For example, two increases fell beyond the p=0.05, and two beyond the p=0.01 threshold, while no decrease fell beyond expectations.
Overall, there were nearly 40 fewer defect occurrences in this period (sum of excess cases) than expected from the baseline. Five defect groups appeared over-represented, and three of them also surfaced in the evaluation of two- and three-defect combinations, namely, spina bifida, congenital heart defects, and polydactyly.
Finally, no increase of patterns attributable to the selected known teratogens was identified.

Summary
The latest review flagged three defect groups, and further investigation and follow-up of the involved cases is warranted. No increase in MCA patterns associated with known teratogens was noted.
Monitoring of MCA is labor intensive, both for the registries that provide detailed case descriptions and for the monitoring staff that reviews, codes, analyzes, and reports the data. Further work is required if certain events warrant further investigation. Nevertheless MCA monitoring continues to be a regular Clearinghouse activity because it can provide an additional safety net against unrecognized epidemics of birth defects due to teratogens, by identifying unusual trends and patterns of MCA cases.

Table 1: Cases and rates of multiple congenital anomalies (MCA) by source and type, ICBDMS

Registry	Births	Total cases evaluated (No)	Cases of known etiology (No)	< 2 major defects (No)	2 or more	
					Number	Rate x 10,000
Canada: British Columbia	40657	107	16	80	11	2,7
Finland	56397	151	47	10	94	16,7
France: Central East	107670	218	80	32	106	9,8
France: Strasbourg	13406	33	3	1	29	21,6
Israel	22746	44	0	6	38	16,7
Italy: IMER	23670	16	0	2	14	5,9
Japan	97389	267	55	133	79	8,1
Mexico: RYVEMCE	26141	39	3	5	31	11,9
South America: ECLAMC	206750	550	152	62	336	16,3
USA: Atlanta	51303	113	39	12	62	12,1
Total	646129	1538	395	343	800	12,4

Table 2: Occurrence of component defects in MCA patterns and comparison with baseline, ICBDMS

Defect group	Observed	Expected	Rate	Rate	Excess	Poisson
	No.	No.	Ratio	Difference	no. cases	flag
Congenital heart defects	347	300,7	1,2	7,2	46,3	*
Anorectal atresia	101	82,8	1,2	2,8	18,2	*
Polydactyly	88	71,1	1,2	2,6	16,9	
Severe genItalia defects	40	24,6	1,6	2,4	15,4	**
Spina bifida	46	31,8	1,4	2,2	14,2	**
Broncho-pulmonary	38	29,2	1,3	1,4	8,8	
Limb reduction defect	21	12,9	1,6	1,3	8,1	
Limb reduction defect, preaxial	28	23,8	1,2	0,6	4,2	
Duodenal atresia	17	12,9	1,3	0,6	4,1	
Diaphragmatic hernia	40	36,7	1,1	0,5	3,3	
Cleft palate	65	62,3	1,0	0,4	2,7	
Encephalocele	17	14,4	1,2	0,4	2,6	
Other urinary tract defects	102	99,4	1,0	0,4	2,6	
Holoprosencephaly	14	11,5	1,2	0,4	2,5	
Gut malrotaion	11	9,0	1,2	0,3	2,0	
Other ear anomalies	16	15,1	1,1	0,1	0,9	
Bladder exstrophy/epispadias	8	7,3	1,1	0,1	0,7	
Teratoma, sirenomelia	3	3,4	0,9	-0,1	-0,4	
Other severe craniofacial defects	19	19,5	1,0	-0,1	-0,5	
Laryngeo-tracheal	4	4,6	0,9	-0,1	-0,6	
Lumbo-sacral axial skeleton defects	5	6,0	0,8	-0,2	-1,0	
Ring constriction or fibrotic band	0	1,5	0,0	-0,2	-1,5	
Other axial skeleton defects	81	83,1	1,0	-0,3	-2,1	
Neck anomalies	10	12,1	0,8	-0,3	-2,1	
Craniostenosis	7	9,1	0,8	-0,3	-2,1	
Situs inversus	7	9,4	0,7	-0,4	-2,4	
An-microtia and other ear anomalies	40	42,5	0,9	-0,4	-2,5	
Choanal atresia	10	12,6	0,8	-0,4	-2,6	
Other small intestinal atresias	6	8,7	0,7	-0,4	-2,7	
Cystic kidney	28	30,9	0,9	-0,4	-2,9	
A/polysplenia	6	9,0	0,7	-0,5	-3,0	
Anencephaly	8	12,0	0,7	-0,6	-4,0	
Vessel anomalies (incl. SUA)	6	11,2	0,5	-0,8	-5,2	
Microcephaly	28	34,1	0,8	-1,0	-6,1	
Syndactyly	28	34,2	0,8	-1,0	-6,2	
Renal a/dysgenesis	47	53,3	0,9	-1,0	-6,3	
Deformation(s)(incl. clubfoot-hip)	105	111,4	0,9	-1,0	-6,4	
Other small intestinal atresias	23	30,6	0,8	-1,2	-7,6	
Gastroschisis	7	14,7	0,5	-1,2	-7,7	
Other brain defects	52	60,5	0,9	-1,3	-8,5	
Hydrocephaly	62	71,6	0,9	-1,5	-9,6	
Cleft lip+/palate	80	89,9	0,9	-1,5	-9,9	
A-microphtalmia	21	31,9	0,7	-1,7	-10,9	
Omphalocele	31	43,0	0,7	-1,9	-12,0	
Limb reduction defects, other types	19	32,5	0,6	-2,1	-13,5	
Other eye anomalies	19	33,1	0,6	-2,2	-14,1	
Esophageal atresia	59	76,2	0,8	-2,7	-17,2	
Hypospadias	39	59,6	0,7	-3,2	-20,6	

Table 3: Two-defect combinations among MCA cases, ICBDMS, 2001

Defect combinations	Observed	Expected	Rate	Rate	Excess	Poisson
	No.	No.	Ratio	Difference	no. cases	flag
Spina bifida and congenital heart defects	14	5,5	2,6	1,3	8,5	**
Spina bifida and polydactyly	8	1,6	4,9	1,0	6,4	**
Other severe cranial defects and CHD	8	2,7	3,0	0,8	5,3	**
Hydrocephaly and limb reduction defects	6	1,4	4,2	0,7	4,6	**
Other eye anomalies and other urinary tract defects	6	1,8	3,3	0,7	4,2	**
Other ear anomalies and CHD	6	1,8	3,3	0,7	4,2	**
Spina bifida and diaphragmatic hernia	5	1,2	4,1	0,6	3,8	**
Renal a/dysgenesis and polydactyly	4	0,6	6,6	0,5	3,4	**
Microcephaly and omphalocele	4	0,8	4,9	0,5	3,2	**
Cystic kidney and other eye anomalies	3	0,2	15,0	0,4	2,8	**
Encephalocele and Anorectal atresia	3	0,4	7,3	0,4	2,6	**
Encephalocele and other axial skeleton defects	3	0,6	4,9	0,4	2,4	**
Other severe cranial defects and other axial skeleton defects	3	0,6	4,9	0,4	2,4	**
Omphalocele and syndactyly	3	0,6	4,9	0,4	2,4	**

Table 4: Three-defect combinations among MCA cases, ICBDMS, 2001

Defect combinations	Observed	Expected	Rate	Rate	Excess	Poisson
	No.	No.	Ratio	Difference	no. cases	flag
Esophageal atresia and anorectal atresia and limb reduction defect	5	1,0	5,0	0,6	4,0	**
Spina bifida and CHD and polydactyly	3	0,3	10,0	0,4	2,7	**
Hydrocephaly and other eye anomalies and CHD	3	0,4	7,5	0,4	2,6	**
Duodenal atresia and CHD and other axial skeleton defects	3	0,2	15,0	0,4	2,8	**

3.1.3 Prenatal diagnosis and Down Syndrome, 2001

Guido Cocchi (Italy, IMER)

Introduction

The "Prenatal Diagnosis Committee" (PDC) of the International Clearinghouse, has had the responsibility, since 1993, for a specific analysis of prenatal diagnosis of Down Syndrome (DS). The aim of the survey is to assess the progressive increase in use and spread of prenatal diagnostic techniques and the impact of elective termination on prevalence rates at birth of DS, in countries where elective abortions are performed.

Participation in the Clearinghouse Programmes worldwide provides a unique opportunity to analyse international variations on the use of prenatal diagnosis (Chorion Villus Sampling = CVS, Amniocentesis = AC, Cordocentesis= CC), and access to screening, as well as differences in advice and abortion legislation. In addition, repeating this study over time has made it possible to follow the evolution of these techniques and to evaluate the impact of each practice on the prevalence of DS.

2001 Data

During 2001, 16 Programmes (one less than last year) provided data on 1979 cases of DS, 1026 of them (51.8%) were prenatally diagnosed and terminated (Table 1).

The total number of births under surveillance in 2001 was 1,256,091.

The percentage of terminations of pregnancy (ToP) ranged from the lowest values in Northern Netherlands (13.6%) and Canada: Alberta (19.7%), to the highest in France: Paris and Central East, that reached 79.9% and 74.4% respectively (Table 2). Other Registries show percentages of terminations over 60%: Czech Republic (65.3%) and two Italian Registries: Tuscany and IMER (65.9% and 63.4% respectively).
In the European registries that provided a data set of 9 years (1993-2001), a regular increase in the percentage of ToP has been observed: 41.5% in 1993, 45.9% in 1994, 48.5% in 1995, 50.9% in 1996, 52.2% in 1997, 53.8% in 1998, 55.2% in 1999, 57.8% in 2000 and 57.1% in 2001.
The terminations are directly related to the maternal age as shown in Table 2: the percentage of ToPs is lower in the lowest maternal age class (<=29 years) as in USA:Atlanta: 5.3%, Italy:BDRCam 7.7%, Germany:Saxony-Anhalt 8.3% and Canada:Alberta 10%; in the same group we have 4 registries (Israel:IBDMS, Italy:IMER, Italy:Tuscany and Northern-Netherlands) with no cases of termination. On the contrary in the higher maternal age classes: i.e. over 35 years (35-39 and >= 40) the percentage of terminations is higher: some registries show percentages of ToPs of about 80-90% (Czech Republic: 86.2% and 83.3%; France:Central East: 88.9% and 78.4%, Italy:IMER: 92.3% and 83.3%; Italy:Tuscany: 90.0% and 92.9%).

Overall, the proportion of DS pregnancies, which were terminated among women at higher risk (≥35 years old), was about 90% in two Italian Registries: Tuscany and IMER (91.7% and 89.5% respectively) while percentages of terminations over 80% were observed in France:Paris: 85.9%, in Czech Republic: 84.9% and France:Central East: 84.8%.
The lowest percentages of ToPs in mothers aged 35 and over, were observed in the registries of Israel: IBDMS and Northern Netherlands: 22.2% (Table 3).

In the European registries that provided a data set for 9 years (1993-2001), a regular increase in the percentage of ToP was observed. The increase is seen in both groups of maternal age: younger (<35 years) and older (≥35 years) women even though the majority of ToPs occurs in the older group: 572/827 (69.2%) The impact of prenatal diagnosis over time is less evident in the older mothers: 63% in 1993, 65.3% in 1994, 65.4% in 1995, 66.0% in 1996, 67.7% in 1997, 65.3% in 1998, 68.3% in 1999, 64.7% in 2000 and 69.2% in 2001. In the group of younger mothers (<35 years) the increase of ToP through the years is more evident: 24.7% in 1993, 31.2% in 1994, 33.3% in 1995, 36.3% in 1996, 39.4% in 1997, 43.6% in 1998, 45.5% in 1999, 41.9% in 2000 and 44.4% in 2001.
This significant trend ($p<0.0001$) in the younger group may be explained by a better identification of women who may be at risk from factors other than maternal age, as in England and Wales (OSCAR Project) and in France. It may also be due to a better knowledge of ultrasonographic signs in the first trimester (i.e. NT screening) and consequently a better yield of routine ultrasound, or it may be related to multiple-marker screening in other countries. This may explain the increased detection in the younger group of women.

The most common technique of prenatal diagnosis remained amniocentesis in 2001(Table 4), with a mean value of 72.94%. The practice of CVS, with a mean value of 22.9%, has shown a slight increase year by year: 18.3% in 1995, 19.0% in 1996, 19.3% in 1997, 18.2% in 1998, 20.2% in 1999 and 21.8% in 2000 and 22.9% in 2001.
CVS has been used mainly in England and Wales (47.1%). In the Registries of France the mean percentage is 11.1% while the mean value in Italy is 7.4%. The Programmes, where CVS is more frequently adopted, show the lowest mean gestational ages at pregnancy termination in the older maternal age group (>35) as in England and Wales (16.1±3.8wks) (Table 5).
The mean age (wks) of terminations is heterogeneous and significantly different among the Programmes in both maternal age groups. In the younger group (<35 years) there is a lower limit of 16±2 wks in Sweden and Canada:Alberta, to an upper limit of 23±1wks (Israel: IBDMS); while in the older group of maternal age (≥35 years) lower limit of 16±4 is observed in England and Wales and upper limit of 23 wks in Israel. All except Israel show a mean value less than 20 wks (Table 5).

The prevalence at birth of DS has decreased over the past 9 years in the majority of the Programmes (Table 6). These are the Programmes that showed the highest rate of terminations and an increase in the termination year by year. In the same way the highest rates of prevalence at birth were observed in the Programmes where terminations were lowest (Canada: Alberta and USA: Atlanta).

Table 1. List of the Programmes participating in the Prenatal Diagnosis Study in the years.

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Australia: National	X	X	X	X	X	X			
Canada: Alberta					X	X	X	X	X
Czech Republic	X	X	X	X	X	X	X	X	X
England & Wales	X	X	X	X	X	X	X	X	X
Finland	X	X	X	X	X	X	X	X	
France: Central-East	X	X	X	X	X	X	X	X	X
France: Paris	X	X	X	X	X	X	X	X	X
France: Strasbourg	X	X	X	X	X	X	X	X	X
Germany: Saxony-Anhalt								X	X
Israel: IBDMS	X	X	X	X	X	X	X	X	X
Italy: BDRCam	X	X	X	X	X	X	X	X	X
Italy:ISMAC								X	X
Italy: IMER	X	X	X	X	X	X	X	X	X
Italy: North-East	X	X	X	X	X	X	X	X	X
Italy: Tuscany	X	X	X	X	X	X	X	X	X
Northern Netherlands	X	X	X	X	X	X	X	X	X
Sweden								X	X
USA: Atlanta	X	X	X	X	X	X	X	X	X

Table 2 . Percentage (%) of terminations (TOP) among the total number of cases recorded in 2001

Monitoring Program	Maternal Age (years)				
	<= 29	30 – 34	35 – 39	>= 40	Total
Canada: Alberta	10.0	11.1	30.0	30.8	19.7
Czech Republic	54.0	53.6	86.2	83.3	65.3
England & Wales	32.8	35.0	56.5	58.4	47.0
France: Central East	72.5	76.6	88.9	78.4	74.4
France: Paris	56.3	73.5	87.6	77.4	79.9
France: Strasbourg	50.0	25.0	77.8	75.0	60.0
Germany: Saxony-Anhalt	8.3	28.6	35.3	42.9	29.2
Israel: IBDMS	0	50.0	50.0	0	22.2
Italy: BDRCam	7.7	53.8	50.0	62.5	43.3
Italy: IMER	0	52.9	92.3	83.3	63.4
Italy: ISMAC	50.0	50.0	71.4	75.0	60.0
Italy: North East	28.6	22.2	70.4	66.7	48.7
Italy: Tuscany	0	46.7	90.0	92.9	65.9
Northern Netherlands	0	12.5	25.0	0	13.6
Sweden	13.6	28.8	49.4	64.6	40.7
USA: Atlanta	5.3	23.5	32.6	25.0	24.4

Table 3. Percentage of mothers aged 35 and over in the monitoring Programmes participating in the study and percentage of terminations (ToP) in the same group of mothers. Prevalence rate in live and stillbirths (per 10,000) and comparison with the rate after inclusion of ToP

Monitoring Program	% of mothers	% of ToP in mothers	Prevalence rate (* 10,000)	
	aged >=35	aged >=35	L+S	L+S+ToP
Canada: Alberta	14.6	30.3	36.5	60.2
Czech Republic	6.7	84.9	13.3	87.8
England & Wales	17.3	57.2	16.7	39.1
France : Paris	26.0	44.4	14.0	99.0
France: Central East	17.4	84.8	10.7	70.4
France: Strasbourg	14.6	76.9	15.3	66.5
Germany: Saxony-Anhalt		37.5		
Israel: IBDMS	15.9	22.2	19.4	24.9
Italy: BDRCam	13.8	56.7	19.0	43.7
Italy: IMER	17.0	89.5	5.0	47.2
Italy: Tuscany	24.5	91.7	3.1	37.3
Northern Netherlands	18.9	22.2	18.2	23.4
Sweden	18.2	55.0	34.7	77.1
USA: Atlanta	15.7	31.5	45.9	66.9

* estimated

Table 4 . Down Syndrome techniques of prenatal diagnosis (number of cases) registered in 1998 grouped in maternal age classes.

Monitoring Program	<35				35-39				>39				Tot			
	CVS	AC	CC	UK	CVS	AC	CC	UK	CVS	AC	CC	UK	CVS	AC	CC	UK
Canada: Alberta	0	4	0	0	1	5	0	0	0	4	0	0	1	13	0	0
Czech Republic	0	49	0	0	0	25	0	0	0	20	0	0	0	94	0	0
England & Wales	38	53	10	1	74	59	11	0	45	34	8	0	157	146	29	1
France: Central East	5	59	0	1	4	67	0	1	4	36	0	0	14*	166*	0	3*
France: Strasbourg	3	2	0	0	4	3	0	0	1	2	0	0	8	7	0	0
Germany: Saxony-Anhalt	1	2	0	0	0	6	0	0	0	3	0	0	1	13*	0	0
Israel: IBDMS	0	2	0	0	0	2	0	0	0	0	0	0	0	4	0	0
Italy: BDRCam	0	8	0	0	0	7	0	0	0	10	0	0	0	26*	0	0
Italy: IMER	2	6	0	1	3	9	0	0	0	5	0	0	5	20	0	1
Italy: Tuscany	0	7	0	0	1	8	0	0	0	13	0	0	1	28	0	0
Northern Netherlands	0	1	0	0	0	0	0	2	0	0	0	0	0	1	0	2
Sweden	4	17	0	0	3	37	0	0	2	29	0	0	9	83	0	0
USA: Atlanta	0	5	0	0	0	15	0	0	0	2	0	0	0	22	0	0
Total	53	215	10	3	90	243	11	3	52	158	8	0	196*	623*	29	7*

CVS = Chorion Villus sampling
AC = Amniocentesis
CC = Chordocentesis
UK = Unknown
*including cases with maternal age unknown

Table 5. Mean gestational age (weeks) and Standard Deviation of induced abortions by maternal age group and by type of prenatal diagnosis.

Monitoring Program	<=34			>=35		
	CVS	AC	Total	CVS	AC	Total
Canada: Alberta	-	16.00±2.45	16.00±2.45	15.00±0	17.33±1.73	17.10±1.79
Czech Republic	-	20.56±2.18	20.56±2.18	-	19.82±1.91	19.82±1.91
England & Wales	13.76±2.24	19.55±2.77	17.13±3.84	13.66±1.61	18.88±3.68	16.07±3.80
France: Central East	14.50±1.91	22.24±6.11	21.71±6.23	16.38±2.45	19.94±3.75	19.68±3.78
France: Strasbourg	16.33±3.21	25.50±7.78	20.00±6.75	15.40±1.95	19.40±2.19	17.40±2.88
Germany: Saxony-Anhalt	15.00±0	20.50±4.95	18.67±4.73	-	19.78±2.11	19.78±2.11
Israel: IBDMS	-	23.50±0.71	23.50±0.71	-	23.00±0	23.00±0
Italy: BDRCam	-	20.38±2.20	20.38±2.20	-	19.25±2.05	19.25±2.05
Italy: IMER	14.50±0.71	18.83±0.75	17.75±2.12	12.33±0.58	18.50±1.45	17.41±2.76
Italy: Tuscany	-	20.57±1.90	20.57±1.90	12.00±0	18.76±1.26	18.45±1.90
Northern Netherlands	-	19.00±0	19.00±0	-	-	-
Sweden	15.00±0	16.11±2.32	16.00±2.21	15.00±0	16.97±1.11	16.89±1.16
USA: Atlanta	-	19.25±0.96	19.25±0.96	-	19.63±2.00	19.63±2.00

CVS = Chorion Villus sampling

AC = Amniocentesis

Table 6. Prevalence at birth (x 10,000) of DS in the years 1993 to 2001 in the Programmes participating in the survey.

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Canada: Alberta	11.45	11.07	13.15	8.49	11.14	14.02	11.56	14.65	15.2
Czech Republic	7.52	7.67	7.26	5.51	5.06	6.72	6.57	5.37	5.51
England & Wales	4.59	4.73	4.91	5.50	6.39	7.18	6.71	6.60	6.27
Finland	13.21	12.83	12.94	10.33	10.07	11.33	10.04	11.76	14.18
France: Central East	10.98	10.43	8.91	9.47	9.01	6.83	4.86	5.83	5.85
France: Paris	10.61	9.19	7.05	9.67	7.78	10.48	5.24	7.87	7.79
France: Strasbourg	16.75	17.87	24.04	17.44	27.95	2.20	4.34	5.62	2.23
Germany: Saxony-Anhalt	5.79	6.33	7.43	7.86	8.33	13.65	6.09	6.38	8.26
Israel: IBDMS	5.06	5.03	6.32	4.87	9.13	3.28	6.01	4.74	6.15
Italy: BDRCam	10.94	7.63	10.01	9.22	6.74	8.73	6.33	2.99	6.83
Italy: IMER	8.97	9.27	10.24	7.97	7.27	9.36	9.58	6.47	6.33
Italy: ISMAC	19.29	14.82	10.87	8.54	11.71	11.60	15.94	8.49	5.90
Italy: North East	12.87	10.31	11.46	9.14	7.15	7.23	7.17	6.90	7.83
Italy: Tuscany	11.83	9.80	11.42	6.91	7.34	6.28	6.14	4.90	5.70
Northern Netherlands	9.86	5.74	9.38	13.74	11.91	10.03	8.43	6.35	9.32
Sweden							14.01	11.01	14.59
USA: Atlanta	12.02	13.81	10.93	11.98	10.49	11.46	12.00	11.08	13.25

3.1.4 Prenatal diagnosis and Congenital Heart Defects

(Catherine De Vigan, France Paris)

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Introduction

Congenital heart defects (CHD) are an important cause of infant mortality and morbidity. Prenatal diagnosis of CHD by ultrasonography is advancing in many countries. It allows delivery in specialized maternity units and an early tranfer to neonatal intensive care units.

In 2000, the "Prenatal Diagnosis Committee" of the ICBDMS proposed to study the evolution of prenatal diagnosis for selected CHD in the registries of the ICBDMS. The study began in 2001 with the analysis of data from year 1999 and continued with the analysis of data of the year 2000 that we present below.

Material and methods

Four CHD were selected for this study: transposition of great arteries , tetralogy of Fallot , coarctation of aorta , and from data for the year 2000, hypoplastic left heart syndrome.

The selection of isolated cases (CHD without other major malformation or chromosomal anomaly) was made by the participating registries for 2000, but it was decided that for future years, those cases associated with other cardiac anomalies will be included.

Data on pre/post natal diagnosis and pregnancy outcome were collected for each case and centralized at the Paris Registry. It was not possible for most registries to get data on survival at one week and surgery during the first week of life, so these data were not included. The analysis was made by the Paris Registry, with the emphasis on detection rates of the different participating registries.

Results

For the year 2000, 18 Programmes provided data for a total of 1,449,127 births (table 1). Overall we collected:

- 232 cases of isolated transposition of great arteries (TGA) (prevalence per 10,000 births: 1.60, 95% CI, 1.40-1.82),
- 170 cases of isolated tetralogy of Fallot (TOF) (prevalence per 10.000 births: 1.17, 95%CI, 1.00-1.36),
- 167 cases of isolated hypoplastic leaft heart syndrome (HLHS) (prevalence per 10.000 births: 1.15, 95%CI 0.98-1.34)
- and 167 case of isolated coarctation of aorta (CoA) (prevalence per 10.000 births: 1.15, 95%CI, 0.98-1.34).

Overall, the prenatal diagnosis rates were 29.6% for TGA, 33.8% for TOF, 66.9% for HLHS and 29.2% for CoA, with large variations between registries (table 2). The gestational age at prenatal diagnosis also showed marked variations. The termination rates were low, 4.3, 7.6 and 3.0% respectively for TGV, TOF and CoA, but it was 35.6% for HLHS.

Prenatal diagnosis rates increased in 2000 when the 12 registries that also participated in 1999 were considered.

Table 1: Prenatal diagnosis of CHD: participating Programmes in 1999 and 2000

Participating Programmes	1999	2000	Annual births 2000
Czech republic	X	X	91 169
England and Wales	X	X	607 304
Finland	X	X	59 969
France: Central-East	X	X	108 057
France: Paris	X	X	39 400
France: Strasbourg		X	14 238
Israel: IBDMS		X	23 224
Italy: BDMRCam		X	50 171
Italy: IMER	X	X	24 712
Italy: Tuscany	X	X	26 548
Japan: JAOG	X	X	91 354
Malta	X	X	4 272
Northern Netherlands	X	X	20 461
Germany: Saxony-Anhalt		X	18 799
South America: ECLAMC	X	X	187 727
Ukraine		X	26 025
United Arab Emirates	X	X	8 178
USA: Atlanta		X	50 519
	12 Programmes	**18 Programmes**	**1 449 127**

Table 2: Prenatal diagnosis rates by registry and by isolated cardiac malformation (2000 data)

Participating Programmes	Transposition of Great Arteries N=232 % Prenatal Diagnosis	Tetralogy of Fallot N=170 % Prenatal Diagnosis	Hypoplastic Left Heart Syndrome N=167 % Prenatal Diagnosis	Coarctation of Aorta N=167 % Prenatal Diagnosis
Czech Republic	29.0	16.7	77.3	23.8
England and Wales	> 3.8	> 15.2	> 32.1	> 5.6
Finland	0	10.0	22.2	0
France: Central-East	54.6	37.5	64.7	41.7
France: Paris	93.8	63.6	100	75.0
France: Strasbourg	50.0	80.0	50	0
Israel: IBDMS	50.0	0	100	83.3
Italy: BDMRCam	37.5	14.3	0	33.3
Italy: IMER	50.0	71.4	100	50.0
Italy: Tuscany	0	0	71.4	16.7
Japan: JAOG	18.8	35.0	-	0
Malta	0	0	-	-
Northern Netherlands	0	0	33.3	-
Germany: Saxony-Anhalt	22.2	-	-	-
South America: ECLAMC	8.0	21.4	40.0	33.3
Ukraine	0	0	0	0
United Arab Emirates	0	0	0	0
USA: Atlanta	25.0	25.0	50.0	0
Total	**29.6,** 95%CI, 23.0-36.9	**33.8,** 95%CI, 25.8-42.7	**66.9,** 95%CI, 58.0-75.0	**29.2,** 95%CI, 21.6-37.8

3.1.5 Classification of Congenital Anomalies

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Sebastiano Bianca (Italy: ISMAC)
Paul Merlob (Israel: IBDMS)

Many people continue to be confused with classification and coding, some others state that any classification should start with ICD-10 or ICD-10/BPA-10. ICD is a useful clinical tool and cannot be anything else. For malformation monitoring we must rely on additional information to that provided by clinicians, i.e., vital statistics, death registrations, autopsies. Therefore we must separate coding and classification.

Coding

BPA-10 (the BPA is known as the Royal College of Paediatrics and Child Health [RCPCH]) is now available on diskette but there is no conversion tool from BPA-9 to RCPCH-10 yet available. Therefore the Classification Committee had to provide a conversion tool from ICD-9 to ICD-10.
After many years of hard work the conversion ICD-9 to ICD-10 is now completed and is available from ICBDMS.
The next step is to work on an automated match from ICD9 to ICD10. However this is a task that will require considerable computer expertise.
Another step will be to improve ICD-10 as we will perhaps never have ICD-11 or have it in many, many years.
The Committee proposed that all ICBDMS members use ICD10 starting January 1st, 2002. The Committee will check which Programmes are now using ICD-10.

Classification

Regarding the classification of congenital anomalies the committee was enlarged by additional members from the Clearinghouse and experts from outside the Clearinghouse. This should provide a more uniform classification system and enable comparisons to be made more easily.
This proposal requires the collaboration of many other experts or group of experts of different specialities such as embryology, ultrasonography, pediatrics, cardiology, urology, orthopedics, etc. It needs the support of all the Clearinghouse members. The Classification Committee decided to divide up the malformations into 5-10 groups and make a start with limb defects.

In the first step a meeting was organised with a few experts from inside and outside the Clearinghouse and EUROCAT. This small group agreed on a proposed classification which was circulated by correspondence to more experts. After circulation final approval of this Classification will be obtained and a pilot study started. This meeting was funded by the Clearinghouse and met in Strasbourg on March 22-23, 1996. This resulted in a new classification of limb defects which was subsequently published (American Journal of Medical Genetics, 1998, 77:439-441).
The Classification Committee wished to evaluate this in an epidemiologic and genetic manner, however, a large evaluation was not possible as many programs were not able to send data. This resulted in evaluation by a small number of Registries, however it was shown that this Classification could work. Ascertainment of cases was based on the use of multiple sources of information and included live births and stillbirths. Cases having had prenatal diagnosis performed by CVS were excluded. The cases were classified by one group thus avoiding inconsistency between centers.
Eduardo Castilla is responsible for the digestive system classification. He collected information on coding systems in use in the different ICBDMS Programmes in order to determine how the data were collected and how a field classification could be proposed. He didn't think a large multidisciplinary team was needed and a team consisting of representatives from embryology and pediatric surgery would be sufficient. One problem is whether to approach the classificatio on an etiological basis or on a pathogenic and anatomic basis. It was agreed that the anatomic approach was more relevant. Dr.Castilla proposed digestive system classification was circulated. As with limb defects this classification must now be elevated by some registries.
Monica Rittler and Eduardo Castilla proposed a classification of renal and urinary systems which was circulated.
Paul Merlob proposed classifications of male genitalia malformations and of female genitalia malformations and this was circulated to the membersof the Classification Committee and to Dr. John Opitz who reviewed it and made some useful comments.

As with the other classifications, this must now be evaluated by some registries.
Jurgen Spranger was approached for the musculo-skeletal classification. He agreed to participate and a future meeting will be organized. Two other classifications: central nervous system anomalies and congenital heart defects will be developed by ICBDMS members.

ICBDMS – NBDPN (National Birth Defects Prevention Network)
At the joint meeting ICBDMS-NBDPN in Atlanta, September 20, 2002 we learned that NBDPN has a committee of coding and classification of congenital anomalies. This committee was approached. It will soon start to work and it was decided that both committees from ICBDMS and NBDPN will have contact in the future and start collaborating.

Proposal for research
To undertake a study to evaluate the new classifications proposed by ICBDMS in an epidemiologic and genetic way.
The Committee proposes to compare the 3 classifications available with the ICD-10 coding and also to prepare ICD-11.With regard to this last point the chairperson of ICBDMS wrote a letter in October 2001 to the director General of WHO asking for information regarding the status of ICD-11 and requesting that members of ICBDMS be allowed to participate in the next revision.

3.1.6 Project Committee on Environmental and Occupational Risk Assessment (CEORA)
Lorentz M. Irgens (Norway)

Members of Committee:
Lorentz M. Irgens (Norway)
Beverley Botting (England and Wales)
Hermien de Walle (Northern Netherlands)
Jíri Hóracek (Czech Republic)
Antonin Sipek (Czech Republic)

The work is based on the following concept: there is a general concern that a polluted environment may cause birth defects and other adverse perinatal outcome. However monitoring systems exist that may provide data to clarify the issue.

The work has been focused on an attempt to obtain an exposure variable along an urban/rural gradient based on mother's residence at birth. The problems encountered did not only encompass the great variability in urbanization; rural Netherlands is not comparable with rural Norway. Also, problems related to how urbanization was measured in the participating countries, add to the incomparability between the countries.

The intention is to discuss these problems at the next Annual Meeting (2003) aiming at a report to the Clearinghouse accounting for the results and the problems involved.

3.2 Ad Hoc Projects

3.2.1 The unobvious translation of science into practice: international variation of folic acid policies and policy-making

Lorenzo D. Botto (USA, Atlanta)

Translating research successes into public benefit is rarely straightforward, direct, or fast. Research finding can be directly incorporated into clinical practice (a complex process in itself1,2), but this process is also influenced by the manner and extent to which public health agencies and professional organizations promote certain practices through policy recommendations and specific actions.

Describing the key elements of health policy together with the factors that helped craft them can be difficult but potentially valuable, not only for the historical record but also as a contribution to current events.

A case in point is the spectrum of policies on folic acid for the prevention of neural tube defects. This topic has sparked considerable international debate in many venues. Given that the same scientific information was available to all countries and parties, it is of interest to note policy variations, and examine, to the extent possible, the factors behind such variability.

To this end, we surveyed folic acid policies in several countries, focusing particularly on recommendations by governmental agencies, and interviewed persons from these agencies in an effort to understand the factors that led to policy decisions and public health action..

Methods

The study involved researchers from the International Clearinghouse for Birth Defects Monitoring Systems (ICBDMS) and EUROCAT, which are two large networks of birth defects registries. We gathered information on folic acid policies and recommendations from many sources, including scientific publications identified on Medline, reports from workshops or committee reports, workshop discussions, and documents issued by governmental agencies and professional bodies, in print or online.

To identify the factors involved in policy making we conducted semistructured interviews, nearly always face to face, occasionally by telephone (United States), with persons selected for their knowledge and involvement in folic acid and prevention issues in 11 countries (Finland, France, Hungary, Ireland, Israel, Italy, the Netherlands, Norway, Portugal, United Kingdom, United States). The interviewers in these countries were selected in an effort to gain a perspective on folic acid policy making . We report the contribution of the distinguished interviewers not as the official position of a country or agency, but, conservatively, as originating from informants (in the meaning of social science) who are immersed in and can provide specific information on significant aspects of the debate and process. Interview participants were identified and interviewed, in 1999 and 2000, by a local member of the birth defects registry network.

We developed and tested a semistructured interview on policy content and decision making. The interview probed items such as the relative weight in policy discussions of issues such as scientific validity, cost, safety, and acceptability.

Findings

The findings are being prepared for publication. For further information, please contact ICBD (www.icbd.org).

Authors and Affiliations

Biomed Study Group: Lorenzo D Botto and Janine Goujard [lead authors], J David Erickson, Pierpaolo Mastroiacovo , Beverley Botting, Guido Cocchi, Hermien de Walle, Maria de Jesus Feijo, Zachary Johnson, Robert McDonnell, Paul Merlob, Annukka Ritvanen, Elisabeth Robert-Gnansia, Gioacchino Scarano, Csaba Siffel, Julia Metneki Claude Stoll, Stein Emil Vollset, Richard W Smithells

3.2.2 Geographic and ethnic variation of the 677C➜T allele of 5,10 methylenetetrahydrofolate reductase (MTHFR): findings from over 7,000 newborns from 16 areas worldwide

Lorenzo Botto (USA, Atlanta), for the MTHFR study group

Objectives
To characterize the geographic and ethnic distribution of the 677C➜T allele (T- allele) of the MTHFR gene and its associated genotypes among newborns around the world.

Design
Population survey of newborns.

Setting
Newborn screening Programmes and birth hospitals.

Participants
7,130 newborns of different ethnicities and both genders from 16 areas in Europe, Asia, the Americas, the Middle East, and Australia.

Results
Allele and genotype frequency varied markedly by ethnic background and geographic region of birth. The homozygous TT genotype was particularly common in northern China (20%), southern Italy (26%), and Mexico (32%). There was also evidence for geographic gradients in Europe (north-to-south increase) and China (north-to-south decrease). The TT genotype frequency was low among newborns of African ancestry, intermediate among newborns of European origin, and high among newborns of American Hispanic ancestry. Samples from areas at the extremes of the frequency distribution shows deviations from Hardy-Weinberg expectations (Finland-Helsinki, southern Italy, and southern China).

Conclusion
This study, the largest to date, suggests the presence of selective pressures leading to marked geographic and ethnic variation in the frequency of the 677C➜T allele. These data also provides geneticists with population data that can be used to examine the link between the 677C➜T allele and health outcomes in diverse populations.

The findings have been submitted for publication. The study was made possible by the contribution of many people. These include a core MTHFR study group and a key group of collaborators, who are here recognized.

MTHFR study group*
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- *Hungary: László Tímár (National Centre of Health Promotion, Budapest)*
- *Israel: Paul Merlob (Beilinson Medical Center, Petah Tikva)*
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- *México: Marcela Vela (Reproductive Health Agency of Ministry of Health)*
- *Russia (Moscow): Swetlana Kalinenkova (Neonatal screening program)*
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- *United States (Atlanta, Georgia): Jennifer Rapier and Vicki Brown (CDC), Muthukrishnan Ramachandran (Georgia Public Health laboratory, Atlanta)*

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3.2.3 Retrospective Case – Control Study on Gastroschisis

A ICBDMS and EUROCAT collaborative project by the International Centre for Birth Defects

Objective
The study has the objective to explore whether one of the risk factor suggested by previous studies and reviewed above is associated to an increased risk of Gastroschisis

Study design
Multicentre retrospective case – control study

Time period covered by the study
Minimum 3 years and maximum 5 years. The study is concentrated on the recent years when an increase has been shown in various countries.

Registries eligible for participation
A register is eligible to participate if a written description of the registered congenital anomalies is available

Case
An infant (liveborn, stillborn or an aborted fetus) with isolated gastroschisis registered with the appropriate code and retrieval method in the registry data set (since its starting year)

When the description fits with the above definition of Gastroschisis "a validated case" is defined:
Gastroschisis: a congenital malformation characterised by herniation of abdominal contents through an abdominal wall defect lateral to an intact umbilical cord and not covered by a membrane .
Excl. : omphalocele (a congenital malformation characterized by herniation of abdominal contents through the umbilical insertion and covered by a membrane which may or may not be intact.
Isolated: not associated to a major congenital malformation. It may be present with a deformation (e.g.: clubfoot) or a minor congenital malformation (e.g.: epicanthus, single palmar crease, single umbilical vessel)

Controls for each case

- two normal controls born soon after or before the case

AND/OR

- four malformed controls born soon after or before the case (excluding malformed babies of known etiology like chromosomal, monogenic and teratogenic)

The selection of both kind of controls is highly encouraged to the registries collecting normal controls. Only malformed controls will be provided by those registries not collecting normal controls.

Matching
Each control should be matched to the case by maternal age: the same age at one year interval

How to select controls

1. The case is a stillborn or a liveborn
   a. Look at date of birth and maternal age of the case
   b. Go to the entire file of your controls (all subjects born in the area covered by your register) ordered by date of birth
   c. Select the controls with nearest date of birth (born before or after the case) with the same maternal age of the case
2. The case is a fetus (ToP)
   a. Look at the ***expected*** date of birth and maternal age of the case
   b. Go to the entire file of your controls (all subjects born in the area covered by your register) ordered by date of birth
   c. Select the controls with nearest date of birth (born before or after ***the expected date of birth*** of the case) with the same maternal age of the case
3. Remember that controls may be : normal and / or malformed (see above)

Pierpaolo Mastroiacovo
Director, International Centre on Birth Defects (ICBD)

The International Centre on Birth Defects (ICBD) is the head office of the International Clearinghouse for Birth Defects Monitoring Systems (ICBDMS). The ICBD , which first operated in Bergen (Norway) from 1989 to 1991, has been in Rome (Italy) since 1992.
Member Programmes of ICBDMS conduct quarterly (full members) and/or annual (associate and full members) monitoring of major birth defects. Data of selected birth defects are exchanged, and ICBD provides a mechanism for the exchange of these data and for the publication of quarterly reports (shared within the ICBDMS) and annual reports (available to all interested parties). The ICBD also undertakes the direction, co-ordination, and data analysis of other collaborative activities that are extensions of the monitoring function, such as monitoring of multi-malformed infants and monitoring of birth defects associated with first trimester exposure to medications (MADRE Project). ICBD also collaborates with Program Directors to prepare selected reports such as those of Prenatal Diagnosis and on Down syndrome.
During the last few years, ICBD focused on several research projects. The product of some of them has been published in peer review journals, others have been accepted or are in preparation (see references list).

Current activities include the following:

1. Coordination of the WHO – IDCFA study (see page 31).
2. Coordination of a retrospective case – control study on gastroschisis (see page 28)
3. Coordination of a project called Recommendations and Tools to Run a Birth Defects Developmental Disabilities Registry, began with a first workshop in Rome in February 2003.
4. Survey on information routinely collected by registries as part of the registration form of a fetus or newborn diagnosed with a birth defect.
5. The establishment of a Network for the Promotion of Folic Acid. ICBD organized, with the Campania Birth Defects Registry, the Campania Health Regional Authority, and the Istituto Superiore di Sanita' (Italian National Institute of Health), an International Symposium on "Prevention of birth defects : more folic acid, stop smoking, judicious use of drugs", held in Naples, May 9-10, 2003.
6. The establishment of an International Database on Moebius Syndrome, in collaboration with the Italian Moebius National Association ***www.moebius-italia.it*** .

ICBD also maintains a web site ***(www.icbd.org)*** with information on ICBDMS and its members, and with selected information and data (from the Annual reports) on birth defects.

News during last year include the following:

1. Establishment of the Supercourse "Birth Defects and Developmental Disabilities Mirror Site"
2. Development of "An educated guide to congenital malformations on the web"

Establishment of the Top of the week paper, a forum for the selection and discussion of the best recently published scientific papers on birth defects.

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5.1 World Health Organization

The International Clearinghouse for Birth Defects Monitoring Systems (ICBDMS) is a non-governmental organisation with an official relation with the World Health Organization. WHO is represented at Annual Meetings of the ICBDMS by Dr Victor Boulyzhenkov, Director of Human Genetics Program.
WHO supports the Annual Meeting of the ICBDMS.

The World Atlas of Birth Defects – 2nd Edition was published in April 2003 in collaboration with European Surveillance of Congenital Anomalies (EUROCAT) and in cooperation with Human Genetics Program – WHO. The aim of this second edition is to provide to the users tables and maps to illustrate the actual prevalence of congenital malformations in the world, using the data collected by the ICBDMS and EUROCAT throughout the period 1993-1998.

In October 2002 an agreement between WHO – Human Genetic Program and ICBD was signed to develop an International Database on Cranio-Facial Anomalies (IDCFA)

5.1.1 International Database on Cranio-Facial Anomalies (IDCFA)

Rationale
The improvement of human health has many starting points and many triggering factors. One relevant triggering factor is the collection and dissemination of known facts and events.
We are confident that collecting and disseminating the main characteristics of persons affected by a craniofacial defect may improve their health and may help researchers to find out the best way to prevent undue suffering.

Aims of the Database
- To stimulate existing registries and databases to share their data creating a specific worldwide database dedicated to Craniofacial Anomalies.
- To present the collected data in a suitable way and to make available more specific data analysis to stimulate research hypotheses on primary prevention as well as on tertiary prevention and improving treatments.
- To stimulate scientific and lay organizations to collect more relevant data and information on persons affected by a cranio-facial anomaly and to share them in the IDCFA.

Who can use the database?

- **Use of aggregate data**
  - Any health care provider involved with the care of persons with a craniofacial anomaly
  - Any researcher who wants to work on the improvement of care for persons with a craniofacial anomaly or the prevention of these anomalies.
  - Parents and relatives of persons with a craniofacial anomaly who want data on the various aspects of : etiology, clinical pattern, quality of life, quality of services.

- **Case by case data**
  - Any researcher belonging to a collaborating data source whose study protocol has been approved by the Steering Committee

Design of the database
The basic phylosophy of the IDCFA is the step by step approach.
Initially the database will collect simple information on fetuses and newborns with cleft lip and/or palate named collectively typical orofacial clefts (TOC), from existing ongoing and well designed registries of birth defects belonging to an international organization. In the next step, IDCFA will collect:
- simple data on TOC from registries not yet participating to any international organization or new birth defects registries,
- more complex information from birth defects registries on risk factors associated to TOC,
- data on less frequent craniofacial anomalies and syndromes,
- information on clinical pattern, quality of life and quality of services from registries as well as from any medical departments and support organizations

Who may contribute?
Any organization with a running register; any department with a database of patients; any support organization with a defined list of affected members.

5 Relations with other Organisations

When will the database start to function?

The WHO – IDCFA will start to collect data from July 1st 2003. Registries will send case data related to fetuses or infants born in 2001 and subsequent years.

Coordinating Centre: ICBD - International Centre on Birth Defects

Contact person: Pierpaolo Mastroiacovo, ***icbd@icbd.org***

Supporting bodies: WHO Human Genetics Program; National Institute of Dental and Craniofacial Research

Principal Investigators: Pierpaolo Mastroiacovo & Elisabeth Robert-Gnansia

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Steering Committee (July 2003): Barry Borman, ICBDMS – International Clearinghouse for Birth Defects Monitoring Systems; Victor Boulyjenkov, WHO – Human Genetics Programme; Eduardo Castilla, ECLAMC – Estudio Colaborativo Latino-Americano Malformaciones Congenitas; Helen Dolk, EUROCAT – European Registry of Congenital Anomaly; Kevin Hardwick, NIDCR - National Institute of Dental and Craniofacial Research; Pierpaolo Mastroiacovo, ICBD – International Centre on Birth Defects; Robert Meyer, NBDPN – National Birth Defects Prevention Network (US); Peter Mossey, Craniofacial Project of the WHO – Human Genetics Programme

5.2 EUROCAT (European Surveillance of Congenital Anomalies)

Funded by the Rare Diseases Program of the European Commission Public Health Directorate
WHO Collaborating Centre for the Epidemiologic Surveillance of Congenital Anomalies

What is EUROCAT?

- European Network of population-based registries for the epidemiologic surveillance of congenital anomalies.
- Started in 1979.
- More than 1 million births per year in Europe surveyed by 37 registries in 18 countries of Europe.
- Standardised central database on more than 250,000 cases of congenital anomaly among livebirths, stillbirths and terminations of pregnancy, updated every year.

Objectives

- To provide essential epidemiologic information on congenital anomalies in Europe.
- To facilitate the early warning of teratogenic exposures.
- To evaluate the effectiveness of primary prevention.
- To assess the impact of developments in prenatal screening.
- To act as an information and resource Center regarding clusters, exposures or risk factors of concern.
- To provide a ready collaborative network and infrastructure for research related to the causes and prevention of congenital anomalies and the treatment and care of affected children.
- To act as a catalyst for the setting up of registries throughout Europe collecting comparable, standardised data.

Recent Developments

A new version of the EUROCAT Data Management Program (in Microsoft Access) is available, including some statistical monitoring options.
The EUROCAT website ***(www.eurocat.ulster.ac.uk/)*** has been redesigned. A particular feature, under "Publications and Data" is the ability to obtain customized tables of prevalence rates of 88 congenital anomaly subgroups, for the years and registers of user's choice. A web-based "Cluster Advisory Service" is under construction.
EUROCAT Report 8: Surveillance of Congenital Anomalies 1980-99. Extensive epidemiological information on congenital anomalies, including livebirths, stillbirths and terminations of pregnancy following prenatal diagnosis. Published in 2002.
Eighth European Symposium on the Prevention of Congenital Anomalies, Heidelberg, May 2003. Abstracts to be published in Reproductive Toxicology.
EUROCAT Special Report on Periconceptional Folic Acid Supplementation and Prevention of Neural Tube Defects, publication due June 2003.

Steering Committee

F Bianchi (Italy, to 2003, past president EUROCAT Association), H Dolk (UK, Project Leader), E Garne (Denmark), B Gener (Spain), J Goujard (France, to 2003), A Kelly (Ireland), D Lillis (Ireland, President of EUROCAT Association from 2003), A Ritvanen (Finland, to 2003), A Queisser-Luft (Germany), C de Vigan (France, from 2003), A Latos-Bielenska (Poland, from 2003), I. Barisic (Croatia, from 2003) and E Calzolari (Italy, from 2003).

Contact

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5.3 The National Birth Defects Prevention Network (NBDPN)

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The United States National Birth Defects Prevention Network (NBDPN) is committed to promoting the use of epidemiologic and other scientific information to minimize the adverse effects of birth defects on children and their families. The NBDPN is made up of over 225 members from all of the 50 states, the District of Columbia, Puerto Rico, and several countries outside of the USA. The members come from state-based birth defects surveillance Programmes; Federal, state and local public health agencies; universities and other research organizations; and voluntary organizations such as the March of Dimes Birth Defects Foundation and the Spina Bifida Association of America. The members share an interest in birth defects, their causes and prevention, and the provision of services to those persons with birth defects. Established in 1997, through the joint efforts of the Division of Birth Defects and Developmental Disabilities, US Centers for Disease Control, and small group of volunteers from throughout the US birth defects community, the NBDPN was incorporated in 2000 as a not-for-profit organization

The mission of the NBDPN is to establish and maintain a national network of state and population-based Programmes for birth defects surveillance and research, to identify factors that can be used to develop primary prevention strategies, and to assist families and their providers in secondary disabilities prevention. Supporting this mission are the following goals and objectives:

- Improve quality of birth defect surveillance data;
- Promote scientific collaboration for research on the causes of birth defects and prevention Programmes;
- Provide technical assistance for uniform methods data collection;
- Facilitate the communication and dissemination of information related to birth defects;
- Collect, analyze and disseminate state and population-based surveillance data; and
- Encourage the use of birth defect data for decisions regarding health services planning, in order to reduce the prevalence and severity of secondary disabilities among affected children.

These objectives are addressed through the work of eight standing committees, identified below, our annual surveillance report, and an annual conference and workshop. In addition, in collaboration with the Centers for Disease Control, the Network maintains a list serve – ***birth-defects-surv@listserv.cdc.gov*** – which provides a way of communicating with the birth defects community, apprising the subscribers of relevant publications, and providing a forum of the exchange of questions and answers about birth defects related topics. There is an Executive Committee which is responsible for providing overall guidance and direction for the NBDPN's programmatic activities and business functions.

The standing committees, with a brief description of their functions, are as follow:

- Membership, Bylaws, and Nominations - This committee is responsible for establishing bylaws and procedures for membership, as well as the nomination and election of officers.
- Annual Meeting Committee – This committee is responsible for planning the annual meeting. The annual meeting includes scientific presentations and workshop on birth defects related topics, as well as meetings of the standing committees. The last annual meeting was January 14-16, 2002 in Orlando, Florida. The next meeting will be January 21-24, 2004 in Salt Lake City Utah
- Data Committee – The Data Committee coordinates the compilation of data from participating states on 45 defects for the annual report. In addition, this committee coordinates requests for NBDPN participation in collaborative research activities, such as the WHO cleft study.
- Ethical, Legal, and Social Issues – This committee evaluates the potential impact of a variety of ethical and legal issues on the conduct of birth defects surveillance. These include topics such as privacy protection, access to medical records and data sharing across Programmes.
- Education and Outreach – The primary focus of this committee is developing and distributing materials for Birth Defects Prevention Month which occurs in January of each year. In addition, the committee works on educational curricula and information regarding birth defects, their causes and prevention.
- NTD Surveillance/Folic Acid Education – This committee has been actively involved in issues around increasing women's intake of folic acid for the prevention of neural tube defects.

In addition, the committee was responsible for a NTD Rapid Ascertainment Project which lead to the publication of trend data from 26 states.

- Publications and Communications – This committee is responsible for the maintenance of the Network's website (www.nbdpn.org/NBDPN), the NBDPN Newsletter, and the Annual Report which is published in Teratology (now Birth Defect Research Part A).
- Surveillance Guidelines & Standards – The mission of this committee is to:
  - improve the quality of state birth defects surveillance data, including accuracy, comparability, completeness, and timeliness;
  - enhance the utility of state birth defects surveillance data for research studies on the etiology of birth defects; and
  - encourage and promote the use of state birth defects surveillance data for the purposes of child identification, tracking, and evaluation of services systems for children with birth defects.

This is being done through developing a document with the following topical chapters:

- Introduction and Purpose
- Legislation
- Case Definition
- Data Collection Variables
- Disease Classification
- Case Ascertainment
- Data Quality
- Statistical Methods
- Data Management and Security
- Data Utilization
- Submitting Data to the NBDPN

In summary, the United States National Birth Defects Prevention Network carries out an array of activities relevant to birth defects surveillance, research and prevention. I invite members of the International Clearinghouse for Birth Defects Monitoring Systems to become members of the network, with membership information available through the website – ***www.nbdpn.org/NBDPN*** - to join the list serve - ***birth-defects-surv@listserv.cdc.gov*** – and to attend our annual meetings. The next annual meeting will be in Salt Lake City, Utah, January 21-24, 2004 and registration information will be available on the website. I hope to see you there.

	Synopsis of Monitoring Systems			
Monitoring Program	**Coverage**	**Year Joined ICBDMS**	**Maximum age at diagnosis**	**Criteria defining stillbirths**
Australia: National	Population-based National	1981	28 days	20 weeks or 400 grams
Australia:VBDR	Population-based Statewide	2002	Up to 15 years	20 weeks or 400 grams
Australia: WABDR	Population-based Regional	2002	Up to 6 years	20 weeks or 400 grams
Canada: Alberta	Population-based Provincial	1996	1 year	20 weeks or 500 grams
Canada British Columbia	Population-based Provincial	2001	No limit	At least 20 weeks or 500 grams
Canada National	Population-based National	1996	1 year	20 weeks or 500 grams
China: Beijing	Population-based Four Provinces	1997	6 weeks	20 weeks
China: CBDMN	Hospital-based	1985	7 days	28 weeks
Czech Republic	Population-based National	1974	Up to 15 years	<1000 grams
England and Wales	Population-based National	1974	1995 onwards no limit	24 weeks
Finland	Population-based National	1974	1 year	22 weeks or 500 grams
France: Central-East	Population-based Regional	1974	1 year	22 weeks
France: Paris	Population-based Regional	1982	Hospital discharge	22 weeks
France: Strasbourg	Population-based Regional	1982	1 year	26 weeks
Germany: Saxony-Anhalt	Population-based (Federal State)	2001	Hospital discharge (first week of life)	500 grams
Hungary	Population-based National	1974	1 year	24 weeks or 500 grams
Ireland: Dublin	Population-based Regional	1997	10 years	24 weeks or 500 grams
Israel: IBDMS	Hospital-based Regional	1974	Hospital discharge 2-5 days	20weeks
Italy: BDRCam	Population-based Regional	1996	7 days	180 days (25 weeks + 5 days)
Italy: IMER	Population-based Regional	1985	7 days	180 days (25 weeks + 5 days)
Italy: ISMAC	Hospital-based Regional	1991	1 year	180 days (25 weeks + 5 days)
Italy: North East	Population-based Regional	1997	7 days	180 days (25 weeks + 5 days)
Italy: Tuscany	Population-based Regional	1998	1 year	180 days (25 weeks + 5 days)
Japan: JAOG	Hospital-based National	1988	7 days	22 weeks
Malta	Population-based National	2000	1 year	20 weeks
Mexico: RYVEMCE	Population-based National	1980	72 hours	20 weeks or 500 grams
New Zealand	Population-based National	1979	1 year	20 weeks or 400 grams
Northern Netherlands	Population-based Regional	1993	No limit	24 weeks
Norway	Population-based National	1974	Hospital discharge Lifelong for mortality (from 2002 1 year)	16 weeks (12 weeks from 1999)
Russia Moscow Region	Population-based Regional	2001	1 year	28 weeks
South Africa: SABDSS	Hospital-based	1992	Hospital discharge (usually 4 days)	Stillbirths not recorded
South America: ECLAMC	Hospital-based Multinational	1977	3 days	500 grams
Spain: ECEMC	Hospital-based National	1979	3 days	24 weeks or 500 grams
Sweden	Population-based National	1974	28 days	22 weeks
Ukraine	Population-based National	2001	7 days	500 grams
United Arab Emirates	Hospital-based Regional	1995	7 days	23 weeks
USA: Atlanta	Population-based Regional	1974	6 years	20 weeks

The following definitions have been adopted by all monitoring systems except when indicated in the Table 7.1

1. Anencephaly: a congenital malformation characterized by the total or partial absence of the cranial vault, the covering skin, and the brain missing or reduced to small mass. Incl. craniorachischisis. Incl. infants with iniencephaly and other neural tube defects as encephalocele or open spina bifida, when associated with anencephaly. Excl. acephaly, that is, absence of head observed in amorphous acardiac twins.

2. Spina bifida: a family of congenital malformation defects in the closure of the spinal column characterized by herniation or exposure of the spinal cord and/or meninges through an incompletely closed spine. Incl. meningocele, meningomyelocele, myelocele, myelomeningocele, rachischisis. Spina bifida is not counted when present with anencephaly. Excl. spina bifida occulta, sacrococcygeal teratoma without dysraphism .

3. Encephalocele: a congenital malformation characterized by herniation of the brain and/or meninges through a defect in the skull. Encephalocele is not counted when present with spina bifida.

4. Microcephaly: a congenitally small cranium, defined by an occipito-frontal circumference (OFC) 3 standard deviation below the age- and sex-appropriate distribution curves. [If using a different definition or cut-off point (e.g., 2 standard deviations), report but specify criteria]. Excl. microcephaly associated with anencephaly or encephalocele.

5. Arhinencephaly/holoprosencephaly: a congenital malformation of the brain, characterized by various degrees of incomplete lobation of the brain hemispheres. Olfactory nerve tract may be absent. Holoprosencephaly includes cyclopia, ethmocephaly, cebocephaly, and premaxillary agenesis.

6. Hydrocephaly: a congenital malformation characterized by dilatation of the cerebral ventricles, not associated with a primary brain atrophy, with or without enlargement of the head, and diagnosed at birth. Not counted when present with encephalocele or spina bifida. Excl. macrocephaly without dilatation of ventricular system, skull of macerated fetus, hydranencephaly, holoprosencephaly, and postnatally acquired hydrocephalus.

7. Anophthalmos/microphthalmos: apparently absent or small eyes. Some normal adnexal elements and eyelids are usually present. In microphthalmia, the corneal diameter is usually less than 10 mm. and the antero-posterior diameter of the globe is less than 20 mm.

8. Anotia/microtia: a congenital malformation characterized by absent parts of the pinna (with or without atresia of the ear canal) commonly expressed in grades (I-IV) of which the extreme form (grade IV) is anotia, absence of pinna.
Excl. small, normally shaped ears, imperforate auditory meatus with a normal pinna, dysplastic and low set ears.

9. Transposition of great vessels: a cardiac defect where the aorta exits from the right ventricle and the pulmonary artery from the left ventricle, with or without other cardiac defects. Incl. double outlet ventricle so-called corrected transposition.

10. Tetralogy of Fallot: a condition characterized by ventricular septal defect, overriding aorta, infundibular pulmonary stenosis, and often right ventricular hypertrophy.

11. Hypoplastic left heart syndrome: a cardiac defect with a hypoplastic left ventricle, associated with aortic and/or mitral valve atresia, with or without other cardiac defect.

12. Coarctation of the aorta: an obstruction in the descending aorta, almost invariably at the insertion of the ductus arteriosus

13. Choanal atresia, bilateral: congenital obstruction (membraneous or osseous) of the posterior choana or choanae. Excl. choanal stenosis and congestion of nasal mucosa.

14. Cleft palate without cleft lip: a congenital malformation characterized by a closure defect of the hard and/or soft palate behind the foramen incisivum without cleft lip. Incl. submucous cleft palate. Excl. cleft palate with cleft lip, cleft uvula, functional short palate, and high narrow palate.

15. Cleft lip with or without cleft palate: a congenital malformation characterized by partial or complete clefting of the upper lip, with or without clefting of the alveolar ridge or the hard palate. Excl. midline cleft of upper or lower lip and oblique facial fissure (going towards the eye).

16. Oesophageal atresia/stenosis: a congenital malformation characterized by absence of continuity or narrowing of the esophagus, with or without tracheal fistula. Incl. tracheoesophageal fistula with or without mention of atresia or stenosis of oesophagus.

17. Small intestine atresia/stenosis: complete or partial occlusion of the lumen of a segment of the small intestine. It can involve a single area or multiples areas of the jejunum or ileum. Excl. duodenal atresia.

18. Anorectal atresia/stenosis: a congenital malformation characterized by absence of continuity of the anorectal canal or of communication between rectum and anus, or narrowing of anal canal, with or without fistula to neighboring organs. Excl. mild stenosis which does not need correction, and ectopic anus.

19. Undescended testis: bilateral undescended testes in at term newborn or at least unilateral undescended testis in males more than 1 year of age. Excl. retractrile testis.

20. Hypospadias: a congenital malformation characterized by the opening of the urethra on the ventral side of the penis, distally to the sulcus. Incl. penile, scrotal, and perineal hypospadias. Excl. glandular or first-degree hypospadias and ambiguous genitalia (intersex or pseudohermaphroditism).

21. Epispadias: a congenital malformation characterized by the opening of the urethra on the dorsal surface of the penis. Not counted when part of exstrophy of the bladder.

22. Indeterminate sex: genital ambiguity at birth that does not readily allow for phenotypic sex determination.
Incl. male or female true or pseudohermaphroditism.

23. Renal agenesis: a congenital malformation characterized by complete absence of kidneys bilaterally or severely dysplastic kidneys.

24. Cystic kidney: a congenital malformation characterized by multiple cysts in the kidney. Incl. infantile polycystic kidney, multicystic kidney, other forms of cystic kidney and unspecified cystic kidney. Excl. single kidney cyst.

25. Bladder exstrophy: complex malformation characterized by a defect in the closure of the lower abdominal wall and bladder. Bladder opens in the ventral wall of the abdomen between the umbilicus and the symphysis pubis. It is often associated with epispadias and structural anomalies of the pubic bones.

26. Polydactyly, preaxial: extra digit(s) on the radial side of the upper limb or the tibial side of the lower limb.
It can affect the hand, the foot, or both.

27. Limb reduction defects: a congenital malformation characterized by total or partial absence or severe hypoplasia of skeletal structures of the limbs. Incl. femoral hypoplasia. Excl. mild hypoplasia with normal shape of skeletal parts, brachydactyly, finger or toe reduction directly associated with syndactyly, general skeletal dysplasia and sirenomelia.

28. Diaphragmatic hernia: a congenital malformation characterized by herniation into the thorax of abdominal contents through a defect of the diaphragm. Incl. total absence of the diaphragm. Excl. hiatus hernia, eventration and phrenic palsy.

29. Abdominal wall defects: cases specified as omphalocele and/or gastroschisis plus unspecified cases.

30. Omphalocele: a congenital malformation characterized by herniation of abdominal contents through the umbilical insertion and covered by a membrane which may or may not be intact. Excl. gastroschisis (para-umbilical hernia), a - or hypoplasia of abdominal muscles, skin-covered umbilical hernia.

31. Gastroschisis: a congenital malformation characterized by visceral herniation through a right side abdominal wall defect to an intact umbilical cord and not covered by a membrane. Excl. a-or hypoplasia of abdominal muscles, skin-covered umbilical hernia, omphalocele.

32. Prune belly sequence: a complex congenital malformation characterized by deficient abdominal muscle and urinary obstruction/distension. It can be caused by urethral obstruction secondary to posterior urethral valves or urethral atresia. In the affected fetus the deficiency of the abdominal muscle may not be evident. It can be associated with undescended testes, clubfoot, and limb deficiencies.

33. Trisomy 13: a congenital chromosomal malformation syndrome associated with extra chromosome 13 material. Incl. translocation and mosaic trisomy 13.

34. Trisomy 18: a congenital chromosomal malformation syndrome associated with extra chromosome 18 material.
Incl. translocation and mosaic trisomy 18

35. Down syndrome: a congenital chromosomal malformation syndrome characterized by a well known pattern of minor and major anomalies and associated with excess chromosomal 21 material. Incl. trisomy mosaicism and translocations of chromosome 21.

7.1 Deviations from the ICBDMS Definitions by Registry

	Encephalocele	Microcephaly	Arhinencephaly / Holoprosencephaly	Hydrocephaly	Anophthalmos / Microphthalmos	Anotia	Transposition of great vessels	Tetralogy of Fallot	Choanal atresia, bilateral	Cleft palate without cleft lip	Cleft lip with or without cleft palate	Oesophageal atresia / stenosis	Small intestine atresia / stenosis	Anorectal atresia / stenosis	Undescended testis	Hypospadias	Epispadias	Indeterminate sex	Renal agenesis	Cystic kidney	Polydactyly, preaxial	Limb reduction defects	Trisomy 13	Trisomy 18	Down syndrome
Canada: Alberta		3			6	39	8		9\10							19					30				6
Canada: British Columbia	1	3	37	5	6	39	8	41	9\10	11	12		14\15			19	19\21	22	24	26	30	33	6	6	6
China: Beijing																					30				
China: CBDMN	1	3		5	6	39	7		9				14			19		22	24	27	30	33	6	6	6
Czech Republic																19					30				
England and Wales																									
Finland	1	3			6		8		10							19		22		40		33	6	6	6
France: Central East																									6
France: Paris																19									
France: Strasbourg		2			6		7						14\15			19			23\24	25\26					
Germany: Saxony-Anhalt				5	6	39	7	41					14\15			19	20	22		40	30	33			6
Hungary	1	3			6		7									19	21				30	31\32	6	6	6
Ireland: Dublin		3			6				10				14\15			19	21				30		6	6	6
Israel: IBDMS							8									19				25					
Italy: BDRCAM																							6	6	6
Italy: IMER																19					30				
Italy: ISMAC																19									
Italy: North East			4		6					11	12	13	14\16	17					23		30				6
Italy: Tuscany							8																		
Japan: JAOG		3			6															27					
Malta		3			6													22			30		6	6	6
Mexico: RYVEMCE	1	2			6				9\10				14					22	24	26	30	33	6	6	6
New Zealand					6											19	21						6	6	6
Northern Netherlands																19					30				
Norway																19				38					
Russia: Moscow region		3					7			11	12		14			19				27	28				6
South Africa: SABDSS	1	3			6				9/10							19		22		27	30	33	6	6	6
South America: ECLAMC																19									
Spain: ECEMC		2			6			41					14				20	22		25	28	33			6
Sweden		3			6				10							19			24	40					6
Ukraine		2\3		5	6	39	7				35							22					6	6	6
United Arab Emirates																									
USA: Atlanta									9		35														

7 ICBDMS Definitions of the Reported Malformations

1 = when present with spina bifida counted
2 = OCF below 3rd percentile
3 = clinical diagnosis
4 = only cyclopia included
5 = hydranencephaly included
6 = clinical diagnosis included
7 = all kind of transposition included
8 = double outlet right ventricle excluded
9 = stenosis included
10 = unilateral cases included
11 = submucous cleft palate excluded
12 = midline and oblique facial clefts included
13 = stenosis excluded
14 = doudenal atresia included
15 = doudenal stenosis excluded
16 = intestinal stenosis excluded
17 = stenosis excluded
18 = hypospadias on the sulcus included
19 = all types included
20 = epispadias included also when part of bladder exstrophy
21 = epispadias counted with hypospadias
22 = genital ambiguity and absent genitalia included
23 = severely dysplastic kidneys excluded
24 = unilateral defects included
25 = AR polycystic kidney excluded
26 = single cyst included
27 = all kind of cystic kidney included
28 = polysyndactyly preaxial excluded
29 = if more than six digits excluded
30 = any type of polydactyly included
31 = any hypoplasia of skeletal structures included
32 = sirenomelia included
33 = any hypoplasia of skeletal limb structures included except branchydactyly and hypoplasia as part of skeletal dysplasia
34 = finger or toe reduction directly associated with syndactyly included
35 = clefts of the alveolar ridge without cleft lip
36 = registred when it is combined with other defects
37 = there may be other defects with the same code
38 = some autosomalrecessive polycystyc kidneys are not excluded
39 = absence of auricle
40 = all cystic kidneys are incl.d except for single renal cysts
41 = Trilogy of Fallot included

Australia: VBDR
Victoria Birth Defects Registry

History:
In 1979 the Commonwealth Government agreed in principle to collect more information about births and birth defects. It was decided that the States would be responsible for setting up their own systems and the Commonwealth would establish a National Perinatal Statistics Unit, to collate information from all the states and provide an overall picture. The Victorian Perinatal Data Collection Unit (PDCU), established under the Health Act of 1958, operates under the aegis of the Consultative Council on Obstetric and Paediatric Mortality and Morbidity (the Council). One of the fundamental purposes of the PDCU was the establishment and maintenance of a Birth Defects/Congenital Malformations Register (BDR). The PDCU and BDR were established in 1982.

Size and coverage:
The BDR collects information on all birth defects for livebirths, stillbirths and terminations of pregnancy pre 20 wks gestation and children up to 15 yrs of age (irrespective of the age at diagnosis). Approximately 3.6% of babies are born with a birth defect at or after 20 weeks gestation. We also follow up terminations for malformations before 20 weeks, once these are included the overall prevalence is approximately 4%. Birth defects are notified to the register for those babies/fetus' who were born in Victoria

Legislation and funding:
The ongoing maintenance of the BDR is enshrined in the legislation pertaining to the PDCU (Health Act 1958) and is an ongoing function of the PDCU, however notification of birth defects outside the reporting period on the Perinatal Morbidity Statistics form (28 days) is a voluntary process. There is a section for reporting of birth defects on the Perinatal form which is completed at the time of birth. Several measures are taken to ensure the ascertainment of birth defects outside this reporting period which will be specified in 'sources of ascertainment'. The PDCU & BDR are funded by the Department of Human Services (State Government)

Sources of ascertainment:
Perinatal forms (approx 52.5%)
Hospital listings* (aprox 27.1%)
Perinatal Death Certificates (approx 5.2%)
Autopsy Reports (approx 2.9%)
Cytogenetic Reports (approx 6.7%)
Maternal & Child Health Nurse (approx 4.7%)
Other professionals/parents (approx 0.1%)

* these include obtaining inpatient listings from the Royal Children's Hospital (RCH) detailing all children born since 1982 who have been subsequently admitted to the RCH with a birth defect. We also obtain listings of all children born since 1982 who have visited the RCH Cardiology Unit and Metabolic Clinic, either as an inpatient or an outpatient. This procedure has also been adopted for Monash Medical Centre. Other listing received include cystic fibrosis, hypothyroidism, cerebral palsy.

Exposure information:
No exposure information is available

Address for further information:
Dr Jane Halliday PhD, Epidemiologist, Birth Defects Register, Perinatal Data Collection Unit, 7/589 Collins St, Melbourne 3000

Phone: 61-3-96162729

E-mail: jane.halliday@dhs.vic.gov.au

Website: www.dhs.vic.gov.au/phd/perinatal

Australia: VBDR, 2001

Live births (L)	61,690
Stillbirths (S)	459
Total births	62,149
Number of terminations of pregnancy (ToP) for birth defects	281

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	2	6	22	1.29	4.81			
Spina bifida	14	7	16	3.38	5.93			
Encephalocele	3	2	2	0.80	1.12			
Microcephaly	6	4	1	1.61	1.76			
Arhinencephaly / Holoprosencephaly	9	2	1	1.77	1.92			
Hydrocephaly	39	14	13	8.53	10.57			
Total Anophthalmos / Microphthalmos (incl. unspecified)	4	0	0	0.64	0.64			
Anophthalmos	1	0	0	0.16	0.16			
Microphthalmos	3	0	0	0.48	0.48			
Total Anotia / Microtia (incl. unspecified)	4	0	0	0.64	0.64			
Anotia	0	0	0	0.00	0.00			
Microtia	4	0	0	0.64	0.64			
Transposition of great vessels	38	0	4	6.11	6.73			
Tetralogy of Fallot	26	1	1	4.34	4.49			
Hypoplastic left heart syndrome	21	5	2	4.18	4.49			
Coarctation of aorta	22	1	0	3.70	3.68			
Choanal atresia	11	0	0	1.77	1.76			
Cleft palate without cleft lip	53	2	0	8.85	8.81			
Cleft lip with or without cleft palate	46	0	9	7.40	8.81			
Oesophageal atresia / stenosis with or without fistula	12	3	1	2.41	2.56			
Small intestine atresia / stenosis	19	1	1	3.22	3.36			
Anorectal atresia / stenosis	16	5	2	3.38	3.68			
Undescended testis (36 weeks of gestation or later)	221	0	0	35.56	35.40			
Hypospadias	207	1	0	33.47	33.32			
Epispadias	2	0	0	0.32	0.32			
Indeterminate sex	7	0	1	1.13	1.28			
Renal agenesis	25	7	5	5.15	5.93			
Cystic kidney	23	6	4	4.67	5.29			
Bladder exstrophy	2	0	0	0.32	0.32			
Polydactyly, preaxial	67	3	0	11.26	11.21			
Total Limb reduction defects (incl. unspecified)	16	7	6	3.70	4.65			
Transverse	nr	nr	nr	nc	nc			
Preaxial	nr	nr	nr	nc	nc			
Postaxial	nr	nr	nr	nc	nc			
Intercalary	nr	nr	nr	nc	nc			
Mixed	nr	nr	nr	nc	nc			
Diaphragmatic hernia	14	3	1	2.74	2.88			
Total Abdominal wall defects (incl. unspecified)	22	6	11	4.51	6.25			
Omphalocele	7	4	7	1.77	2.88			
Gastroschisis	16	2	1	2.90	3.04			
Prune belly sequence	0	0	0	0.00	0.00			
Trisomy 13	1	2	16	0.48	3.04			
Trisomy 18	2	7	29	1.45	6.09			
Down syndrome, all ages (incl. age unknown)	66	6	83	11.59	24.83			
<20	1	0	0	5.07	5.07			
20-24	7	0	3	9.13	13.04			
25-29	8	0	9	4.47	9.50			
30-34	19	4	19	10.27	18.74			
35-39	23	1	27	23.33	49.45			
40-44	7	1	17	42.71	132.28			
45+	1	0	2	142.86	416.67			

nr =not reported
nc=not calculable

Canada: Alberta

History:
This Programme began in 1966 as a general Registry for Handicapped Children. This was disbanded in 1980 and continued as a surveillance Programme for live and stillborn infants with congenital anomalies who were born in the Province of Alberta. The Programme became an associate member of the ICBDMS in 1996.

Size and coverage:
All live and stillbirths in the province are included which at present comprises about 40,000 births per year. The definition of stillbirth is 20 weeks or more or 500 grams or more. The vast majority of births occur in hospital (approximately 97%). In 1997 a special fetal congenital anomalies surveillance system was started to include those fetuses with congenital anomalies who were either spontaneously lost prior to 20 weeks or where there was termination as a result of prenatal diagnosis.

Legislation and funding:
Reporting is voluntary. The system is run by members of the Department of Medical Genetics, Alberta Children's Hospital/University of Calgary reporting to Alberta Vital Statistics and Alberta Health. Funding is from Alberta Ministry of Health.

Sources of ascertainment:
Reports are obtained from physician's notice of birth, live birth and stillbirth registrations, death registrations and a special congenital anomalies reporting form (CARF) from hospitals. This is based on discharge diagnosis, including readmissions for any reason up to one year of age. Additional sources are speciality clinics, such as medical genetics and cytogenetics laboratories.

Exposure information:
None is routinely collected.

Background information:
Linkage studies are possible with other statistical data from Alberta Health.

Address for further information:
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Canada: Alberta, 2001

Live births (L)	37,249
Stillbirths (S)	235
Total births	37,484
Number of terminations of pregnancy (ToP) for birth defects	51

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	1	2	4	0.80	29.90	0.39	12	
Spina bifida	10	1	1	2.93	3.20	0.63	21	
Encephalocele	3	3	0	1.60	1.60	1.78	21	
Microcephaly	15	1	0	4.27	4.26	1.35	21	
Arhinencephaly / Holoprosencephaly	4	0	1	1.07	1.33	0.90	16	
Hydrocephaly	14	4	3	4.80	5.59	1.03	19	
Total Anophthalmos / Microphthalmos (incl. unspecified)	6	0	0	1.60	1.60	1.12	21	
Anophthalmos	2	0	0	0.53	0.53	1.59	21	
Microphthalmos	4	0	0	1.07	1.07	0.97	21	
Total Anotia / Microtia (incl. unspecified)	5	1	0	1.60	1.60	1.25	16	
Anotia	2	0	0	0.53	0.53	1.87	18	
Microtia	3	1	0	1.07	1.07	1.10	16	
Transposition of great vessels	18	0	0	4.80	4.80	1.60	21	
Tetralogy of Fallot	9	0	0	2.40	2.40	0.86	19	
Hypoplastic left heart syndrome	10	1	0	2.93	2.93	1.31	21	
Coarctation of aorta	12	1	0	3.47	3.46	0.78	21	
Choanal atresia, bilateral	5	0	1	1.33	1.60	1.06	21	
Cleft palate without cleft lip	31	3	0	9.07	9.06	1.16	17	
Cleft lip with or without cleft palate	43	2	2	12.01	12.52	1.06	21	
Oesophageal atresia / stenosis with or without fistula	6	0	1	1.60	1.86	0.61	21	
Small intestine atresia / stenosis	6	0	1	1.60	1.86	1.06	14	
Anorectal atresia / stenosis	17	3	3	5.34	6.13	1.22	21	
Undescended testis (36 weeks of gestation or later)	89	0	0	23.74	23.71	1.01	9	
Hypospadias	75	1	0	20.28	20.25	0.98	21	
Epispadias	4	0	0	1.07	1.07	2.56	21	
Indeterminate sex	2	1	2	0.80	1.33	0.98	18	
Renal agenesis	17	4	6	5.60	7.19	1.33	21	
Cystic kidney	15	1	2	4.27	4.80	0.93	14	
Bladder exstrophy	4	0	0	1.07	1.07	3.85	21	
Polydactyly, preaxial	47	3	1	13.34	13.59	0.98	18	
Total Limb reduction defects (incl. unspecified)	31	6	9	9.87	12.26	1.10	18	
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	16	1	2	4.54	5.06	1.47	21	
Total Abdominal wall defects (incl. unspecified)	17	1	5	4.80	6.13	1.10	21	
Omphalocele	6	0	1	1.60	1.86	0.83	21	
Gastroschisis	10	1	1	2.93	3.20	1.62	21	
Prune belly sequence	0	0	0	0.00	0.00	0.00	21	
Trisomy 13	2	1	2	0.80	1.33	0.85	21	
Trisomy 18	6	9	3	4.00	4.80	1.39	9	
Down syndrome, all ages (incl. age unknown)	50	7	14	15.21	18.92	1.33	13	
<20	0	0	1	0.00	4.27	0.00	3	
20-24	2	0	1	2.64	3.96	0.61	3	
25-29	14	2	0	13.89	13.89	1.31	3	
30-34	14	2	2	15.16	17.05	1.00	2	
35-39	12	2	6	30.05	42.87	1.11	3	
40-44	8	1	4	113.35	162.91	1.36	3	
45+	0	0	0	0.00	0.00	0.00	3	

nr =not reported
nc=not calculable

Canada: Alberta, time trend analysis 1980-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	39,655	220,260	213,597	203,315	187,259	37,484	
Anencephaly	4.54	3.41	3.18	1.92	1.66	0.80	▼
Spina bifida	4.54	4.95	5.01	5.26	3.42	2.93	▼
Encephalocele	1.01	1.00	0.80	1.08	0.69	1.60	
Microcephaly	3.03	3.22	3.65	3.00	2.72	4.27	
Arhinencephaly / Holoprosencephaly	0.25	0.54	1.08	1.13	1.39	1.07	▲
Hydrocephaly	6.30	6.04	4.03	4.72	4.01	4.80	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	1.01	1.41	1.36	1.33	1.76	1.60	
Anophthalmos	0.00	0.41	0.37	0.39	0.21	0.53	
Microphthalmos	1.01	1.00	0.98	0.93	1.55	1.07	
Total Anotia / Microtia (incl. unspecified)	0.00	0.50	0.94	1.48	1.44	1.60	▲
Anotia	0.00	0.14	0.23	0.20	0.48	0.53	▲
Microtia	0.00	0.36	0.70	1.28	0.96	1.07	▲
Transposition of great vessels	1.77	3.00	3.28	2.80	3.15	4.80	
Tetralogy of Fallot	1.26	1.95	2.86	3.25	2.83	2.40	▲
Hypoplastic left heart syndrome	3.28	1.95	2.29	1.92	2.67	2.93	
Coarctation of aorta	3.53	3.77	4.31	5.51	4.38	3.47	
Choanal atresia, bilateral	0.76	1.23	1.54	1.52	0.80	1.33	
Cleft palate without cleft lip	6.30	6.22	8.10	7.77	8.38	9.07	▲
Cleft lip with or without cleft palate	11.10	10.22	12.27	11.90	10.84	12.01	
Oesophageal atresia / stenosis with or without fistula	0.50	2.95	3.23	2.31	2.24	1.60	
Small intestine atresia / stenosis	0.50	0.77	1.17	1.43	1.87	1.60	▲
Anorectal atresia / stenosis	3.78	3.50	5.29	4.72	4.06	5.34	
Undescended testis (36 weeks of gestation or later)	22.95	27.24	29.54	25.13	23.39	23.74	▼
Hypospadias	17.65	17.34	26.03	21.94	17.89	20.28	
Epispadias	0.76	0.45	0.23	0.44	0.48	1.07	
Indeterminate sex	0.25	0.36	0.70	1.08	0.91	0.80	▲
Renal agenesis	2.27	3.36	5.10	4.87	3.95	5.60	▲
Cystic kidney	0.25	2.77	4.03	4.43	5.02	4.27	▲
Bladder exstrophy	0.00	0.36	0.23	0.34	0.21	1.07	
Polydactyly, preaxial	13.37	9.35	15.73	14.76	12.60	13.34	▲
Total Limb reduction defects (incl. unspecified)	6.56	6.27	9.74	9.54	8.86	9.87	▲
Diaphragmatic hernia	2.77	3.81	2.86	2.41	3.26	4.54	
Total Abdominal wall defects (incl. unspecified)	3.28	4.00	4.49	4.08	5.13	4.80	
Omphalocele	1.26	1.86	2.29	1.82	1.87	1.60	
Gastroschisis	1.51	1.54	1.69	1.72	2.46	2.93	▲
Prune belly sequence	0.50	0.45	0.33	0.15	0.48	0.00	
Trisomy 13	0.50	0.82	0.80	1.33	0.91	0.80	
Trisomy 18	1.26	1.54	1.92	2.46	3.10	4.00	▲
Down syndrome, all ages (incl. age unknown)	12.10	8.63	10.16	11.31	12.02	15.21	▲
<20					11.66*	0.00	nc
20-24					4.31*	2.64	nc
25-29					10.60*	13.89	nc
30-34					12.58*	15.16	nc
35-39					27.08*	30.05	nc
40-44					83.35*	113.35	nc
45+					223.55*	0.00	nc

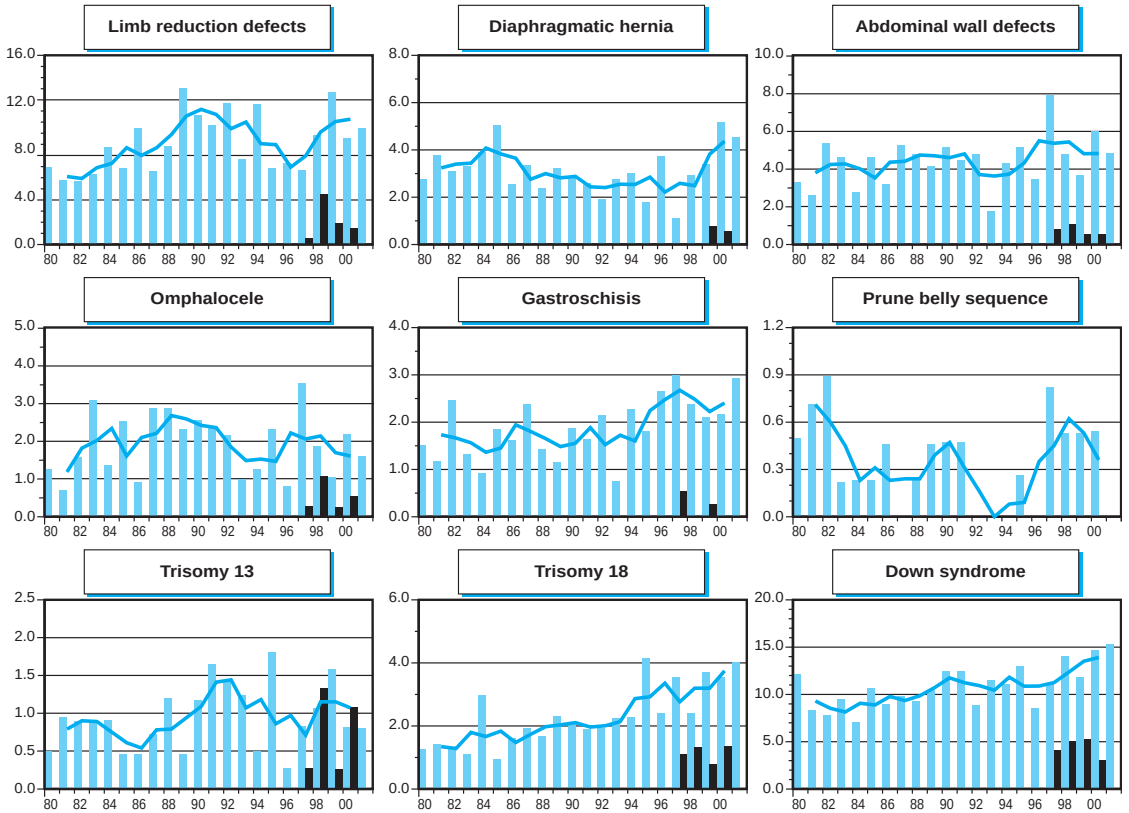
* = data incl. less than five years
N.A. = not available (lack of historical data)

Canada: Alberta

Time trends 1980-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Canada: British Columbia

British Columbia Health Status Registry (BCHSR)
Congenital Anomalies Surveillance Program

History:
The Programme, as a full member of the ICBDMS, was established in 1952 as the *Crippled Children's Registry*. Until 1959 the Programme had an age limit of 21, but this was removed in 1960 and the name was changed to the *Registry for Handicapped Children and Adults* and included all familial conditions and congenital malformations. In 1975, the Registry's name was changed to the *Health Surveillance Registry* as risk registers for amniocentesis, rubella, hyaline membrane disease, and fetal alcohol syndrome were added. In 1991, the Royal Commission Report on Health Care and Costs contained a recommendation that Vital Statistics should develop and maintain a registry of individuals with disabilities to assist in the development of long-range plans and to monitor the changing needs of the population. Subsequently, in September 1992, amendments to the Health Act established the legislative mandate and responsibilities for the HSR. The Registry's current name, *Health Status Registry*, was acquired in 1992. In order to refocus the Registry's emphasis on children, the criteria for registration of individuals with long-term physical, mental and/or emotional problems was restricted to persons under the age of 20 years old, however registration of persons with genetic conditions was not age limited. By 2001 there were approximately 215,000 records in the Registry.

Size and Coverage:
The registry covers all births in the province approximately 45,000 births annually including stillbirths of at least 20 weeks gestation or birth weight 500 grams or more.

Legislation and Funding:
In 1992, amendments to the Health Act established the legislative mandate and responsibilities for the BC HSR. Funding comes from the British Columbia Vital Statistics Agency.

Sources of Ascertainment:
Sources include: Notice of Live and Stillbirth, Death registrations, Hospital Admission/Discharge Abstracts, Children's Hospital, Sunnyhill Hospital, UBC and Victoria General Medical Genetics Clinics, Child Development Centres, Health Regions, the Asante Centre for Fetal Alcohol Syndrome.

Background Information:
The registry data are regularly matched to Vital Statistics birth registrations to obtain birth particulars of the registrants and maternal/paternal information, and also matched to death registrations to get the date of death and causes of death. The registry is also working on the collection of the medically terminated pregnancies due to congenital anomalies.

Exposure Information:
Information on complications of pregnancy, labour or delivery is available on Vital Statistics birth registrations and environmental/occupational and drug/alcohol/smoking lifestyle related information could be obtained from
the death registrations for the deceased.

Address for further information:
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Soo-Hong Uh. Health Status Registry, BC Vital Statistics Agency, 818 Fort Street, Victoria, BC, Canada, V8W 1H8

Phone: 1-250-9522567

Fax: 1-250-9522587

e-mail: SooHong.Uh@gems6.gov.bc.ca

Web site:http://www.vs.gov.bc.ca/stats/hsr/index.html

Canada: British Columbia, 2001

Live births (L)	40,376
Stillbirths (S)	281
Total births	40,657
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	8	3	nr	2.71	nc	1.46	12	
Spina bifida	7	5	nr	2.95	nc	0.66	8	
Encephalocele	0	2	nr	0.49	nc	0.46	20	
Microcephaly	2	1	nr	0.74	nc	0.19	20	▼
Arhinencephaly / Holoprosencephaly	11	13	nr	5.90	nc	1.96	20	▲
Hydrocephaly	6	2	nr	1.97	nc	0.40	19	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	0	nr	0.49	nc	0.53	14	
Anophthalmos	1	0	nr	0.25	nc	0.78	20	
Microphthalmos	1	0	nr	0.25	nc	0.30	17	
Total Anotia / Microtia (incl. unspecified)	30	1	nr	7.62	nc	0.52	20	▼
Anotia	1	0	nr	0.25	nc	0.19	20	
Microtia	10	0	nr	2.46	nc	0.49	20	
Transposition of great vessels	5	0	nr	1.23	nc	0.28	20	▼
Tetralogy of Fallot	6	1	nr	1.72	nc	0.39	19	▼
Hypoplastic left heart syndrome	8	3	nr	2.71	nc	1.08	20	
Coarctation of aorta	6	0	nr	1.48	nc	0.28	19	▼
Choanal atresia, bilateral	3	0	nr	0.74	nc	0.36	5	
Cleft palate without cleft lip	19	1	nr	4.92	nc	0.57	20	▼
Cleft lip with or without cleft palate	27	1	nr	6.89	nc	0.34	18	▼
Oesophageal atresia / stenosis with or without fistula	2	2	nr	0.98	nc	0.33	20	
Small intestine atresia / stenosis	4	1	nr	1.23	nc	0.40	20	
Anorectal atresia / stenosis	6	0	nr	1.48	nc	0.37	20	▼
Undescended testis (36 weeks of gestation or later)	51	0	nr	12.54	nc	0.60	20	▼
Hypospadias	47	0	nr	11.56	nc	0.51	20	▼
Epispadias	0	0	nr	0.00	nc	nc		
Indeterminate sex	0	0	nr	0.00	nc	0.00	20	
Renal agenesis	4	0	nr	0.98	nc	0.19	20	▼
Cystic kidney	5	0	nr	1.23	nc	0.24	18	▼
Bladder exstrophy	1	0	nr	0.25	nc	0.60	20	
Polydactyly, preaxial	19	0	nr	4.67	nc	0.30	20	▼
Total Limb reduction defects (incl. unspecified)	6	1	nr	1.72	nc	0.33	17	▼
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	8	1	nr	2.21	nc	0.67	20	
Total Abdominal wall defects (incl. unspecified)	19	5	nr	5.90	nc	0.76	18	
Omphalocele	4	1	nr	1.23	nc	nc		
Gastroschisis	12	3	nr	3.69	nc	nc		
Prune belly sequence	0	0	nr	0.00	nc	nc		
Trisomy 13	5	3	nr	1.97	nc	2.00	20	
Trisomy 18	4	11	nr	3.69	nc	1.23	8	
Down syndrome, all ages (incl. age unknown)	36	14	nr	12.30	nc	0.81	8	
<20	1	0	nr	5.59	nc	0.75	16	
20-24	2	0	nr	3.22	nc	0.45	16	
25-29	5	1	nr	5.18	nc	0.59	8	
30-34	11	4	nr	11.50	nc	0.84	16	
35-39	12	8	nr	29.80	nc	1.38	16	
40-44	4	1	nr	39.34	nc	0.64	16	
45+	0	0	nr	0.00	nc	0.00	16	

nr = not reported
nc = not calculable

Canada: British Columbia, time trend analysis 1981-2001

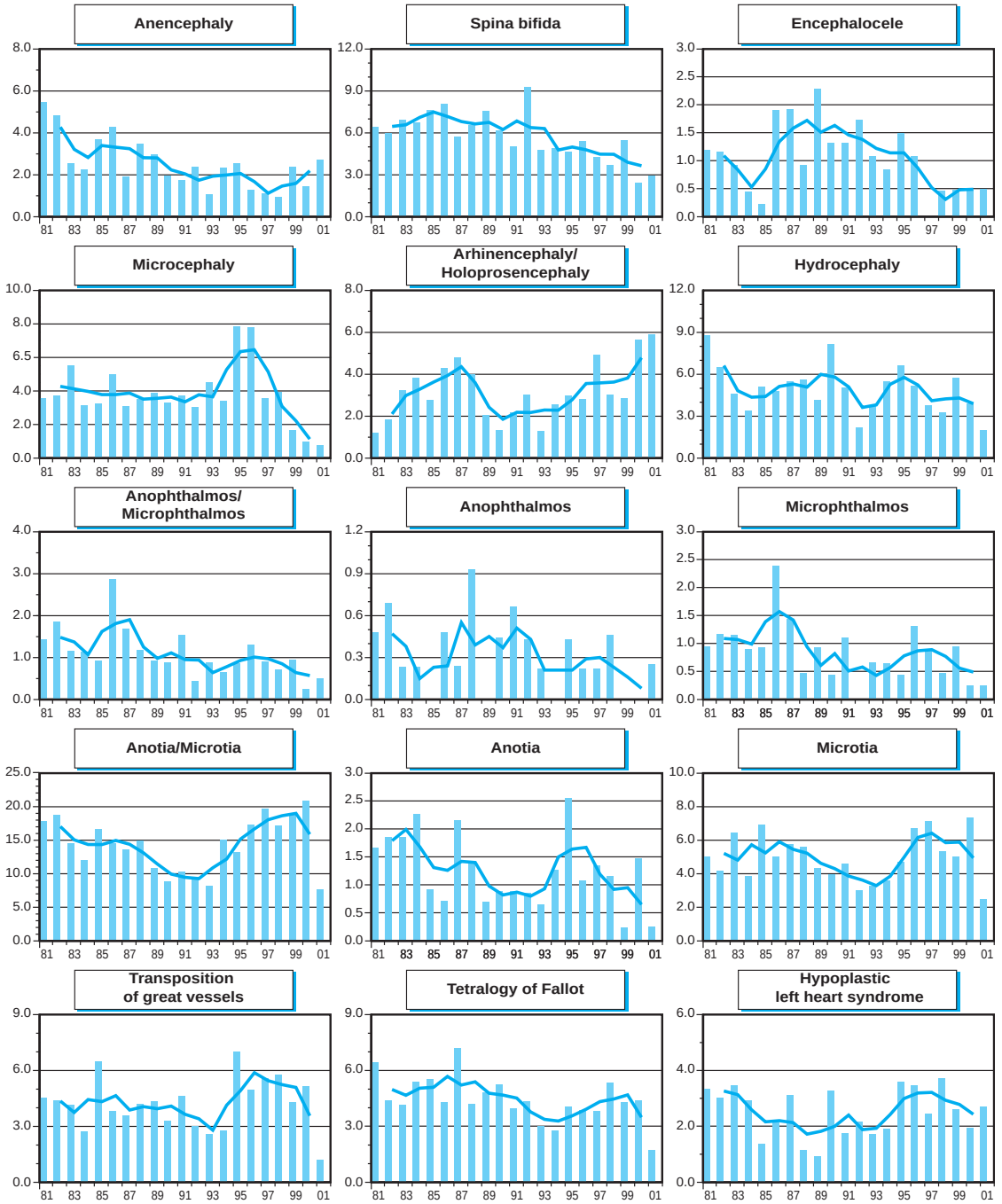
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births		216,331	215,791	232,286	216,936	40,657	
Anencephaly		3.74	2.92	2.02	1.43	2.71	▼
Spina bifida		6.75	6.81	5.73	4.29	2.95	▼
Encephalocele		0.79	1.67	1.29	0.51	0.49	
Microcephaly		3.84	3.75	4.52	3.69	0.74	
Arhinencephaly / Holoprosencephaly		2.59	3.24	2.41	3.83	5.90	▲
Hydrocephaly		5.64	5.65	4.61	4.38	1.97	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)		1.29	1.48	0.86	0.83	0.49	▼
Anophthalmos		0.32	0.42	0.34	0.18	0.25	
Microphthalmos		1.02	1.11	0.56	0.78	0.25	▼
Total Anotia / Microtia (incl. unspecified)		15.90	12.47	11.24	18.76	7.62	
Anotia		1.71	1.16	1.25	1.06	0.25	▼
Microtia		5.27	4.91	3.83	6.32	2.46	
Transposition of great vessels		4.44	3.85	4.00	5.16	1.23	
Tetralogy of Fallot		5.18	5.14	3.62	4.33	1.72	▼
Hypoplastic left heart syndrome		2.82	2.13	2.24	2.86	2.71	
Coarctation of aorta		6.43	5.05	4.74	5.26	1.48	▼
Choanal atresia, bilateral		1.06	1.20	0.69	2.07	0.74	
Cleft palate without cleft lip		8.41	9.31	8.70	8.21	4.92	
Cleft lip with or without cleft palate		23.02	20.48	18.43	19.91	6.89	▼
Oesophageal atresia / stenosis with or without fistula		3.51	2.83	2.93	2.81	0.98	
Small intestine atresia / stenosis		3.10	2.83	2.58	3.69	1.23	
Anorectal atresia / stenosis		4.02	3.52	4.22	4.38	1.48	
Undescended testis (36 weeks of gestation or later)		26.39	15.99	16.53	25.40	12.54	▼
Hypospadias		24.59	19.74	22.86	23.51	11.56	
Epispadias						0.00	nc
Indeterminate sex		1.16	0.74	1.08	0.97	0.00	
Renal agenesis		5.13	4.73	5.42	5.30	0.98	
Cystic kidney		4.30	4.45	4.86	6.18	1.23	
Bladder exstrophy		0.37	0.56	0.39	0.32	0.25	
Polydactyly, preaxial		16.69	15.25	13.39	17.10	4.67	▼
Total Limb reduction defects (incl. unspecified)		7.21	5.33	4.82	5.21	1.72	▼
Diaphragmatic hernia		3.98	2.87	2.97	3.41	2.21	
Total Abdominal wall defects (incl. unspecified)		13.50	7.04	6.03	9.40	5.90	▼
Omphalocele						1.23	nc
Gastroschisis						3.69	nc
Prune belly sequence						0.00	nc
Trisomy 13		0.69	1.07	0.90	1.29	1.97	▲
Trisomy 18		1.71	1.76	2.20	3.41	3.69	▲
Down syndrome, all ages (incl. age unknown)		11.42	12.19	13.04	16.36	12.30	▲
<20		21.41	4.17	7.03	8.68	5.59	
20-24		7.19	6.78	6.45	8.41	3.22	
25-29		8.57	6.01	6.03	10.33	5.18	
30-34		12.99	14.24	12.85	14.30	11.50	
35-39		10.15	18.15	21.00	25.21	29.80	▲
40-44		70.42	71.65	62.88	55.13	39.34	
45+		0.00	0.00	215.83	329.22	0.00	

nc = not calculable

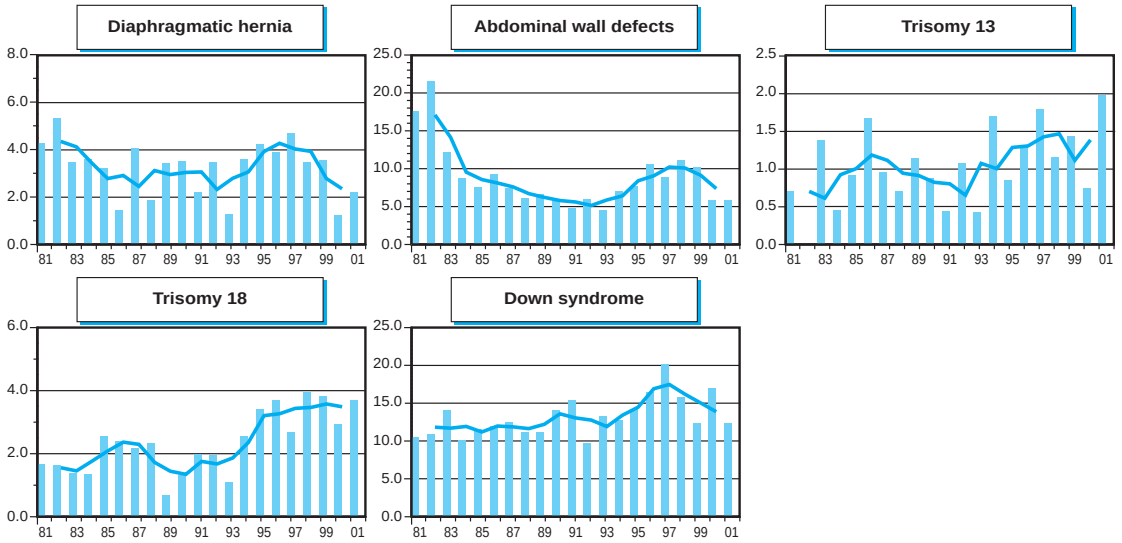
Canada: British Columbia

Time trends 1981-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, 3-year moving average trend

Note: L+S rates, 3-year moving average trend



Note: L+S rates, 3-year moving average trend

China: Beijing

Birth Defect Surveillance System in Thirty Counties of Four Provinces, People's Republic of China

History:
The Programme began in 1992. It became a full member of the ICBDMS in 1997.

Size and coverage:
This is a population based monitoring system. Reports were obtained from all hospitals and village health stations, which together cover all geographically defined population. Total number of population in these areas is around 17 millions and total number of births per year is around 150,000.

Legislation and funding:
Funding is from China Ministry of Health and local health authorities.

Sources of ascertainment:
Reports are obtained from delivery units, paediatric clinics, ultrasound departments, pathology departments and perinatal health care departments of different level hospitals, MCH institutes and village health stations in the participating counties and cites.

Exposure information:
Exposure information is obtained from the perinatal health care surveillance system (PHCSS) in the same areas for all women and their babies from pre-marital examination till six weeks after birth. BDSS data is linked with PHCSS data by using an ID number assigned to each woman.

Background information:
Background information is also obtained from PHCSS data.

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China: Beijing, 2001

Live births (L)	129,890
Stillbirths (S)	578
Total births	130,468
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	6	53	nr	4.52	nc	1.36	4	
Spina bifida	13	15	nr	2.15	nc	0.71	4	
Encephalocele	1	14	nr	1.15	nc	0.86	4	
Microcephaly	4	3	nr	0.54	nc	1.58	4	
Arhinencephaly / Holoprosencephaly	1	3	nr	0.31	nc	0.68	4	
Hydrocephaly	12	60	nr	5.52	nc	1.09	3	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	1	nr	0.23	nc	0.94	4	
Anophthalmos	1	0	nr	0.08	nc	0.58	4	
Microphthalmos	1	1	nr	0.15	nc	1.35	4	
Total Anotia / Microtia (incl. unspecified)	31	1	nr	2.45	nc	0.87	4	
notia	1	0	nr	0.08	nc	0.51	4	
Microtia	30	1	nr	2.38	nc	0.89	4	
Transposition of great vessels	nr	nr	nr	nc	nc	nc		
Tetralogy of Fallot	nr	nr	nr	nc	nc	nc		
Hypoplastic left heart syndrome	nr	nr	nr	nc	nc	nc		
Coarctation of aorta	nr	nr	nr	nc	nc	nc		
Choanal atresia, bilateral	nr	nr	nr	nc	nc	nc		
Cleft palate without cleft lip	32	0	nr	2.45	nc	0.89	4	
Cleft lip with or without cleft palate	118	14	nr	10.12	nc	1.07	3	
Oesophageal atresia / stenosis with or without fistula	nr	nr	nr	nc	nc	nc		
Small intestine atresia / stenosis	nr	nr	nr	nc	nc	nc		
Anorectal atresia / stenosis	25	3	nr	2.15	nc	1.40	4	
Undescended testis (36 weeks of gestation or later)	3	1	nr	0.31	nc	1.48	4	
Hypospadias	13	0	nr	1.00	nc	0.78	4	
Epispadias	0	0	nr	0.00	nc	nc		
Indeterminate sex	6	7	nr	1.00	nc	0.86	4	
Renal agenesis	nr	nr	nr	nc	nc	nc		
Cystic kidney	nr	nr	nr	nc	nc	nc		
Bladder exstrophy	1	0	nr	0.08	nc	2.04	4	
Polydactyly, preaxial	79	2	nr	6.21	nc	0.91	4	
Total Limb reduction defects (incl. unspecified)	23	3	nr	1.99	nc	0.76	4	
Transverse	20	3	nr	1.76	nc	0.84	2	
Preaxial	1	0	nr	0.08	nc	0.19	3	
Postaxial	0	0	nr	0.00	nc	nc		
Intercalary	0	0	nr	0.00	nc	0.00	3	
Mixed	0	0	nr	0.00	nc	0.00	3	
Diaphragmatic hernia	nr	nr	nr	nc	nc	nc		
Total Abdominal wall defects (incl. unspecified)	16	34	nr	3.83	nc	1.44	4	
Omphalocele	7	8	nr	1.15	nc	1.36	3	
Gastroschisis	9	26	nr	2.68	nc	1.63	4	▲
Prune belly sequence	1	9	nr	0.77	nc	0.59	3	
Trisomy 13	nr	nr	nr	nc	nc	nc		
Trisomy 18	nr	nr	nr	nc	nc	nc		
Down syndrome, all ages (incl. age unknown)	nr	nr	nr	nc	nc	nc		
<20	nr	nr	nr	nc	nc	nc		
20-24	nr	nr	nr	nc	nc	nc		
25-29	nr	nr	nr	nc	nc	nc		
30-34	nr	nr	nr	nc	nc	nc		
35-39	nr	nr	nr	nc	nc	nc		
40-44	nr	nr	nr	nc	nc	nc		
45+	nr	nr	nr	nc	nc	nc		

nr = not reported
nc = not calculable

China: Beijing, time trend analysis 1997-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00*	2001	Trend
Births					529,573	130,468	
Anencephaly					3.32	4.52	
Spina bifida					3.00	2.15	▼
Encephalocele					1.34	1.15	
Microcephaly					0.34	0.54	
Arhinencephaly / Holoprosencephaly					0.45	0.31	
Hydrocephaly					5.48	5.52	
Total Anophthalmos / Microphthalmos (incl. unspecified)					0.25	0.23	
Anophthalmos					0.13	0.08	
Microphthalmos					0.11	0.15	
Total Anotia / Microtia (incl. unspecified)					2.81	2.45	
Anotia					0.15	0.08	
Microtia					2.66	2.38	
Cleft palate without cleft lip					2.76	2.45	
Cleft lip with or without cleft palate					11.08	10.12	▼
Anorectal atresia / stenosis					1.53	2.15	
Undescended testis (36 weeks of gestation or later)					0.21	0.31	
Hypospadias					1.28	1.00	
Epispadias					0.00	0.00	
Indeterminate sex					1.15	1.00	
Bladder exstrophy					0.04	0.08	
Polydactyly, preaxial					6.82	6.21	
Total Limb reduction defects (incl. unspecified)					2.61	1.99	
Transverse					1.72	1.76	nc
Preaxial					0.41	0.08	nc
Postaxial					0.00	0.00	nc
Intercalary					0.03	0.00	nc
Mixed					0.05	0.00	nc
Total Abdominal wall defects (incl. unspecified)					2.66	3.83	
Omphalocele					1.02	1.15	
Gastroschisis					1.64	2.68	▲
Prune belly sequence					1.53	0.77	▼

* = data incl. less than five years
nc = not calculable

8 *Monitoring Systems*

China: CBDMN

Chinese Birth Defects Program of Sichuan Province, China (until 1994)
Chinese Birth Defects Monitoring Network

History:
The Programme began in 1984. It became an associate member of the ICBDMS in 1985 and a full member in 1987.

Size and coverage:
In 1984, reports were obtained from 100 hospitals but participation has increased. In 1985,205 hospitals participated. At present, the Programme covers approximately 260,000 births annually in 31 provinces.

Legislation and funding:
Participation is voluntary. Funding is mainly from local health authorities.

Sources of ascertainment:
Reports are obtained from delivery units, paediatric clinics, and pathology departments of the participating hospitals.

Exposure information:
Exposure information is obtained by interviews of mothers of the reported malformed infants. No information is available on exposures in controls.

Background information:
Total number of births from each participating hospital is known.

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China: CBDMN, 2001

Live births (L)	327,775
Stillbirths (S)	4,287
Total births	332,062
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	18	109	nr	3.82	nc	0.77	4	▼
Spina bifida	113	128	nr	7.26	nc	0.97	5	
Encephalocele	17	35	nr	1.57	nc	0.85	5	
Microcephaly	5	7	nr	0.36	nc	1.69	5	
Arhinencephaly / Holoprosencephaly	nr	nr	nr	nc	nc	nc		
Hydrocephaly	42	148	nr	5.72	nc	0.86	5	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	7	5	nr	0.36	nc	0.91	5	
Anophthalmos	nr	nr	nr	nc	nc	nc		
Microphthalmos	nr	nr	nr	nc	nc	nc		
Total Anotia / Microtia (incl. unspecified)	84	8	nr	2.77	nc	0.93	5	
Anotia	nr	nr	nr	nc	nc	nc		
Microtia	nr	nr	nr	nc	nc	nc		
Transposition of great vessels	nr	nr	nr	nc	nc	nc		
Tetralogy of Fallot	nr	nr	nr	nc	nc	nc		
Hypoplastic left heart syndrome	nr	nr	nr	nc	nc	nc		
Coarctation of aorta	nr	nr	nr	nc	nc	nc		
Choanal atresia, bilateral	nr	nr	nr	nc	nc	nc		
Cleft palate without cleft lip	79	1	nr	2.41	nc	1.03	5	
Cleft lip with or without cleft palate	396	52	nr	13.49	nc	0.96	5	
Oesophageal atresia / stenosis with or without fistula	26	6	nr	0.96	nc	1.36	5	
Small intestine atresia / stenosis	nr	nr	nr	nc	nc	nc		
Anorectal atresia / stenosis	86	11	nr	2.92	nc	0.97	3	
Undescended testis (36 weeks of gestation or later)	12	4	nr	0.48	nc	0.70	4	
Hypospadias	157	2	nr	4.79	nc	1.27	3	▲
Epispadias	nr	nr	nr	nc	nc	nc		
Indeterminate sex	24	13	nr	1.11	nc	1.03	5	
Renal agenesis	3	2	nr	0.15	nc	0.62	4	
Cystic kidney	9	22	nr	0.93	nc	1.06	4	
Bladder exstrophy	2	1	nr	0.09	nc	0.99	5	
Polydactyly, preaxial	nr	nr	nr	nc	nc	nc		
Total Limb reduction defects (incl. unspecified)	115	56	nr	5.15	nc	0.97	5	
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	17	3	nr	0.60	nc	1.10	5	
Total Abdominal wall defects (incl. unspecified)	63	56	nr	3.58	nc	0.86	5	
Omphalocele	25	7	nr	0.96	nc	0.58	3	▼
Gastroschisis	38	49	nr	2.62	nc	0.96	5	
Prune belly sequence	nr	nr	nr	nc	nc	nc		
Trisomy 13	nr	nr	nr	nc	nc	nc		
Trisomy 18	nr	nr	nr	nc	nc	nc		
Down syndrome, all ages (incl. age unknown)	83	1	nr	2.53	nc	1.25	3	
<20	2	0	nr	21.55	nc	nc		
20-24	9	0	nr	1.18	nc	1.09	5	
25-29	38	1	nr	2.15	nc	1.48	5	
30-34	17	0	nr	2.89	nc	1.17	5	
35+	17	0	nr	11.74	nc	1.10	5	

nr =not reported
nc= not calculable

China: CBDMN, time trend analysis 1996-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births					1,537,995	332,062	
Anencephaly					5.31	3.82	▼
Spina bifida					7.50	7.26	
Encephalocele					1.85	1.57	
Microcephaly					0.21	0.36	▲
Hydrocephaly					6.69	5.72	
Total Anophthalmos / Microphthalmos (incl. unspecified)					0.40	0.36	
Total Anotia / Microtia (incl. unspecified)					2.97	2.77	
Cleft palate without cleft lip					2.34	2.41	
Cleft lip with or without cleft palate					13.99	13.49	
Oesophageal atresia / stenosis with or without fistula					0.71	0.96	
Anorectal atresia / stenosis					2.86	2.92	
Undescended testis (36 weeks of gestation or later)					0.62	0.48	
Hypospadias					3.45	4.79	▲
Indeterminate sex					1.08	1.11	
Renal agenesis					0.24*	0.15	
Cystic kidney					0.82	0.93	▲
Bladder exstrophy					0.09	0.09	
Total Limb reduction defects (incl. unspecified)					5.29	5.15	
Diaphragmatic hernia					0.55	0.60	
Total Abdominal wall defects (incl. unspecified)					4.18	3.58	
Omphalocele					1.45	0.96	
Gastroschisis					2.73	2.62	
Down syndrome, all ages (incl. age unknown)					1.85	2.53	▲
<20					0.00	21.55	
20-24					1.08	1.18	
25-29					1.46	2.15	▲
30-34					2.47	2.89	
35+					10.67	11.74	

* = data incl. less than five years

Czech Republic

Congenital Malformations Monitoring Program of the Czech Republic

History:
A registration of congenital malformation began in 1961 and regular monitoring started in 1975. The programme was a founding member of the Clearinghouse and is a full member

Size and coverage:
All births in the Czech Republic (Bohemia, Moravia and Silesia regions) are covered, at present comprising approximately 90,000 annual births. Stillbirths weighting at least 1,000g are included.

Legislation and funding:

Reporting is compulsory. The registration is financed and run by the government in the Institute of Health Information and Statistics of the Czech Republic. Analysis of data is supported by grant projects (*NJ* 7516-3 *and* 6491-3 of Grant Agency Ministry of Health of the Czech Republic in the Institute for Care of Mother and Child.

Sources of ascertainment:
Reports are obtained from delivery units, neonatal, pediatric, child surgery and pathology departments and cytogenetic laboratories. Reporting to the central registry occurs via regional departments of Institute of Health Information and Statistics.

Exposure information:
Some exposure information is available on malformed infants, at present none on controls.

Background information:
Information on all births are available in the Institute of Health Information and Statistics of the Czech Republic.

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Czech Republic, 2001

Live births (L)	90,715
Stillbirths (S)	263
Total births	90,978
Number of terminations of pregnancy (ToP) for birth defects	475

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	19	0.00	2.08	0.00	12	
Spina bifida	5	1	22	0.66	3.06	0.33	11	▼
Encephalocele	2	0	4	0.22	0.66	0.44	27	
Microcephaly	13	0	0	1.43	1.42	1.85	19	
Arhinencephaly / Holoprosencephaly	1	0	0	0.11	0.11	0.86	6	
Hydrocephaly	22	3	28	2.75	5.80	1.04	27	
Total Anophthalmos / Microphthalmos (incl. unspecified)	4	0	0	0.44	0.44	0.88	8	
Anophthalmos	1	0	0	0.11	0.11	3.03	3	
Microphthalmos	3	0	0	0.33	0.33	1.80	3	
Total Anotia / Microtia (incl. unspecified)	100	0	0	10.99	10.93	1.03	2	
Anotia	10	0	0	1.10	1.09	1.24	2	
Microtia	5	0	0	0.55	0.55	2.49	2	
Transposition of great vessels	30	0	0	3.30	3.28	1.41	24	
Tetralogy of Fallot	30	0	0	3.30	3.28	1.13	6	
Hypoplastic left heart syndrome	19	0	0	2.09	2.08	1.44	8	
Coarctation of aorta	42	0	0	4.62	4.59	1.35	7	
Choanal atresia, bilateral	0	0	0	0.00	0.00	0.00	7	
Cleft palate without cleft lip	78	0	0	8.57	8.53	1.43	27	▲
Cleft lip with or without cleft palate	97	0	0	10.66	10.61	1.06	27	
Oesophageal atresia / stenosis with or without fistula	33	0	0	3.63	3.61	1.62	8	
Small intestine atresia / stenosis	28	1	0	3.19	3.17	1.56	7	
Anorectal atresia / stenosis	42	0	0	4.62	4.59	1.82	9	▲
Undescended testis (36 weeks of gestation or later)	231	0	0	25.39	25.26	1.52	2	▲
Hypospadias	275	0	0	30.23	30.07	1.16	6	
Epispadias	3	0	0	0.33	0.33	0.72	7	
Indeterminate sex	6	0	0	0.66	0.66	1.55	7	
Renal agenesis	24	0	12	2.64	3.94	1.77	27	
Cystic kidney	48	0	4	5.28	5.69	2.21	27	▲
Bladder exstrophy	3	0	0	0.33	0.33	2.70	24	
Polydactyly, preaxial	111	1	0	12.31	12.25	0.97	13	
Total Limb reduction defects (incl. unspecified)	33	0	14	3.63	5.14	0.73	25	
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	14	0	4	1.54	1.97	0.84	15	
Total Abdominal wall defects (incl. unspecified)	16	1	41	1.87	6.34	0.96	10	
Omphalocele	14	0	18	1.54	3.50	1.28	7	
Gastroschisis	2	1	23	0.33	2.84	0.46	10	
Prune belly sequence	nr	nr	nr	nc	nc	nc		
Trisomy 13	4	1	13	0.55	1.97	1.64	7	
Trisomy 18	3	0	28	0.33	3.39	0.45	7	
Down syndrome, all ages (incl. age unknown)	50	0	94	5.50	15.75	0.85	14	
<20	1	0	0	2.61	2.61	0.58	27	
20-24	9	0	5	3.60	5.60	0.83	25	
25-29	19	0	29	4.81	12.14	0.89	14	
30-34	13	0	15	7.95	17.10	0.90	25	
35-39	4	0	25	7.72	55.68	0.64	7	
40-44	4	0	17	48.66	250.30	0.86	19	
45+	0	0	3	0.00	909.09	0.00	27	

nr = not reported
nc = not calculable

Czech Republic, time trend analysis 1974-2001

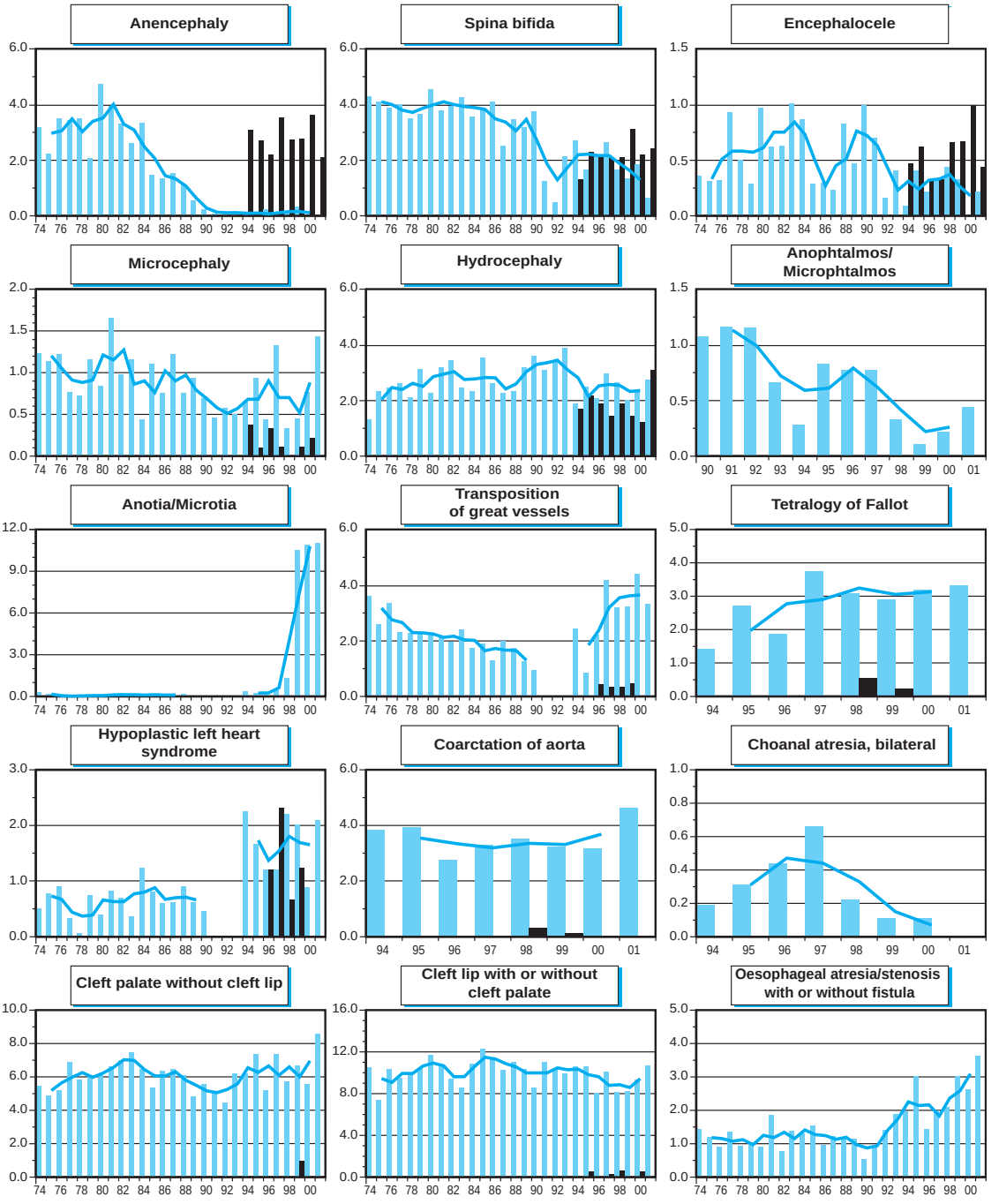
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	1,267,450	699,903	658,624	575,342	453,465	90,978	
Anencephaly	3.20	2.94	0.96	0.09	0.13	0.00	▼
Spina bifida	3.98	3.87	3.40	1.62	1.94	0.66	▼
Encephalocele	0.51	0.69	0.56	0.37	0.26	0.22	▼
Microcephaly	1.02	1.07	0.87	0.61	0.66	1.43	▼
Arhinencephaly / Holoprosencephaly				0.10*	0.13	0.11	
Hydrocephaly	2.30	2.99	2.79	2.99	2.40	2.75	
Total Anophthalmos / Microphthalmos (incl. unspecified)			1.07*	0.83	0.44	0.44	▼
Anophthalmos					0.04*	0.11	nc
Microphthalmos					0.18*	0.33	nc
Total Anotia / Microtia (incl. unspecified)	0.09	0.11	0.10*	0.30*	4.63	10.99	▲
Anotia					0.89*	1.10	nc
Microtia					0.22*	0.55	nc
Transposition of great vessels	2.69	2.03	1.43	1.67*	3.44	3.30	
Tetralogy of Fallot				2.02*	2.96	3.30	▲
Hypoplastic left heart syndrome	0.54	0.79	0.64	1.97*	1.50	2.09	▲
Coarctation of aorta				3.89*	3.20	4.62	
Choanal atresia, bilateral				0.25*	0.31	0.00	
Cleft palate without cleft lip	5.74	6.59	5.86	5.77	6.11	8.57	
Cleft lip with or without cleft palate	9.91	10.37	10.29	10.50	8.78	10.66	
Oesophageal atresia / stenosis with or without fistula	1.12	1.37	1.02	1.77	2.23	3.63	▲
Small intestine atresia / stenosis				1.87*	2.12	3.19	
Anorectal atresia / stenosis	1.36	1.16	0.62	2.00	2.87	4.62	▲
Undescended testis (36 weeks of gestation or later)				3.89*	12.61	25.39	▲
Hypospadias	18.60	20.40	22.36	24.06	26.40	30.23	▲
Epispadias				0.25*	0.55	0.33	
Indeterminate sex				0.30*	0.49	0.66	
Renal agenesis	1.59	1.47	1.08	1.32	2.07	2.64	
Cystic kidney	2.54	2.41	2.14	1.79	3.04	5.28	
Bladder exstrophy	0.15	0.11	0.02	0.25*	0.15	0.33	
Polydactyly, preaxial			12.82*	12.55	12.64	12.31	
Total Limb reduction defects (incl. unspecified)	4.33	5.17	4.78*	5.60	4.72	3.63	▲
Diaphragmatic hernia	2.56	2.66	1.96	1.65	1.90	1.54	▼
Total Abdominal wall defects (incl. unspecified)	3.39	3.56	3.61	2.10	1.74	1.87	▼
Omphalocele	2.34	2.14	2.63	1.83	1.10	1.54	▼
Gastroschisis	1.06	1.41	0.99	0.79*	0.62	0.33	▼
Trisomy 13				0.20*	0.40	0.55	
Trisomy 18				0.74*	0.73	0.33	
Down syndrome, all ages (incl. age unknown)	8.54	7.47	7.01	7.14	5.84	5.50	▼
<20	4.65	5.14	4.08	4.06	3.86	2.61	
20-24	5.61	4.38	3.37	4.13	4.48	3.60	▼
25-29	8.61	6.99	6.00	6.78	4.66	4.81	▼
30-34	11.73	8.48	8.59	9.78	7.36	7.95	▼
35-39	31.77	29.60	28.69	18.76	10.63	7.72	▼
40-44	128.08	74.99	66.29	52.52	40.30	48.66	▼
45+	187.27	377.36	430.11	375.94	0.00	0.00	

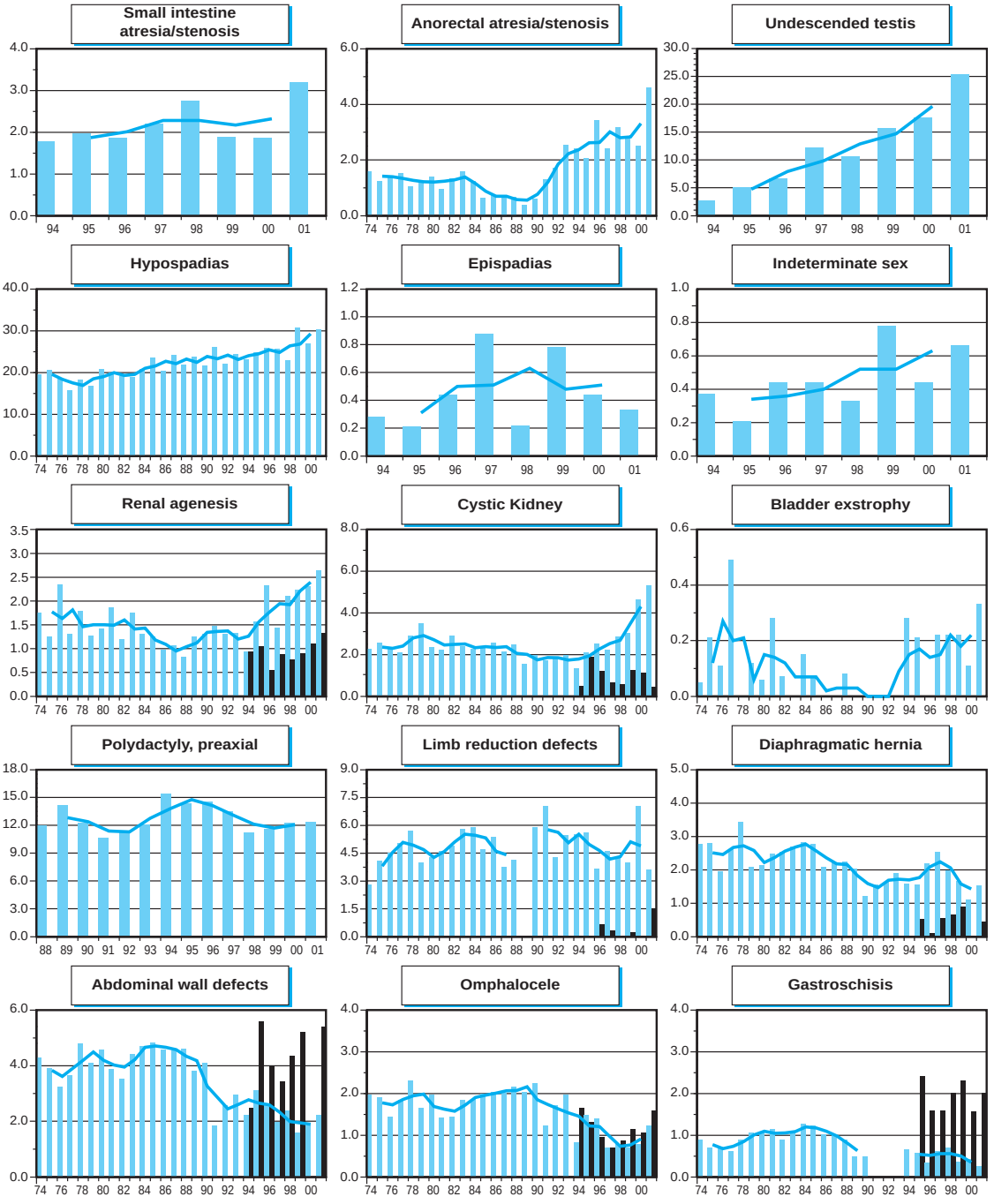
* = data incl. less than five years
nc = not calculable

Czech Republic

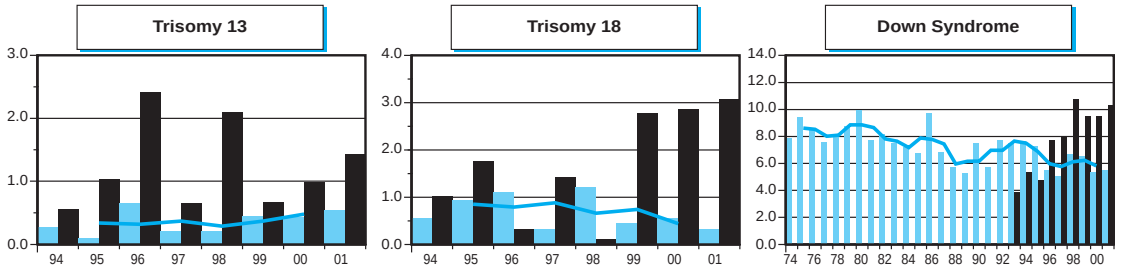
Time trends 1974-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

England and Wales
The National Congenital Anomaly System

History:
The monitoring Programme was started in 1964. It was a founding member of the Clearinghouse and is a full member.

Size and coverage:
All births in England and Wales are covered, at present approximately 610,000 annually. Stillbirths of 24 weeks or more gestation are registered.

Legislation and funding:
Reporting is voluntary. The system is financed by the governmental Office for National Statistics.

Sources of ascertainment:
Reports are mainly based on notifications of births prepared by attendants at birth, either physicians or midwives, supplemented by other reports from neonatal intensive care units, special care baby units etc. Reporting via the Wales regional congenital anomaly register began in 1998, and in 1999 from the Trent Region. In 2000 reporting started from the Merseyside and Cheshire register and the North Thames West register. These four registers together use several sources for ascertainment and cover 27% of the births in England and Wales

Exposure information:
Parents' occupation is known. No other information on other exposures is available but can be retrieved ad hoc from general practitioners.

Background information:
Information on all births is available from birth certificates.

Address for further information:
Beverley J Botting, Office for National Statistics, B6/08, 1 Drummond Gate, London SW1V 2QQ, England

Phone: 44-71-75335195

Fax : 44-71-5335635

E-mail: bev.botting@ons.gov.uk

England and Wales, 2001

Live births (L)	594,360
Stillbirths (S)	3,146
Total births	597,506
Number of terminations of pregnancy (ToP) for birth defects	1,722

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	12	15	142	0.45	2.82	1.08	14	
Spina bifida	47	10	125	0.95	3.04	0.89	10	
Encephalocele	12	4	13	0.27	0.48	1.42	10	
Microcephaly	26	3	2	0.49	0.52	1.05	13	
Arhinencephaly / Holoprosencephaly	9	7	21	0.27	0.62	2.36	20	▲
Hydrocephaly	65	20	44	1.42	2.15	1.17	12	
Total Anophthalmos / Microphthalmos (incl. unspecified)	20	1	0	0.35	0.35	1.14	16	
Anophthalmos	6	1	0	0.12	0.12	1.08	11	
Microphthalmos	14	0	0	0.23	0.23	1.36	22	
Total Anotia / Microtia (incl. unspecified)	18	0	0	0.30	0.30	2.09	6	▲
Anotia	11	0	0	0.18	0.18	1.23	3	
Microtia	7	0	0	0.12	0.12	2.98	6	
Transposition of great vessels	59	1	1	1.00	1.02	0.84	1	
Tetralogy of Fallot	50	2	2	0.87	0.90	0.65	1	▼
Hypoplastic left heart syndrome	33	4	36	0.62	1.22	0.93	2	
Coarctation of aorta	57	2	2	0.99	1.02	1.15	2	
Choanal atresia, bilateral	9	0	0	0.15	0.15	1.06	13	
Cleft palate without cleft lip	193	1	0	3.25	3.24	1.04	11	
Cleft lip with or without cleft palate	358	8	2	6.13	6.14	0.97	8	
Oesophageal atresia / stenosis with or without fistula	65	3	0	1.14	1.13	1.26	13	
Small intestine atresia / stenosis	59	2	1	1.02	1.03	1.52	17	▲
Anorectal atresia / stenosis	74	1	0	1.26	1.25	0.84	10	
Undescended testis (36 weeks of gestation or later)	20	0	0	0.33	0.33	1.38	11	
Hypospadias	572	0	0	9.57	9.55	1.02	2	
Epispadias	10	0	0	0.17	0.17	0.56	7	
Indeterminate sex	32	6	0	0.64	0.63	0.89	22	
Renal agenesis	63	12	24	1.26	1.65	1.37	26	
Cystic kidney	113	11	26	2.08	2.50	0.92	2	
Bladder exstrophy	8	0	0	0.13	0.13	0.78	18	
Polydactyly, preaxial	63	0	nr	1.05	nc	1.61	6	▲
Total Limb reduction defects (incl. unspecified)	176	11	6	3.13	3.22	1.03	12	
Transverse	85	2	nr	1.46	nc	0.86	11	
Preaxial	14	2	nr	0.27	nc	1.32	11	
Postaxial	3	1	nr	0.07	nc	0.51	11	
Intercalary	49	5	nr	0.90	nc	1.72	11	▲
Mixed	9	1	nr	0.17	nc	0.93	11	
Diaphragmatic hernia	72	9	12	1.36	1.55	1.32	11	
Total Abdominal wall defects (incl. unspecified)	176	18	27	3.25	3.69	1.28	11	▲
Omphalocele	50	11	16	1.02	1.28	1.02	2	
Gastroschisis	103	5	6	1.81	1.90	0.98	3	
Prune belly sequence	1	0	3	0.02	0.07	0.46	6	
Trisomy 13	13	4	43	0.28	1.00	1.43	22	
Trisomy 18	32	19	105	0.85	2.60	1.58	22	▲
Down syndrome, all ages (incl. age unknown)	359	16	333	6.28	11.82	1.03	16	
<20	16	0	3	3.60	4.27	1.00	14	
20-24	36	1	14	3.38	4.66	0.94	14	
25-29	36	3	28	2.43	4.17	0.64	11	▼
30-34	99	7	57	5.90	9.07	1.02	11	
35-39	107	4	144	12.77	29.29	1.00	11	
40-44	54	1	82	35.26	87.37	0.99	14	
45+	7	0	5	90.32	153.85	1.30	14	

nr= not reported
nc = not calculable

England and Wales, time trend analysis 1974-2001

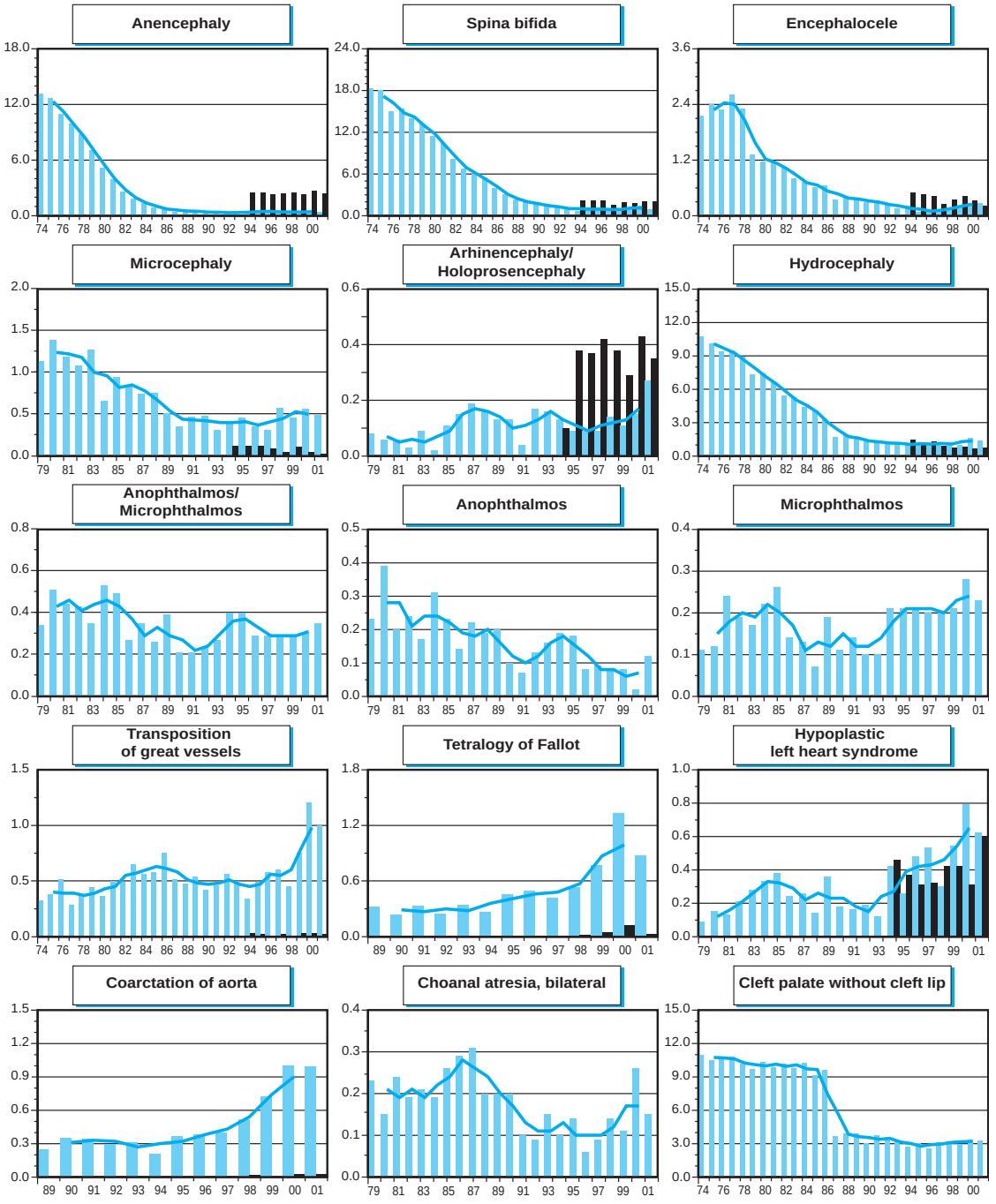
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	4,323,365	3,199,729	3,444,962	3,390,902	3,169,859	597,506	
Anencephaly	9.62	2.13	0.53	0.38	0.41	0.45	▼
Spina bifida	15.03	7.32	2.58	1.14	1.00	0.95	▼
Encephalocele	2.01	0.88	0.41	0.21	0.17	0.27	▼
Microcephaly	1.27*	1.03	0.64	0.43	0.45	0.49	▼
Arhinencephaly / Holoprosencephaly	0.07*	0.06	0.15	0.12	0.12	0.27	▲
Hydrocephaly	9.03	5.13	1.98	1.14	1.21	1.42	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	0.43*	0.45	0.30	0.30	0.29	0.35	▼
Anophthalmos	0.31*	0.23	0.17	0.15	0.07	0.12	▼
Microphthalmos	0.12*	0.22	0.13	0.15	0.22	0.23	
Total Anotia / Microtia (incl. unspecified)				0.21*	0.13	0.30	▲
Anotia				0.12*	0.10	0.18	▲
Microtia				0.09*	0.03	0.12	
Transposition of great vessels	0.38	0.56	0.54	0.47	0.71	1.00	▲
Tetralogy of Fallot			0.28*	0.33	0.70	0.87	▲
Hypoplastic left heart syndrome	0.12*	0.27	0.24	0.23	0.52	0.62	▲
Coarctation of aorta			0.30*	0.31	0.60	0.99	▲
Choanal atresia, bilateral	0.19*	0.22	0.24	0.12	0.13	0.15	▼
Cleft palate without cleft lip	10.45	9.82	4.78	3.24	3.04	3.25	▼
Cleft lip with or without cleft palate	9.75	8.98	8.17	7.00	6.25	6.13	▼
Oesophageal atresia / stenosis with or without fistula	1.65	1.69	1.16	0.87	0.87	1.14	▼
Small intestine atresia / stenosis	0.50*	0.61	0.64	0.59	0.76	1.02	▲
Anorectal atresia / stenosis	2.88	2.59	2.07	1.56	1.40	1.26	▼
Undescended testis (36 weeks of gestation or later)	5.22*	8.15	6.88	0.21	0.24	0.33	▼
Hypospadias				7.26*	8.42	9.57	▲
Epispadias			0.00*	0.36*	0.27	0.17	▲
Indeterminate sex	0.82*	0.83	0.63	0.54	0.83	0.64	
Renal agenesis	0.70	1.23	0.94	0.73	0.98	1.26	▲
Cystic kidney	0.38*	0.54	0.86	1.06	1.70	2.08	▲
Bladder exstrophy	0.20*	0.23	0.19	0.14	0.17	0.13	▼
Polydactyly, preaxial				0.55*	0.68	1.05	▲
Total Limb reduction defects (incl. unspecified)	5.21	5.07	3.91	3.04	3.01	3.13	▼
Transverse			1.79*	1.65	1.72	1.46	
Preaxial			0.10*	0.25	0.17	0.27	
Postaxial			0.08*	0.17	0.11	0.07	
Intercalary			0.61*	0.48	0.56	0.90	▲
Mixed			0.17*	0.18	0.18	0.17	
Diaphragmatic hernia	1.37*	1.46	1.38	1.00	1.00	1.36	▼
Total Abdominal wall defects (incl. unspecified)	7.02	7.05	5.00	2.46	2.56	3.25	▼
Omphalocele			2.19*	1.88	0.77	1.02	▼
Gastroschisis				1.31*	1.68	1.81	▲
Prune belly sequence				0.08*	0.03	0.02	
Trisomy 13	0.12*	0.18	0.24	0.20	0.21	0.28	
Trisomy 18	0.41*	0.60	0.62	0.46	0.52	0.85	
Down syndrome, all ages (incl. age unknown)	7.05	7.64	6.48	5.25	6.51	6.28	▼
<20			3.94*	2.86	4.00	3.60	
20-24			3.68*	3.45	3.68	3.38	
25-29			4.66*	3.57	3.79	2.43	▼
30-34			7.74*	5.64	5.96	5.90	▼
35-39			17.99*	11.99	12.84	12.77	▼
40-44			36.59*	29.91	39.62	35.26	
45+			62.98*	61.28	81.25	90.32	

* = data include less than seven and five years
nc= not calculable

England and Wales

Time trends 1974-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend

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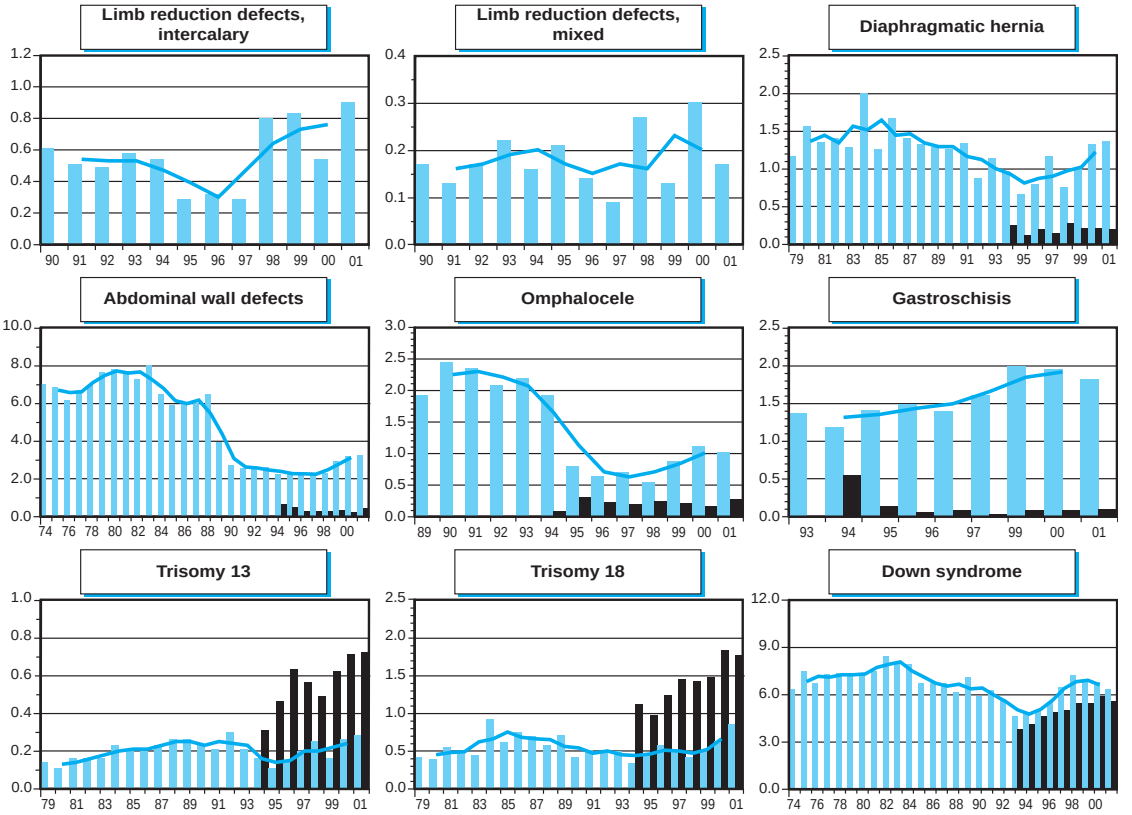


Note: L+S rates, ToP rates — 3-year moving average trend

Finland

The Finnish Register of Congenital Malformations

History:
The registry was established in 1963 and regular monitoring started in 1977. It was a founding member of the ICBDMS and is a full member. In 1998 the registry became an associate member of EUROCAT.

Size and coverage:
The registry is national and population based. All births in Finland are covered, at present approximately 57,000 annually. Stillbirths of 22 weeks / 500 g or more are registered. As a research project selective terminations for fetal reasons and spontaneous abortions with malformations have also been included since 1993.

Legislation and funding:
Reporting is compulsory. The registry is run and financed by STAKES, the governmental National Research and Development Centre for Welfare and Health (under the Ministry of Social Affairs and Health).

Sources and ascertainment:
Reports are obtained from delivery units, neonatal, pediatric and pathology departments, death certificates and cytogenetic laboratories. Case information is also received from the national Medical Birth Register, Abortion Register and Hospital Discharge Register.

Exposure information:
Until 1986, extensive exposure information was obtained from maternity health centers and by personal interview for selected malformations and their controls. In 1987-1992 only parental occupation was reported. Exposure information, like maternal occupation, medication, X-rays and diseases, etc., has been obtained since 1993. Some exposure information on all births is also available in the Medical Birth Register since 1987.

Background information:
Epidemiological background data are available on all births in the Medical Birth Register and in the Statistics Finland.

Address for further information:
Annukka Ritvanen, The Finnish Register of Congenital Malformations, The National Research and Development Centre for Welfare and Health, STAKES, Lintulahdenkuja 4, P.O. Box 220, SF 00531-Helsinki - Finland

Phone: 358-9-39672376

Fax: 358-9-39672459

E-mail: annukka.ritvanen@stakes.fi

Website: http://www.stakes.fi/

Finland, 2001

Live births (L)	56,189
Stillbirths (S)	208
Total births	56,397
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	1	nr	0.18	nc	0.35	11	
Spina bifida	14	2	nr	2.84	nc	0.99	16	
Encephalocele	4	0	nr	0.71	nc	1.40	18	
Microcephaly	6	0	nr	1.06	nc	0.53	8	
Arhinencephaly / Holoprosencephaly	5	0	nr	0.89	nc	1.23	8	
Hydrocephaly	11	2	nr	2.31	nc	0.56	10	
Total Anophthalmos / Microphthalmos (incl. unspecified)	6	0	nr	1.06	nc	0.62	8	
Anophthalmos	1	0	nr	0.18	nc	0.45	8	
Microphthalmos	5	0	nr	0.89	nc	0.66	8	
Total Anotia / Microtia (incl. unspecified)	23	1	nr	4.26	nc	0.99	10	
Anotia	nr	nr	nr	nc	nc	nc		
Microtia	nr	nr	nr	nc	nc	nc		
Transposition of great vessels	26	0	nr	4.61	nc	1.27	10	
Tetralogy of Fallot	13	0	nr	2.31	nc	0.62	6	
Hypoplastic left heart syndrome	21	1	nr	3.90	nc	1.19	8	
Coarctation of aorta	46	2	nr	8.51	nc	0.87	6	
Choanal atresia, bilateral	8	0	nr	1.42	nc	1.57	8	
Cleft palate without cleft lip	67	0	nr	11.88	nc	0.95	17	
Cleft lip with or without cleft palate	58	2	nr	10.64	nc	1.15	17	
Oesophageal atresia / stenosis with or without fistula	19	1	nr	3.55	nc	1.03	9	
Small intestine atresia / stenosis	5	0	nr	0.89	nc	0.80	8	
Anorectal atresia / stenosis	24	0	nr	4.26	nc	0.92	9	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias (any type)	71	0	nr	12.59	nc	0.84	8	
Epispadias	3	0	nr	0.53	nc	1.99	8	
Indeterminate sex	6	1	nr	1.24	nc	0.71	2	
Renal agenesis	3	0	nr	0.53	nc	0.43	17	
Cystic kidney	27	0	nr	4.79	nc	1.04	8	
Bladder exstrophy	2	0	nr	0.35	nc	0.75	8	
Polydactyly, preaxial	21	1	nr	3.90	nc	0.93	8	
Total Limb reduction defects (incl. unspecified)	22	3	nr	4.43	nc	0.81	12	
Transverse	14	1	nr	2.66	nc	0.75	8	
Preaxial	6	2	nr	1.42	nc	1.05	8	
Postaxial	1	0	nr	0.18	nc	0.62	8	
Intercalary	0	0	nr	0.00	nc	0.00	8	
Mixed	0	0	nr	0.00	nc	0.00	8	
Diaphragmatic hernia	9	2	nr	1.95	nc	0.95	11	
Total Abdominal wall defects (incl. unspecified)	18	2	nr	3.55	nc	1.05	11	
Omphalocele	6	1	nr	1.24	nc	0.67	12	
Gastroschisis	12	1	nr	2.31	nc	1.88	12	
Prune belly sequence	1	0	nr	0.18	nc	1.08	8	
Trisomy 13	5	1	nr	1.06	nc	0.83	8	
Trisomy 18	8	3	nr	1.95	nc	0.69	8	
Down syndrome, all ages (incl. age unknown)	75	5	nr	14.19	nc	1.27	15	
<20	0	0	nr	0.00	nc	0.00	10	
20-24	4	0	nr	4.18	nc	0.63	10	
25-29	17	1	nr	10.44	nc	1.34	10	
30-34	21	1	nr	12.86	nc	1.15	8	
35-39	20	3	nr	26.06	nc	1.27	10	
40-44	12	0	nr	66.08	nc	1.17	9	
45+	1	0	nr	102.04	nc	0.40	10	

nr = not reported
nc = not calculable

Finland, time trend analysis 1974-2001

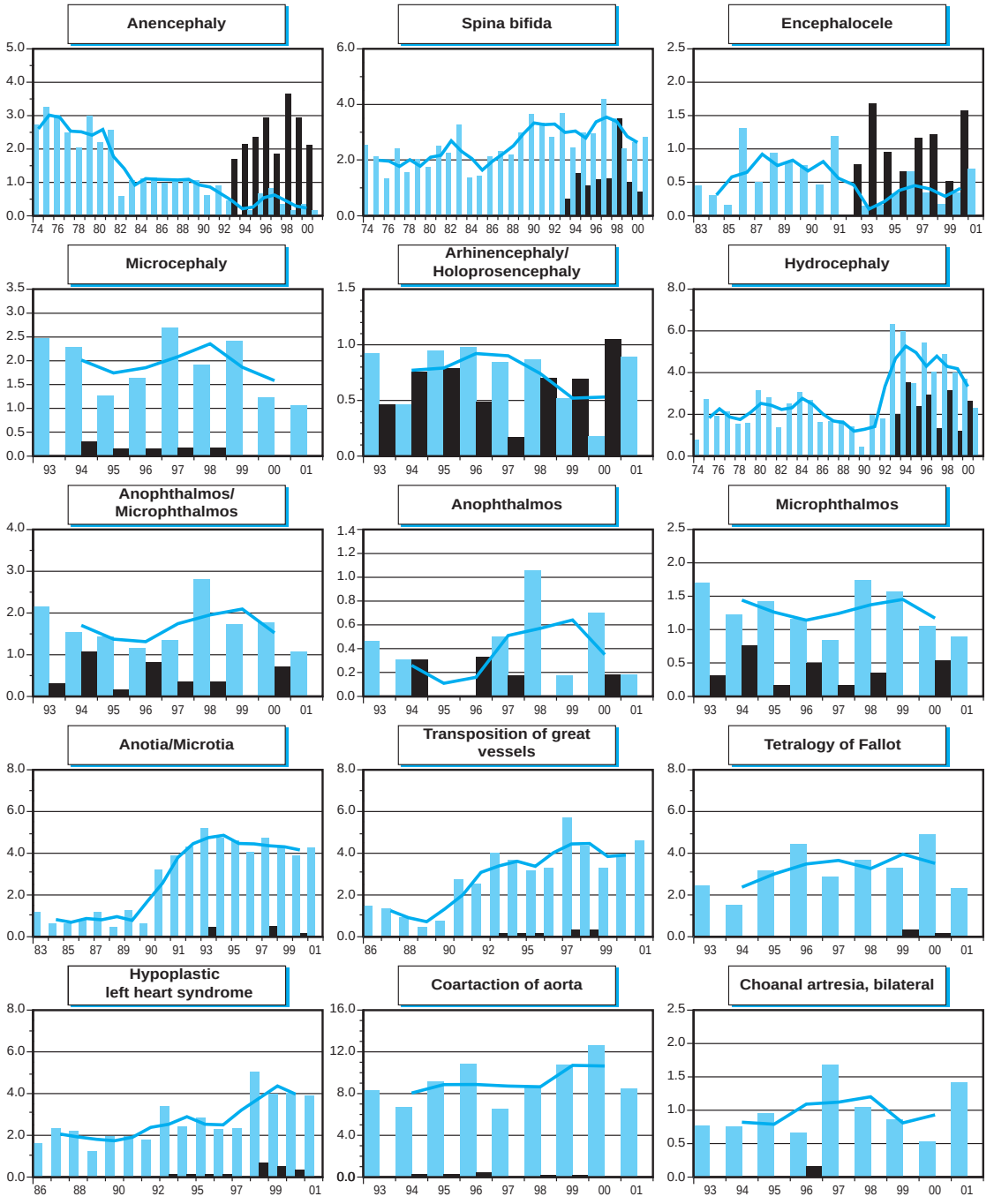
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	453,573	325,631	314,150	326,669	292,629	56,397	
Anencephaly	2.62	1.50	1.08	0.43	0.48	0.18	▼
Spina bifida	1.96	2.18	2.67	3.06	3.14	2.84	▲
Encephalocele		0.31*	0.86	0.40	0.38	0.71	
Microcephaly				2.01*	1.98	1.06	
Arhinencephaly / Holoprosencephaly				0.77*	0.68	0.89	
Hydrocephaly	1.98	2.49	1.37	3.89	4.41	2.31	▲
Total Anophthalmos / Microphthalmos (incl. unspecified)				1.70*	1.74	1.06	
Anophthalmos				0.26*	0.48	0.18	
Microphthalmos				1.44*	1.26	0.89	
Total Anotia / Microtia (incl. unspecified)		0.82*	0.86	4.26	4.31	4.26	▲
Transposition of great vessels			0.99	3.21	4.10	4.61	▲
Tetralogy of Fallot				2.37*	3.83	2.31	
Hypoplastic left heart syndrome			1.88	2.48	3.52	3.90	▲
Coarctation of aorta				8.04*	9.88	8.51	▲
Choanal atresia, bilateral				0.82*	0.96	1.42	
Cleft palate without cleft lip	8.58	10.81	11.52	13.35	12.88	11.88	▲
Cleft lip with or without cleft palate	7.87	8.08	8.40	9.89	9.57	10.64	▲
Oesophageal atresia / stenosis with or without fistula	1.04	2.09	1.31	2.85	3.72	3.55	▲
Small intestine atresia / stenosis				1.19*	1.06	0.89	
Anorectal atresia / stenosis	1.21	1.35	1.78	4.07	4.99	4.26	▲
Hypospadias				15.37*	14.83	12.59	
Epispadias				0.21*	0.31	0.53	
Indeterminate sex				0.41*	1.06	1.24	▲
Renal agenesis		1.32*	1.24	1.53	0.89	0.53	▼
Cystic kidney				4.28*	4.82	4.79	
Bladder exstrophy				0.46*	0.48	0.35	
Polydactyly, preaxial				4.12*	4.20	3.90	
Total Limb reduction defects (incl. unspecified)	4.26	4.21	3.88	5.88	5.78	4.43	▲
Transverse				3.87*	3.31	2.66	▼
Preaxial				1.34*	1.37	1.42	
Postaxial				0.15*	0.38	0.18	
Intercalary				0.31*	0.27	0.00	
Mixed				0.31*	0.27	0.00	
Diaphragmatic hernia		0.87*	0.54	2.05	2.29	1.95	▲
Total Abdominal wall defects (incl. unspecified)		2.26*	1.72	3.64	3.49	3.55	▲
Omphalocele	1.31	1.14	1.05	2.27	1.85	1.24	▲
Gastroschisis		0.78*	0.41	1.26	1.54	2.31	▲
Prune belly sequence				0.15*	0.17	0.18	
Trisomy 13				1.55*	1.09	1.06	
Trisomy 18				2.84*	2.84	1.95	
Down syndrome, all ages (incl. age unknown)	6.39	8.84	8.69	13.99	10.73	14.19	▲
<20				11.75	2.59	0.00	
20-24				6.68	6.65	4.18	
25-29				8.82	6.51	10.44	
30-34				14.66	10.00	12.86	▼
35-39				23.02	18.12	26.06	
40-44				76.32	50.08	66.08	
45+				361.45	165.63	102.04	▼

* = data incl. less than five years

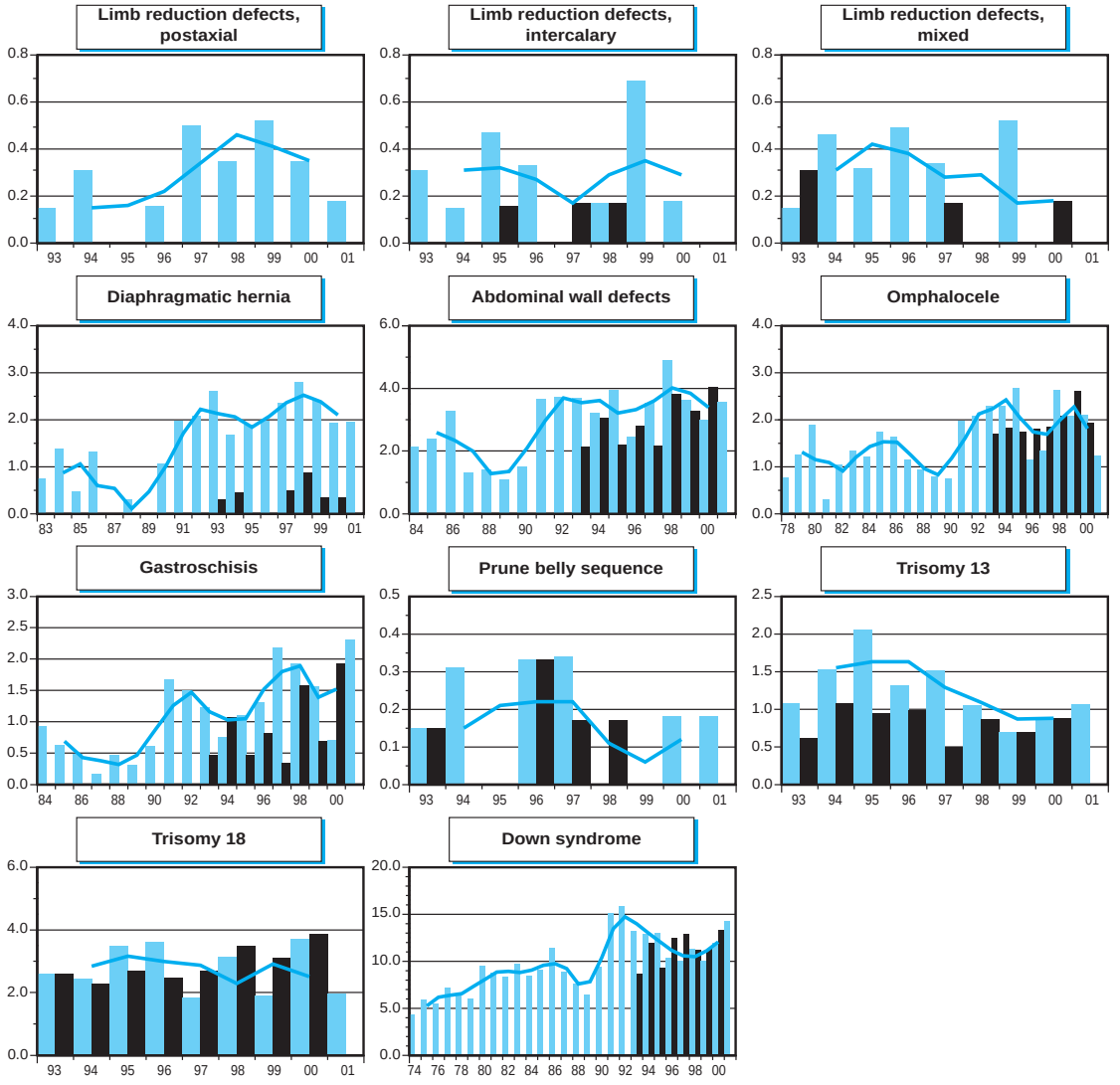
Finland

Time trends 1974-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

France: Central-East

Central-East France Register of Congenital Malformations.

History:
The registry began in 1973 within the Rhone-Alps area -the Auvergne region was added in 1983, the Jura area in 1985, the Côte d'Or & Nièvre in 1989 and Saône-et-Loire in 1990. The Programme was a founding member of the ICBDMS and is a full member. In 1998 the registry was split up and the Auvergne region, became financially independent, under the responsibility of Christine Francannet. The collaboration between Auvergne and the rest of the FCE-registry is maintained and common results are published.

Size and coverage:
The registry covers all births in the area approximately 90,000 births annually, which represents about 13% of all births in France. Stillbirths of 22 weeks or more gestation are included.

Legislation and funding:
Reporting is voluntary. The system is run by a privately funded research organisation. It is now officially recognised by the French Ministry of Health and partially supported by an annual grant from the National Committee of Registries.

Sources of ascertainment:
Reports are received from delivery units, pediatric and child surgery clinics, pathology departments, and cytogenetic laboratories. Infants up to the age of one are registered, as well as fetuses delivered after medical abortion.

Exposure information:
Information on maternal and paternal occupation, drug use, diseases, etc. is collected by interviews of the mothers of the malformed infants. No controls are interviewed.

Background information:
Some background information is available from the general population statistics.

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France: Central East, 2001

Live births (L)	107,195
Stillbirths (S)	475
Total births	107,670
Number of terminations of pregnancy (ToP) for birth defects	558

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	1	0	24	0.09	2.31	1.05	11	
Spina bifida	6	1	32	0.65	3.60	1.37	2	
Encephalocele	1	0	16	0.09	1.57	0.29	17	
Microcephaly	16	1	11	1.58	2.59	1.34	8	
Arhinencephaly / Holoprosencephaly	0	0	9	0.00	0.83	0.00	23	
Hydrocephaly	27	0	36	2.51	5.82	0.99	23	
Total Anophthalmos / Microphthalmos (incl. unspecified)	7	0	4	0.65	1.02	0.58	23	
Anophthalmos	0	0	2	0.00	0.18	0.00	23	
Microphthalmos	7	0	2	0.65	0.83	0.67	23	
Total Anotia / Microtia (incl. unspecified)	6	0	2	0.56	0.74	0.85	23	
Anotia	5	0	1	0.46	0.55	1.28	23	
Microtia	1	0	1	0.09	0.18	0.32	23	
Transposition of great vessels	30	2	5	2.97	3.42	0.96	23	
Tetralogy of Fallot	20	0	4	1.86	2.22	0.88	23	
Hypoplastic left heart syndrome	7	0	19	0.65	2.40	0.36	23	▼
Coarctation of aorta	16	0	3	1.49	1.76	0.60	23	
Choanal atresia, bilateral	6	0	3	0.56	0.83	0.76	23	
Cleft palate without cleft lip	56	1	8	5.29	6.01	0.98	19	
Cleft lip with or without cleft palate	66	1	11	6.22	7.21	0.93	23	
Oesophageal atresia / stenosis with or without fistula	24	2	4	2.41	2.77	0.82	23	
Small intestine atresia / stenosis	24	0	4	2.23	2.59	1.07	16	
Anorectal atresia / stenosis	29	2	9	2.88	3.70	0.96	23	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	110	0	3	10.22	10.44	0.86	6	
Epispadias	1	0	2	0.09	0.28	0.46	23	
Indeterminate sex	1	0	1	0.09	0.18	0.20	11	
Renal agenesis	2	0	10	0.19	1.11	0.52	13	
Cystic kidney	20	0	19	1.86	3.60	0.64	14	
Bladder exstrophy	2	0	4	0.19	0.55	0.68	23	
Polydactyly, preaxial	15	0	2	1.39	1.57	0.76	15	
Total Limb reduction defects (incl. unspecified)	28	0	18	2.60	4.25	0.63	23	▼
Transverse	16	0	5	1.49	1.94	0.65	23	
Preaxial	4	0	9	0.37	1.20	0.58	23	
Postaxial	3	0	0	0.28	0.28	0.80	23	
Intercalary	3	0	1	0.28	0.37	0.64	23	
Mixed	0	0	2	0.00	0.18	0.00	18	
Diaphragmatic hernia	20	0	5	1.86	2.31	0.76	23	
Total Abdominal wall defects (incl. unspecified)	22	1	18	2.14	3.79	1.01	22	
Omphalocele	12	0	17	1.11	2.68	0.96	23	
Gastroschisis	10	1	1	1.02	1.11	1.06	22	
Prune belly sequence	0	0	1	0.00	0.09	0.00	23	
Trisomy 13	1	0	19	0.09	1.85	0.14	23	
Trisomy 18	2	2	48	0.37	4.80	0.27	23	▼
Down syndrome, all ages (incl. age unknown)	63	0	183	5.85	22.73	1.00	3	
<20	0	0	1	0.00	5.87	0.00	23	
20-24	4	0	7	2.87	7.90	0.55	17	
25-29	7	0	21	1.88	7.50	0.57	5	
30-34	11	0	36	3.05	13.04	0.82	3	
35-39	9	0	72	5.81	52.06	0.54	4	
40-44	10	0	40	31.98	157.88	1.04	9	
45+	1	0	0	76.92	76.92	0.73	23	

nr= not reported
nc= not calculable

France: Central East, time trend analysis 1978-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	215,606	416,195	480,672	512,163	519,052	107,670	
Anencephaly	0.70	1.03	0.37	0.12	0.04	0.09	▼
Spina bifida	4.31	3.53	2.14	2.17	1.00	0.65	▼
Encephalocele	0.65	0.65	0.42	0.41	0.13	0.09	▼
Microcephaly	1.30	2.23	2.35	1.64	1.00	1.58	▼
Arhinencephaly / Holoprosencephaly	0.42	0.38	0.69	1.11	0.31	0.00	
Hydrocephaly	1.90	2.84	3.02	2.54	2.10	2.51	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	1.44	0.99	1.50	1.00	0.91	0.65	
Anophthalmos	0.32	0.10	0.21	0.14	0.10	0.00	
Microphthalmos	1.11	0.89	1.29	0.86	0.81	0.65	
Total Anotia / Microtia (incl. unspecified)	0.32	0.62	0.71	0.72	0.71	0.56	
Anotia	0.19	0.36	0.42	0.37	0.39	0.46	
Microtia	0.14	0.26	0.29	0.35	0.33	0.09	
Transposition of great vessels	3.01	2.98	3.89	2.87	2.68	2.97	▼
Tetralogy of Fallot	1.76	2.40	2.35	2.01	1.85	1.86	
Hypoplastic left heart syndrome	1.16	2.26	2.33	1.48	1.58	0.65	▼
Coarctation of aorta	1.90	2.81	2.95	2.34	2.14	1.49	
Choanal atresia, bilateral	0.56	0.62	0.96	0.51	0.92	0.56	
Cleft palate without cleft lip	4.17	5.00	4.66	6.03	5.53	5.29	
Cleft lip with or without cleft palate	6.86	6.42	6.20	7.26	6.82	6.22	▼
Oesophageal atresia / stenosis with or without fistula	2.88	3.65	2.48	3.07	2.74	2.41	▼
Small intestine atresia / stenosis	1.62	1.44	1.85	1.87	2.41	2.23	
Anorectal atresia / stenosis	2.09	2.84	3.29	2.97	3.24	2.88	
Hypospadias	6.40	6.05	9.99	9.41	12.35	10.22	▲
Epispadias	0.19	0.19	0.29	0.12	0.21	0.09	
Indeterminate sex	0.60	0.74	0.81	0.51	0.37	0.09	▼
Renal agenesis	0.42	0.79	0.62	0.51	0.17	0.19	▼
Cystic kidney	0.28	1.54	2.50	2.73	3.22	1.86	▲
Bladder exstrophy	0.23	0.17	0.33	0.33	0.27	0.19	
Polydactyly, preaxial	0.70	0.82	1.46	2.07	1.93	1.39	▲
Total Limb reduction defects (incl. unspecified)	4.64	4.16	4.33	3.96	3.93	2.60	▼
Transverse	2.41	2.04	2.58	2.23	2.25	1.49	
Preaxial	0.65	0.70	0.64	0.57	0.67	0.37	
Postaxial	0.37	0.24	0.48	0.33	0.33	0.28	
Intercalary	0.42	0.60	0.27	0.55	0.35	0.28	
Mixed	0.60	0.50	0.33	0.29	0.25	0.00	▼
Diaphragmatic hernia	1.76	2.96	2.33	2.62	2.25	1.86	▼
Total Abdominal wall defects (incl. unspecified)	1.48	1.95	2.16	2.15	2.35	2.14	▲
Omphalocele	1.07	1.11	1.25	0.98	1.33	1.11	
Gastroschisis	0.42	0.84	0.92	1.17	1.02	1.02	▲
Prune belly sequence	0.28	0.14	0.40	0.33	0.15	0.00	
Trisomy 13	0.28	0.58	1.00	0.88	0.35	0.09	▼
Trisomy 18	0.93	0.99	1.98	2.07	0.56	0.37	▼
Down syndrome, all ages (incl. age unknown)	11.87	11.05	10.96	10.15	7.19	5.85	▼
<20	8.95	3.24	5.69	6.69	10.59	0.00	
20-24	7.09	6.69	5.38	5.72	3.87	2.87	▼
25-29	5.63	5.36	7.13	5.09	3.30	1.88	▼
30-34	12.92	10.12	9.39	7.69	5.26	3.05	▼
35-39	27.15	30.92	21.90	18.23	11.73	5.81	▼
40-44	115.63	59.62	54.30	37.89	28.24	31.98	▼
45+	123.46	112.36	110.38	130.72	64.41	76.92	

* = data incl. less than seven years

France: Central East

Time trends 1978-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

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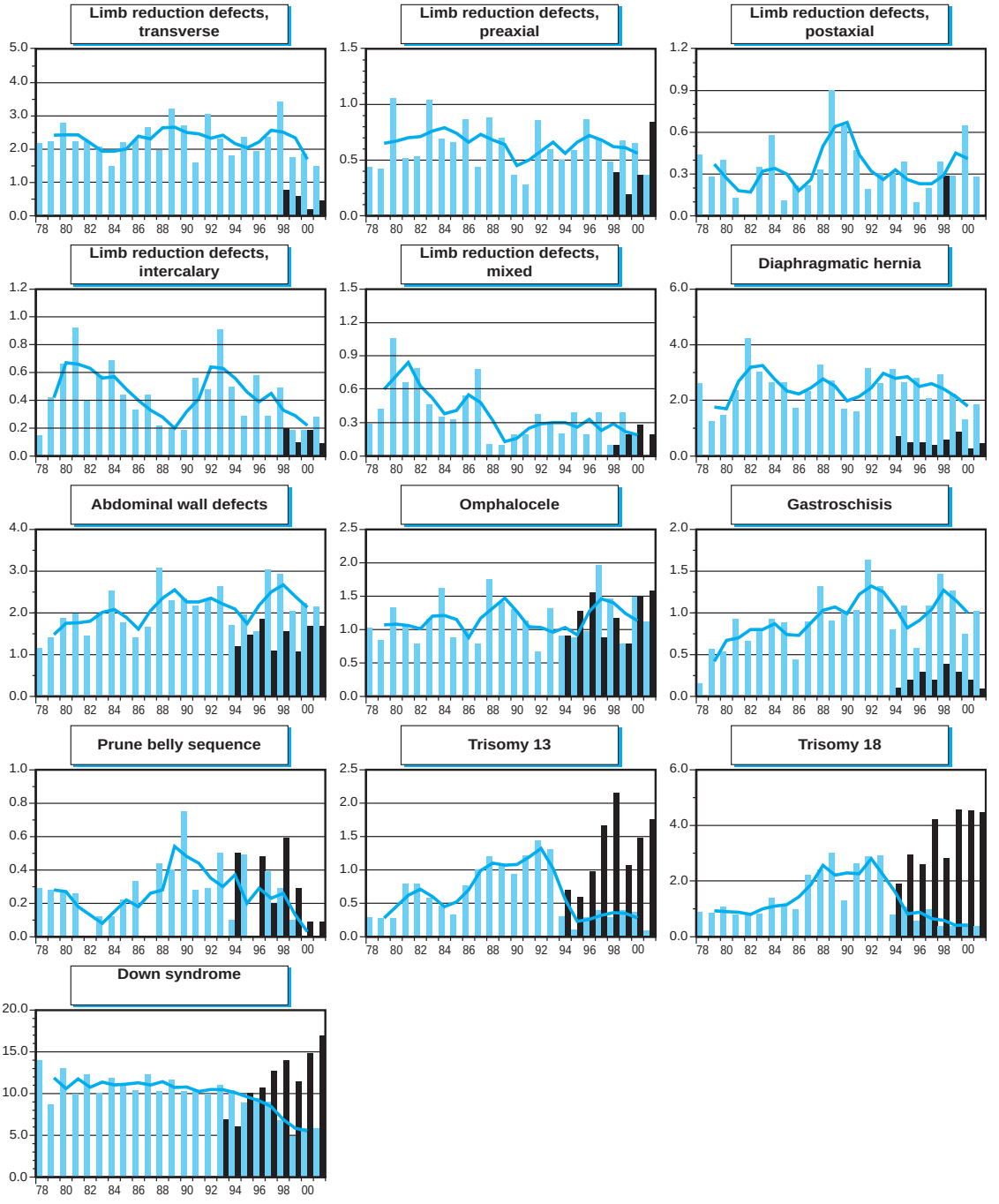

Note: L+S rates, ToP rates — 3-year moving average trend

France: Paris

History:
The Programme was initiated in 1975, but the registry really started in 1981. It became an associate member of the ICBDMS in 1982. It is also a member of EUROCAT.

Size and coverage:
The registry covers 38.500 annual births (about 5% of all births in France), those are all births (live and still births of 22 weeks or more) and terminations of pregnancy in the population of Greater Paris delivering in Paris maternity units. The estimation of the coverage of the registry is around 95%.

Legislation and funding:
Reporting is voluntary. The registry is part of a research unit of INSERM (National Institute of Health and Medical Research). The registry has been officially recognized by the French National Comity of Registries, and is renewed for four years (2001-2004) and supported by an annual grant from INSERM and Institut de la Veille Sanitaire (Institute for Health Surveillance).

Sources of ascertainment:
Reports are actively collected from delivery units, pediatric departments, cytogenetic laboratories, and pathology departments. Terminations of pregnancy are included. Case information is also received from the health certificates of the first week.

Exposure information:
Information on maternal drug use, maternal and paternal diseases and occupations, outcome of previous pregnancies, is available for the malformed cases.

Prenatal diagnosis information: Data about techniques of prenatal screening (ultrasound, serum markers) and prenatal diagnosis are systematically collected.

Background information:
Background data on births are available from the National Institute of Statistics (INSEE)

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France: Paris, 2001

Live births (L)	38,300*
Stillbirths (S)	200*
Total births	38,500*
Number of terminations of pregnancy (ToP) for birth defects	489

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	16	0.00	4.10	0.00	13	
Spina bifida	7	0	9	1.82	4.10	1.89	14	
Encephalocele	0	0	9	0.00	2.31	0.00	20	
Microcephaly	4	0	6	1.04	2.56	0.63	14	
Arhinencephaly / Holoprosencephaly	0	0	8	0.00	2.05	0.00	20	
Hydrocephaly	20	0	30	5.19	12.82	1.11	8	
Total Anophthalmos / Microphthalmos (incl. unspecified)	8	1	4	2.34	3.33	2.18	20	
Anophthalmos	1	0	0	0.26	0.26	1.12	20	
Microphthalmos	7	1	4	2.08	3.08	2.40	20	
Total Anotia / Microtia (incl. unspecified)	9	0	3	2.34	3.08	2.65	20	
Anotia	5	0	1	1.30	1.54	2.91	20	
Microtia	4	0	2	1.04	1.54	2.40	20	
Transposition of great vessels	22	0	2	5.71	6.16	1.42	9	
Tetralogy of Fallot	10	1	3	2.86	3.59	1.05	12	
Hypoplastic left heart syndrome	2	1	11	0.78	3.59	0.68	18	
Coarctation of aorta	18	0	0	4.68	4.62	1.59	13	
Choanal atresia, bilateral	2	0	1	0.52	0.77	0.98	20	
Cleft palate without cleft lip	22	0	6	5.71	7.18	1.33	19	
Cleft lip with or without cleft palate	19	1	9	5.19	7.44	0.79	20	
Oesophageal atresia / stenosis with or without fistula	15	0	1	3.90	4.10	1.37	20	
Small intestine atresia / stenosis	14	1	0	3.90	3.85	2.81	17	▲
Anorectal atresia / stenosis	9	1	10	2.60	5.13	1.09	17	
Undescended testis (36 weeks of gestation or later)	16	0	0	4.16	4.10	0.61	6	
Hypospadias	51	0	5	13.25	14.36	1.14	20	
Epispadias	1	0	0	0.26	0.26	0.64	20	
Indeterminate sex	6	0	2	1.56	2.05	1.40	19	
Renal agenesis	1	0	14	0.26	3.85	0.66	13	
Cystic kidney	17	0	20	4.42	9.49	0.74	5	
Bladder exstrophy	0	0	1	0.00	0.26	0.00	20	
Polydactyly, preaxial	8	0	1	2.08	2.31	1.14	13	
Total Limb reduction defects (incl. unspecified)	15	1	18	4.16	8.72	1.22	6	
Transverse	10	0	7	2.60	4.36	1.20	6	
Preaxial	3	0	4	0.78	1.80	1.60	6	
Postaxial	0	0	2	0.00	0.51	0.00	6	
Intercalary	1	0	1	0.26	0.51	0.74	6	
Mixed	0	1	4	0.26	1.28	1.96	6	
Diaphragmatic hernia	10	0	10	2.60	5.13	0.80	18	
Total Abdominal wall defects (incl. unspecified)	29	1	23	7.79	13.59	1.76	12	▲
Omphalocele	11	0	18	2.86	7.44	1.53	20	
Gastroschisis	18	1	0	4.94	4.87	2.16	12	▲
Prune belly sequence	0	0	0	0.00	0.00	0.00	20	
Trisomy 13	2	1	13	0.78	4.10	1.69	20	
Trisomy 18	4	1	37	1.30	10.77	1.24	20	
Down syndrome, all ages (incl. age unknown)	28	2	119	7.79	38.22	0.91	9	
<20	0	1	0	28.57	28.57	2.70	20	
20-24	1	0	0	3.28	3.28	0.48	20	
25-29	5	0	9	4.52	12.66	0.76	20	
30-34	8	1	25	6.41	24.16	0.99	8	
35-39	2	0	44	2.56	58.64	0.20	11	▼
40-44	10	0	41	47.62	238.21	1.61	20	
45+	2	0	0	200.00	200.00	1.40	20	

* = estimated

France: Paris, time trend analysis 1981-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births		181,879	183,304	182,631	189,315	38,500	
Anencephaly		1.15	0.71	0.33	0.16	0.00	▼
Spina bifida		3.08	1.85	0.71	0.85	1.82	▼
Encephalocele		0.66	0.76	0.49	0.58	0.00	
Microcephaly		2.36	2.13	1.81	1.21	1.04	▼
Arhinencephaly / Holoprosencephaly		0.27	0.44	0.16	0.48	0.00	
Hydrocephaly		3.63	3.27	3.50	5.23	5.19	▲
Total Anophthalmos / Microphthalmos (incl. unspecified)		1.10	1.04	1.42	0.74	2.34	
Anophthalmos		0.27	0.16	0.33	0.16	0.26	
Microphthalmos		0.82	0.93	1.15	0.58	2.08	
Total Anotia / Microtia (incl. unspecified)		0.44	1.15	0.99	0.95	2.34	▲
Anotia		0.16	0.49	0.55	0.58	1.30	▲
Microtia		0.27	0.65	0.44	0.37	1.04	
Transposition of great vessels		2.42	2.29	3.34	4.33	5.71	▲
Tetralogy of Fallot		0.93	1.85	1.92	3.38	2.86	▲
Hypoplastic left heart syndrome		1.59	1.53	0.93	0.90	0.78	▼
Coarctation of aorta		1.26	2.24	2.52	3.54	4.68	▲
Choanal atresia, bilateral		0.66	0.65	0.33	0.48	0.52	
Cleft palate without cleft lip		3.35	3.55	4.82	4.97	5.71	▲
Cleft lip with or without cleft palate		6.49	5.84	6.90	6.92	5.19	
Oesophageal atresia / stenosis with or without fistula		2.47	2.95	2.85	3.12	3.90	
Small intestine atresia / stenosis		0.33	1.25	1.75	1.48	3.90	▲
Anorectal atresia / stenosis		3.35	1.91	3.18	1.58	2.60	
Undescended testis (36 weeks of gestation or later)		8.80	13.86	10.68	6.07	4.16	▼
Hypospadias		9.73	12.55	14.02	10.25	13.25	
Epispadias		0.16	0.71	0.38	0.37	0.26	
Indeterminate sex		1.43	1.25	1.37	0.58	1.56	
Renal agenesis		0.99	1.04	0.33	0.32	0.26	▼
Cystic kidney		1.65	3.27	4.33	5.97	4.42	▲
Bladder exstrophy		0.33	0.16	0.44	0.32	0.00	
Polydactyly, preaxial		0.66	0.98	1.81	2.17	2.08	▲
Total Limb reduction defects (incl. unspecified)				3.80*	3.33	4.16	
Transverse				2.44*	2.11	2.60	
Preaxial				0.54*	0.48	0.78	
Postaxial				0.54*	0.21	0.00	
Intercalary				0.27*	0.37	0.26	
Mixed				0.00*	0.16	0.26	
Diaphragmatic hernia		2.31	2.78	3.18	3.96	2.60	▲
Total Abdominal wall defects (incl. unspecified)		2.69	3.16	4.16	4.86	7.79	▲
Omphalocele		1.59	1.85	2.03	2.01	2.86	
Gastroschisis		0.60	1.04	2.03	2.64	4.94	▲
Prune belly sequence		0.16	0.05	0.00	0.05	0.00	
Trisomy 13		0.44	0.65	0.38	0.37	0.78	
Trisomy 18		1.48	1.15	0.55	1.00	1.30	
Down syndrome, all ages (incl. age unknown)		11.66	12.17	9.69	8.24	7.79	▼
<20		10.57	13.59	5.19	11.44	28.57	
20-24		6.92	6.17	7.48	7.36	3.28	
25-29		7.27	5.60	6.24	4.43	4.52	
30-34		11.46	12.50	8.94	6.25	6.41	▼
35-39		24.28	28.02	13.95	10.83	2.56	▼
40-44		50.30	24.12	27.19	27.67	47.62	
45+		183.49	181.16	77.32	155.21	200.00	

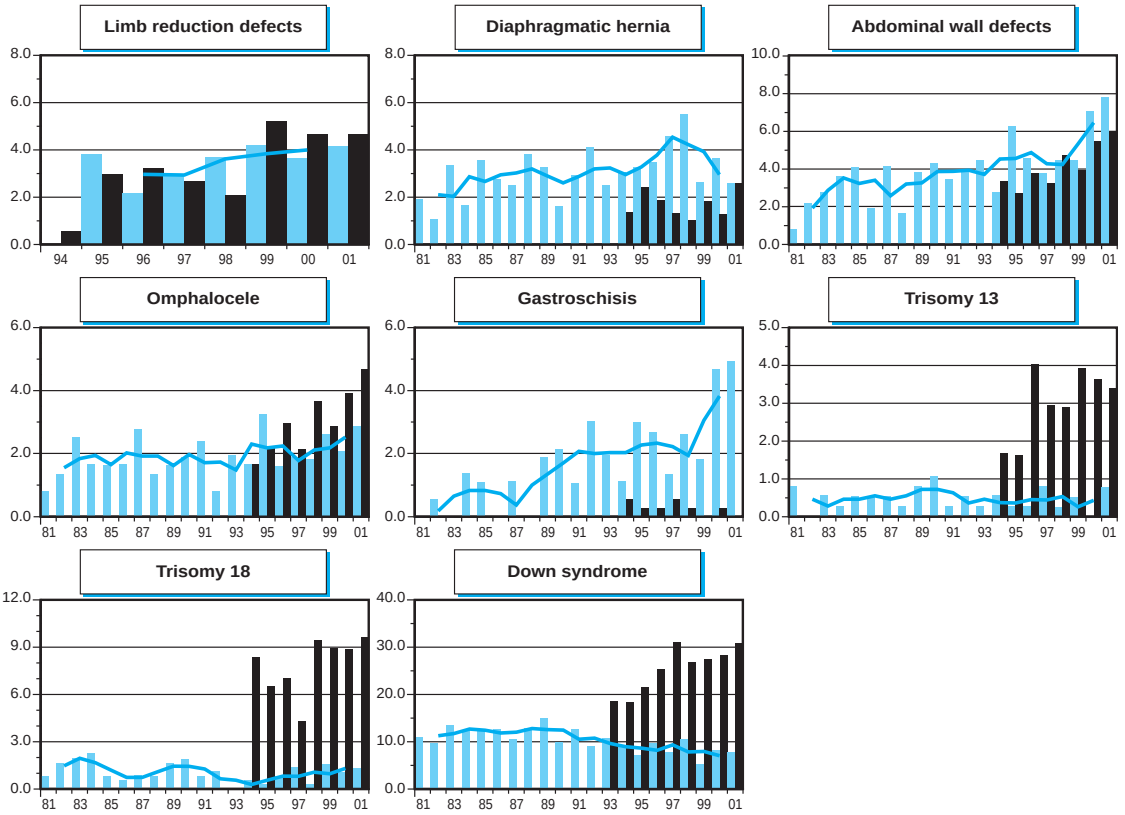
* = data incl. less than five years

France: Paris

Time trends 1981-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

France: Strasbourg

Strasbourg Prospective Study of Congenital Malformations.

History:
The registry was started in 1979. The Programme became an associate member of the ICBDMS in 1982.

Size and coverage:
All births in an area including those around Strasbourg and the Bas-Rhin are covered -13,000 to 13,500 annually, or 1.8% of all births in France.

Legislation and funding:
The Programme is a research program, recognized by the local health authorities and funded by Social Security, Ministry of Health and INSERM.

Sources of ascertainment:
Reports are obtained from pediatricians examining the newborn infants. A control infant is selected for each malformed one: the next infant of the same sex as the proband born at that hospital.

Exposure information:
Detailed information on various exposures is obtained by interview of the mothers of the malformed infants and their controls. The children are followed to the age of one year.

Background information:
General demographic information is obtained from the National Institute of Statistics. Further information is obtained from Social Security Records and Health Sheets.

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France: Strasbourg, 2001

Live births (L)	13,353
Stillbirths (S)	53
Total births	13,406
Number of terminations of pregnancy (ToP) for birth defects	82

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	1	0	6	0.75	5.19	7.14	7	
Spina bifida	0	0	9	0.00	6.67	0.00	14	
Encephalocele	0	0	1	0.00	0.74	0.00	16	
Microcephaly	0	0	1	0.00	0.74	0.00	6	
Arhinencephaly / Holoprosencephaly	0	0	1	0.00	0.74	0.00	6	
Hydrocephaly	0	0	4	0.00	2.97	0.00	12	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	0	0	1.49	1.48	0.62	18	
Anophthalmos	0	0	0	0.00	0.00	0.00	18	
Microphthalmos	2	0	0	1.49	1.48	0.72	18	
Total Anotia / Microtia (incl. unspecified)	2	0	1	1.49	2.22	0.90	18	
Anotia	0	0	0	0.00	0.00	0.00	18	
Microtia	2	0	1	1.49	2.22	1.06	18	
Transposition of great vessels	10	1	2	8.21	9.64	1.92	18	
Tetralogy of Fallot	5	0	1	3.73	4.45	1.12	18	
Hypoplastic left heart syndrome	0	0	4	0.00	2.97	0.00	18	
Coarctation of aorta	3	0	0	2.24	2.22	0.48	18	
Choanal atresia, bilateral	0	0	0	0.00	0.00	0.00	6	
Cleft palate without cleft lip	11	0	1	8.21	8.90	1.64	5	
Cleft lip with or without cleft palate	13	0	2	9.70	11.12	0.92	18	
Oesophageal atresia / stenosis with or without fistula	5	0	1	3.73	4.45	1.45	18	
Small intestine atresia / stenosis	0	0	0	0.00	0.00	0.00	6	
Anorectal atresia / stenosis	3	0	5	2.24	5.93	0.46	18	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	36	0	0	26.85	26.69	1.18	18	
Epispadias	0	0	0	0.00	0.00	0.00	5	
Indeterminate sex	0	0	2	0.00	1.48	0.00	6	
Renal agenesis	7	1	7	5.97	11.12	0.93	2	
Cystic kidney	9	0	2	6.71	8.16	1.03	6	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	6	
Polydactyly, preaxial	3	0	1	2.24	2.97	0.61	6	
Total Limb reduction defects (incl. unspecified)	8	0	2	5.97	7.41	0.85	18	
Transverse	6	0	0	4.48	4.45	1.05	18	
Preaxial	0	0	0	0.00	0.00	0.00	18	
Postaxial	1	0	1	0.75	1.48	2.22	18	
Intercalary	0	0	0	0.00	0.00	0.00	16	
Mixed	1	0	1	0.75	1.48	1.64	18	
Diaphragmatic hernia	3	0	0	2.24	2.22	0.54	18	
Total Abdominal wall defects (incl. unspecified)	3	0	3	2.24	4.45	0.44	18	
Omphalocele	3	0	2	2.24	3.71	0.76	18	
Gastroschisis	0	0	1	0.00	0.74	0.00	18	
Prune belly sequence	0	0	3	0.00	2.22	nc		
Trisomy 13	0	0	2	0.00	1.48	0.00	6	
Trisomy 18	0	0	10	0.00	7.41	0.00	6	
Down syndrome, all ages (incl. age unknown)	9	1	15	7.46	18.53	0.50	18	
<20	0	0	0	0.00	0.00	0.00	18	
20-24	0	1	3	4.40	17.57	0.56	18	
25-29	3	0	1	6.39	8.52	0.83	18	
30-34	3	0	1	7.51	10.01	0.54	18	
35-39	2	0	7	12.22	54.74	2.99	3	
40-44	1	0	3	31.85	126.18	1.41	3	
45+	0	0	0	0.00	0.00	0.00	18	

nr = not reported
nc = not calculable

France: Strasbourg, time trend analysis 1983-2001

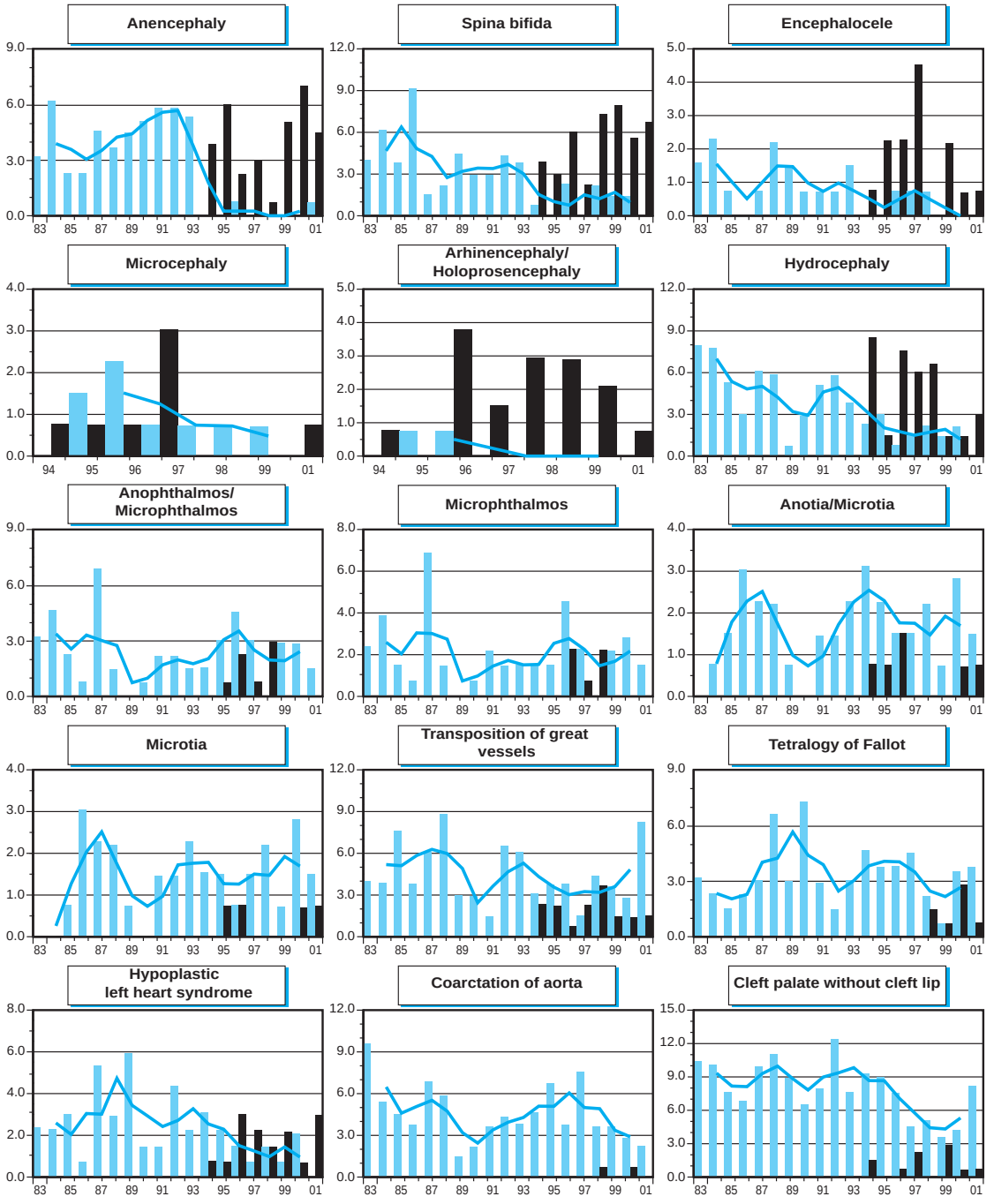
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85*	1986-90	1991-95	1996-00	2001	Trend
Births		38,613	67,098	66,826	68,143	13,406	
Anencephaly		3.88	4.02	3.44	0.15	0.75	▼
Spina bifida		4.66	4.02	2.39	1.47	0.00	▼
Encephalocele		1.55	1.04	0.60	0.44	0.00	▼
Microcephaly				1.50*	1.03	0.00	
Arhinencephaly / Holoprosencephaly				0.75*	0.15	0.00	
Hydrocephaly		6.99	3.73	4.04	1.61	0.00	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)		3.37	1.94	2.09	2.64	1.49	
Anophthalmos		0.78	0.00	0.45	0.29	0.00	
Microphthalmos		2.59	1.94	1.65	2.35	1.49	
Total Anotia / Microtia (incl. unspecified)		0.78	1.64	2.09	1.76	1.49	
Anotia		0.52	0.00	0.45	0.15	0.00	
Microtia		0.26	1.64	1.65	1.61	1.49	
Transposition of great vessels		5.18	4.92	4.19	3.23	8.21	
Tetralogy of Fallot		2.33	4.47	3.14	2.94	3.73	
Hypoplastic left heart syndrome		2.59	3.28	2.69	1.32	0.00	▼
Coarctation of aorta		6.47	4.02	4.64	4.26	2.24	
Choanal atresia, bilateral				0.00*	0.15	0.00	
Cleft palate without cleft lip		9.32	8.64	9.28	4.99	8.21	▼
Cleft lip with or without cleft palate		8.55	9.69	12.27	10.71	9.70	
Oesophageal atresia / stenosis with or without fistula		2.85	2.68	2.24	2.64	3.73	
Small intestine atresia / stenosis				3.00*	1.76	0.00	
Anorectal atresia / stenosis		4.40	5.07	4.79	4.84	2.24	
Undescended testis (36 weeks of gestation or later)					1.52*		nc
Hypospadias		16.32	25.49	26.04	20.40	26.85	
Epispadias					0.29	0.00	
Indeterminate sex				0.00*	0.15	0.00	
Renal agenesis				1.15*	2.79	5.97	▲
Cystic kidney				6.76*	6.46	6.71	
Bladder exstrophy				0.75*	0.29	0.00	
Polydactyly, preaxial				4.51*	3.52	2.24	
Total Limb reduction defects (incl. unspecified)		5.70	7.75	6.58	7.34	5.97	
Transverse		4.14	4.62	3.29	4.99	4.48	
Preaxial		1.55	2.09	1.65	0.73	0.00	
Postaxial		0.00	0.60	0.30	0.29	0.75	
Intercalary		0.00	0.00	0.90	0.59	0.00	
Mixed		0.00	0.45	0.45	0.73	0.75	
Diaphragmatic hernia		3.88	5.07	3.74	3.82	2.24	
Total Abdominal wall defects (incl. unspecified)		3.88	6.41	6.14	3.38	2.24	
Omphalocele		2.07	4.17	3.14	2.05	2.24	
Gastroschisis		1.81	1.94	2.39	1.17	0.00	
Prune belly sequence				0.00*	0.00	0.00	
Trisomy 13				0.00*	0.15	0.00	
Trisomy 18				0.00*	0.73	0.00	
Down syndrome, all ages (incl. age unknown)		10.62	16.99	19.15	11.30	7.46	
<20		5.05	14.69	17.01	5.02	0.00	
20-24		8.19	7.61	11.21	3.57	4.40	
25-29		4.08	8.66	10.30	6.14	6.39	
30-34		12.25	18.05	11.87	13.16	7.51	
35-39		43.17	52.35	71.37	24.83	12.22	▼
40-44		209.79	261.78	157.26	81.36	31.85	▼
45+		0.00	217.39	222.22	0.00	0.00	

* = data incl. less than five years
nc = not calculable

France: Strasbourg

Time trends 1983-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend

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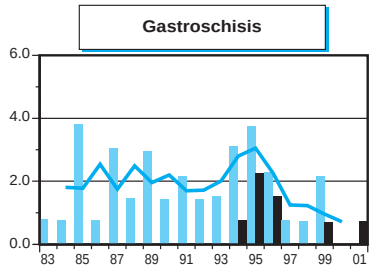

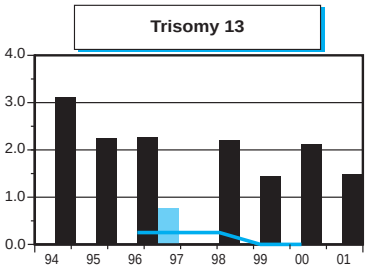

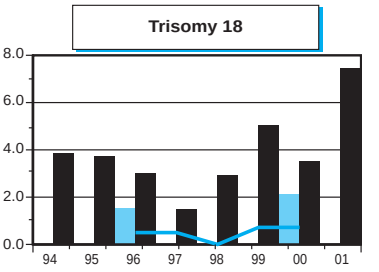

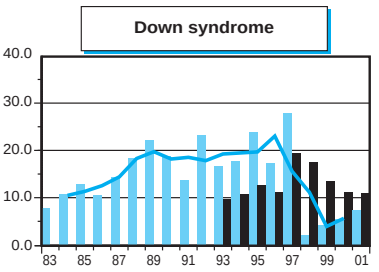

Note: L+S rates, ToP rates 3-year moving average trend

Germany: Saxony-Anhalt
Malformation Monitoring Saxony-Anhalt

History:
Since 1980 in the city of Magdeburg all live- and stillbirths, abortions after the 16th week of gestation (spontaneous and induced abortions according to medical evidence based on prenatal diagnoses of congenital defects), and postnatal anomalies or congenital defects have been recorded up to the first week of life. After the reunification of Germany and the creation of the Federal State of Saxony-Anhalt, the survey of congenital defects included approximately two-thirds of all births with postnatal anomalies and congenital defects in the same federal state. Since 1 January 2000 the survey region includes the entire state of Saxony-Anhalt. Saxony-Anhalt has 2.65 million inhabitants and annual births at a rate of about 18,000 children.
The survey system works as a multicentre and population based study .
The programme became an associate member of the ICBDMS in 2001 and is also a member of EUROCAT since 1992.
Legislation and funding:
1980 to 1989: Ministry of Health of the former German Democratic Republic
1990 to 1992: Academy of Medicine, Magdeburg
1993 to 1995: Ministry of Health, Federal Republic of Germany
since 1995: Ministry of Health and Social Affairs of the Federal State of Saxony-Anhalt.
The Malformation Monitoring is working in order of Ministry of Labour, Women, Health and Social Affairs of the Federal State of Saxony-Anhalt.

Sources of ascertainment:
The co-operation partner are:
- 31 obstetrics departments
- 29 children hospitals
- 11 institutions of prenatal diagnostic
- 6 departments of pathology

Exposure information:
maternal and paternal occupation (in groups); occupation risk; drugs in pregnancy (ATC-code); alcohol, nicotine, drug abuse.

Background:
population based registry (Federal State Saxony-Anhalt); written informed consent of the mother (parents); name and address don't registered; two healthy "controls" per one malformed child; inclusion of terminations of pregnancy, spontaneous abortions after 16th week of gestation, live and stillborn babies; definition of stillbirth: < 500 grams; maximum age to include diagnoses: 1 year, almost 1th week of life; annual reports (in German).

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Website: http://www.med.uni-magdeburg.de/fme/zkh/mz

Germany: Saxony-Anhalt, 2001

Live births (L)	18,073
Stillbirths (S)	75
Total births	18,148
Number of terminations of pregnancy (ToP) for birth defects	74

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	2	0.00	1.10	0.00	21	
Spina bifida	3	0	11	1.65	7.68	0.68	10	
Encephalocele	1	0	4	0.55	2.74	1.12	21	
Microcephaly	10	0	1	5.51	6.04	0.84	9	
Arhinencephaly / Holoprosencephaly	1	0	2	0.55	1.65	1.79	12	
Hydrocephaly	9	0	9	4.96	9.88	1.09	14	
Total Anophthalmos / Microphthalmos (incl. unspecified)	0	0	1	0.00	0.55	0.00	14	
Anophthalmos	0	0	1	0.00	0.55	0.00	14	
Microphthalmos	0	0	0	0.00	0.00	0.00	14	
Total Anotia / Microtia (incl. unspecified)	2	0	1	1.10	1.65	3.57	14	
Anotia	0	0	1	0.00	0.55	0.00	14	
Microtia	2	0	0	1.10	1.10	4.00	13	
Transposition of great vessels	4	0	0	2.20	2.20	0.42	10	
Tetralogy of Fallot	5	0	0	2.76	2.74	1.24	10	
Hypoplastic left heart syndrome	3	0	2	1.65	2.74	0.46	14	
Coarctation of aorta	3	0	0	1.65	1.65	0.81	14	
Choanal atresia, bilateral	0	0	0	0.00	0.00	0.00	14	
Cleft palate without cleft lip	23	0	4	12.67	14.82	2.06	14	▲
Cleft lip with or without cleft palate	24	0	5	13.22	15.91	0.93	14	
Oesophageal atresia / stenosis with or without fistula	5	0	1	2.76	3.29	1.36	14	
Small intestine atresia / stenosis	3	0	0	1.65	1.65	0.90	14	
Anorectal atresia / stenosis	5	0	0	2.76	2.74	1.02	14	
Undescended testis (36 weeks of gestation or later)	10	0	0	5.51	5.49	0.40	14	▼
Hypospadias	12	0	0	6.61	6.59	0.42	14	▼
Epispadias	0	0	0	0.00	0.00	0.00	14	
Indeterminate sex	1	0	0	0.55	0.55	1.12	14	
Renal agenesis	0	0	2	0.00	1.10	0.00	14	
Cystic kidney	7	0	0	3.86	3.84	1.79	14	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	14	
Polydactyly, preaxial	12	0	2	6.61	7.68	2.21	11	
Total Limb reduction defects (incl. unspecified)	10	0	5	5.51	8.23	0.90	14	
Transverse	4	0	0	2.20	2.20	nc		
Preaxial	1	0	0	0.55	0.55	nc		
Postaxial	0	0	0	0.00	0.00	nc		
Intercalary	2	0	5	1.10	3.84	nc		
Mixed	3	0	0	1.65	1.65	nc		
Diaphragmatic hernia	2	0	1	1.10	1.65	0.78	14	
Total Abdominal wall defects (incl. unspecified)	6	1	2	3.86	4.94	0.95	14	
Omphalocele	2	0	1	1.10	1.65	0.74	11	
Gastroschisis	4	1	1	2.76	3.29	1.66	14	
Prune belly sequence	1	0	0	0.55	0.55	1.28	14	
Trisomy 13	0	0	2	0.00	1.10	0.00	21	
Trisomy 18	1	0	5	0.55	3.29	0.87	21	
Down syndrome, all ages (incl. age unknown)	19	1	14	11.02	18.66	1.37	21	
<20	0	0	1	nc	nc	nc		
20-24	4	0	0	nc	nc	nc		
25-29	7	0	0	nc	nc	nc		
30-34	1	1	2	nc	nc	nc		
35-39	5	0	6	nc	nc	nc		
40-44	1	0	2	nc	nc	nc		
45+	0	0	1	nc	nc	nc		

nc= not calculable

Germany: Saxony Anhalt, time trend analysis 1980-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	18,113	87,531	80,602	39,650	59,054	18,148	
Anencephaly	0.55	2.06	0.62	0.50	0.68	0.00	▼
Spina bifida	1.10	5.14	7.94	3.03	2.03	1.65	▼
Encephalocele	0.00	0.57	0.50	0.76	0.34	0.55	
Microcephaly			2.04*	3.53	7.96	5.51	▲
Arhinencephaly / Holoprosencephaly			1.57*	0.00	0.34	0.55	▼
Hydrocephaly			3.29*	5.30	5.42	4.96	
Total Anophthalmos / Microphthalmos (incl. unspecified)			1.25*	1.77	0.34	0.00	▼
Anophthalmos			0.00*	1.01	0.00	0.00	
Microphthalmos			1.25*	0.76	0.34	0.00	▼
Total Anotia / Microtia (incl. unspecified)			0.00*	0.50	0.51	1.10	▲
Anotia			0.00*	0.25	0.00	0.00	
Microtia			0.00*	0.25	0.51	1.10	▲
Transposition of great vessels			2.20*	4.04	6.10	2.20	▲
Tetralogy of Fallot			0.78*	1.26	2.88	2.76	▲
Hypoplastic left heart syndrome			4.55*	2.27	3.56	1.65	
Coarctation of aorta			1.25*	1.77	3.05	1.65	
Choanal atresia, bilateral			0.78*	1.51	1.19	0.00	
Cleft palate without cleft lip			5.33*	5.80	7.28	12.67	▲
Cleft lip with or without cleft palate			13.49*	13.11	15.75	13.22	
Oesophageal atresia / stenosis with or without fistula			2.20*	1.26	2.37	2.76	
Small intestine atresia / stenosis			1.10*	3.28	1.69	1.65	
Anorectal atresia / stenosis			3.14*	3.03	2.03	2.76	
Undescended testis (36 weeks of gestation or later)			11.45*	19.67	12.02	5.51	
Hypospadias			13.02*	20.68	15.41	6.61	
Epispadias			0.31*	0.50	0.51	0.00	
Indeterminate sex			0.47*	0.00	0.85	0.55	
Renal agenesis			0.63*	0.76	1.19	0.00	
Cystic kidney			1.10*	3.78	2.20	3.86	▲
Bladder exstrophy			0.47*	0.25	0.17	0.00	
Polydactyly, preaxial			0.47*	3.03	3.22	6.61	▲
Total Limb reduction defects (incl. unspecified)			5.65*	4.79	7.45	5.51	
Transverse					4.79*	2.20	nc
Preaxial					0.00*	0.55	nc
Postaxial					0.00*	0.00	nc
Intercalary					1.06*	1.10	nc
Mixed					1.60*	1.65	nc
Diaphragmatic hernia			1.88*	0.50	1.52	1.10	
Total Abdominal wall defects (incl. unspecified)			4.86*	3.28	3.73	3.86	
Omphalocele			3.92*	1.26	1.35	1.10	▼
Gastroschisis			0.94*	2.02	2.20	2.76	
Prune belly sequence			0.16*	0.76	0.51	0.55	
Trisomy 13	0.00	0.34	0.50	0.25	0.85	0.00	
Trisomy 18	0.00	0.80	0.74	0.50	0.51	0.55	
Down syndrome, all ages (incl. age unknown)	4.97	8.80	7.57	8.58	8.13	11.02	

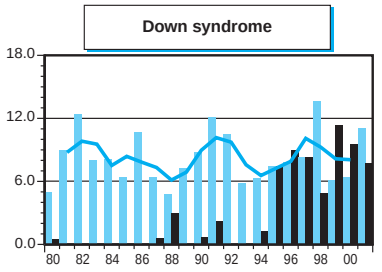
* = data incl. less than seven and five years
nc = not calculable

Germany: Saxony Anhalt

Time trends 1980-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates 3-year moving average trend

Hungary
Hungarian Congenital Abnormality Registry

History:
Centralized registration of congenital abnormalities began in Hungary in 1962, and came under our co-ordination in 1970. Monitoring began in 1973. The Programme was a founding member of the International Clearinghouse and is a full member.

Size and coverage:
The registry covers all births in Hungary, approximately 100,000 annually. Criteria to define stillbirth was changed in 1998. At present, stillbirths of at least 24 weeks gestation or 500 grams are registered. Prenatally diagnosed and terminated fetuses are also registered.

Legislation and funding:
Reporting is compulsory. The registry is run and financed by the governmental National Center for Epidemiology (formerly the National Institute of Public Health).

Sources of ascertainment:
Reports are obtained from delivery units, neonatal and pediatric surgery, pathology, and prenatal diagnostic centers. Abnormalities detected before the age of one are reported. Variations in figures (especially in the1990s) compared with data from previous years may reflect incomplete notification. In most instances, decreases can be noticed in the rates of birth defects.

Exposure information:
Exposure information has been available since 1980, when a case-control system was initiated. Mothers of selected malformed infants and controls are interviewed by community nurses to collect information.

Background information:
General background information on all births is available from central statistics.

Address for further information:
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metneki.oek@antsz.gov.hu

Hungary, 2001

Live births (L)	97,047
Stillbirths (S)	550
Total births	97,597
Number of terminations of pregnancy (ToP) for birth defects	239

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	1	23	0.10	2.45	0.34	9	
Spina bifida	12	1	18	1.33	3.17	0.77	10	
Encephalocele	5	0	5	0.51	1.02	1.88	8	
Microcephaly	4	0	1	0.41	0.51	0.60	15	
Arhinencephaly / Holoprosencephaly	7	0	5	0.72	1.23	3.26	21	
Hydrocephaly	14	1	13	1.54	2.86	1.23	9	
Total Anophthalmos / Microphthalmos (incl. unspecified)	1	0	0	0.10	0.10	0.65	21	
Anophthalmos	0	0	0	0.00	0.00	0.00	27	
Microphthalmos	1	0	0	0.10	0.10	1.00	21	
Total Anotia / Microtia (incl. unspecified)	11	0	0	1.13	1.12	2.34	5	
Anotia	10	0	0	1.02	1.02	3.58	16	▲
Microtia	1	0	0	0.10	0.10	3.33	27	
Transposition of great vessels	23	0	1	2.36	2.45	1.76	23	
Tetralogy of Fallot	21	0	0	2.15	2.15	1.80	27	
Hypoplastic left heart syndrome	9	0	5	0.92	1.43	1.64	23	
Coarctation of aorta	18	0	0	1.84	1.84	1.04	26	
Choanal atresia, bilateral	0	0	0	0.00	0.00	0.00	21	
Cleft palate without cleft lip	36	0	0	3.69	3.68	1.21	11	
Cleft lip with or without cleft palate	63	0	3	6.46	6.75	0.91	8	
Oesophageal atresia / stenosis with or without fistula	9	0	0	0.92	0.92	0.96	9	
Small intestine atresia / stenosis	3	0	0	0.31	0.31	0.42	9	
Anorectal atresia / stenosis	8	0	1	0.82	0.92	0.94	7	
Undescended testis (36 weeks of gestation or later)	128	0	0	13.12	13.08	1.78	2	▲
Hypospadias & Epispadias	203	0	0	20.80	20.75	1.00	21	
Indeterminate sex	2	0	0	0.20	0.20	1.32	11	
Renal agenesis	1	0	2	0.10	0.31	0.79	8	
Cystic kidney	17	0	1	1.74	1.84	1.24	5	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	12	
Polydactyly, preaxial	82	0	0	8.40	8.38	1.09	4	
Total Limb reduction defects (incl. unspecified)	25	0	5	2.56	3.07	0.82	14	
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	3	0	0	0.31	0.31	0.44	8	
Total Abdominal wall defects (incl. unspecified)	12	1	13	1.33	2.66	1.43	9	
Omphalocele	6	0	5	0.61	1.12	1.04	9	
Gastroschisis	6	1	8	0.72	1.53	1.65	17	
Prune belly sequence	0	0	0	0.00	0.00	nc		
Trisomy 13	1	0	4	0.10	0.51	0.59	19	
Trisomy 18	5	0	13	0.51	1.84	1.82	19	
Down syndrome, all ages (incl. age unknown)	87	0	50	8.91	14.00	1.35	10	▲
<20	2	0	0	2.77	2.77	1.43	19	
20-24	15	0	0	5.90	5.90	2.36	19	▲
25-29	26	0	9	7.09	9.55	2.06	19	▲
30-34	17	0	13	8.33	14.70	1.67	19	
35-39	12	0	11	18.48	35.37	1.31	19	
40+	15	0	17	107.37	226.31	2.18	19	▲

Note: Only isolated cases are reported
nr = not reported
nc = not calculable

Hungary, time trend analysis 1974-2001

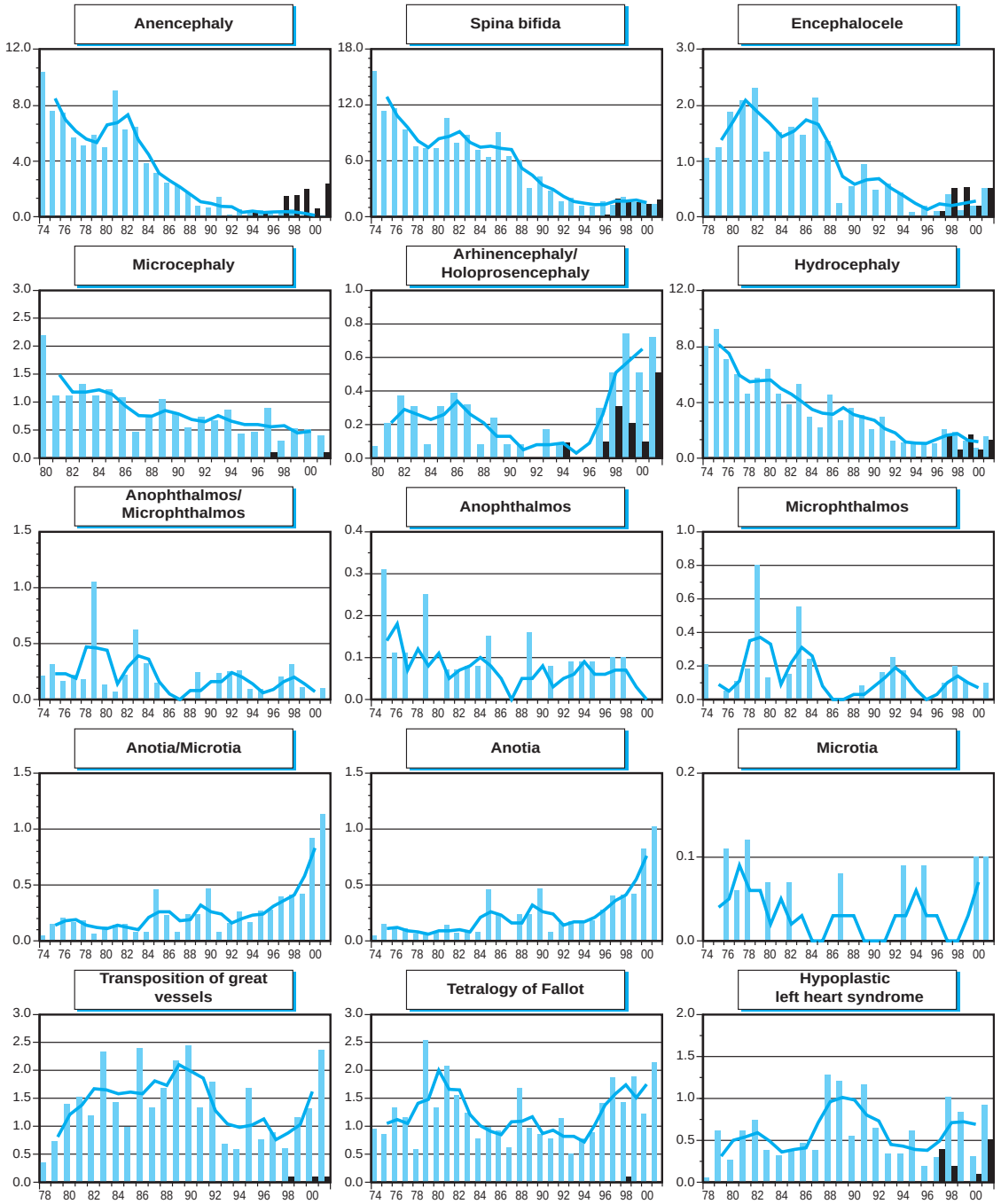
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	1,230,894	663,957	631,149	595,924	497,711	97,597	
Anencephaly	6.82	5.80	1.57	0.57	0.26	0.10	▼
Spina bifida	10.23	8.22	5.80	1.78	1.65	1.33	▼
Encephalocele	1.37*	1.75	1.16	0.52	0.20	0.51	▼
Microcephaly	2.20*	1.17	0.82	0.65	0.54	0.41	▼
Arhinencephaly / Holoprosencephaly	0.07*	0.26	0.22	0.07	0.40	0.72	▲
Hydrocephaly	6.80	3.80	3.18	1.51	1.39	1.54	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	0.32	0.27	0.05	0.18	0.12	0.10	▼
Anophthalmos	0.11	0.09	0.03	0.07	0.04	0.00	▼
Microphthalmos	0.20	0.18	0.02	0.12	0.08	0.10	▼
Total Anotia / Microtia (incl. unspecified)	0.14	0.18	0.25	0.18	0.48	1.13	▲
Anotia	0.09	0.17	0.24	0.15	0.46	1.02	▲
Microtia	0.05	0.02	0.02	0.03	0.02	0.10	
Transposition of great vessels	0.81*	1.49	2.01	1.22	0.94	2.36	
Tetralogy of Fallot	1.23	1.36	1.01	0.82	1.57	2.15	
Hypoplastic left heart syndrome	0.31*	0.50	0.78	0.64	0.52	0.92	
Coarctation of aorta	1.19	2.20	2.54	1.71	1.49	1.84	▲
Choanal atresia, bilateral	0.33*	0.11	0.11	0.17	0.04	0.00	
Cleft palate without cleft lip	3.85	4.70	3.72	3.14	2.75	3.69	▼
Cleft lip with or without cleft palate	10.87	11.22	9.38	8.64	6.43	6.46	▼
Oesophageal atresia / stenosis with or without fistula	1.96*	1.64	1.93	1.11	0.96	0.92	▼
Small intestine atresia / stenosis	1.33*	1.43	1.28	0.96	0.52	0.31	▼
Anorectal atresia / stenosis	2.14*	2.26	1.90	1.31	0.86	0.82	▼
Undescended testis (36 weeks of gestation or later)	15.68*	17.65	16.43	14.83	9.44	13.12	▼
Hypospadias & Epispadias	16.28	21.19	21.22	21.13	18.99	20.80	▲
Indeterminate sex	0.13*	0.35	0.33	0.17	0.12	0.20	▼
Renal agenesis	1.41*	0.83	1.20	0.59	0.14	0.10	▼
Cystic kidney	0.00*	0.05	0.24	0.44	1.41	1.74	▲
Bladder exstrophy	0.13*	0.42	0.35	0.05	0.08	0.00	▼
Polydactyly, preaxial	0.00*	1.20	2.11	1.14	6.43	8.40	▲
Total Limb reduction defects (incl. unspecified)		4.35*	3.90	2.70	3.07	2.56	▼
Diaphragmatic hernia	1.96	2.35	2.19	1.38	0.66	0.31	▼
Total Abdominal wall defects (incl. unspecified)		2.44*	1.66	1.24	0.86	1.33	▼
Omphalocele		1.98*	1.14	0.70	0.58	0.61	▼
Gastroschisis		0.46*	0.52	0.54	0.28	0.72	
Prune belly sequence				0.00*	0.00	0.00	
Trisomy 13		0.17*	0.24	0.20	0.06	0.10	
Trisomy 18		0.25*	0.30	0.20	0.38	0.51	
Down syndrome, all ages (incl. age unknown)	8.98	8.03	8.32	7.03	6.13	8.91	▼
<20		1.80*	1.97	1.64	2.55	2.77	
20-24		2.11*	2.88	2.01	3.09	5.90	▲
25-29		3.55*	4.28	2.53	3.41	7.09	
30-34		5.02*	5.50	4.27	5.09	8.33	
35-39		11.83*	17.97	12.59	13.02	18.48	
40+		57.93*	57.61	36.90	50.36	107.37	

* = data incl. less than seven and five years

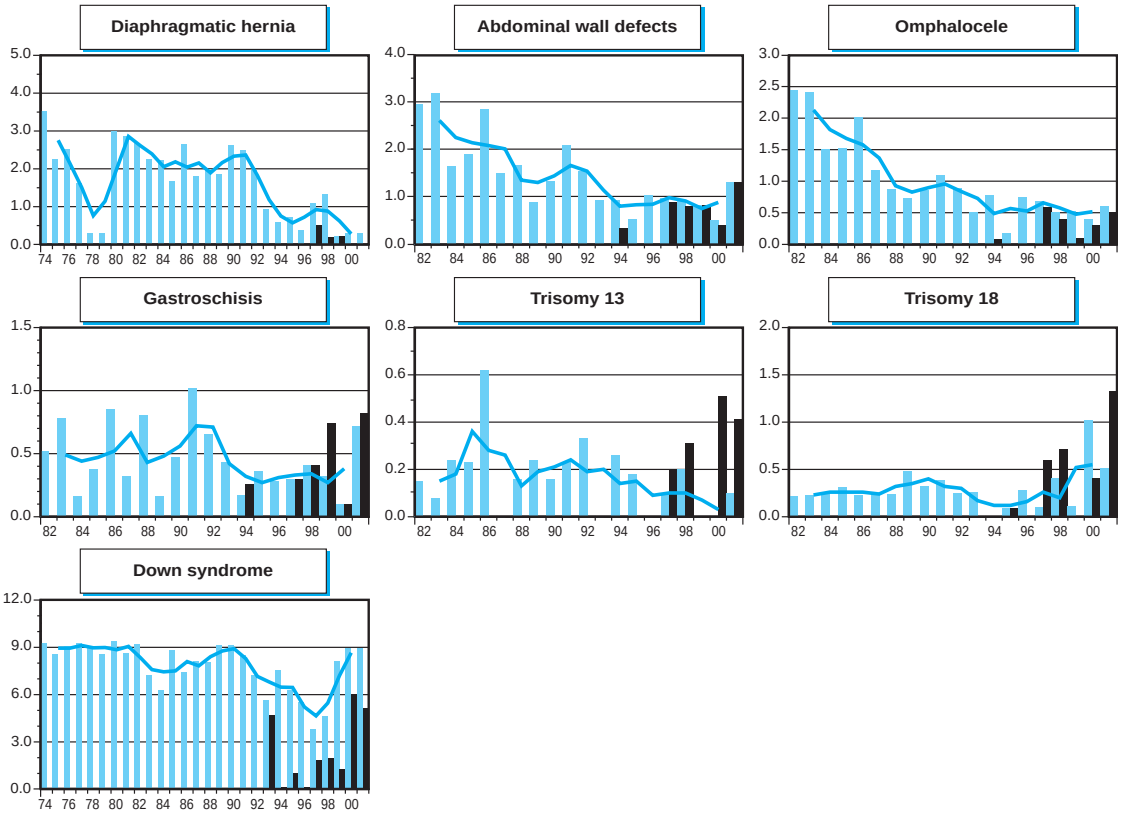
Hungary

Time trends 1974-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Ireland: Dublin
Dublin EUROCAT Registry

History:
Register began in September 1979 and joined EUROCAT at the same time. Joined ICBDMS in 1997.

Size and coverage:
The Registry is population-based and situated in the East of Ireland covering the counties of Dublin, Wicklow and Kildare. About one third (20,000 births) of all births in Ireland occur in this area.

Legislation and funding:
The Registry is located within the Public Health Department of the Eastern Regional Health Authority. Staffing includes a full time nurse/researcher and a part time secretary plus a part-time public health specialist and a part-time epidemiologist. Funding is provided by the Department of Health through the Eastern Regional Health Authority. There is a Steering Committee comprising specialists from each of Maternity and Paediatric Hospitals in the catchment plus a representative from the Department of Health.

Exposure information:
For each malformed infant reported, limited information is given on certain exposures. No information is available on controls.

Sources of ascertainment:
All live and still births are covered. Abortion is illegal in Ireland.

Address for further information:
Robert Mc Donnell, Department of Public Health, Eastern Regional Health Authority, Dr. Steeven's Hospital, Dublin 8, Ireland.

Phone: 353-1-6352750

Fax: 353-1-6352745

E-mail: bob.mcdonnell@erha.ie

Ireland: Dublin, 2001

Live births (L)	21,500*
Stillbirths (S)	130*
Total births	21,630*
Number of terminations of pregnancy (ToP) for birth defects	not permitted

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	4	4		3.70		0.95	10	
Spina bifida	9	1		4.62		0.79	12	
Encephalocele	2	0		0.92		0.44	21	
Microcephaly	5	2		3.24		0.86	21	
Arhinencephaly / Holoprosencephaly	3	0		1.39		1.18	8	
Hydrocephaly	8	1		4.16		1.94	5	
Total Anophthalmos / Microphthalmos (incl. unspecified)	3	0		1.39		0.53	10	
Anophthalmos	0	0		0.00		0.00	20	
Microphthalmos	3	0		1.39		0.69	12	
Total Anotia / Microtia (incl. unspecified)	0	0		0.00		0.00	21	
Anotia	0	0		0.00		nc		
Microtia	0	0		0.00		nc		
Transposition of great vessels	11	0		5.09		0.94	5	
Tetralogy of Fallot	5	1		2.77		0.92	21	
Hypoplastic left heart syndrome	4	0		1.85		0.88	21	
Coarctation of aorta	11	0		5.09		0.90	21	
Choanal atresia, bilateral	0	0		0.00		0.00	12	
Cleft palate without cleft lip	27	1		12.94		1.73	21	▲
Cleft lip with or without cleft palate	19	1		9.25		1.05	21	
Oesophageal atresia / stenosis with or without fistula	4	0		1.85		0.53	21	
Small intestine atresia / stenosis	2	0		0.92		0.38	21	
Anorectal atresia / stenosis	5	0		2.31		0.73	21	
Undescended testis (36 weeks of gestation or later)	nr	nr		nc		nc		
Hypospadias & Epispadias	31	0		14.33		1.09	21	
Indeterminate sex	0	0		0.00		0.00	21	
Renal agenesis	2	1		1.39		0.31	21	
Cystic kidney	2	0		0.92		0.28	21	
Bladder exstrophy	nr	nr		nc		nc		
Polydactyly, preaxial	18	0		8.32		1.33	20	
Total Limb reduction defects (incl. unspecified)	4	2		2.77		0.67	21	
Transverse	nr	nr		nc		nc		
Preaxial	nr	nr		nc		nc		
Postaxial	nr	nr		nc		nc		
Intercalary	nr	nr		nc		nc		
Mixed	nr	nr		nc		nc		
Diaphragmatic hernia	8	0		3.70		0.92	21	
Total Abdominal wall defects (incl. unspecified)	11	2		6.01		0.82	2	
Omphalocele	7	2		4.16		1.68	21	
Gastroschisis	4	0		1.85		0.67	5	
Prune belly sequence	nr	nr		nc		nc	16	
Trisomy 13	2	1		1.39		0.39	5	
Trisomy 18	5	4		4.16		1.21	12	
Down syndrome, all ages (incl. age unknown)	46	2		22.19		1.06	16	
<20	0	0		0.00		0.00	9	
20-24	2	0		6.31		0.78	9	
25-29	3	0		5.49		0.55	9	
30-34	8	0		11.11		0.61	9	
35-39	19	1		54.34		1.13	9	
40-44	13	1		252.53		1.60	9	
45+	1	0		502.20		0.64	8	

* = estimated
nr= not reported
nc= not calculable

Ireland: Dublin, time trend analysis 1980-2001

Birth prevalence rates: (L+S) * 10,000

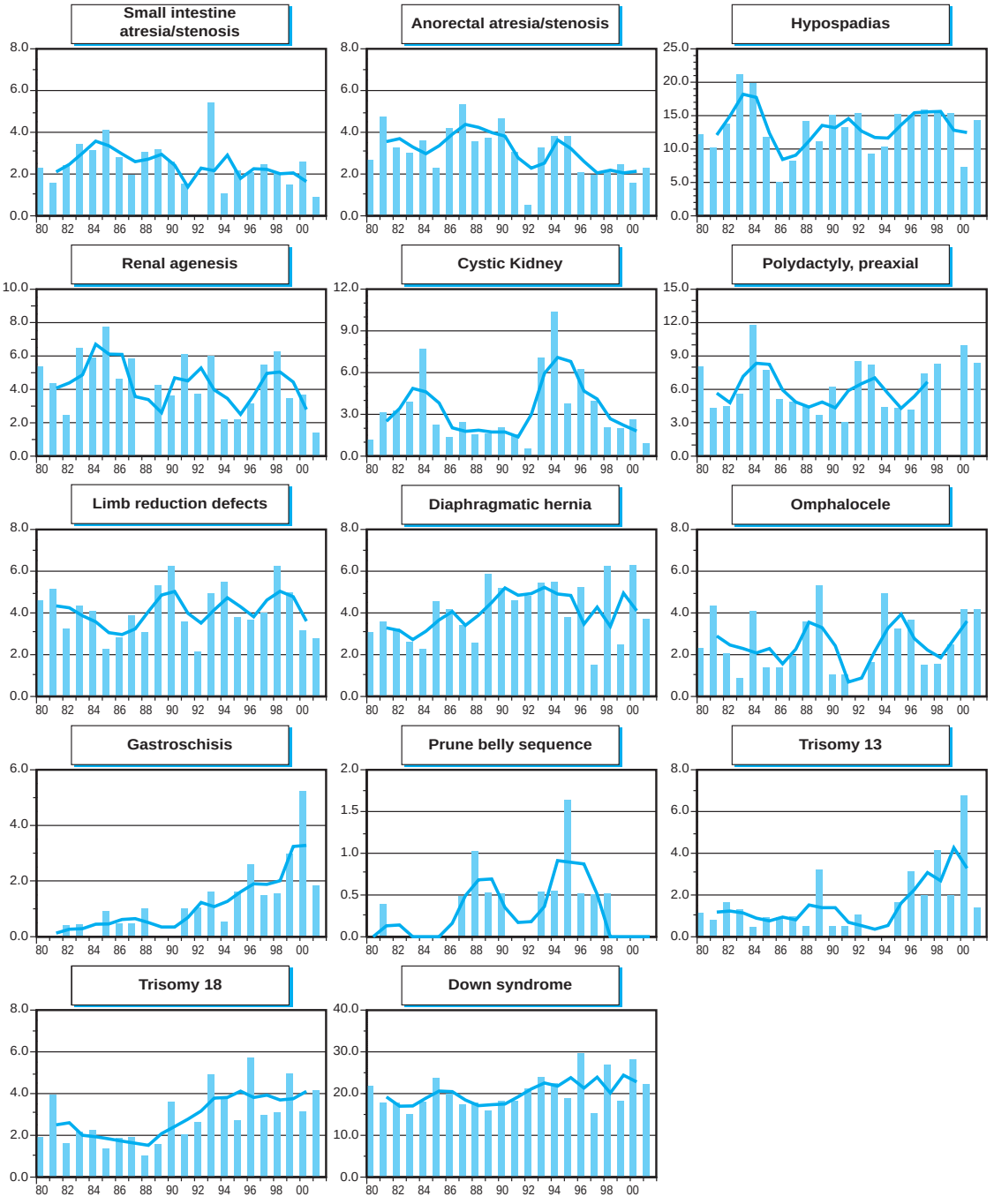
	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	26,202	117,167	99,902	93,658	98,003	21,630	
Anencephaly	17.94	13.23	8.21	4.59	3.27	3.70	▼
Spina bifida	2.67	16.64	10.01	6.19	5.00	4.62	▼
Encephalocele	1.53	2.73	1.30	2.78	1.63	0.92	
Microcephaly	3.43	4.18	2.70	4.06	4.18	3.24	
Arhinencephaly / Holoprosencephaly	0.00	0.34	0.40	0.64	1.33	1.39	▲
Hydrocephaly					2.14	4.16	
Total Anophthalmos / Microphthalmos (incl. unspecified)	0.00	1.19	1.30	1.60	3.57	1.39	▲
Anophthalmos	0.00	0.34	0.00	0.43	0.77*	0.00	
Microphthalmos	0.00	0.85	1.30	1.17	3.21*	1.39	▲
Total Anotia / Microtia (incl. unspecified)	0.00	0.17	0.10	0.43	0.10	0.00	
Anotia	0.00				0.00*	0.00	
Microtia	0.00				0.00*	0.00	
Transposition of great vessels					5.41	5.09	
Tetralogy of Fallot	2.29	2.99	2.60	3.10	3.57	2.77	
Hypoplastic left heart syndrome	2.29	2.05	2.10	2.24	1.94	1.85	
Coarctation of aorta	3.82	4.78	6.81	5.87	5.92	5.09	
Choanal atresia, bilateral	0.38	0.34	0.70	1.17	1.84	0.00	▲
Cleft palate without cleft lip	7.25	7.00	6.71	8.54	7.86	12.94	
Cleft lip with or without cleft palate	9.92	9.64	7.31	9.40	8.47	9.25	
Oesophageal atresia / stenosis with or without fistula	4.58	3.76	3.40	3.20	3.37	1.85	
Small intestine atresia / stenosis	2.29	2.90	2.70	2.03	2.14	0.92	
Anorectal atresia / stenosis	2.67	3.41	4.30	2.88	2.04	2.31	
Hypospadias & Epispadias	12.21	15.28	10.61	12.71	13.88	14.33	
Indeterminate sex	0.00	0.17	0.30	0.11	0.41	0.00	
Renal agenesis	5.34	5.29	3.70	4.06	4.39	1.39	
Cystic kidney	1.14	4.01	1.80	4.59	3.37	0.92	
Polydactyly, preaxial	8.01	6.66	4.90	5.66	7.46*	8.32	
Total Limb reduction defects (incl. unspecified)	4.58	3.84	4.20	3.95	4.39	2.77	
Diaphragmatic hernia	3.05	3.24	4.20	4.80	4.29	3.70	
Total Abdominal wall defects (incl. unspecified)					5.97*	6.01	nc
Omphalocele	2.29	2.56	2.60	2.14	2.65	4.16	
Gastroschisis	0.00	0.34	0.40	1.17	2.76	1.85	▲
Prune belly sequence	0.00	0.09	0.50	0.53	0.51*		▲
Trisomy 13	1.14	1.02	1.20	0.64	3.57	1.39	▲
Trisomy 18	1.91	2.30	2.00	3.20	3.98	4.16	▲
Down syndrome, all ages (incl. age unknown)	21.75	18.44	17.92	20.93	23.57	22.19	▲
<20				17.96*	6.47	0.00	▼
20-24				7.84*	8.32	6.31	
25-29				9.68*	10.29	5.49	
30-34				17.85*	18.57	11.11	
35-39				42.21*	51.66	54.33	
40-44				164.38*	152.33	252.71	
45+				1153.85*	588.24	500.00	

* = data incl. less than seven and five years
nc = not calculable

Ireland: Dublin

Time trends 1980-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, 3-year moving average trend



Note: L+S rates, 3-year moving average trend

Israel: IBDMS

Israel Birth Defects Monitoring System

History:
The Programme started in one hospital in 1966 and was a founding member of the Clearinghouse. It was a full member until 1986, when it became an associate member.

Size and coverage:
Reports are now obtained from three hospitals located in the central region of the country, with more than 20,000 annual births (more than 15% of all births in Israel). Stillbirths of 20 weeks gestation or more and 500 gm or more are included. The registry of termination of pregnancy began in 1995.

Legislation and funding:
The Registry is a research programme supported by research grants without any governmental support.

Sources of ascertainment:
Reporting is voluntary. Reports are obtained from delivery units and neonatal departments in the participating hospitals. The three included hospitals are: Rabin Medical Center, Beilinson Campus' Petah Tikva; Kaplan Hospital, Rehovot (Dr, Kohan Dr, Shinwell) and Lis Medical Center, Tel Aviv (Prof. Mimouni, Prof. Dolberg). These hospitals are affiliated to Sackler School of Medicine, Tel-Aviv University.

Exposure information:
Complete anamneses are obtained by interviews of mothers of all malformed infants. All the other women with normal newborns complete a similar form at discharge.

Background information:
Epidemiological information on all births occurring in the participating hospitals is available.

Address for further information:
Paul Merlob, Department of Neonatology, Rabin Medical Center, Beilinson Campus, 49100 Petah Tikva, Israel:
IBDMS.

Phone: 972-3-9377474/2/3

Fax: 972-3-9220068

E-mail: merlobp@post.tau.ac.il

Israel: IBDMS, 2001

Live births (L)	22,589
Stillbirths (S)	157
Total births	22,746
Number of terminations of pregnancy (ToP) for birth defects	32

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	2	0	1	0.88	1.32	1.08	13	
Spina bifida	9	0	1	3.96	4.39	1.54	14	
Encephalocele	1	0	0	0.44	0.44	0.88	27	
Microcephaly	3	0	2	1.32	2.20	1.97	2	
Arhinencephaly / Holoprosencephaly	0	0	0	0.00	0.00	0.00	17	
Hydrocephaly	9	1	3	4.40	5.71	1.20	27	
Total Anophthalmos / Microphthalmos (incl. unspecified)	1	0	0	0.44	0.44	0.70	27	
Anophthalmos	0	0	0	0.00	0.00	nc		
Microphthalmos	1	0	0	0.44	0.44	0.70	27	
Total Anotia / Microtia (incl. unspecified)	0	0	0	0.00	0.00	0.00	26	
Anotia	0	0	0	0.00	0.00	0.00	27	
Microtia	0	0	0	0.00	0.00	0.00	26	
Transposition of great vessels	8	0	0	3.52	3.51	0.99	15	
Tetralogy of Fallot	9	0	0	3.96	3.95	1.60	19	
Hypoplastic left heart syndrome	5	0	2	2.20	3.07	1.09	15	
Coarctation of aorta	6	0	0	2.64	2.63	1.05	14	
Choanal atresia, bilateral	2	0	0	0.88	0.88	4.44	17	
Cleft palate without cleft lip	13	0	0	5.72	5.71	1.20	27	
Cleft lip with or without cleft palate	16	0	2	7.03	7.90	1.41	27	
Oesophageal atresia / stenosis with or without fistula	2	0	0	0.88	0.88	0.36	27	
Small intestine atresia / stenosis	4	0	0	1.76	1.76	1.84	17	
Anorectal atresia / stenosis	2	0	0	0.88	0.88	0.30	27	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	90	0	0	39.57	39.51	1.08	16	
Epispadias	0	0	0	0.00	0.00	0.00	27	
Indeterminate sex	nr	nr	nr	nc	nc	nc		
Renal agenesis	0	0	0	0.00	0.00	0.00	15	
Cystic kidney	1	0	0	0.44	0.44	0.34	20	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	27	
Polydactyly, preaxial	3	0	0	1.32	1.32	2.17	27	
Total Limb reduction defects (incl. unspecified)	1	0	1	0.44	0.88	0.32	6	
Transverse	1	0	0	0.44	0.44	0.47	19	
Preaxial	0	0	1	0.00	0.44	0.00	19	
Postaxial	0	0	0	0.00	0.00	0.00	19	
Intercalary	0	0	0	0.00	0.00	0.00	19	
Mixed	0	0	0	0.00	0.00	0.00	19	
Diaphragmatic hernia	2	1	1	1.32	1.76	0.63	23	
Total Abdominal wall defects (incl. unspecified)	1	1	1	0.88	1.32	0.90	16	
Omphalocele	1	1	0	0.88	0.88	1.20	16	
Gastroschisis	0	0	1	0.00	0.44	0.00	23	
Prune belly sequence	0	0	0	0.00	0.00	0.00	24	
Trisomy 13	2	0	0	0.88	0.88	2.44	17	
Trisomy 18	0	1	0	0.44	0.44	0.64	17	
Down syndrome, all ages (incl. age unknown)	14	0	4	6.15	7.90	1.05	10	
<20	0	0	0	0.00	0.00	nc		
20-24	2	0	0	5.23	5.23	3.57	10	
25-29	3	0	0	3.67	3.67	1.12	10	
30-34	2	0	2	2.97	5.94	0.62	10	
35-39	2	0	2	6.98	13.95	0.57	10	
40-44	4	0	0	57.47	57.47	1.53	10	
45+	1	0	0	181.82	181.82	2.27	10	

nr= not reported
nc= not calculable

Israel: IBDMS, time trend analysis 1974-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	86,899	90,506	87,374	78,764	101,249	22,746	
Anencephaly	4.83	4.75	1.95	0.76	0.49	0.88	▼
Spina bifida	3.11	5.86	4.12	2.41	2.17	3.96	▼
Encephalocele	0.35	0.44	0.92	0.51	0.30	0.44	
Microcephaly					0.67*	1.32	nc
Arhinencephaly / Holoprosencephaly		0.28*	0.11	0.51	0.00	0.00	
Hydrocephaly	3.80	3.87	2.63	3.55	4.35	4.40	
Total Anophthalmos / Microphthalmos (incl. unspecified)	0.81	0.00	0.69	0.38	1.19	0.44	
Anophthalmos	0.00	0.00	0.00	0.00	0.00	0.00	
Microphthalmos	0.81	0.00	0.69	0.38	1.19	0.44	
Total Anotia / Microtia (incl. unspecified)	0.58	1.10	1.26	2.67	1.38	0.00	
Anotia	0.00	0.00	0.00	0.13	0.00	0.00	
Microtia	0.58	1.10	1.26	2.54	1.38	0.00	
Transposition of great vessels			3.09	3.43	4.05	3.52	
Tetralogy of Fallot	0.00*	0.88	3.09	3.17	2.67	3.96	▲
Hypoplastic left heart syndrome			1.95	2.92	1.38	2.20	
Coarctation of aorta	0.00*	0.44	1.72	2.54	2.77	2.64	▲
Choanal atresia, bilateral		0.28*	0.23	0.25	0.10	0.88	
Cleft palate without cleft lip	4.03	4.20	5.84	5.33	4.44	5.72	
Cleft lip with or without cleft palate	4.83	4.75	6.41	4.32	4.64	7.03	
Oesophageal atresia / stenosis with or without fistula	1.61	1.66	3.09	3.81	2.17	0.88	
Small intestine atresia / stenosis		0.83*	1.37	1.27	0.40	1.76	
Anorectal atresia / stenosis	1.84	3.09	4.23	3.30	2.37	0.88	
Hypospadias	28.42	26.52	34.68	41.77	36.44	39.57	▲
Epispadias	0.12	0.11	0.00	0.25	0.20	0.00	
Renal agenesis			0.69	0.89	0.49	0.00	
Cystic kidney	0.46	0.99	1.26	1.14	1.68	0.44	▲
Bladder exstrophy	0.12	0.22	0.92	0.25	0.30	0.00	
Polydactyly, preaxial	0.23	0.66	0.46	0.38	1.19	1.32	▲
Total Limb reduction defects (incl. unspecified)	3.11	3.09	2.63	3.55	1.09	0.44	▼
Transverse		0.69*	1.26	1.52	0.40	0.44	
Preaxial		0.69*	0.57	0.25	0.49	0.00	
Postaxial		0.42*	0.11	0.76	0.00	0.00	
Intercalary		0.28*	0.34	0.25	0.20	0.00	
Mixed		0.69*	0.34	0.76	0.00	0.00	▼
Diaphragmatic hernia	2.15*	2.65	1.83	2.67	1.28	1.32	
Total Abdominal wall defects (incl. unspecified)	1.61	3.31	1.03	1.14	0.59	0.88	▼
Omphalocele	1.61	2.54	0.80	1.14	0.40	0.88	▼
Gastroschisis	0.00*	0.77	0.23	0.00	0.20	0.00	
Prune belly sequence	0.46	0.11	0.11	0.00	0.00	0.00	▼
Trisomy 13		0.83*	0.34	0.38	0.20	0.88	
Trisomy 18		0.56*	0.57	0.63	0.89	0.44	
Down syndrome, all ages (incl. age unknown)	10.24	11.05	11.90	6.35	5.53	6.15	▼
<20				0.00	0.00	0.00	
20-24				0.00	2.76	5.23	▲
25-29				2.54	3.84	3.67	
30-34				6.42	3.58	2.97	
35-39				16.96	8.27	6.98	
40-44				34.87	39.91	57.47	
45+				79.37	81.97	181.82	

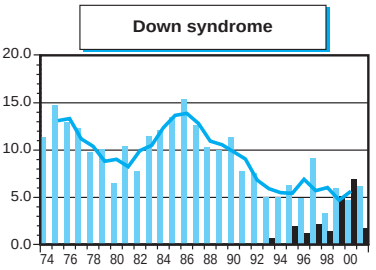
* = data incl. less than seven and five years
nc = not calculable

Israel: IBDMS

Time trends 1974-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates 3-year moving average trend

Italy: BDRCam
Birth Defects Registry of Campania

History:
The Registry started in 1991and became a full member of the ICBDMS in 1996.

Size and coverage:
The Registry is based on reporting from hospitals distributed in Campania, a region in southern Italy. Naples is the main city. Initially 38 hospitals reported and the annual number of births was 38.000. At the present time, 60 hospitals participate, covering approximately 50.000 annual births or approximately 80% of all births. Stillbirths and induced abortions are included.
The Programme became a full member of the ICBDMS in 1996.

Legislation and funding:
The Registry is a surveillance programme supported by grants from Regional Health Authorities. Participation was voluntary up to 1995. From 1996 participation is mandatory.

Sources of ascertainment:
Reports are obtained from delivery units and pediatric clinics at the participating hospitals. For selected malformations multiple sources are used with follow-up to one year using specific records from pediatric specialties departments dealing with malformed infants.

Exposure information:
For each malformed infant reported, information is given on certain exposures, including maternal drug usage and parental occupation. Up to now no information on induced abortions and controls is available.

Background information:
Up to now little background information is given on certain exposures, including maternal drug usage and parental occupation. Up to now no information on controls is available.

Address for further information:
Gioacchino Scarano, Registro Campano Difetti Congeniti, Azienda Ospedaliera "G. Rummo", Via dell'Angelo 1, 82100 Benevento, Italy

Phone: 39- 0823-57374

Fax: 39-0824-57495

E-mail: giorecam@tin.it

Gioacchino Scarano, Osservatorio Epidemiologico Regionale, Assessorato alla Sanità - Regione Campania, Centro Direzionale isola C3, Naples, Italy

Fax : 39-081-7969347

Italy: BDRCam, 2001

Live births (L)	49,603
Stillbirths (S)	111
Total births	49,714
Number of terminations of pregnancy (ToP) for birth defects	148

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	1	0	11	0.20	2.41	0.28	10	
Spina bifida	6	0	5	1.21	2.21	0.54	10	
Encephalocele	3	0	2	0.60	1.00	1.35	10	
Microcephaly	9	0	0	1.81	1.80	2.20	10	
Arhinencephaly / Holoprosencephaly	2	0	6	0.40	1.60	0.95	10	
Hydrocephaly	13	0	15	2.61	5.62	0.94	10	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	0	2	0.40	0.80	0.65	10	
Anophthalmos	0	0	1	0.00	0.20	0.00	6	
Microphthalmos	2	0	1	0.40	0.60	1.80	10	
Total Anotia / Microtia (incl. unspecified)	2	0	2	0.40	0.80	0.33	10	
Anotia	1	0	0	0.20	0.20	0.35	10	
Microtia	1	0	2	0.20	0.60	0.29	8	
Transposition of great vessels	5	0	0	1.01	1.00	0.55	10	
Tetralogy of Fallot	13	0	3	2.61	3.21	1.07	10	
Hypoplastic left heart syndrome	2	0	2	0.40	0.80	0.38	10	
Coarctation of aorta	5	0	0	1.01	1.00	0.59	10	
Choanal atresia, bilateral	2	0	0	0.40	0.40	2.25	10	
Cleft palate without cleft lip	24	0	1	4.83	5.01	1.06	10	
Cleft lip with or without cleft palate	18	0	2	3.62	4.01	0.53	10	▼
Oesophageal atresia / stenosis with or without fistula	9	0	2	1.81	2.21	0.87	10	
Small intestine atresia / stenosis	9	0	0	1.81	1.80	0.93	10	
Anorectal atresia / stenosis	18	0	0	3.62	3.61	1.31	10	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	24	0	0	4.83	4.81	1.37	10	
Epispadias	0	0	0	0.00	0.00	0.00	10	
Indeterminate sex	1	0	2	0.20	0.60	0.39	10	
Renal agenesis	17	0	8	3.42	5.01	1.80	8	
Cystic kidney	8	0	4	1.61	2.41	0.96	10	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	10	
Polydactyly, preaxial	6	0	0	1.21	1.20	0.67	10	
Total Limb reduction defects (incl. unspecified)	14	0	5	2.82	3.81	0.61	10	
Transverse	11	0	2	2.21	2.61	0.72	10	
Preaxial	2	0	3	0.40	1.00	0.56	10	
Postaxial	0	0	0	0.00	0.00	0.00	10	
Intercalary	1	0	0	0.20	0.20	0.50	10	
Mixed	0	0	0	0.00	0.00	0.00	10	
Diaphragmatic hernia	16	0	1	3.22	3.41	1.72	10	
Total Abdominal wall defects (incl. unspecified)	7	0	6	1.41	2.61	1.13	10	
Omphalocele	3	0	5	0.60	1.60	0.62	10	
Gastroschisis	4	0	1	0.80	1.00	3.01	10	
Prune belly sequence	1	0	0	0.20	0.20	3.70	4	
Trisomy 13	1	0	3	0.20	0.80	0.96	7	
Trisomy 18	1	0	7	0.20	1.60	0.39	10	
Down syndrome, all ages (incl. age unknown)	34	0	26	6.84	12.03	2.29	1	▲
<20	0	0	0	0.00	0.00	0.00	10	
20-24	3	0	0	3.37	3.37	0.93	6	
25-29	9	0	1	5.10	5.67	1.93	4	
30-34	6	0	7	4.08	8.83	0.78	4	
35-39	7	0	7	12.14	24.25	1.16	4	
40-44	6	0	9	57.53	142.59	1.26	10	
45+	0	0	1	0.00	196.08	0.00	10	

nr= not reported
nc= not calculable

Italy: BDRCam, time trend analysis 1991-2001

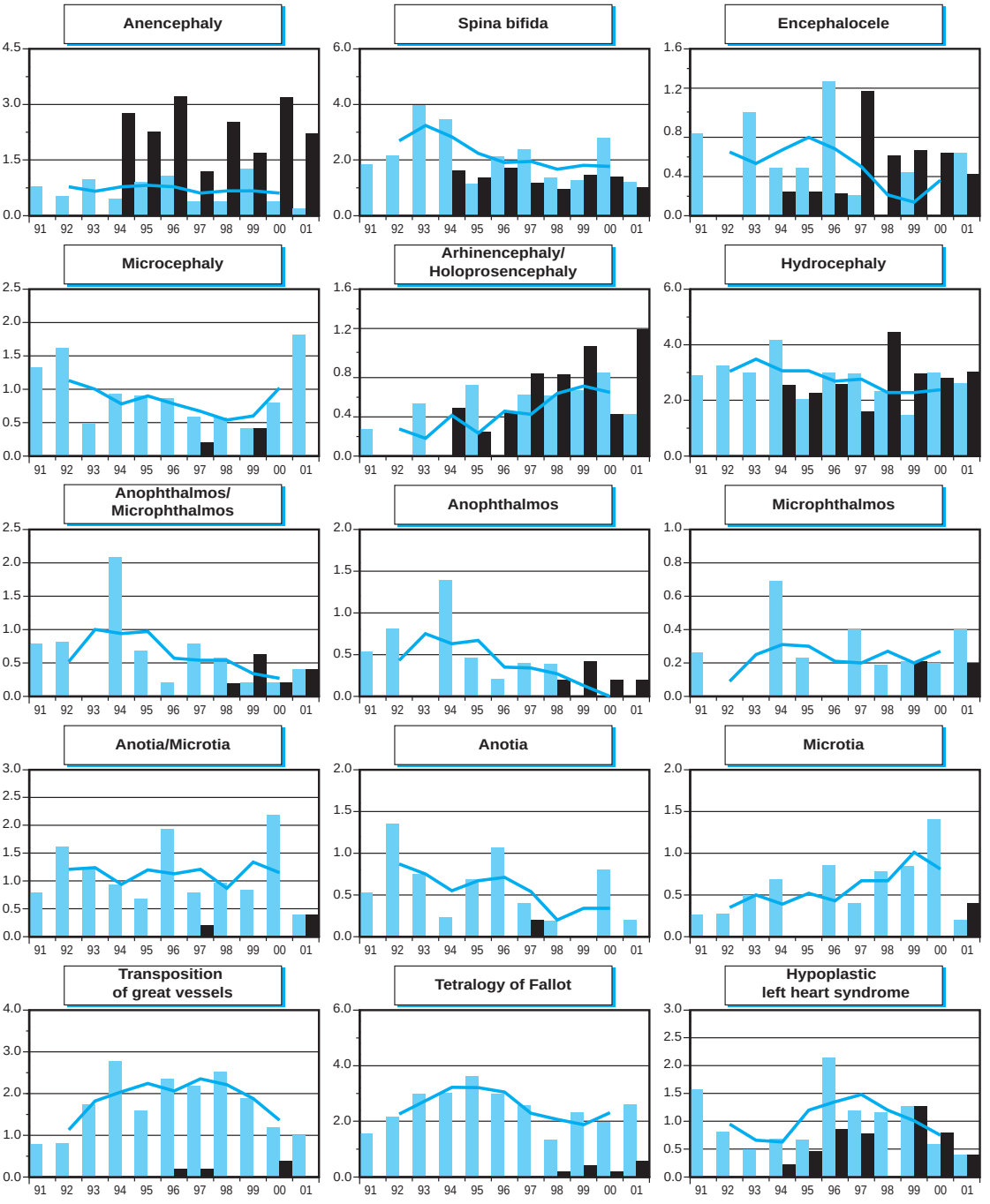
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births				202,482	246,252	49,714	
Anencephaly				0.74	0.69	0.20	
Spina bifida				2.52	1.99	1.21	
Encephalocele				0.54	0.37	0.60	
Microcephaly				1.04	0.65	1.81	
Arhinencephaly / Holoprosencephaly				0.30	0.53	0.40	
Hydrocephaly				3.06	2.56	2.61	
Total Anophthalmos / Microphthalmos (incl. unspecified)				0.89	0.41	0.40	
Anophthalmos				0.64	0.20	0.00	▼
Microphthalmos				0.25	0.20	0.40	
Total Anotia / Microtia (incl. unspecified)				1.04	1.34	0.40	
Anotia				0.69	0.49	0.20	
Microtia				0.35	0.85	0.20	
Transposition of great vessels				1.58	2.03	1.01	
Tetralogy of Fallot				2.72	2.23	2.61	
Hypoplastic left heart syndrome				0.84	1.26	0.40	
Coarctation of aorta				1.68	1.71	1.01	
Choanal atresia, bilateral				0.20	0.16	0.40	
Cleft palate without cleft lip				4.25	4.83	4.83	
Cleft lip with or without cleft palate				6.82	6.74	3.62	
Oesophageal atresia / stenosis with or without fistula				2.22	1.95	1.81	
Small intestine atresia / stenosis				1.93	1.95	1.81	
Anorectal atresia / stenosis				2.86	2.68	3.62	
Hypospadias				3.51	3.53	4.83	
Epispadias				0.25	0.20	0.00	
Indeterminate sex				0.40	0.61	0.20	
Renal agenesis				1.48	1.95	3.42	▲
Cystic kidney				1.33	1.95	1.61	
Bladder exstrophy				0.35	0.16	0.00	
Polydactyly, preaxial				1.73	1.87	1.21	
Total Limb reduction defects (incl. unspecified)				5.04	4.30	2.82	
Transverse				3.61	2.60	2.21	
Preaxial				0.69	0.73	0.40	
Postaxial				0.25	0.45	0.00	
Intercalary				0.35	0.45	0.20	
Mixed				0.15	0.08	0.00	
Diaphragmatic hernia				1.78	1.95	3.22	▲
Total Abdominal wall defects (incl. unspecified)				1.53	1.02	1.41	
Omphalocele				1.23	0.77	0.60	
Gastroschisis				0.30	0.24	0.80	
Prune belly sequence				0.00*	0.07*	0.20	
Trisomy 13				0.64	0.12	0.20	▼
Trisomy 18				0.54	0.49	0.20	
Down syndrome, all ages (incl. age unknown)				9.98	6.78	6.84	▼
<20				3.59	3.74	0.00	
20-24				6.12	3.10	3.37	▼
25-29				6.92	3.01	5.10	▼
30-34				10.27	6.09	4.08	▼
35-39				26.25	13.05	12.14	▼
40-44				58.99	36.98	57.53	
45+				65.79	0.00	0.00	

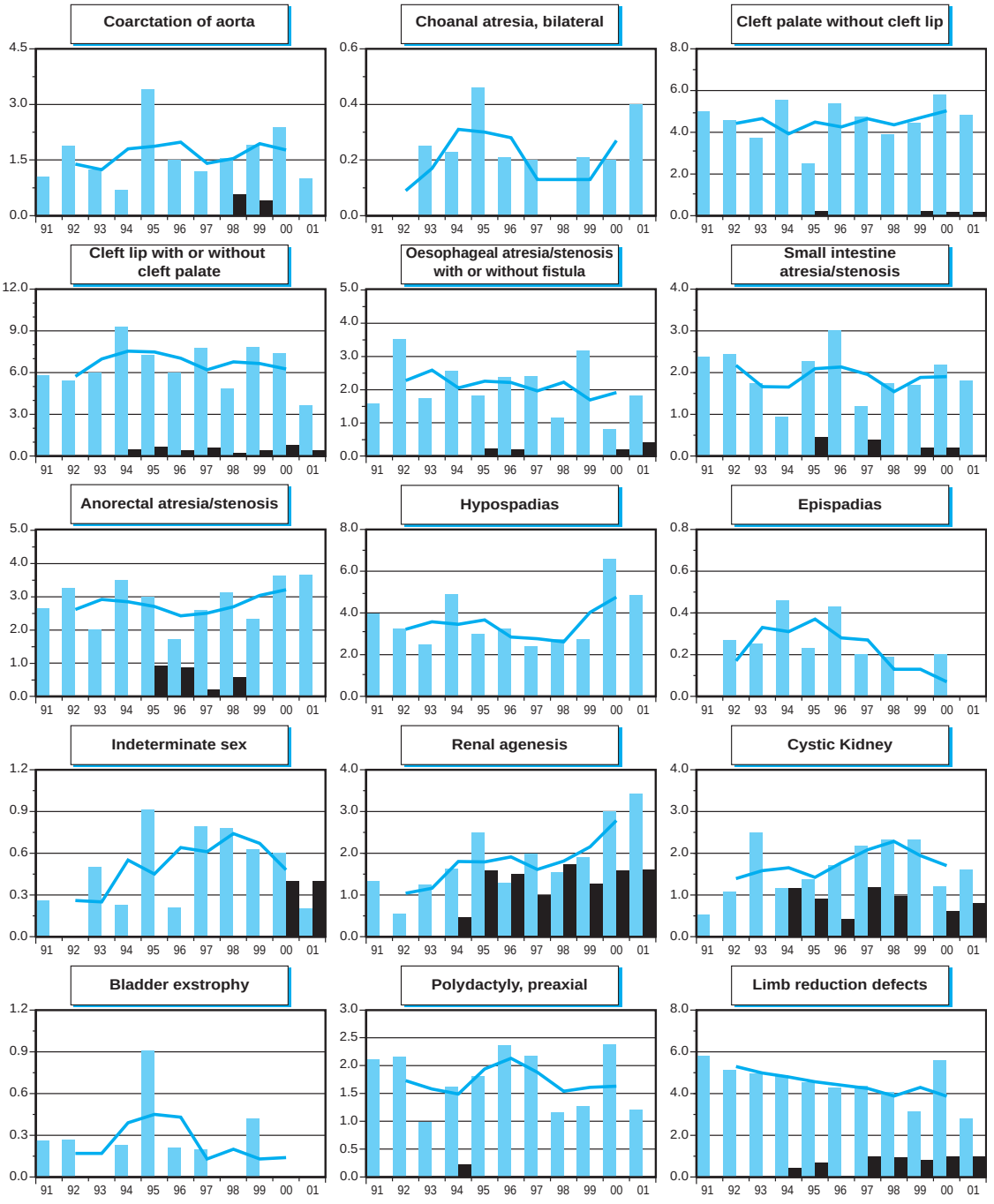
* = data incl. less than five years

Italy: BDRCam

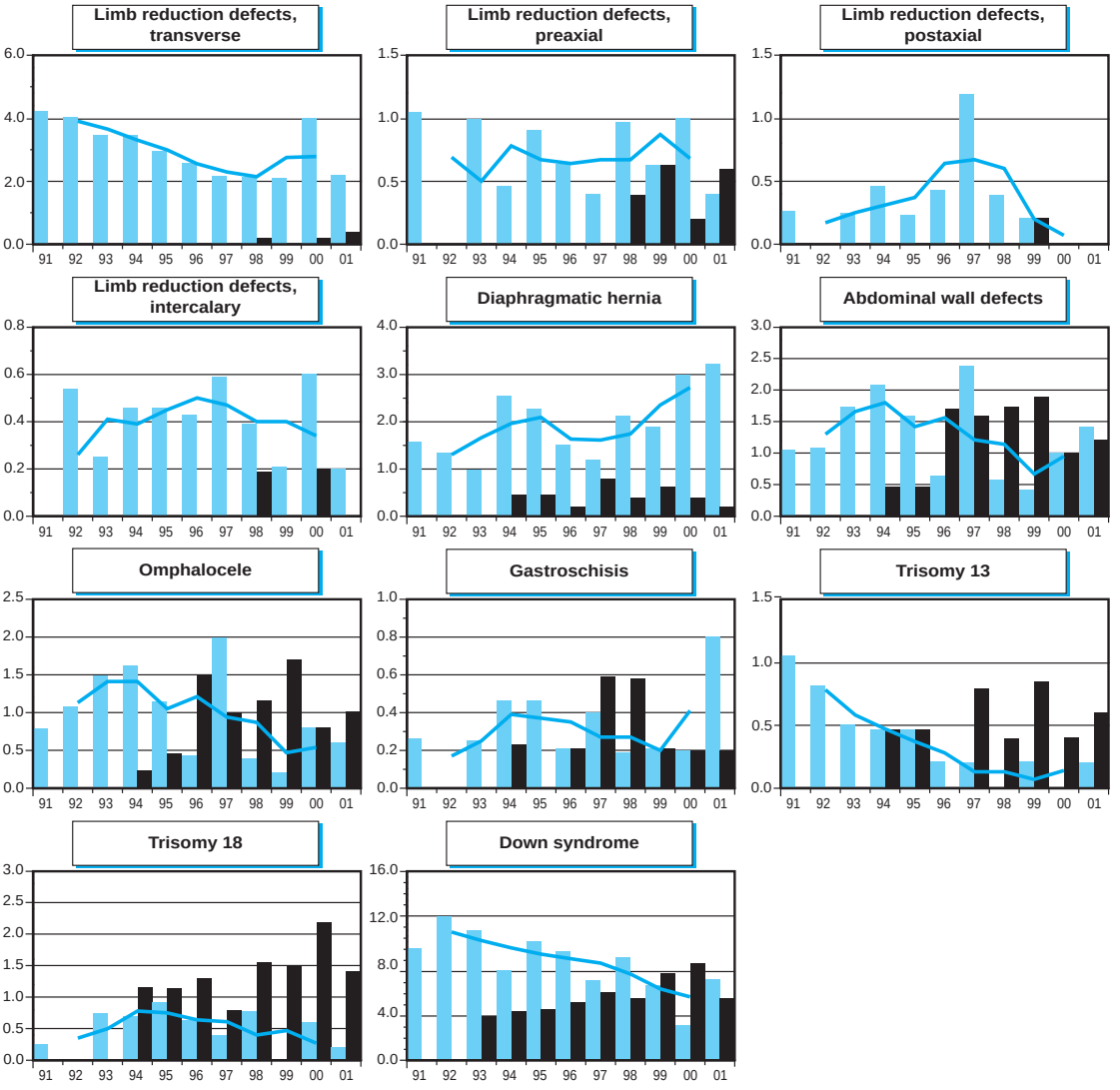
Time trends 1991-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates 3-year moving average trend

Italy: IMER
Emilia-Romagna Registry of Congenital Malformations

History:
The registry started in 1978 in a few hospitals and has increased in size to include now 44 delivery units. The Programme joined the ICBDMS in 1985 as an associate member.

Size and coverage:
The Programme is population-based (about 95% of all births in the Emilia-Romagna region) and covers approximately 28,000 annual births. Stillbirths of 28 weeks of gestation are included.

Legislation and funding:
The Programme is recognised and financed by the Health Authorities, the National Research Council, and the Regional Health Council. Hospital participation is voluntary.

Sources of ascertainment:
Reporting is made by neonatologists and pediatricians during the first week of the infant's life. Selected malformations are followed up.

Exposure information:
Detailed exposure information is obtained by interviews of the mothers of malformed infants. For each malformed infant, a control is chosen (the baby born before or after the malformed case in the same hospital) and its mother is interviewed in a similar way.

Background information:
Some general demographic information is known for all births in the area. For each participating hospital, the number of livebirths and stillbirths are known.

Address for further information:
Guido Cocchi, Istituto Clinico di Pediatria Preventiva e Neonatologia, Università di Bologna, Via Massarenti 11, 40138 Bologna, Italy.

Phone: 39-051-342754 / 6363654

Fax: 39-051-342754

E-mail: cocchi@med.unibo.it

Italy: IMER, 2001

Live births (L)	23,560
Stillbirths (S)	110
Total births	23,670
Number of terminations of pregnancy (ToP) for birth defects	92

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	4	0.00	1.68	0.00	18	
Spina bifida	2	0	5	0.84	2.95	0.43	8	
Encephalocele	0	0	2	0.00	0.84	0.00	23	
Microcephaly	4	0	0	1.69	1.68	1.76	10	
Arhinencephaly / Holoprosencephaly	0	0	3	0.00	1.26	0.00	17	
Hydrocephaly	6	0	12	2.53	7.58	1.10	9	
Total Anophthalmos / Microphthalmos (incl. unspecified)	0	0	0	0.00	0.00	0.00	23	
Anophthalmos	0	0	0	0.00	0.00	0.00	23	
Microphthalmos	0	0	0	0.00	0.00	0.00	23	
Total Anotia / Microtia (incl. unspecified)	1	0	0	0.42	0.42	0.30	23	
Anotia	0	0	0	0.00	0.00	0.00	7	
Microtia	1	0	0	0.42	0.42	0.68	7	
Transposition of great vessels	10	0	1	4.22	4.63	1.31	18	
Tetralogy of Fallot	3	0	1	1.27	1.68	0.66	19	
Hypoplastic left heart syndrome	3	0	4	1.27	2.95	0.78	23	
Coarctation of aorta	5	0	0	2.11	2.10	0.90	21	
Choanal atresia, bilateral	0	0	0	0.00	0.00	0.00	23	
Cleft palate without cleft lip	8	0	0	3.38	3.37	0.65	23	
Cleft lip with or without cleft palate	12	0	0	5.07	5.05	0.81	16	
Oesophageal atresia / stenosis with or without fistula	2	0	0	0.84	0.84	0.23	23	
Small intestine atresia / stenosis	4	1	0	2.11	2.10	0.70	23	
Anorectal atresia / stenosis	4	0	2	1.69	2.53	0.60	23	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	42	0	0	17.74	17.68	0.96	21	
Epispadias	0	0	0	0.00	0.00	nc		
Indeterminate sex	1	0	0	0.42	0.42	2.13	6	
Renal agenesis	9	0	6	3.80	6.31	2.34	23	
Cystic kidney	6	0	1	2.53	2.95	1.11	7	
Bladder exstrophy	1	0	0	0.42	0.42	1.28	22	
Polydactyly, preaxial	4	0	0	1.69	1.68	0.45	8	
Total Limb reduction defects (incl. unspecified)	5	0	5	2.11	4.21	0.44	15	
Transverse	2	0	3	0.84	2.10	0.40	10	
Preaxial	1	0	0	0.42	0.42	0.52	16	
Postaxial	1	0	0	0.42	0.42	0.83	16	
Intercalary	1	0	1	0.42	0.84	0.71	16	
Mixed	0	0	0	0.00	0.00	0.00	16	
Diaphragmatic hernia	7	0	0	2.96	2.95	1.16	19	
Total Abdominal wall defects (incl. unspecified)	3	0	5	1.27	3.37	0.45	23	
Omphalocele	2	0	4	0.84	2.53	0.53	23	
Gastroschisis	1	0	1	0.42	0.84	0.52	23	
Prune belly sequence	0	0	0	0.00	0.00	0.00	23	
Trisomy 13	1	0	1	0.42	0.84	1.11	14	
Trisomy 18	0	1	14	0.42	6.31	0.50	23	
Down syndrome, all ages (incl. age unknown)	14	1	26	6.34	17.25	0.70	11	
<20	0	0	0	0.00	0.00	0.00	16	
20-24	1	0	0	3.71	3.71	0.65	16	
25-29	3	1	0	4.93	4.93	0.85	11	
30-34	8	0	9	9.36	19.88	1.08	10	
35-39	1	0	12	2.91	37.75	0.21	12	
40-44	1	0	5	17.61	104.71	0.36	16	
45+	0	0	0	0.00	0.00	0.00	16	

nr= not reported
nc= not calculable

Italy: IMER, time trend analysis 1978-2001

Birth prevalence rates: (L+S) * 10,000

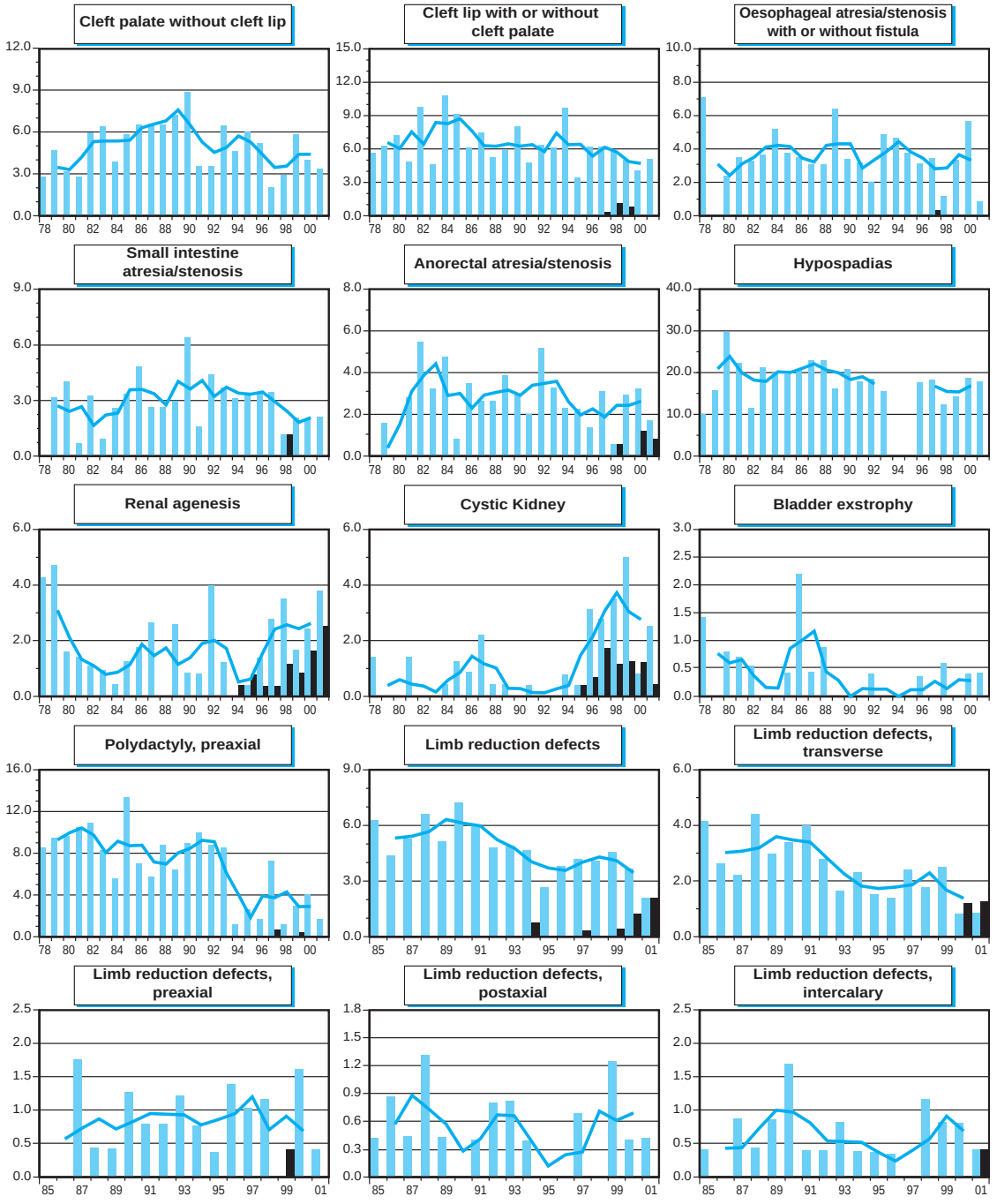
	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	25,878	101,622	115,334	126,943	123,541	23,670	
Anencephaly	1.55	1.38	0.43	0.39	0.57	0.00	▼
Spina bifida	5.41	3.84	3.55	3.47	1.70	0.84	▼
Encephalocele	0.77	0.30	1.04	0.32	0.32	0.00	
Microcephaly	1.55	2.26	2.25	1.10	0.81	1.69	▼
Arhinencephaly / Holoprosencephaly	0.00	0.30	0.35	0.32	1.05	0.00	▲
Hydrocephaly	2.71	5.12	4.51	2.91	2.02	2.53	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	0.39	1.38	0.52	1.10	0.65	0.00	
Anophthalmos	0.39	0.30	0.09	0.24	0.16	0.00	
Microphthalmos	0.00	1.08	0.43	0.87	0.49	0.00	
Total Anotia / Microtia (incl. unspecified)	0.39	1.48	1.65	1.73	0.97	0.42	
Anotia				0.77*	0.57	0.00	
Microtia				1.15*	0.40	0.42	
Transposition of great vessels	1.55	2.76	2.69	2.84	4.29	4.22	▲
Tetralogy of Fallot	0.00	1.38	1.91	1.81	2.35	1.27	
Hypoplastic left heart syndrome	0.39	1.67	1.47	1.89	1.70	1.27	
Coarctation of aorta	0.80	2.76	2.08	2.36	2.43	2.11	
Choanal atresia, bilateral	0.00	0.20	0.35	0.24	0.24	0.00	
Cleft palate without cleft lip	3.48	5.12	7.20	4.88	4.05	3.38	
Cleft lip with or without cleft palate	6.57	8.07	6.59	6.07	5.50	5.07	▼
Oesophageal atresia / stenosis with or without fistula	3.09	3.94	3.90	3.70	3.48	0.84	
Small intestine atresia / stenosis	2.71	2.26	3.90	3.23	2.59	2.11	
Anorectal atresia / stenosis	0.39	3.35	3.12	2.99	2.35	1.69	
Hypospadias	20.87	18.89	20.64	17.27*	16.59	17.74	
Epispadias				0.00*	0.00	0.00	
Indeterminate sex				0.00*	0.24	0.42	
Renal agenesis	3.09	0.98	1.56	1.26	2.27	3.80	
Cystic kidney	0.39	0.59	0.78	0.32	2.99	2.53	▲
Bladder exstrophy	0.77	0.30	0.69	0.08	0.24	0.42	
Polydactyly, preaxial	9.27	9.64	7.37	6.14	3.64	1.69	▼
Total Limb reduction defects (incl. unspecified)		6.25*	5.72	4.57	4.05	2.11	▼
Transverse		4.16*	3.12	2.44	1.78	0.84	▼
Preaxial		0.00*	0.78	0.79	1.05	0.42	
Postaxial		0.42*	0.61	0.47	0.49	0.42	
Intercalary		0.42*	0.78	0.47	0.57	0.42	
Mixed		0.42*	0.35	0.32	0.08	0.00	
Diaphragmatic hernia	1.16	1.67	2.08	3.15	2.83	2.96	▲
Total Abdominal wall defects (incl. unspecified)	2.71	3.05	3.73	2.91	1.70	1.27	▼
Omphalocele	2.32	1.57	1.82	1.89	0.97	0.84	
Gastroschisis	0.00	0.98	0.78	0.95	0.73	0.42	
Prune belly sequence	0.39	0.49	0.26	0.16	0.16	0.00	
Trisomy 13	1.16	1.38	0.87	0.39	0.16	0.42	▼
Trisomy 18	0.39	1.38	1.04	0.55	0.65	0.42	
Down syndrome, all ages (incl. age unknown)	17.78	13.48	12.40	9.93	8.01	6.34	▼
<20		0.00*	3.36	6.68	13.25	0.00	
20-24		4.05*	5.19	5.26	8.47	3.71	
25-29		13.22*	9.43	7.66	3.78	4.93	▼
30-34		14.01*	16.42	10.89	6.73	9.36	▼
35-39		62.15*	27.93	13.94	11.74	2.91	▼
40-44		55.40*	61.64	41.78	44.72	17.61	
45+		333.33*	0.00	165.29	66.23	0.00	

* = data incl. less than seven and five years

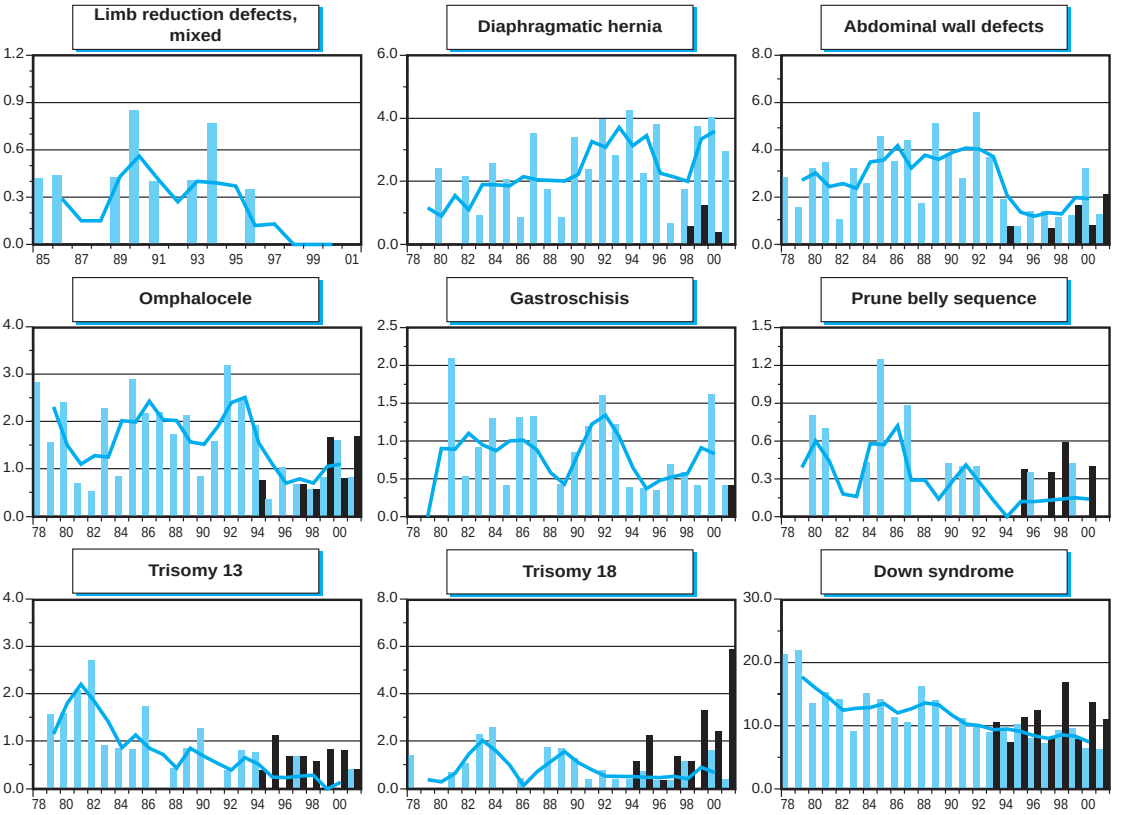
Italy: IMER

Time trends 1978-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Italy: ISMAC
Sicilian Registry of Congenital Malformations

History:
The Registry started in 1991 and became an ICB-DMS associate member in 1996. Sicilian Registry is also member of EUROCAT and collaborates with other Italian Registries under supervision of Italian National Institute of Health Rome.

Size and coverage:
It is hospital based and actually collaborates with four southeast provinces of the nine Sicilian provinces, (with a covering rate higher than 75%) and with more than 19,000 controlled newborns by year.

Legislation and funding:
The Programme is on a voluntary basis, supported at local level by A.S.MA.C, Sicilian association for congenital malformations prevention.

Sources of ascertainment:
Reports are obtained from delivery units, pediatric units and other specialistic departments.

Exposure information:
For each malformed reported (livebirth, stillbirth and voluntary abortion), information is given on certain exposures, including maternal drug usage and parental occupation. Up to now no information on controls is available.

Address for further information:
Sebastiano Bianca, Dipartimento di Pediatria, via S. Sofia, 78 – 95123 Catania, Italy

Fax: 39-095-222532

E-mail: sebastiano.bianca@tiscali.it

Italy: ISMAC, 2001

Live births (L)	nr
Stillbirths (S)	nr
Total births	16,949
Number of terminations of pregnancy (ToP) for birth defects	80

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	nr	9	0.00	5.29	0.00	10	
Spina bifida	0	nr	7	0.00	4.11	0.00	10	
Encephalocele	0	nr	3	0.00	1.76	0.00	10	
Microcephaly	2	nr	0	1.18	1.17	0.80	10	
Arhinencephaly / Holoprosencephaly	1	nr	0	0.59	0.59	1.82	10	
Hydrocephaly	8	nr	14	4.72	12.92	1.83	8	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	nr	0	1.18	1.17	3.64	10	
Anophthalmos	0	nr	0	0.00	0.00	0.00	10	
Microphthalmos	2	nr	0	1.18	1.17	3.64	10	
Total Anotia / Microtia (incl. unspecified)	4	nr	0	2.36	2.35	5.56	9	
Anotia	2	nr	0	1.18	1.17	2.94	3	
Microtia	2	nr	0	1.18	1.17	5.88	3	
Transposition of great vessels	2	nr	0	1.18	1.17	0.36	10	
Tetralogy of Fallot	3	nr	0	1.77	1.76	1.25	3	
Hypoplastic left heart syndrome	3	nr	7	1.77	5.87	2.07	9	
Coarctation of aorta	2	nr	0	1.18	1.17	1.46	3	
Choanal atresia, bilateral	1	nr	0	0.59	0.59	2.44	9	
Cleft palate without cleft lip	11	nr	0	6.49	6.46	1.35	10	
Cleft lip with or without cleft palate	8	nr	0	4.72	4.70	0.70	10	
Oesophageal atresia / stenosis with or without fistula	5	nr	0	2.95	2.94	1.00	10	
Small intestine atresia / stenosis	2	nr	0	1.18	1.17	0.66	6	
Anorectal atresia / stenosis	4	nr	0	2.36	2.35	0.85	10	
Undescended testis (36 weeks of gestation or later)	40	nr	0	23.60	23.49	0.90	1	
Hypospadias	48	nr	0	28.32	28.19	1.22	2	
Epispadias	1	nr	0	0.59	0.59	2.13	6	
Indeterminate sex	4	nr	0	2.36	2.35	7.27	10	▲
Renal agenesis	1	nr	0	0.59	0.59	0.45	10	
Cystic kidney	10	nr	0	5.90	5.87	5.68	10	▲
Bladder exstrophy	1	nr	0	0.59	0.59	1.92	9	
Polydactyly, preaxial	5	nr	0	2.95	2.94	1.18	4	
Total Limb reduction defects (incl. unspecified)	6	nr	4	3.54	5.87	1.18	10	
Transverse	6	nr	4	3.54	5.87	1.75	3	
Preaxial	0	nr	0	0.00	0.00	nc		
Postaxial	0	nr	0	0.00	0.00	0.00	3	
Intercalary	0	nr	0	0.00	0.00	nc		
Mixed	0	nr	0	0.00	0.00	nc		
Diaphragmatic hernia	1	nr	3	0.59	2.35	0.34	10	
Total Abdominal wall defects (incl. unspecified)	3	nr	8	1.77	6.46	0.79	10	
Omphalocele	1	nr	2	0.59	1.76	0.40	10	
Gastroschisis	2	nr	6	1.18	4.70	1.55	10	
Prune belly sequence	0	nr	0	0.00	0.00	0.00	9	
Trisomy 13	2	nr	5	1.18	4.11	1.83	7	
Trisomy 18	0	nr	5	0.00	2.94	0.00	10	
Down syndrome, all ages (incl. age unknown)	10	nr	15	5.90	14.68	0.48	10	
<20	0	nr	0	nc	nc	nc		
20-24	1	nr	1	nc	nc	nc		
25-29	2	nr	2	nc	nc	nc		
30-34	4	nr	4	nc	nc	nc		
35-39	2	nr	5	nc	nc	nc		
40-44	1	nr	2	nc	nc	nc		
45+	0	nr	1	nc	nc	nc		

nr= not reported
nc= not calculable

Italy: ISMAC, time trend analysis 1991-2001

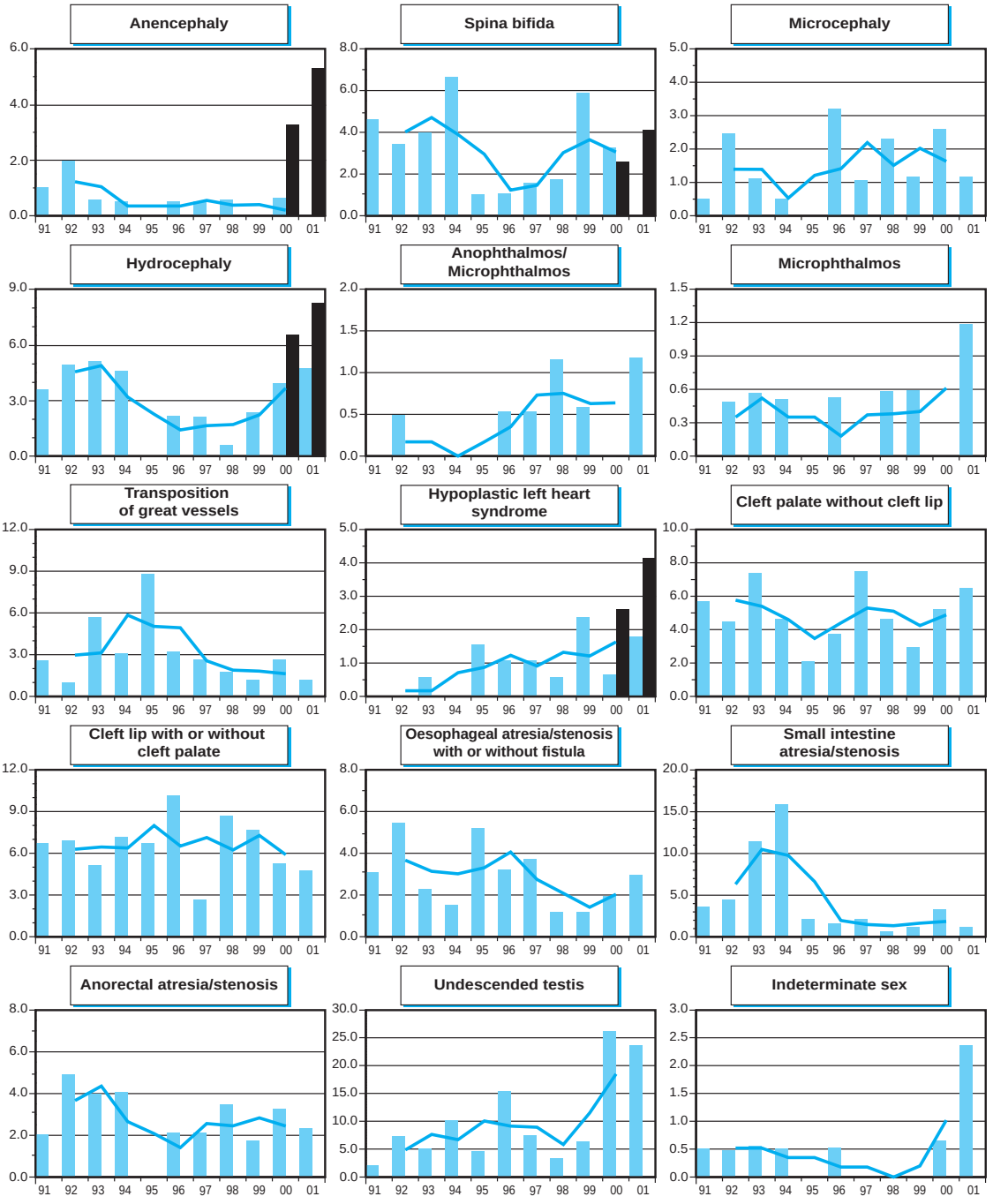
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births				96,220	87,015	16,949	
Anencephaly				0.83	0.46	0.00	▼
Spina bifida				3.95	2.64	0.00	▼
Encephalocele				0.21	0.34	0.00	
Microcephaly				0.94	2.07	1.18	
Arhinencephaly / Holoprosencephaly				0.21	0.46	0.59	
Hydrocephaly				3.64	2.18	4.72	
Total Anophthalmos / Microphthalmos (incl. unspecified)				0.10	0.57	1.18	
Anophthalmos				0.00	0.23	0.00	
Microphthalmos				0.31	0.34	1.18	
Total Anotia / Microtia (incl. unspecified)				0.21	0.73*	2.36	▲
Anotia					0.40*	1.18	nc
Microtia					0.20*	1.18	nc
Transposition of great vessels				4.16	2.30	1.18	
Tetralogy of Fallot					1.41*	1.77	nc
Hypoplastic left heart syndrome				0.42	1.15	1.77	▲
Coarctation of aorta					0.81*	1.18	nc
Choanal atresia, bilateral				0.10	0.44*	0.59	
Cleft palate without cleft lip				4.78	4.83	6.49	
Cleft lip with or without cleft palate				6.55	6.90	4.72	
Oesophageal atresia / stenosis with or without fistula				3.53	2.30	2.95	
Small intestine atresia / stenosis				7.38	1.72	1.18	▼
Anorectal atresia / stenosis				3.01	2.53	2.36	
Undescended testis (36 weeks of gestation or later)				5.92	11.49	23.60	▲
Hypospadias					17.81	28.32	▲
Epispadias				0.00	0.44*	0.59	▲
Indeterminate sex				0.42	0.23	2.36	
Renal agenesis				1.56	1.03	0.59	
Cystic kidney				0.83	1.26	5.90	▲
Bladder exstrophy				0.10	0.59*	0.59	
Polydactyly, preaxial				0.21	2.49*	2.95	▲
Total Limb reduction defects (incl. unspecified)				3.43	2.53	3.54	
Transverse					2.02*	3.54	nc
Preaxial					0.00*	0.00	nc
Postaxial					0.40*	0.00	nc
Intercalary					0.00*	0.00	nc
Mixed					0.00*	0.00	nc
Diaphragmatic hernia				1.87	1.61	0.59	
Total Abdominal wall defects (incl. unspecified)				2.60	1.84	1.77	
Omphalocele				1.77	1.15	0.59	
Gastroschisis				0.83	0.69	1.18	
Prune belly sequence				0.00	0.15*	0.00	
Trisomy 13				0.21	0.88*	1.18	▲
Trisomy 18				0.52	0.69	0.00	
Down syndrome, all ages (incl. age unknown)				13.20	11.26	5.90	

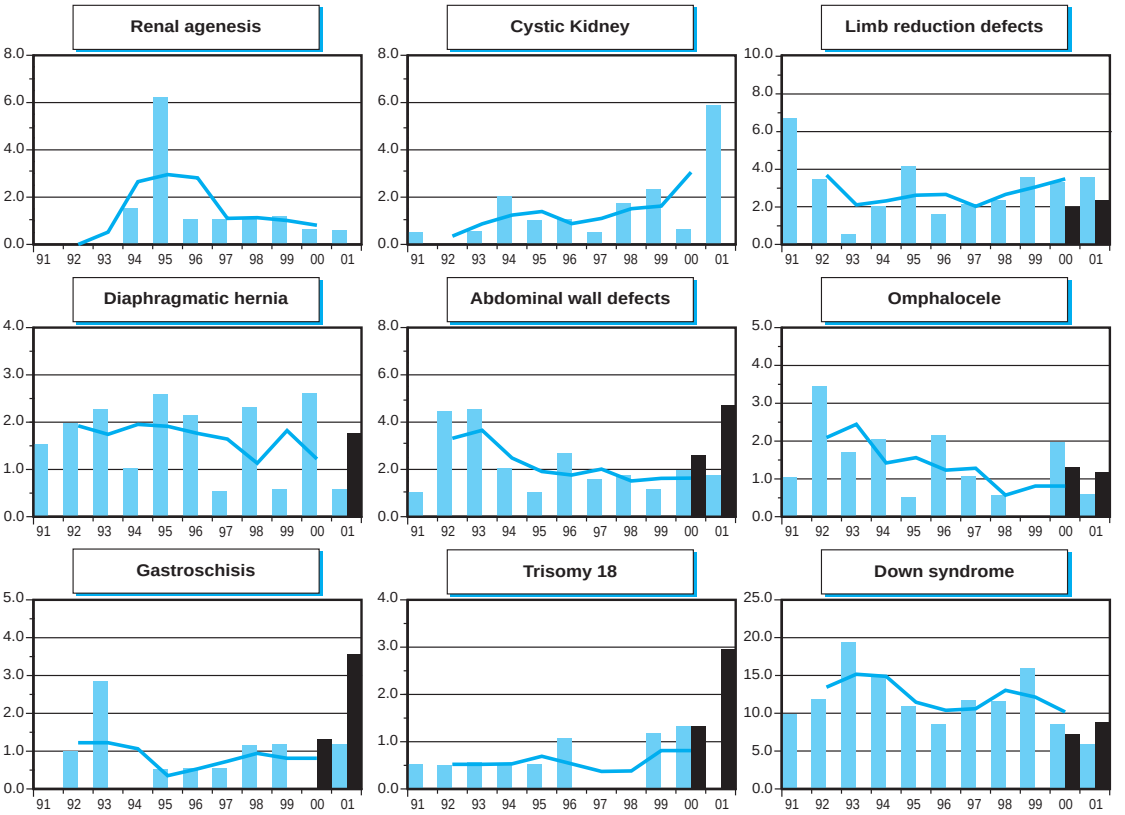
* = data incl. less than five years
nc= not calculable

Italy: ISMAC

Time trends 1991-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Italy: North East

North East Italy Registry of Congenital Malformations

History:
The Registry was established in 1981 to include the Veneto and Friuli Venezia Giulia regions. The Trentino Alto Adige region was added in 1990. The Registry became a member of Eurocat in1985, and an associate member of the ICBDMS in 1997.

Size and coverage:
Reports are obtained from 73 participating hospitals, with a total of approximately 49,500 annual births; the actual coverage is estimated at 99%.

Legislation and funding:
Reporting is voluntary. The Programme is partly run by Regional Health Authorities.

Sources of ascertainment:
Reports are obtained on specific forms from delivery units, induced abortion units, pediatric, cardiology, ophthalmology and pathology departments, regional induced abortion database and cytogenetic laboratories. 32 selected malformations are recorded within 7 days from birth (within 3 years of age for cardiovascular and ophthalmologic anomalies only). In terminated fetuses all anomalies are recorded. From 1st January 2000 we are now registering all congenital anomalies adopting the Eurocat list of exclusions (revised 1985).

Exposure information:
Detailed information on various exposures, including maternal or paternal occupation, diseases and drug use is obtained by interview of the mothers at the birth of the malformed infants and their controls.

Background information:
Some epidemiological background data of all births are available. For each participating hospital the number of livebirths and stillbirths by sex and number of twin pairs are known.

Address for further information:
Romano Tenconi MD, Clinical and Epidemiological Genetic Service, Pediatric Department, via Giustiniani 3,
35128 Padova, Italy.

Phone: 39-049-8213513

Fax: 39-049-8211425

E-mail: romano.tenconi@unipd.it

Website: www.genetica.pedi.unipd.it

Italy: North East, 2001

Live births (L)	49,632
Stillbirths (S)	149
Total births	49,781
Number of terminations of pregnancy (ToP) for birth defects	111

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	6	0.00	1.20	0.00	12	
Spina bifida	0	0	5	0.00	1.00	0.00	11	
Encephalocele	0	0	1	0.00	0.20	0.00	16	
Microcephaly	1	0	0	0.20	0.20	0.37	1	
Arhinencephaly / Holoprosencephaly	1	0	5	0.20	1.20	1.12	17	
Hydrocephaly	6	0	4	1.21	2.00	1.02	20	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	0	2	0.40	0.80	0.57	19	
Anophthalmos	0	0	1	0.00	0.20	0.00	13	
Microphthalmos	2	0	1	0.40	0.60	0.63	11	
Total Anotia / Microtia (incl. unspecified)	7	0	0	1.41	1.40	0.74	20	
Anotia	1	0	0	0.20	0.20	1.27	20	
Microtia	6	0	0	1.21	1.20	0.69	20	
Transposition of great vessels	3	0	1	0.60	0.80	0.63	9	
Tetralogy of Fallot	6	0	1	1.21	1.40	0.63	9	
Hypoplastic left heart syndrome	2	0	1	0.40	0.60	0.80	7	
Coarctation of aorta	2	1	0	0.60	0.60	0.84	7	
Choanal atresia, bilateral	1	0	0	0.20	0.20	1.11	1	
Cleft palate without cleft lip	22	0	1	4.42	4.61	1.00	20	
Cleft lip with or without cleft palate	19	1	6	4.02	5.21	0.66	11	
Oesophageal atresia / stenosis with or without fistula	7	0	1	1.41	1.60	0.64	20	
Small intestine atresia / stenosis	2	0	0	0.40	0.40	0.54	20	
Anorectal atresia / stenosis	10	0	2	2.01	2.41	0.86	19	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	17	0	0	3.41	3.41	1.36	3	
Epispadias	0	0	0	0.00	0.00	0.00	20	
Indeterminate sex	nr	nr	nr	nc	nc	nc		
Renal agenesis	1	0	0	0.20	0.20	0.63	12	
Cystic kidney	1	0	0	0.20	0.20	0.37	1	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	20	
Polydactyly, preaxial	6	0	0	1.21	1.20	0.59	20	
Total Limb reduction defects (incl. unspecified)	27	0	4	5.42	6.21	1.36	10	
Transverse	12	0	0	2.41	2.41	0.88	18	
Preaxial	2	0	2	0.40	0.80	1.69	16	
Postaxial	3	0	0	0.60	0.60	5.77	20	
Intercalary	3	0	0	0.60	0.60	1.17	20	
Mixed	7	0	2	1.41	1.80	2.06	10	
Diaphragmatic hernia	3	0	0	0.60	0.60	3.33	1	
Total Abdominal wall defects (incl. unspecified)	3	0	4	0.60	1.40	1.12	8	
Omphalocele	2	0	1	0.40	0.60	0.82	10	
Gastroschisis	1	0	3	0.20	0.80	1.12	13	
Prune belly sequence	1	0	1	0.20	0.40	nc		
Trisomy 13	2	0	2	0.40	0.80	1.10	1	
Trisomy 18	2	0	8	0.40	2.00	1.10	1	
Down syndrome, all ages (incl. age unknown)	39	0	37	7.83	15.23	1.04	5	
<20	0	0	0	nc	nc	nc		
20-24	2	0	0	nc	nc	nc		
25-29	3	0	2	nc	nc	nc		
30-34	14	0	4	nc	nc	nc		
35-39	8	0	19	nc	nc	nc		
40-44	5	0	11	nc	nc	nc		
45+	1	0	1	nc	nc	nc		

nr= not reported
nc= not calculable

Italy: North East, time trend analysis 1981-2001

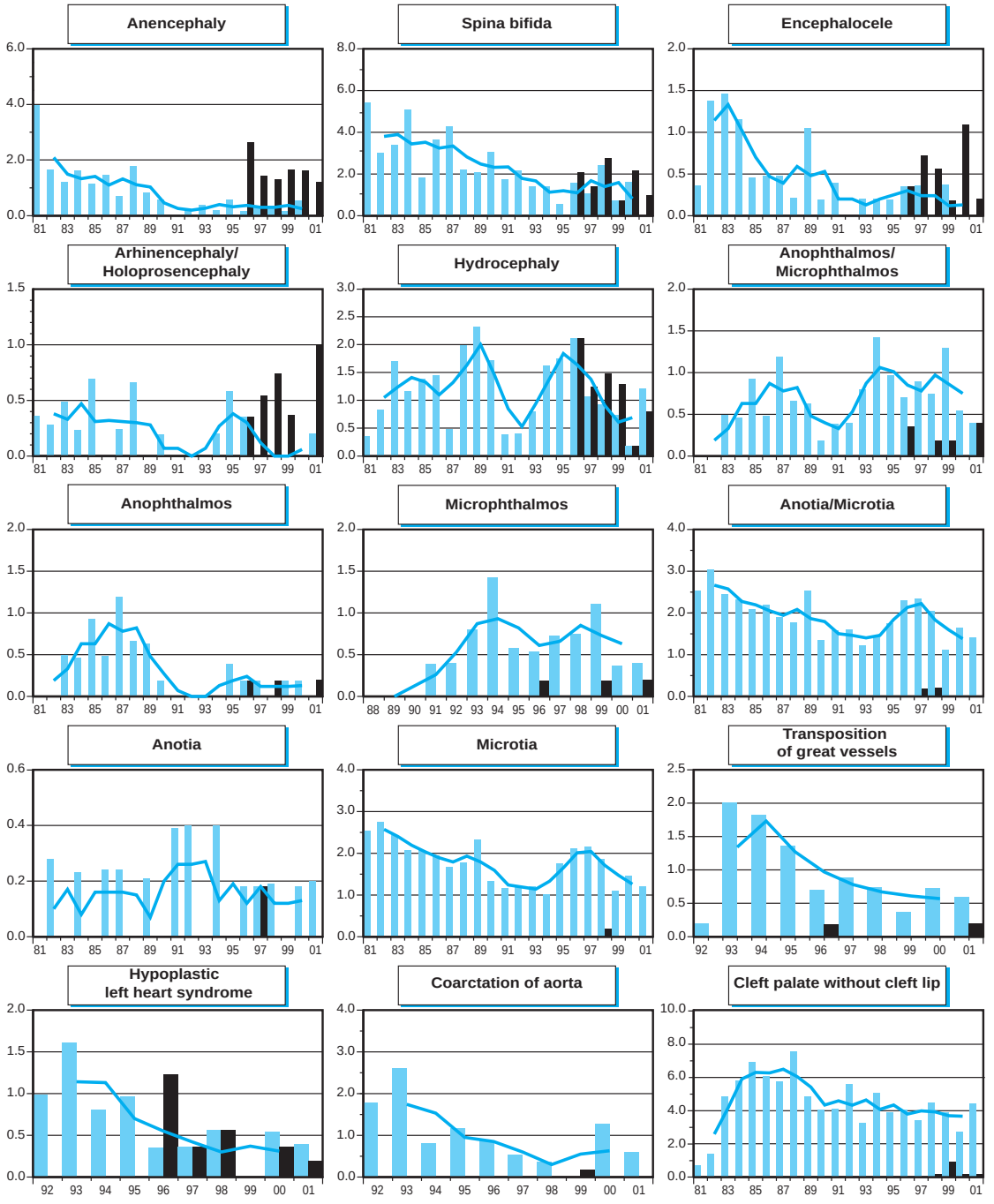
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births		191,827	228,340	252,097	276,114	49,781	
Anencephaly		1.77	1.05	0.28	0.33	0.00	▼
Spina bifida		3.65	3.02	1.47	1.48	0.00	▼
Encephalocele		0.99	0.48	0.20	0.22	0.00	▼
Microcephaly					0.54*	0.20	nc
Arhinencephaly / Holoprosencephaly		0.42	0.22	0.16	0.07	0.20	▼
Hydrocephaly		1.15	1.62	0.99	1.01	1.21	
Total Anophthalmos / Microphthalmos (incl. unspecified)		0.42	0.61	0.79	0.83	0.40	
Anophthalmos		0.42	0.61	0.08	0.14	0.00	▼
Microphthalmos			0.00*	0.71	0.69	0.40	▲
Total Anotia / Microtia (incl. unspecified)		2.45	1.93	1.51	1.88	1.41	
Anotia		0.10	0.13	0.24	0.14	0.20	
Microtia		2.35	1.80	1.27	1.74	1.21	▼
Transposition of great vessels				1.34*	0.69	0.60	
Tetralogy of Fallot				2.19*	1.70	1.21	
Hypoplastic left heart syndrome				1.09*	0.36	0.40	▼
Coarctation of aorta				1.59*	0.62	0.60	▼
Choanal atresia, bilateral					0.18*	0.20	nc
Cleft palate without cleft lip		4.27	5.56	4.36	3.69	4.42	
Cleft lip with or without cleft palate		9.12	8.19	6.35	5.72	4.02	▼
Oesophageal atresia / stenosis with or without fistula		2.50	1.93	2.94	1.59	1.41	
Small intestine atresia / stenosis		0.42	0.83	1.03	0.65	0.40	
Anorectal atresia / stenosis		2.61	2.98	1.90	2.06	2.01	▼
Hypospadias		6.93	6.53	5.91	3.15	3.41	▼
Epispadias		0.10	0.13	0.12	0.22	0.00	
Renal agenesis		0.73	0.66	0.20	0.29	0.20	▼
Cystic kidney					0.54*	0.20	nc
Bladder exstrophy		0.26	0.39	0.20	0.11	0.00	
Polydactyly, preaxial		1.62	2.63	2.26	1.70	1.21	
Total Limb reduction defects (incl. unspecified)		5.68	6.09	4.32	3.66	5.42	▼
Transverse		3.18	3.46	2.46	2.35	2.41	▼
Preaxial		0.05	0.09	0.32	0.33	0.40	▲
Postaxial		0.00	0.13	0.08	0.18	0.60	▲
Intercalary		0.63	0.61	0.56	0.33	0.60	
Mixed		1.88	1.80	0.91	0.47	1.41	▼
Diaphragmatic hernia					0.18*	0.60	nc
Total Abdominal wall defects (incl. unspecified)		2.35	1.97	0.75	0.51	0.60	▼
Omphalocele		1.51	1.31	0.60	0.40	0.40	▼
Gastroschisis		0.83	0.66	0.16	0.11	0.20	▼
Prune belly sequence					0.00*	0.20	nc
Trisomy 13					0.36*	0.40	nc
Trisomy 18					0.36*	0.40	nc
Down syndrome, all ages (incl. age unknown)		14.34	14.50	11.58	7.53	7.83	▼
<20		3.35	5.51	13.92	3.82		
20-24		7.41	8.26	3.89	3.63		▼
25-29		6.37	6.64	8.04	4.33		
30-34		12.02	12.40	8.69	6.10		▼
35-39		42.96	37.14	21.77	8.46		▼
40-44		89.86	85.24	49.82	23.79		▼
45+		135.14*	27.70*	119.76*	85.47*		

* = data incl. less than five years
nc= not calculable

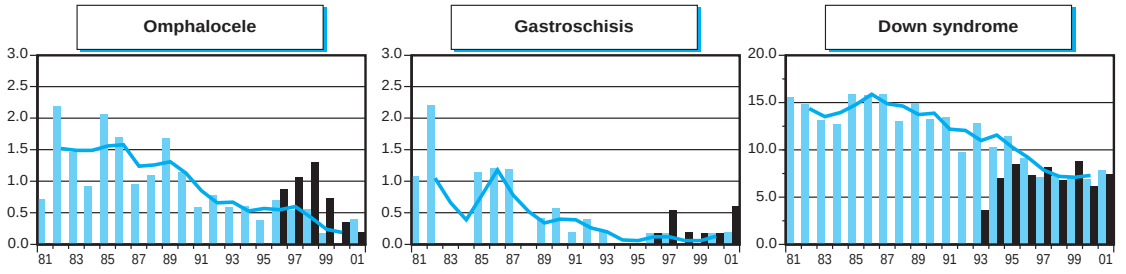
Italy: North East

Time trends 1981-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Italy: Tuscany
Tuscany Registry of Congenital Defects

History:
The registry started in 1979 in the province of Florence and from 1992 in the whole Tuscany region. The Programme became a full member of the ICBMDS in 1998.

Size and coverage:
The Programme is population based, involves all the regional hospitals and the coverage is around 95% of all births in the Tuscany region (approximately 3.5 millions inhabitants and 25,000 births/year). Stillbirths of 20 weeks or more gestation and induced abortions after prenatal diagnosis of birth defects are systematically included. Malformed babies diagnosed within the first year of life are also registered.

Legislation and funding:
The Registry is a surveillance Programme included in the Regional Statistics System; it is formally recognised and supported by the Tuscany Region Health Authority.

Sources and ascertainment:
Multiple sources are used to ascertain malformed infants; records are obtained from all obstetrical and maternity units, pediatric departments, neonatal and pediatric surgery units, prenatal diagnostic centers and pathology services. Mothers are interviewed by using a standardized questionnaire.

Exposure information:
Exposure information on maternal and paternal occupation, life-style, and socio-economical characteristics are obtained by interviews of mothers of malformed infants.

Background information:
Vital statistics and other epidemiological information are obtained by the birth medical records collected by the Regional Bureau of Statistics. Selected information is obtained from the control material collected.

Address for further information:
Fabrizio Bianchi, Sezione di Epidemiologia e Biostatistica, Istituto di Fisiologia Clinica del Consiglio Nazionale delle Ricerche, Area della Ricerca di S. Cataldo, Via Moruzzi, 1, 56127 Pisa, Italy.

Phone: 39-050-3152100

Fax: 39-050 3152095

E-mail: fabrizio.bianchi@ifc.cnr.it

Italy: Tuscany, 2001

Live births (L)	26,282
Stillbirths (S)	99
Total births	26,381
Number of terminations of pregnancy (ToP) for birth defects	91

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	4	0.00	1.51	0.00	9	
Spina bifida	2	0	4	0.76	2.27	0.69	9	
Encephalocele	0	0	0	0.00	0.00	0.00	9	
Microcephaly	3	0	0	1.14	1.13	1.35	8	
Arhinencephaly / Holoprosencephaly	0	1	0	0.38	0.38	1.43	9	
Hydrocephaly	0	0	6	0.00	2.27	0.00	9	
Total Anophthalmos / Microphthalmos (incl. unspecified)	5	0	0	1.90	1.89	3.91	9	
Anophthalmos	0	0	0	0.00	0.00	0.00	6	
Microphthalmos	5	0	0	1.90	1.89	5.38	9	▲
Total Anotia / Microtia (incl. unspecified)	1	0	0	0.38	0.38	0.43	9	
Anotia	0	0	0	0.00	0.00	0.00	9	
Microtia	1	0	0	0.38	0.38	0.71	9	
Transposition of great vessels	8	0	1	3.03	3.40	1.27	9	
Tetralogy of Fallot	6	0	0	2.27	2.27	0.92	9	
Hypoplastic left heart syndrome	6	0	3	2.27	3.40	1.66	9	
Coarctation of aorta	8	0	0	3.03	3.02	1.16	9	
Choanal atresia, bilateral	1	0	0	0.38	0.38	1.72	9	
Cleft palate without cleft lip	7	0	0	2.65	2.64	0.74	9	
Cleft lip with or without cleft palate	8	0	4	3.03	4.53	0.46	9	
Oesophageal atresia / stenosis with or without fistula	3	0	0	1.14	1.13	0.47	9	
Small intestine atresia / stenosis	1	0	0	0.38	0.38	0.69	8	
Anorectal atresia / stenosis	5	0	1	1.90	2.27	0.90	7	
Undescended testis (36 weeks of gestation or later)	26	0	0	9.86	9.82	0.92	3	
Hypospadias	17	0	0	6.44	6.42	1.68	8	
Epispadias	1	0	0	0.38	0.38	1.72	9	
Indeterminate sex	2	0	0	0.76	0.76	1.23	9	
Renal agenesis	1	0	1	0.38	0.76	0.43	9	
Cystic kidney	5	0	1	1.90	2.27	0.70	9	
Bladder exstrophy	1	0	0	0.38	0.38	1.43	9	
Polydactyly, preaxial	2	0	0	0.76	0.76	0.78	9	
Total Limb reduction defects (incl. unspecified)	12	1	2	4.93	5.67	1.17	9	
Transverse	8	0	0	3.03	3.02	0.94	9	
Preaxial	0	1	1	0.38	0.76	1.43	9	
Postaxial	0	0	0	0.00	0.00	0.00	9	
Intercalary	1	0	1	0.38	0.76	0.85	9	
Mixed	1	0	0	0.38	0.38	0.85	9	
Diaphragmatic hernia	5	0	1	1.90	2.27	1.43	9	
Total Abdominal wall defects (incl. unspecified)	1	0	3	0.38	1.51	0.31	9	
Omphalocele	1	0	2	0.38	1.13	0.43	9	
Gastroschisis	0	0	0	0.00	0.00	0.00	9	
Prune belly sequence	0	0	0	0.00	0.00	0.00	9	
Trisomy 13	1	0	1	0.38	0.76	2.13	9	
Trisomy 18	0	1	1	0.38	0.76	0.61	9	
Down syndrome, all ages (incl. age unknown)	14	1	29	5.69	16.62	0.90	5	
<20	0	0	0	0.00	0.00	0.00	9	
20-24	2	0	0	8.64	8.64	2.47	9	
25-29	3	0	0	4.13	4.13	0.76	9	
30-34	8	0	7	8.05	15.08	1.04	9	
35-39	1	0	9	1.81	18.11	0.29	6	
40-44	0	1	13	11.25	155.21	0.35	9	
45+	0	0	0	0.00	0.00	0.00	9	

Italy: Tuscany, time trend analysis 1992-2001

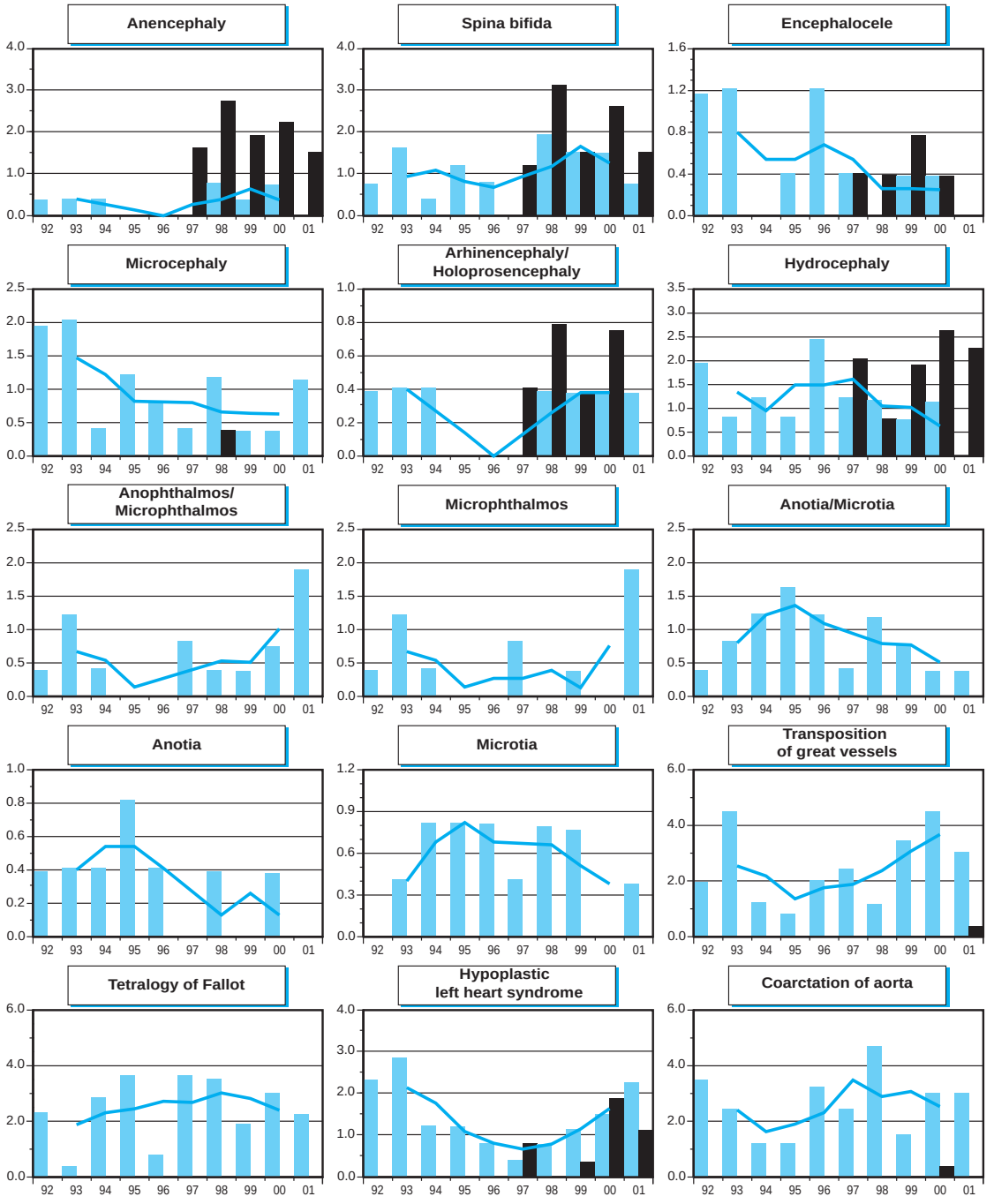
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95*	1996-00	2001	Trend
Births				99,181	127,284	26,381	
Anencephaly				0.30	0.39	0.00	
Spina bifida				1.01	1.18	0.76	
Encephalocele				0.71	0.47	0.00	▼
Microcephaly				1.41	0.63	1.14	
Arhinencephaly / Holoprosencephaly				0.30	0.24	0.38	
Hydrocephaly				1.21	1.34	0.00	
Total Anophthalmos / Microphthalmos (incl. unspecified)				0.50	0.47	1.90	
Anophthalmos				0.00	0.24	0.00	
Microphthalmos				0.50	0.24	1.90	
Total Anotia / Microtia (incl. unspecified)				1.01	0.79	0.38	
Anotia				0.50	0.24	0.00	
Microtia				0.50	0.55	0.38	
Transposition of great vessels				2.12	2.75	3.03	
Tetralogy of Fallot				2.32	2.59	2.27	
Hypoplastic left heart syndrome				1.92	0.94	2.27	▼
Coarctation of aorta				2.12	2.99	3.03	
Choanal atresia, bilateral				0.10	0.31	0.38	
Cleft palate without cleft lip				3.73	3.46	2.65	
Cleft lip with or without cleft palate				7.26	6.05	3.03	▼
Oesophageal atresia / stenosis with or without fistula				2.32	2.51	1.14	
Small intestine atresia / stenosis				1.01	0.39	0.38	▼
Anorectal atresia / stenosis				1.51	2.12	1.90	
Undescended testis (36 weeks of gestation or later)				4.23	6.99	9.86	▲
Hypospadias				5.55	2.99	6.44	
Epispadias				0.30	0.16	0.38	
Indeterminate sex				0.91	0.39	0.76	
Renal agenesis				1.11	0.71	0.38	▼
Cystic kidney				2.82	2.59	1.90	
Bladder exstrophy				0.30	0.24	0.38	
Polydactyly, preaxial				0.91	1.02	0.76	
Total Limb reduction defects (incl. unspecified)				4.44	4.01	4.93	
Transverse				3.63	2.91	3.03	
Preaxial				0.20	0.31	0.38	
Postaxial				0.10	0.39	0.00	
Intercalary				0.20	0.63	0.38	
Mixed				0.50	0.39	0.38	
Diaphragmatic hernia				1.51	1.18	1.90	
Total Abdominal wall defects (incl. unspecified)				1.61	0.94	0.38	
Omphalocele				1.21	0.63	0.38	
Gastroschisis				0.20	0.16	0.00	
Prune belly sequence				0.10	0.08	0.00	
Trisomy 13				0.10	0.24	0.38	
Trisomy 18				0.71	0.55	0.38	
Down syndrome, all ages (incl. age unknown)				10.18	6.05	5.69	▼
<20				6.21	0.00	0.00	
20-24				5.44	1.56	8.64	
25-29				6.30	4.58	4.13	
30-34				8.37	7.33	8.05	
35-39				20.74	5.75	1.81	▼
40-44				32.77	31.60	11.25	
45+				97.09	0.00	0.00	

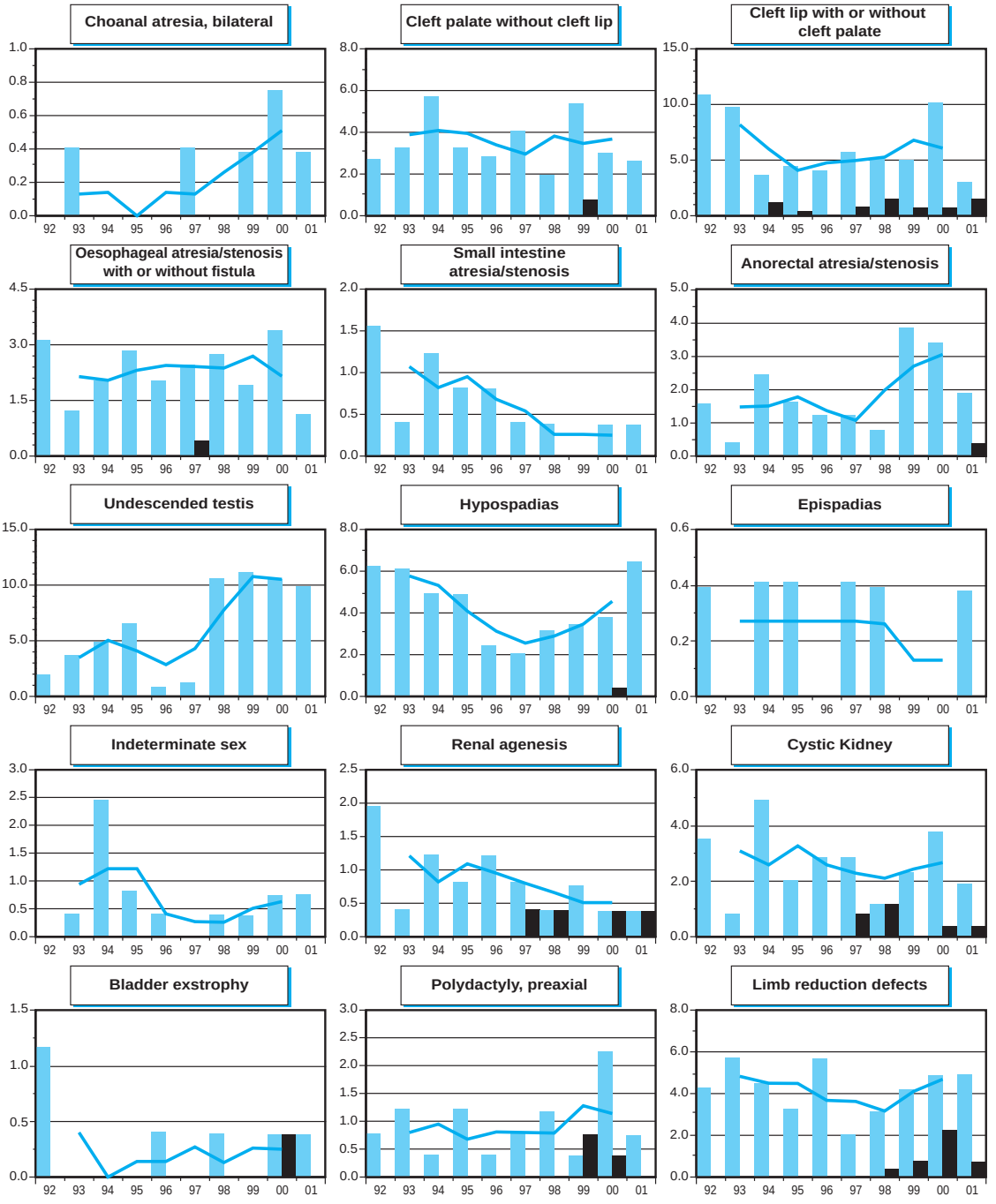
* = data incl. less than five years

Italy: Tuscany

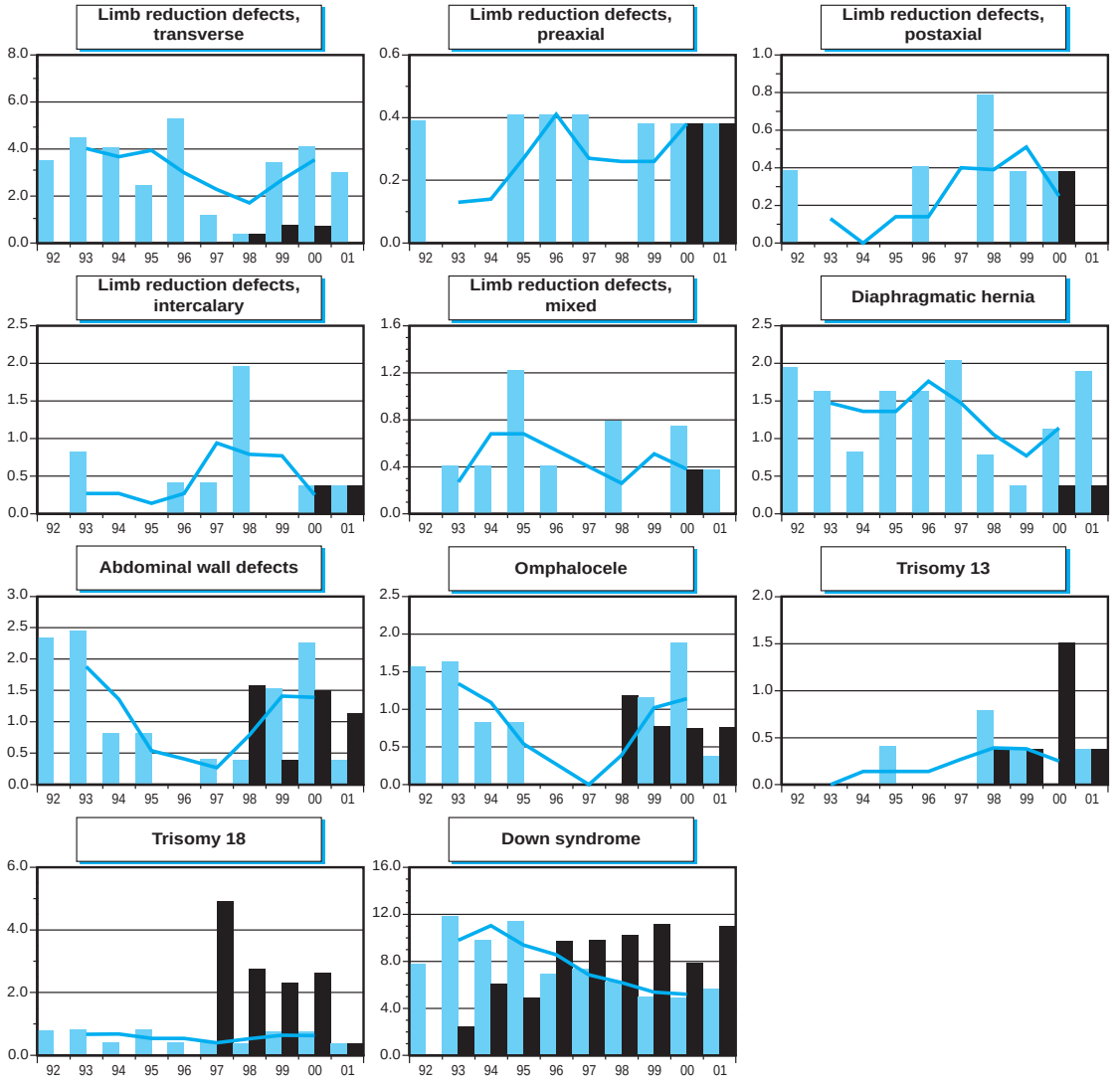
Time trends 1992-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Japan: JAOG

Japan Association of Maternal Welfare (Until 1994)
Japan Association of Obstetricians and Gynecologists

History:
The Programme started in 1972 and became a full member of the ICBDMS in1988.

Size and coverage:
The Programme is based on reports from 330 hospitals throughout Japan. At present, approximately 110,000 births are covered, representing about 10% of all Japanese births. Still births of 22 weeks or more gestation are included.

Legislation and funding:
The Programme is a research programme acknowledged by the Ministry of Welfare and Health and supported by JAOG and Ogyaa-Donation.

Sources of ascertainment:
Reports are obtained from delivery units and pediatric clinics of participating hospitals.

Exposure information:
Detailed information on various exposures including maternal or paternal occupation, chronic diseases and drug use, X-ray and viral infections are available.

Background information:
Basic epidemiological information on all births is available from each participating hospitals.

Address for further information:
Yoshio Sumiyoshi, JAOG, Yokohama City University, Urafune Hospital, 4-57, Urafune-cho, Minami-ku, Yokohama, 232-0024, Japan.

Phone: 81-45-2533668

Fax: 81-45-2533668

E-mail: fuhira@hamakko.or.jp

Japan: JAOG, 2001

Live births (L)	96,620
Stillbirths (S)	769
Total births	97,389
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	5	7	nr	1.23	nc	0.72	5	
Spina bifida	43	7	nr	5.13	nc	1.45	16	
Encephalocele	6	5	nr	1.13	nc	1.06	27	
Microcephaly	14	2	nr	1.64	nc	1.31	24	
Arhinencephaly / Holoprosencephaly	7	1	nr	0.82	nc	0.75	5	
Hydrocephaly	73	10	nr	8.52	nc	1.25	13	
Total Anophthalmos / Microphthalmos (incl. unspecified)	8	1	nr	0.92	nc	1.51	8	
Anophthalmos	2	0	nr	0.21	nc	1.09	8	
Microphthalmos	6	1	nr	0.72	nc	1.31	27	
Total Anotia / Microtia (incl. unspecified)	nr	nr	nr	nc	nc	nc		
Anotia	nr	nr	nr	nc	nc	nc		
Microtia	13	5	nr	1.85	nc	1.64	27	
Transposition of great vessels	26	1	nr	2.77	nc	1.14	3	
Tetralogy of Fallot	33	0	nr	3.39	nc	0.84	1	
Hypoplastic left heart syndrome	24	1	nr	2.57	nc	1.89	4	▲
Coarctation of aorta	30	2	nr	3.29	nc	2.12	4	▲
Choanal atresia, bilateral	nr	nr	nr	nc	nc	nc		
Cleft palate without cleft lip	40	0	nr	4.11	nc	0.80	19	
Cleft lip with or without cleft palate	186	13	nr	20.43	nc	1.31	13	▲
Oesophageal atresia / stenosis with or without fistula	45	8	nr	5.44	nc	2.02	9	▲
Small intestine atresia / stenosis	50	2	nr	5.34	nc	1.21	4	
Anorectal atresia / stenosis	47	6	nr	5.44	nc	1.33	27	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	47	0	nr	4.83	nc	1.74	16	▲
Epispadias	nr	nr	nr	nc	nc	nc		
Indeterminate sex	nr	nr	nr	nc	nc	nc		
Renal agenesis	9	6	nr	1.54	nc	0.98	11	
Cystic kidney	39	7	nr	4.72	nc	1.70	4	▲
Bladder exstrophy	2	2	nr	0.41	nc	2.68	25	
Polydactyly, preaxial	56	1	nr	5.85	nc	0.93	12	
Total Limb reduction defects (incl. unspecified)	33	4	nr	3.80	nc	1.18	8	
Transverse	5	0	nr	0.51	nc	1.52	8	
Preaxial	6	1	nr	0.72	nc	1.30	8	
Postaxial	2	0	nr	0.21	nc	0.71	8	
Intercalary	4	2	nr	0.62	nc	0.58	7	
Mixed	11	0	nr	1.13	nc	2.00	8	
Diaphragmatic hernia	52	5	nr	5.85	nc	1.08	3	
Total Abdominal wall defects (incl. unspecified)	4	0	nr	0.41	nc	0.09	16	▼
Omphalocele	25	3	nr	2.88	nc	0.91	15	
Gastroschisis	19	5	nr	2.46	nc	1.33	9	
Prune belly sequence	1	0	nr	0.10	nc	nc		
Trisomy 13	6	5	nr	1.13	nc	1.41	7	
Trisomy 18	41	28	nr	7.08	nc	1.77	5	▲
Down syndrome, all ages (incl. age unknown)	75	5	nr	8.21	nc	1.03	7	
<20	2	0	nr	12.69	nc	4.00	8	
20-24	4	0	nr	3.74	nc	1.42	8	
25-29	13	1	nr	4.15	nc	0.87	8	
30-34	22	2	nr	6.85	nc	0.97	8	
35-39	21	1	nr	15.52	nc	0.87	8	
40-44	12	1	nr	59.66	nc	1.09	8	
45+	1	0	nr	nc	nc	nc		

nr= not reported
nc = not calculable

Japan: JAOG, time trend analysis 1974-2001

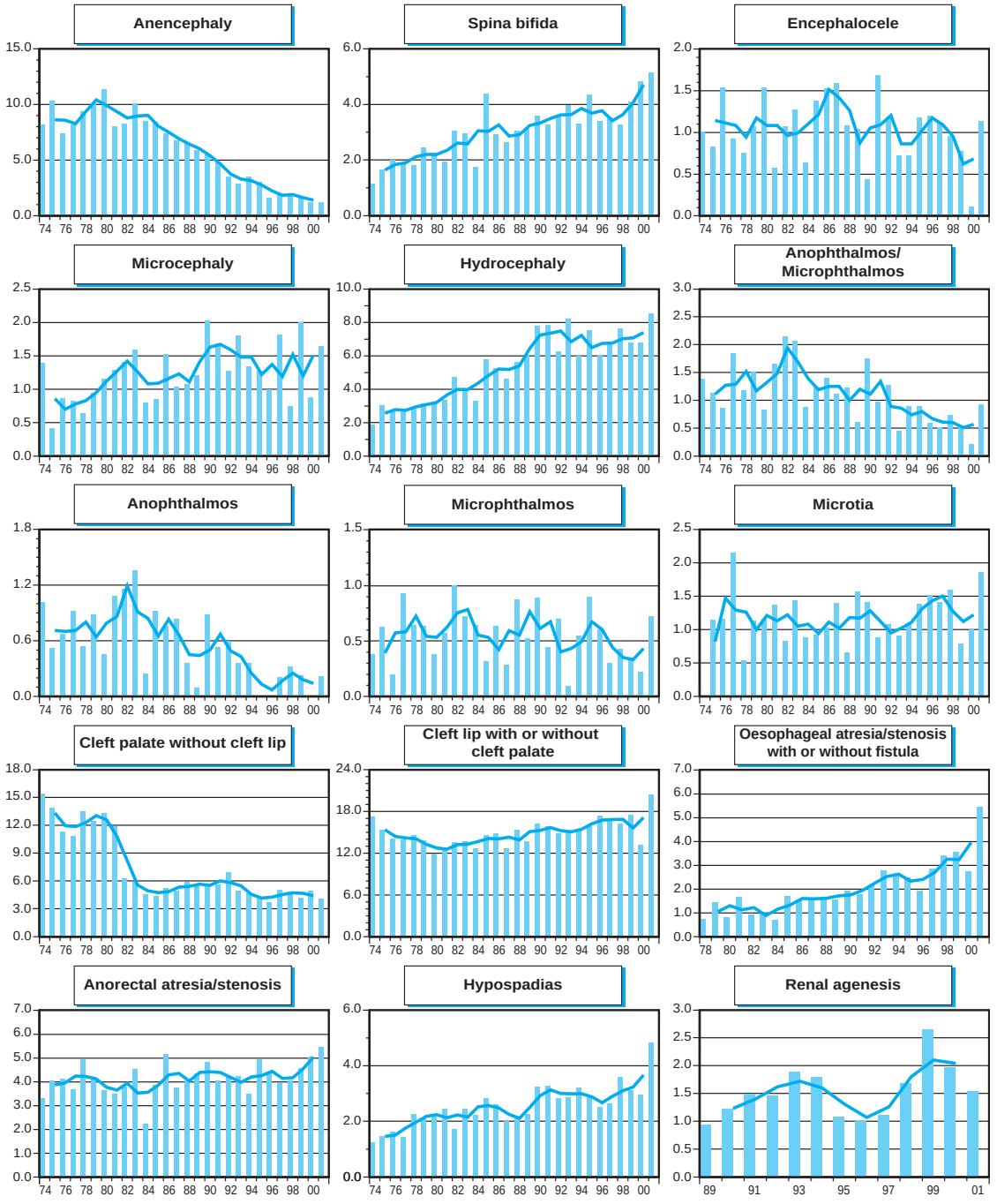
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	786,267	641,607	669,652	539,382	474,407	97,389	
Anencephaly	9.49	8.65	6.50	3.56	1.71	1.23	▼
Spina bifida	1.96	2.81	3.03	3.69	3.82	5.13	▲
Encephalocele	1.13	0.98	1.18	1.09	0.84	1.13	
Microcephaly	0.90	1.18	1.36	1.48	1.29	1.64	▲
Arhinencephaly / Holoprosencephaly				0.79*	1.10	0.82	
Hydrocephaly	2.85	4.21	5.78	7.17	6.77	8.52	▲
Total Anophthalmos / Microphthalmos (incl. unspecified)	1.23	1.59	1.22	0.89	0.53	0.92	▼
Anophthalmos	0.70	0.95	0.60	0.37	0.15	0.21	▼
Microphthalmos	0.53	0.64	0.63	0.52	0.38	0.72	
Microtia	1.08	1.09	1.18	1.06	1.26	1.85	
Transposition of great vessels					2.21*	2.77	▲
Tetralogy of Fallot					2.61*	3.39	▲
Hypoplastic left heart syndrome					1.36*	2.57	
Coarctation of aorta					1.55*	3.29	▲
Cleft palate without cleft lip	12.87	6.70	5.39	5.25	4.55	4.11	▼
Cleft lip with or without cleft palate	14.09	13.39	14.52	15.41	16.25	20.43	▲
Oesophageal atresia / stenosis with or without fistula	1.05*	1.22	1.64	2.35	2.87	5.44	▲
Small intestine atresia / stenosis					4.43*	5.34	
Anorectal atresia / stenosis	3.97	3.58	4.42	4.17	4.38	5.44	▲
Hypospadias	1.83	2.35	2.42	3.02	2.95	4.83	▲
Renal agenesis			1.09*	1.56	1.67	1.54	
Cystic kidney					2.77*	4.72	▲
Bladder exstrophy	0.18*	0.12	0.16	0.09	0.21	0.41	
Polydactyly, preaxial			5.88*	6.64	6.09	5.85	
Total Limb reduction defects (incl. unspecified)				3.30*	3.18	3.80	
Transverse				0.31*	0.36	0.51	
Preaxial				0.52*	0.57	0.72	
Postaxial				0.22*	0.34	0.21	
Intercalary				1.42*	0.95	0.62	▼
Mixed				0.52*	0.59	1.13	
Diaphragmatic hernia			2.05*	3.08	4.43	5.85	▲
Total Abdominal wall defects (incl. unspecified)	2.15	2.23	4.48	4.80	4.72	0.41	▲
Omphalocele	1.09	1.37	3.03	2.98	3.56	2.88	▲
Gastroschisis	1.06	0.86	1.33	1.45	2.11	2.46	▲
Prune belly sequence				0.20*	0.00	0.10	
Trisomy 13				0.47*	0.95	1.13	▲
Trisomy 18				2.21*	4.01	7.08	▲
Down syndrome, all ages (incl. age unknown)	4.26*	4.72	6.17	6.27	8.43	8.21	▲
<20				5.81*	1.64	12.69	
20-24				2.15*	2.98	3.74	
25-29				3.99*	5.39	4.15	
30-34				5.67*	8.02	6.85	
35-39				16.39*	18.78	15.52	
40-44				66.60*	47.53	59.66	

* = data incl. less than seven and five years

Japan: JAOG

Time trends 1974-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, 3-year moving average trend

Note: L+S rates, 3-year moving average trend

Malta
Congenital Anomalies Register

History:
The register started in 1985 as a research project of the University of Malta. It started as a hospital based register collecting data regarding congenital anomalies diagnosed in babies born at the main general hospital. It became a member of EUROCAT in 1986. Funding for the research project was stopped in 1995 and in 1997 the Department of Health Information resumed the functions of the registry increasing coverage to all hospitals on the islands making it a population based register. Several new sources of data were included at this stage. The Register was accepted as an associate member of the International Clearinghouse in 2000.

Size and Coverage:
The registry is population based and presently covers about 4500 births per year. Stillbirths of 20 weeks gestation or more are registered. Termination of pregnancy is illegal in Malta.

Legislation and Funding:
Reporting is voluntary. The registry is run and funded by the government Department of Health Information.

Sources of ascertainment:
The registry employs active data collection from multiple sources including: labour, postnatal and nursery wards, cardiac lab records, genetics clinic records, National Mortality Register, National Obstetric Systems database, Hospital Activity Analysis database, National Cancer Register and the hypothyroid screening Program. Voluntary reporting by doctors is also available. These sources cover the whole population of the Maltese Islands.

Exposure information:
Information regarding maternal disease and exposure to medicinal drugs, smoking, alcohol and drug abuse as well as parental occupation are collected for all malformed infants.

Background information:
Epidemiological background data on all births are available from the National Obstetric Information Systems database and the National Statistics Office (NSO).

Address for further information:
Miriam Gatt, Malta Congenital Anomalies Registry, Department of Health Information, 95 Guardamangia Hill,
Guardamangia MSD 08, Malta

Tel: 356-21234915

Fax: 356-21235910

E-mail: miriam.gatt@gov.mt

Malta, 2001

Live births (L)	3,859
Stillbirths (S)	24
Total births	3,883
Number of terminations of pregnancy (ToP) for birth defects	not permitted

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0		0.00		0.00	8	
Spina bifida	2	0		5.15		0.75	8	
Encephalocele	0	1		2.58		1.20	8	
Microcephaly	0	0		0.00		0.00	8	
Arhinencephaly / Holoprosencephaly	0	0		0.00		0.00	8	
Hydrocephaly	1	0		2.58		0.40	8	
Total Anophthalmos / Microphthalmos (incl. unspecified)	0	0		0.00		0.00	8	
Anophthalmos	0	0		0.00		0.00	8	
Microphthalmos	0	0		0.00		0.00	8	
Total Anotia / Microtia (incl. unspecified)	0	0		0.00		nc		
Anotia	0	0		0.00		nc		
Microtia	0	0		0.00		nc		
Transposition of great vessels	2	0		5.15		0.97	8	
Tetralogy of Fallot	1	0		2.58		0.65	8	
Hypoplastic left heart syndrome	2	0		5.15		4.88	8	
Coarctation of aorta	3	0		7.73		1.46	8	
Choanal atresia, bilateral	1	0		2.58		10.00	8	
Cleft palate without cleft lip	2	0		5.15		0.34	8	
Cleft lip with or without cleft palate	4	0		10.30		1.05	8	
Oesophageal atresia / stenosis with or without fistula	0	0		0.00		0.00	8	
Small intestine atresia / stenosis	2	0		5.15		9.52	8	
Anorectal atresia / stenosis	3	0		7.73		2.08	8	
Undescended testis (36 weeks of gestation or later)	nr	nr		nc		nc		
Hypospadias	11	0		28.33		1.45	5	
Epispadias	0	0		0.00		0.00	8	
Indeterminate sex	0	0		0.00		0.00	8	
Renal agenesis	1	0		2.58		0.97	8	
Cystic kidney	0	0		0.00		0.00	8	
Bladder exstrophy	0	0		0.00		nc		
Polydactyly, preaxial	1	0		2.58		1.61	8	
Total Limb reduction defects (incl. unspecified)	4	0		10.30		2.04	8	
Transverse	nr	nr		nc		nc		
Preaxial	nr	nr		nc		nc		
Postaxial	nr	nr		nc		nc		
Intercalary	nr	nr		nc		nc		
Mixed	nr	nr		nc		nc		
Diaphragmatic hernia	0	0		0.00		0.00	8	
Total Abdominal wall defects (incl. unspecified)	2	0		5.15		1.49	8	
Omphalocele	1	0		2.58		1.08	8	
Gastroschisis	1	0		2.58		2.44	8	
Prune belly sequence	0	0		0.00		0.00	8	
Trisomy 13	0	0		0.00		0.00	8	
Trisomy 18	0	0		0.00		0.00	8	
Down syndrome, all ages (incl. age unknown)	7	0		18.03		1.08	8	
<20	0	0		0.00		0.00	2	
20-24	0	0		0.00		nc		
25-29	0	0		0.00		0.00	2	
30-34	2	0		22.00		1.52	2	
35-39	4	0		116.62		3.51	2	
40-44	1	0		103.09		0.61	2	
45+	0	0		0.00		nc		

nr= not reported
nc= not calculable

Malta, time trend analysis 1993-2001

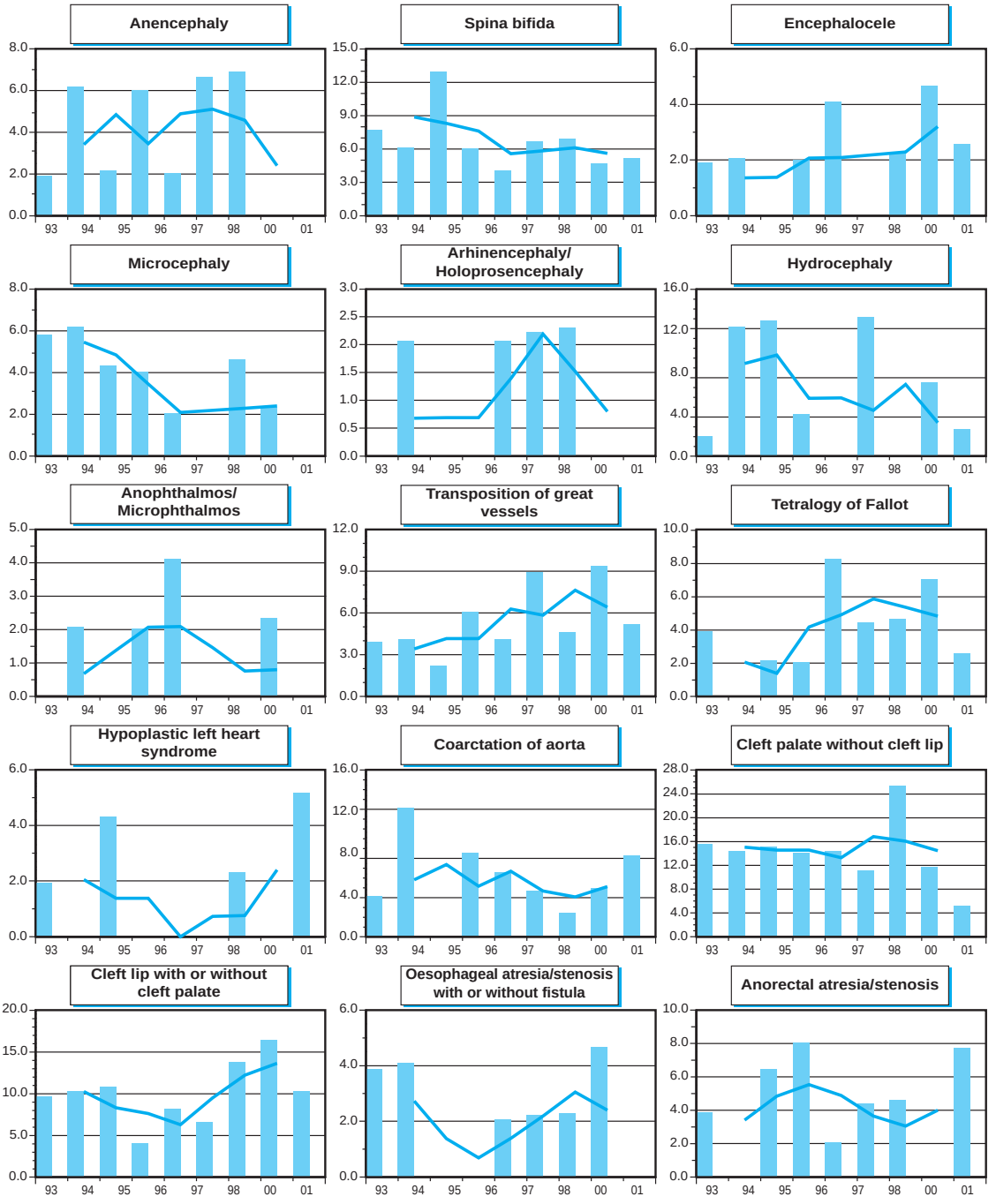
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95*	1996-00	2001	Trend
Births				14,668	22,964	3,883	
Anencephaly				3.41	4.35	0.00	
Spina bifida				8.86	5.66	5.15	
Encephalocele				1.36	2.61	2.58	
Microcephaly				5.45	2.61	0.00	
Arhinencephaly / Holoprosencephaly				0.68	1.31	0.00	
Hydrocephaly				8.86	4.79	2.58	
Total Anophthalmos / Microphthalmos (incl. unspecified)				0.68	1.74	0.00	
Anophthalmos				0.68	0.44	0.00	
Microphthalmos				0.00	1.31	0.00	
Total Anotia / Microtia (incl. unspecified)				0.00	0.00	0.00	
Anotia				0.00	0.00	0.00	
Microtia				0.00	0.00	0.00	
Transposition of great vessels				3.41	6.53	5.15	
Tetralogy of Fallot				2.05	5.23	2.58	
Hypoplastic left heart syndrome				2.05	0.44	5.15	
Coarctation of aorta				5.45	5.23	7.73	
Choanal atresia, bilateral				0.68	0.00	2.58	
Cleft palate without cleft lip				15.00	15.24	5.15	
Cleft lip with or without cleft palate				10.23	9.58	10.30	
Oesophageal atresia / stenosis with or without fistula				2.73	2.18	0.00	
Small intestine atresia / stenosis				0.68	0.44	5.15	
Anorectal atresia / stenosis				3.41	3.92	7.73	
Hypospadias				12.27	19.60	28.33	▲
Epispadias				2.73	2.18	0.00	
Indeterminate sex				2.05	1.31	0.00	
Renal agenesis				2.73	2.61	2.58	
Cystic kidney				5.45	4.35	0.00	
Bladder exstrophy				0.00	0.00	0.00	
Polydactyly, preaxial				2.05	1.31	2.58	
Total Limb reduction defects (incl. unspecified)				5.45	4.79	10.30	
Diaphragmatic hernia				5.45	6.53	0.00	
Total Abdominal wall defects (incl. unspecified)				4.09	3.05	5.15	
Omphalocele				2.73	2.18	2.58	
Gastroschisis				1.36	0.87	2.58	
Prune belly sequence				0.68	0.44	0.00	
Trisomy 13				0.00	0.44	0.00	
Trisomy 18				2.05	3.48	0.00	
Down syndrome, all ages (incl. age unknown)				20.45	14.37	18.03	
<20					42.11*	0.00	nc
20-24					0.00*	0.00	nc
25-29					9.55*	0.00	nc
30-34					14.51*	22.00	nc
35-39					33.37*	116.62	nc
40-44					168.07*	103.09	nc
45+					0.00*	0.00	nc

* = data incl. less than five years
nc = not calculable

Malta

Time trends 1993-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, 3-year moving average trend

Note: L+S rates, 3-year moving average trend

Mexico: RYVEMCE

Mexican Registry and Epidemiological Surveillance of External Congenital Malformations

History:
The Programme was started in 1978. The Programme became a full member of the ICBDMS in 1980.

Size and coverage:
Reports are obtained from 15 hospitals in 11 cities in Mexico. Participation is voluntary. The annual number of births is approximately 40,000, about 3.5% of all births in Mexico. Stillbirths of 20 weeks or more gestation and/or at least 500g birthweight are included.

Legislation and funding:
The Programme is a research programme and is funded by research grants.

Sources of ascertainment:
Reports are obtained from the delivery units and pediatric departments of the participating hospitals.

Exposure information:
The mother of each reported infant and the mother of a control infant-the next non-malformed infant born at that hospital with the same sex as the proband - are interviewed on various exposures, including drug usage and parental occupation.

Background information:
The total number of births in the hospitals is known.

Address for further information:
Osvaldo Mutchinick, Departamento de Genetica, Instituto Nacional de Nutricion, Salvador Zubiran, Vasco de Quiroga 15, Tlalpan, 14000 Mexico, D.F., Mexico.

Phone: 52-5-5731200/ 52-5-5730611, 52-5-5737333 (ext 2426, 2425)

Fax: 52-5-6556138

E-mail: osvaldo@servidor.unam.mx

Mexico: RYVEMCE, 2001

Live births (L)	25,792
Stillbirths (S)	349
Total births	26,141
Number of terminations of pregnancy (ToP) for birth defects	not permitted

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	8	12		7.65		0.62	4	▼
Spina bifida	26	4		11.48		0.72	21	
Encephalocele	4	0		1.53		0.58	20	
Microcephaly	2	0		0.77		0.35	21	
Arhinencephaly / Holoprosencephaly	3	0		1.15		2.46	4	
Hydrocephaly	2	17		7.27		1.28	21	
Total Anophthalmos / Microphthalmos (incl. unspecified)	4	0		1.53		0.97	16	
Anophthalmos	nr	nr		nc		nc		
Microphthalmos	nr	nr		nc		nc		
Total Anotia / Microtia (incl. unspecified)	21	0		8.03		1.22	21	
Anotia	nr	nr		nc		nc		
Microtia	nr	nr		nc		nc		
Transposition of great vessels	0	0		0.00		0.00	4	
Tetralogy of Fallot	1	0		0.38		nc		
Hypoplastic left heart syndrome	0	0		0.00		nc		
Coarctation of aorta	nr	nr		nc		nc		
Choanal atresia, bilateral	0	0		0.00		0.00	21	
Cleft palate without cleft lip	6	0		2.30		0.68	21	
Cleft lip with or without cleft palate	42	3		17.21		1.37	21	
Oesophageal atresia / stenosis with or without fistula	7	0		2.68		1.34	19	
Small intestine atresia / stenosis	4	0		1.53		1.31	17	
Anorectal atresia / stenosis	9	1		3.83		0.84	21	
Undescended testis (36 weeks of gestation or later)	nr	nr		nc		nc		
Hypospadias	6	0		2.30		0.53	21	
Epispadias	nr	nr		nc		nc	1	
Indeterminate sex	1	1		0.77		0.36	21	
Renal agenesis	0	0		0.00		0.00	7	
Cystic kidney	6	0		2.30		2.94	17	
Bladder exstrophy	0	0		0.00		0.00	21	
Polydactyly, preaxial	32	0		12.24		0.97	20	
Total Limb reduction defects (incl. unspecified)	16	2		6.89		1.16	21	
Transverse	12	2		5.36		1.63	18	
Preaxial	2	0		0.77		1.28	8	
Postaxial	0	0		0.00		0.00	18	
Intercalary	1	0		0.38		1.22	18	
Mixed	1	0		0.38		0.53	18	
Diaphragmatic hernia	4	0		1.53		1.77	21	
Total Abdominal wall defects (incl. unspecified)	17	1		6.89		1.54	21	
Omphalocele	7	0		2.68		1.68	21	
Gastroschisis	10	1		4.21		1.48	8	
Prune belly sequence	1	0		0.38		0.37	21	
Trisomy 13	0	0		0.00		0.00	21	
Trisomy 18	0	0		0.00		0.00	10	
Down syndrome, all ages (incl. age unknown)	25	0		9.56		0.73	21	
<20	4	0		6.96		0.83	21	
20-24	4	0		4.57		0.70	21	
25-29	4	0		6.80		0.77	21	
30-34	4	0		12.00		0.84	21	
35-39	5	0		29.27		0.68	21	
40-44	4	0		103.90		0.73	21	
45+	0	0		0.00		0.00	20	

nr= not reported
nc= not calculable

Mexico: RYVEMCE, time trend analysis 1980-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	41,718	164,972	201,504	288,684	181,013	26,141	
Anencephaly	17.50	18.43	20.05	16.00	13.48	7.65	▼
Spina bifida	15.10	14.18	18.91	15.76	14.36	11.48	
Encephalocele	4.31	2.91	3.18	2.32	2.32	1.53	▼
Microcephaly	2.16	2.55	2.58	1.91	1.88	0.77	▼
Arhinencephaly / Holoprosencephaly				0.18*	0.33	1.15	▲
Hydrocephaly	6.23	5.64	4.76	5.99	6.19	7.27	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2.16	2.67	1.69	1.77	1.05	1.53	▼
Total Anotia / Microtia (incl. unspecified)	7.91	6.61	6.30	6.58	6.46	8.03	
Transposition of great vessels				0.21*	0.28	0.00	
Tetralogy of Fallot					0.00*	0.38	nc
Hypoplastic left heart syndrome				0.00*	0.00	0.00	
Choanal atresia, bilateral	0.24	0.24	0.40	0.52	0.17	0.00	
Cleft palate without cleft lip	3.84	2.79	3.77	3.95	2.38	2.30	
Cleft lip with or without cleft palate	14.38	12.55	12.51	12.71	11.88	17.21	
Oesophageal atresia / stenosis with or without fistula	1.68	1.09	2.28	1.91	2.38	2.68	▲
Small intestine atresia / stenosis	1.44	0.48	0.99	1.25	1.44	1.53	▲
Anorectal atresia / stenosis	4.79	3.76	4.71	4.99	4.47	3.83	
Hypospadias	4.55	3.94	4.22	5.23	3.31	2.30	
Indeterminate sex	1.92	1.64	2.18	2.53	1.99	0.77	
Renal agenesis				0.70*	0.50	0.00	
Cystic kidney	0.24	0.30	0.55	0.87	0.99	2.30	▲
Bladder exstrophy	0.48	0.48	0.40	0.38	0.61	0.00	
Polydactyly, preaxial	10.55	11.82	14.14	13.37*	11.27	12.24	
Total Limb reduction defects (incl. unspecified)	6.71	5.76	6.75	5.92	5.08	6.89	
Transverse		2.82*	3.37	3.46	3.15	5.36	
Preaxial		0.63*	1.49	1.07	0.55	0.77	▼
Postaxial		0.00*	0.45	0.38	0.22	0.00	
Intercalary		0.21*	0.40	0.24	0.39	0.38	
Mixed		1.15*	0.79	0.52	0.72	0.38	
Diaphragmatic hernia	0.96	0.42	1.09	0.94	0.88	1.53	
Total Abdominal wall defects (incl. unspecified)	4.79	3.94	4.32	4.61	4.86	6.89	
Omphalocele	2.64	1.39	1.44	1.73	1.49	2.68	
Gastroschisis	1.20	1.33	1.59	2.18	3.20	4.21	▲
Prune belly sequence	0.96	1.21	1.29	0.80	0.94	0.38	
Trisomy 13	0.72	0.18	0.30	0.21	0.11	0.00	
Trisomy 18	1.20	0.61	0.55	0.31	0.06	0.00	▼
Down syndrome, all ages (incl. age unknown)	14.62	11.88	14.19	13.99	11.55	9.56	
<20	13.08	9.09	9.48	8.03	6.04	6.96	
20-24	5.01	5.97	6.82	7.14	6.11	4.57	
25-29	8.52	6.46	9.48	8.47	10.82	6.80	
30-34	9.40	9.51	15.58	18.21	12.16	12.00	
35-39	55.03	37.10	39.49	50.36	36.41	29.27	
40-44	178.86	139.80	178.45	140.98	101.39	103.90	
45+	329.67	334.26	227.27	111.11	151.90	0.00	▼

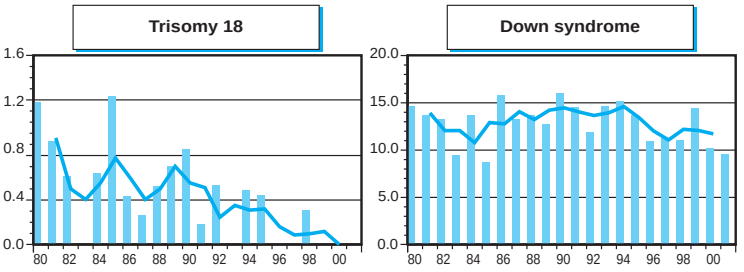
* = data incl. less than seven and five years
nc= not calculable

Mexico: RYVEMCE

Time trends 1980-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, 3-year moving average trend

Note: L+S rates, 3-year moving average trend



Note: L+S rates, 3-year moving average trend

New Zealand

New Zealand Birth Defects Monitoring Program

History:
The Programme began in 1975 and became a full member of the ICBDMS in 1979.

Size and coverage:
The Programme covers all livebirths (approximately 56,000 per year) delivered or treated in a New Zealand publicly funded hospital. Only these data are included in the quarterly and annual reports to the ICBDMS. Data on stillbirths are retrospectively added to the database together with additional cases derived from the national perinatal and mortality databases. In late 1995 the definition of stillbirth was changed from 28 weeks completed gestation to 20 weeks or more gestation and/or 400g birthweight.

Legislation and funding:
The Programme is run and funded by Public Health Intelligence, Ministry of Health.

Exposure information:
No exposure data are currently available, but attempts are being made to obtain such data.

Background information:
General epidemiological characteristics for all births are available.

Address for further information:
Dr Barry Borman, Public Health Intelligence, Public Health, Directorate, Ministry of Health, PO Box 5013
Wellington, New Zealand.

Phone: 64-4-495-4379

Fax: 64-4-495-4401

E-mail: barry_borman@moh,govt.nz

New Zealand, 2001

Live births (L)	55,798
Stillbirths (S)	325
Total births	56,123
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	nr	nr	0.00	nc	0.00	11	
Spina bifida	8	nr	nr	1.43	nc	0.39	12	▼
Encephalocele	3	nr	nr	0.53	nc	1.12	11	
Microcephaly	19	nr	nr	3.39	nc	1.22	5	
Arhinencephaly / Holoprosencephaly	nr	nr	nr	nc	nc	nc		
Hydrocephaly	26	nr	nr	4.63	nc	1.34	21	
Total Anophthalmos / Microphthalmos (incl. unspecified)	nr	nr	nr	nc	nc	nc		
Anophthalmos	0	nr	nr	0.00	nc	nc		
Microphthalmos	4	nr	nr	0.71	nc	1.07	5	
Total Anotia / Microtia (incl. unspecified)	nr	nr	nr	nc	nc	nc		
Anotia	nr	nr	nr	nc	nc	nc		
Microtia	nr	nr	nr	nc	nc	nc		
Transposition of great vessels	24	nr	nr	4.28	nc	0.83	5	
Tetralogy of Fallot	24	nr	nr	4.28	nc	0.92	3	
Hypoplastic left heart syndrome	7	nr	nr	1.25	nc	0.94	8	
Coarctation of aorta	20	nr	nr	3.56	nc	1.78	3	
Choanal atresia, bilateral	6	nr	nr	1.07	nc	0.94	4	
Cleft palate without cleft lip	53	nr	nr	9.44	nc	0.97	4	
Cleft lip with or without cleft palate	16	nr	nr	2.85	nc	0.56	13	
Oesophageal atresia / stenosis with or without fistula	5	nr	nr	0.89	nc	0.44	21	
Small intestine atresia / stenosis	10	nr	nr	1.78	nc	1.00	5	
Anorectal atresia / stenosis	14	nr	nr	2.49	nc	1.00	21	
Undescended testis	431	nr	nr	76.80	nc	0.94	1	
Hypospadias & Epispadias	167	nr	nr	29.76	nc	1.11	3	
Indeterminate sex	4	nr	nr	0.71	nc	1.48	4	
Renal agenesis	15	nr	nr	2.67	nc	0.76	4	
Cystic kidney	40	nr	nr	7.13	nc	1.22	5	
Bladder exstrophy	3	nr	nr	0.53	nc	1.36	4	
Polydactyly, preaxial	56	nr	nr	9.98	nc	1.67	2	▲
Total Limb reduction defects (incl. unspecified)	11	nr	nr	1.96	nc	0.74	17	
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	17	nr	nr	3.03	nc	1.58	8	
Total Abdominal wall defects (incl. unspecified)	24	nr	nr	4.28	nc	1.51	18	
Omphalocele	nr	nr	nr	nc	nc	nc		
Gastroschisis	nr	nr	nr	nc	nc	nc		
Prune belly sequence	nr	nr	nr	nc	nc	nc		
Trisomy 13	2	nr	nr	0.36	nc	0.85	5	
Trisomy 18	8	nr	nr	1.43	nc	1.50	5	
Down syndrome, all ages (incl. age unknown)	69	nr	nr	12.29	nc	1.23	17	
<20	nr	nr	nr	nc	nc	nc		
20-24	nr	nr	nr	nc	nc	nc		
25-29	nr	nr	nr	nc	nc	nc		
30-34	nr	nr	nr	nc	nc	nc		
35-39	nr	nr	nr	nc	nc	nc		
40-44	nr	nr	nr	nc	nc	nc		
45+	nr	nr	nr	nc	nc	nc		

nr= not reported
nc= not calculable

New Zealand, time trend analysis 1980-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	46,180	249,914	279,760	293,819	284,949	56,123	
Anencephaly	6.93	4.56	2.14	0.75	0.49	0.00	▼
Spina bifida	12.56	10.08	5.72	3.98	3.16	1.43	▼
Encephalocele		0.66*	0.74*	0.00*	0.39	0.53	
Microcephaly					2.77	3.39	
Hydrocephaly	7.36	3.48	3.36	2.76	3.65	4.63	
Total Anophthalmos / Microphthalmos (incl. unspecified)					0.67		
Anophthalmos					0.00*	0.00	
Microphthalmos					0.67	0.71	
Total Anotia / Microtia (incl. unspecified)		0.92*	0.25*		0.26*		▼
Transposition of great vessels			0.55*		5.12	4.28	▲
Tetralogy of Fallot					4.65*	4.28	nc
Hypoplastic left heart syndrome			0.82*	1.90*	1.40	1.25	
Coarctation of aorta					2.00*	3.56	nc
Choanal atresia, bilateral					1.02	1.07	
Cleft palate without cleft lip	6.06	6.44	7.11	5.04	8.81	9.44	▲
Cleft lip with or without cleft palate	10.83	8.56	7.58	3.57	5.62	2.85	▼
Oesophageal atresia / stenosis with or without fistula	1.73	1.88	1.75	2.42	2.11	0.89	
Small intestine atresia / stenosis					1.79	1.78	
Anorectal atresia / stenosis	1.73	2.52	2.36	2.89	2.28	2.49	
Undescended testis (36 weeks of gestation or later)					67.12*	76.80	▲
Hypospadias & Epispadias	12.13	13.64	12.47	12.15*	22.53	29.76	▲
Indeterminate sex					0.48*	0.71	
Renal agenesis		0.20*	0.43*		3.52*	2.67	▲
Cystic kidney					5.83	7.13	
Bladder exstrophy					0.39*	0.53	
Polydactyly, preaxial					5.99*	9.98	nc
Total Limb reduction defects (incl. unspecified)	3.03	4.00	2.97	2.04	2.63	1.96	▼
Diaphragmatic hernia		1.51*	1.48*		2.41*	3.03	▲
Total Abdominal wall defects (incl. unspecified)	3.46	2.56	2.64*	2.35*	3.44	4.28	▲
Trisomy 13					0.42	0.36	
Trisomy 18					0.95	1.43	
Down syndrome, all ages (incl. age unknown)	8.01	9.32	9.29	9.38*	11.02	12.29	▲

* = data incl. less than seven and five years
nc= not calculable

New Zealand

Time trends 1980-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, 3-year moving average trend

Northern Netherlands

EUROCAT Registration Northern Netherlands

History:
The Programme started in 1981, and became an associate member of ICBDMS in 1993.

Size and coverage:
In the beginning the Programme covered 7,500 births annually. Coverage was gradually increased to 19,000 births annually in the provinces Groningen, Friesland and Drenthe from 1989 onwards. Home deliveries (30% of births) are included.

Legislation and funding:
The Programme is funded by the Dutch Ministry of Public Health, Welfare and Sports. The registry is carried out in the Department of Medical Genetics of the University of Groningen.

Sources of ascertainment:
Obstetricians, paediatricians, clinical geneticists, surgeons, general practitioners, midwives, well-baby clinics, pathologists and the national obstetric registry send information to the registry on a voluntary basis. Informed consent of the parents is needed. Registry personnel are actively involved in data collection. No age limits are applied.

Exposure information:
Since 1997 parents are asked to fill out a questionnaire including questions on occupational activities and drug use. Besides, data from community pharmacies are used to collect maternal drug exposure data.

Background information:
General statistics are available from the Dutch Central Bureau of Statistics (CBS).

Address for further information:
Hermien de Walle, Department of Medical Genetics, Ant. Deusinglaan 4, 9713 AW Groningen, The Netherlands.

Phone: 31-50- 3633193/3632952

Fax: 31-50-3187268

E-mail: H.E.K.de.Walle@medgen.azg.nl

Northern Netherlands, 2001

Live births (L)	20,380
Stillbirths (S)	107
Total births	20,487
Number of terminations of pregnancy (ToP) for birth defects	13

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	0	1	0.00	0.49	0.00	18	
Spina bifida	6	1	0	3.42	3.41	0.65	20	
Encephalocele	0	0	0	0.00	0.00	0.00	20	
Microcephaly	1	0	1	0.49	0.98	0.13	20	▼
Arhinencephaly / Holoprosencephaly	1	0	0	0.49	0.49	0.56	20	
Hydrocephaly	3	1	1	1.95	2.44	0.64	20	
Total Anophthalmos / Microphthalmos (incl. unspecified)	1	0	1	0.49	0.98	0.28	20	
Anophthalmos	1	0	0	0.49	0.49	2.50	20	
Microphthalmos	0	0	1	0.00	0.49	0.00	20	
Total Anotia / Microtia (incl. unspecified)	2	0	0	0.98	0.98	0.67	20	
Anotia	2	0	0	0.98	0.98	1.01	19	
Microtia	0	0	0	0.00	0.00	0.00	20	
Transposition of great vessels	8	0	0	3.90	3.90	0.91	20	
Tetralogy of Fallot	1	0	0	0.49	0.49	0.15	20	
Hypoplastic left heart syndrome	3	0	1	1.46	1.95	0.63	20	
Coarctation of aorta	3	0	0	1.46	1.46	0.29	20	
Choanal atresia, bilateral	0	0	1	0.00	0.49	0.00	20	
Cleft palate without cleft lip	10	1	0	5.37	5.37	0.80	20	
Cleft lip with or without cleft palate	27	0	0	13.18	13.17	0.91	20	
Oesophageal atresia / stenosis with or without fistula	2	0	0	0.98	0.98	0.32	20	
Small intestine atresia / stenosis	2	0	0	0.98	0.98	0.41	20	
Anorectal atresia / stenosis	2	0	1	0.98	1.46	0.30	20	
Undescended testis (36 weeks of gestation or later)	4	0	0	1.95	1.95	1.34	20	
Hypospadias	21	0	0	10.25	10.24	0.87	20	
Epispadias	2	0	0	0.98	0.98	1.77	20	
Indeterminate sex	0	0	0	0.00	0.00	0.00	20	
Renal agenesis	6	0	1	2.93	3.41	0.81	20	
Cystic kidney	2	0	0	0.98	0.98	0.27	20	
Bladder exstrophy	0	0	0	0.00	0.00	0.00	20	
Polydactyly, preaxial	3	1	0	1.95	1.95	1.07	14	
Total Limb reduction defects (incl. unspecified)	8	0	1	3.90	4.39	0.66	20	
Transverse	5	0	0	2.44	2.44	0.68	20	
Preaxial	0	0	0	0.00	0.00	0.00	20	
Postaxial	1	0	0	0.49	0.49	0.49	20	
Intercalary	1	0	0	0.49	0.49	5.00	20	
Mixed	1	0	0	0.49	0.49	1.52	20	
Diaphragmatic hernia	5	0	0	2.44	2.44	0.98	20	
Total Abdominal wall defects (incl. unspecified)	4	1	1	2.44	2.93	0.92	20	
Omphalocele	2	1	0	1.46	1.46	0.72	20	
Gastroschisis	2	0	1	0.98	1.46	1.59	20	
Prune belly sequence	0	0	1	0.00	0.49	0.00	20	
Trisomy 13	1	0	1	0.49	0.98	0.54	20	
Trisomy 18	1	4	0	2.44	2.44	1.60	20	
Down syndrome, all ages (incl. age unknown)	18	1	3	9.27	10.73	0.88	20	
<20	0	0	0	0.00	0.00	nc		
20-24	0	0	0	0.00	0.00	0.00	20	
25-29	4	0	0	6.73	6.73	0.90	20	
30-34	6	1	1	8.05	9.20	0.70	20	
35-39	6	0	2	17.64	23.51	0.78	20	
40-44	1	0	0	21.28	21.28	0.49	20	
45+	0	0	0	0.00	0.00	nc		

nc= not calculable

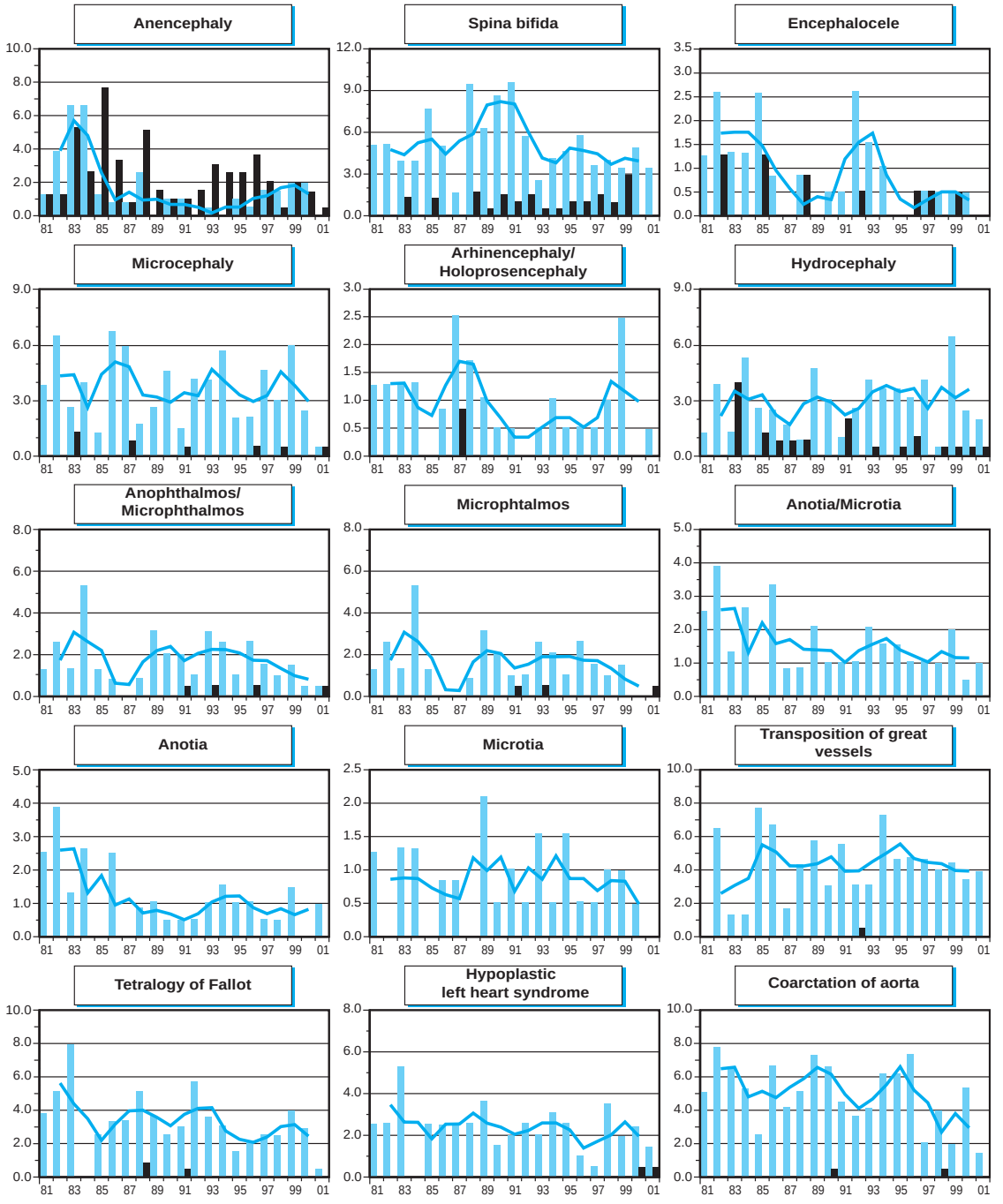
Northern Netherlands, time trend analysis 1981-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births		38,501	74,106	96,959	98,999	20,487	
Anencephaly		3.90	0.94	0.52	1.52	0.00	▼
Spina bifida		5.19	6.48	5.36	4.34	3.42	
Encephalocele		1.82	0.40	1.13	0.40	0.00	▼
Microcephaly		3.64	4.18	3.51	3.64	0.49	
Arhinencephaly / Holoprosencephaly		1.04	1.21	0.52	0.91	0.49	
Hydrocephaly		2.86	2.83	2.99	3.33	1.95	
Total Anophthalmos / Microphthalmos (incl. unspecified)		2.34	1.62	1.96	1.41	0.49	
Anophthalmos		0.00	0.13	0.41	0.10	0.49	
Microphthalmos		2.34	1.48	1.55	1.31	0.00	
Total Anotia / Microtia (incl. unspecified)		2.08	1.62	1.44	1.11	0.98	
Anotia		2.08	0.94	0.93	0.71	0.98	
Microtia		0.78	0.94	1.03	0.71	0.00	
Transposition of great vessels		3.38	4.32	4.74	4.24	3.90	
Tetralogy of Fallot		3.90	3.51	3.40	2.83	0.49	▼
Hypoplastic left heart syndrome		2.60	2.56	2.48	1.92	1.46	
Coarctation of aorta		5.45	6.21	4.95	4.14	1.46	▼
Choanal atresia, bilateral		0.78	0.13	0.72	0.40	0.00	
Cleft palate without cleft lip		7.53	6.21	7.94	5.66	5.37	
Cleft lip with or without cleft palate		16.62	14.98	14.65	13.13	13.18	
Oesophageal atresia / stenosis with or without fistula		2.08	2.70	2.78	3.84	0.98	
Small intestine atresia / stenosis		2.34	2.56	2.68	2.02	0.98	
Anorectal atresia / stenosis		2.34	3.64	2.58	4.04	0.98	
Undescended testis (36 weeks of gestation or later)		1.82	2.02	1.34	1.01	1.95	
Hypospadias		16.62	9.58	9.59	13.84	10.25	
Epispadias		0.26	0.67	0.52	0.61	0.98	
Indeterminate sex		0.00	0.27	0.21	0.30	0.00	
Renal agenesis		3.38	3.78	3.20	3.94	2.93	
Cystic kidney		1.30	4.72	4.13	3.33	0.98	
Bladder exstrophy		0.26	0.27	0.10	0.20	0.00	
Polydactyly, preaxial		0.78	0.94	1.96	2.12	1.95	▲
Total Limb reduction defects (incl. unspecified)		8.31	4.59	6.91	5.05	3.90	
Transverse		5.45	2.56	3.82	3.33	2.44	
Preaxial		1.30	0.67	1.03	0.71	0.00	
Postaxial		0.52	0.54	1.75	0.81	0.49	
Intercalary		0.00	0.00	0.21	0.10	0.49	
Mixed		0.00	0.27	0.52	0.30	0.49	
Diaphragmatic hernia		2.34	2.70	1.96	2.93	2.44	
Total Abdominal wall defects (incl. unspecified)		2.34	2.43	2.68	2.93	2.44	
Omphalocele		1.56	1.75	2.48	2.02	1.46	
Gastroschisis		0.78	0.67	0.21	0.91	0.98	
Prune belly sequence		0.26	0.27	0.31	0.10	0.00	
Trisomy 13		0.52	1.48	0.83	0.71	0.49	
Trisomy 18		1.82	1.75	0.72	2.02	2.44	
Down syndrome, all ages (incl. age unknown)		11.43	11.20	9.73	10.53	9.27	
<20		0.00	0.00	0.00	0.00	0.00	
20-24		10.68	4.60	9.01	3.23	0.00	
25-29		6.64	12.28	4.48	6.71	6.73	
30-34		14.72	7.95	13.68	10.80	8.05	
35-39		40.65	25.58	17.73	22.11	17.64	
40-44		0.00	80.00	17.36	54.68	21.28	
45+		0.00	0.00	0.00	0.00	0.00	

Northern Netherlands

Time trends 1981-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, ToP rates — 3-year moving average trend

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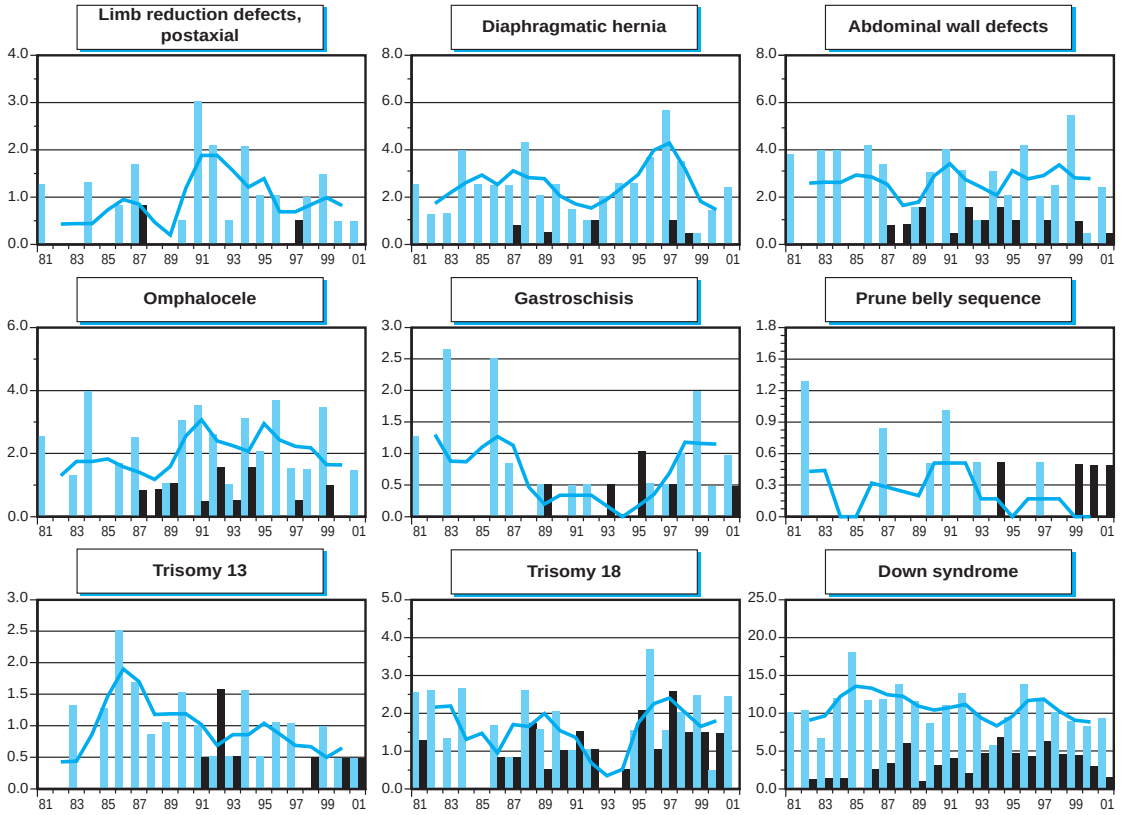


Note: L+S rates, ToP rates — 3-year moving average trend

Norway
Medical Birth Registry of Norway

History:
The Programme was started in 1967.
The Programme was a founding member of the ICBDMS and is a full member.

Size and coverage:
The Programme covers all births in Norway, approximately 60,000 annual births. Stillbirths of 16 weeks or more gestation are included (12 weeks or more from 2002 onwards).

Legislation and funding:
The Programme is run and funded by the Norwegian Institute of Public Health. Reporting is compulsory.

Sources of ascertainment:
The registry is based on the notification of births from the delivery units and since 1999 also from the neonatal units.

Exposure information:
Some basic information, such as maternal disease and since 1999: smoking and occupation, is collected on all infants, malformed or not.

Background information:
All information available for reported malformed infants is also available for the total population of births.
Comment. From 2002 the Birth Registry is part of the Norwegian Institute of Public Health, which was established 2002. The old organization was National Institute of Public Health.
Otherwise, there are no changes.

Address for further information:
Lorentz M. Irgens, Department of Medical Birth Registry of Norway, University of Bergen, Kalfarveien 31, NO-5018 Bergen, Norway.

Phone: 47-2-2042702

Fax: 47-2-2042701

E-mail: lorentz.irgens@mfr.uib.no

Norway, 2001

Live births (L)	56,770
Stillbirths (S)	540
Total births	57,310
Number of terminations of pregnancy (ToP) for birth defects	145

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	4	0	12	0.70	2.78	0.46	15	
Spina bifida	15	1	13	2.79	5.05	0.71	14	
Encephalocele	1	0	4	0.17	0.87	0.36	27	
Microcephaly	1	0	0	0.17	0.17	0.28	27	
Arhinencephaly / Holoprosencephaly	0	1	1	0.17	0.35	0.43	23	
Hydrocephaly	15	0	7	2.62	3.83	0.84	21	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2	0	0	0.35	0.35	1.04	27	
Anophthalmos	0	0	0	0.00	0.00	0.00	27	
Microphthalmos	2	0	0	0.35	0.35	1.48	27	
Total Anotia / Microtia (incl. unspecified)	3	0	0	0.52	0.52	0.83	11	
Anotia	1	0	0	0.17	0.17	1.06	27	
Microtia	2	0	0	0.35	0.35	0.72	11	
Transposition of great vessels	19	0	3	3.32	3.83	1.46	13	
Tetralogy of Fallot	16	0	0	2.79	2.78	1.48	4	
Hypoplastic left heart syndrome	11	1	2	2.09	2.44	1.14	11	
Coarctation of aorta	11	1	0	2.09	2.09	1.85	12	
Choanal atresia, bilateral	2	0	0	0.35	0.35	0.78	27	
Cleft palate without cleft lip	29	0	1	5.06	5.22	0.93	24	
Cleft lip with or without cleft palate	73	2	2	13.09	13.40	0.96	27	
Oesophageal atresia / stenosis with or without fistula	16	0	1	2.79	2.96	1.35	27	
Small intestine atresia / stenosis	2	0	0	0.35	0.35	0.27	24	
Anorectal atresia / stenosis	6	0	3	1.05	1.57	0.51	27	
Undescended testis (36 weeks of gestation or later)	155	0	0	27.05	26.98	1.61	27	▲
Hypospadias	85	0	0	14.83	14.79	0.99	25	
Epispadias	0	0	0	0.00	0.00	0.00	27	
Indeterminate sex	1	0	0	0.17	0.17	0.04	23	▼
Renal agenesis	3	0	6	0.52	1.57	0.48	22	
Cystic kidney	18	0	9	3.14	4.70	1.27	12	
Bladder exstrophy	1	0	0	0.17	0.17	0.54	27	
Polydactyly, preaxial	46	0	1	8.03	8.18	1.03	2	
Total Limb reduction defects (incl. unspecified)	21	1	3	3.84	4.35	1.09	2	
Transverse	12	1	1	2.27	2.44	1.06	5	
Preaxial	0	0	2	0.00	0.35	0.00	11	
Postaxial	0	0	0	0.00	0.00	0.00	10	
Intercalary	0	0	0	0.00	0.00	0.00	12	
Mixed	9	0	0	1.57	1.57	1.51	8	
Diaphragmatic hernia	12	1	2	2.27	2.61	0.98	27	
Total Abdominal wall defects (incl. unspecified)	17	3	6	3.49	4.53	0.89	27	
Omphalocele	5	2	5	1.22	2.09	0.60	27	
Gastroschisis	12	1	1	2.27	2.44	1.02	17	
Prune belly sequence	6	0	2	1.05	1.39	0.96	2	
Trisomy 13	2	0	0	0.35	0.35	0.35	2	
Trisomy 18	1	0	1	0.17	0.35	0.14	2	
Down syndrome, all ages (incl. age unknown)	68	0	25	11.87	16.19	1.14	27	
<20	1	0	0	6.79	6.79	2.22	27	
20-24	2	0	0	2.34	2.34	0.71	9	
25-29	11	0	0	5.56	5.56	0.81	27	
30-34	21	0	1	11.19	11.72	0.96	27	
35-39	22	0	0	29.05	29.05	0.94	27	
40-44	9	0	0	81.23	81.23	0.98	26	
45+	2	0	0	400.00	400.00	1.82	27	

Norway, time trend analysis 1974-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	378,981	255,083	286,632	303,413	299,203	57,310	
Anencephaly	4.04	3.29	1.71	1.61	1.20	0.70	▼
Spina bifida	5.09	5.21	4.64	3.89	3.61	2.79	▼
Encephalocele	0.40	0.90	0.42	0.49	0.30	0.17	
Microcephaly	0.66	0.59	0.63	0.59	0.67	0.17	
Arhinencephaly / Holoprosencephaly	0.05	0.35	0.45	0.66	0.33	0.17	▲
Hydrocephaly	4.17	3.45	3.63	2.64	2.77	2.62	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	0.18	0.39	0.49	0.30	0.37	0.35	
Anophthalmos	0.05	0.12	0.17	0.07	0.10	0.00	
Microphthalmos	0.13	0.27	0.31	0.23	0.27	0.35	
Total Anotia / Microtia (incl. unspecified)			1.43	0.59	0.57	0.52	▼
Anotia	0.11	0.39	0.10	0.16	0.10	0.17	
Microtia			1.33	0.43	0.47	0.35	▼
Transposition of great vessels	0.45	0.71	1.81	1.81	2.57	3.32	▲
Tetralogy of Fallot	0.11	0.31	0.84	0.99	1.70	2.79	▲
Hypoplastic left heart syndrome			0.86*	1.75	2.04	2.09	▲
Coarctation of aorta	0.29*	0.47	0.94	0.76	1.40	2.09	▲
Choanal atresia, bilateral	0.18	0.59	0.59	0.36	0.60	0.35	
Cleft palate without cleft lip	4.75	5.21	5.62	5.17	6.05	5.06	▲
Cleft lip with or without cleft palate	14.41	13.56	14.13	13.22	12.73	13.09	
Oesophageal atresia / stenosis with or without fistula	1.98	1.80	2.37	2.01	2.21	2.79	
Small intestine atresia / stenosis	0.95	1.02	1.26	1.55	1.30	0.35	
Anorectal atresia / stenosis	1.61	2.20	2.13	2.31	2.17	1.05	
Undescended testis (36 weeks of gestation or later)	17.81	14.07	16.29	17.20	18.15	27.05	▲
Hypospadias	13.09	14.00	16.33	15.39	14.61	14.83	▲
Epispadias	0.26	0.47	0.38	0.16	0.37	0.00	
Indeterminate sex	2.51	4.08	3.98	5.83	3.98	0.17	▲
Renal agenesis	0.13	1.06	1.29	1.32	1.00	0.52	▲
Cystic kidney	0.47	1.18	1.60	2.34	2.87	3.14	▲
Bladder exstrophy	0.24	0.55	0.24	0.26	0.37	0.17	
Polydactyly, preaxial					7.78*	8.03	nc
Total Limb reduction defects (incl. unspecified)	8.39	6.82	7.19	6.76	5.11	3.84	▼
Transverse			2.97*	4.05	2.14	2.27	▼
Preaxial			0.82*	0.56	0.37	0.00	▼
Postaxial			0.82*	0.49	0.33	0.00	▼
Intercalary			0.25*	0.36	0.40	0.00	
Mixed			0.81*	0.66	1.20	1.57	▲
Diaphragmatic hernia	2.01	2.55	2.34	2.41	2.34	2.27	
Total Abdominal wall defects (incl. unspecified)	3.64	3.37	4.05	4.15	4.45	3.49	
Omphalocele	2.32	1.88	2.13	1.94	1.80	1.22	
Gastroschisis	1.32	1.49	1.92	2.21	2.64	2.27	▲
Prune belly sequence					1.09*	1.05	nc
Trisomy 13					1.00*	0.35	nc
Trisomy 18					1.25*	0.17	nc
Down syndrome, all ages (incl. age unknown)	9.79	10.55	10.92	9.76	11.36	11.87	
<20	2.25	5.45	3.47	2.79	1.23	6.79	
20-24	6.27	7.11	6.58	5.49	2.16	2.34	▼
25-29	7.80	6.83	6.01	7.00	6.67	5.56	
30-34	10.78	14.15	13.36	11.02	10.38	11.19	
35-39	37.22	33.97	37.42	18.23	32.68	29.05	
40-44	127.11	63.72	80.22	75.12	83.12	81.23	▼
45+	197.04	93.46	267.86	342.47	189.87	400.00	

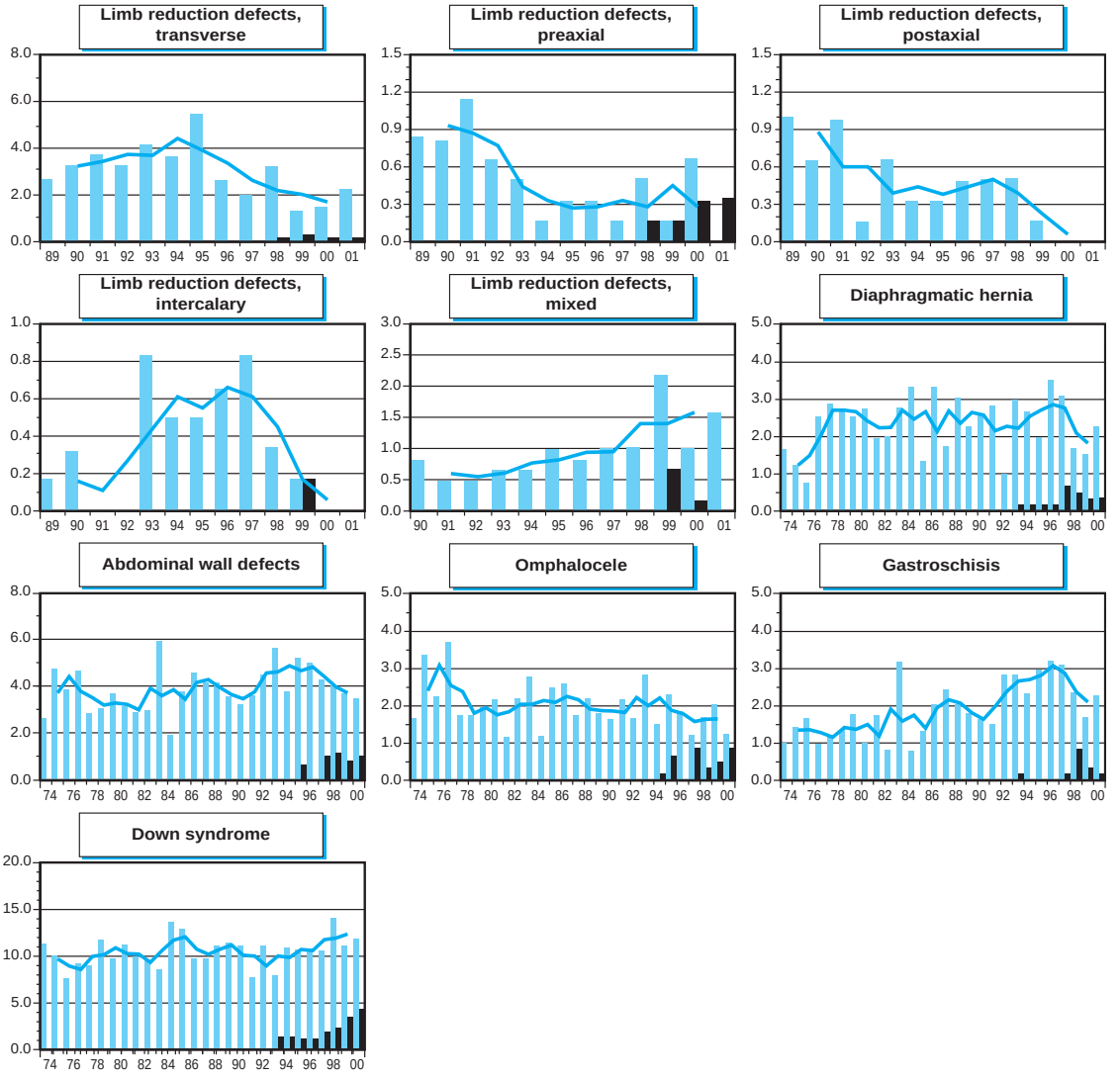
* = data incl. less than seven and five years
nc = not calculable

Norway

Time trends 1974-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend



Note: L+S rates, ToP rates — 3-year moving average trend

Russia: MRRCM
Moscow Regional Registry of Congenital Malformation

History:
Moscow Regional Registry of Congenital Malformation (MRRCM) started the activity in 1999 and legally defined by the order of the Ministry of Health Care of Russian Federation. MRRCM became a Member of ICBDMS in 2001.

Size and coverage:
MRRCM is located in a section of Moscow Regional Medical genetic consultation by The Moscow Regional Research institute of obstetrics and gynecology (MONIIAG).
Director of the MONIIAG is Professor Vladislav Krasnopolsky.
The Head of the Moscow Regional Medical genetic consultation and Director of the Programme of MRRCM is Ludmila Jouthenko.

Size and coverage:
The Programme of Monitoring of Birth defects covers all births in Moscow Region. In 1999 MRRCM observed 45,000 births. There are about 55,000 births annually (2002). The information about babies and fetuses with birth defects are collected from 54 maternity hospitals also from all women's consultations and clinics, children's clinics. Prenatally diagnosed and terminated fetuses are also registered.

Legislation and funding:
Monitoring of the birth of fetuses and babies with congenital malformations is legally defined by the Order of the Ministry of Health Care of Russian Federation in 1999.

Sources of ascertainment:
Reporting is made by neonatologist during the first week of the infant's life in maternity hospitals and by pediatricians during the first months – in pediatric departments. Reports are collected form cytogenetic laboratories, pathology departments.

Exposure information:
No exposure information is routinely collected in the registry.

Background information:
Background information on all births is available from statistics department.

Address for further information:
Ludmila Joutchenko, Moscow Regional Research Institute of Obstetrics and Gynecology (MONIIAG), Pokrovka st 22 A, Moscow, Russia, 101000

Phone/Fax: 7-095-9215398

E-mail: mrrcm@mail.ru

Russia: Moscow region, 2001

Live births (L)	44,716
Stillbirths (S)	376
Total births	45,092
Number of terminations of pregnancy (ToP) for birth defects	100

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	2	16	0.44	3.98			
Spina bifida	17	5	10	4.88	7.08			
Encephalocele	1	1	0	0.44	0.44			
Microcephaly	0	0	2	0.00	0.44			
Arhinencephaly / Holoprosencephaly	0	0	1	0.00	0.22			
Hydrocephaly	9	5	13	3.10	5.97			
Total Anophthalmos / Microphthalmos (incl. unspecified)	0	0	0	0.00	0.00			
Anophthalmos	0	0	0	0.00	0.00			
Microphthalmos	0	0	0	0.00	0.00			
Total Anotia / Microtia (incl. unspecified)	4	0	0	0.89	0.89			
Anotia	0	0	0	0.00	0.00			
Microtia	0	0	0	0.00	0.00			
Transposition of great vessels	6	4	0	2.22	2.21			
Tetralogy of Fallot	5	0	0	1.11	1.11			
Hypoplastic left heart syndrome	2	0	0	0.44	0.44			
Coarctation of aorta	0	0	0	0.00	0.00			
Choanal atresia, bilateral	5	0	0	1.11	1.11			
Cleft palate without cleft lip	14	0	0	3.10	3.10			
Cleft lip with or without cleft palate	36	0	0	7.98	7.97			
Oesophageal atresia / stenosis with or without fistula	14	0	0	3.10	3.10			
Small intestine atresia / stenosis	8	0	0	1.77	1.77			
Anorectal atresia / stenosis	6	0	0	1.33	1.33			
Undescended testis (36 weeks of gestation or later)	106	0	0	23.51	23.46			
Hypospadias	92	0	0	20.40	20.36			
Epispadias	2	0	0	0.44	0.44			
Indeterminate sex	1	0	0	0.22	0.22			
Renal agenesis	3	0	4	0.67	1.55			
Cystic kidney	12	2	0	3.10	3.10			
Bladder exstrophy	0	0	0	0.00	0.00			
Polydactyly, preaxial	52	0	0	11.53	11.51			
Total Limb reduction defects (incl. unspecified)	26	0	0	5.77	5.75			
Transverse	7	0	0	1.55	1.55			
Preaxial	1	0	0	0.22	0.22			
Postaxial	0	0	0	0.00	0.00			
Intercalary	2	0	0	0.44	0.44			
Mixed	1	0	0	0.22	0.22			
Diaphragmatic hernia	1	1	0	0.44	0.44			
Total Abdominal wall defects (incl. unspecified)	31	1	4	7.10	7.97			
Omphalocele	18	0	0	3.99	3.98			
Gastroschisis	12	1	4	2.88	3.76			
Prune belly sequence	0	0	0	0.00	0.00			
Trisomy 13	0	0	1	0.00	0.22			
Trisomy 18	0	0	3	0.00	0.66			
Down syndrome, all ages (incl. age unknown)	58	0	0	12.86	12.83			
<20	5	0	0	nc	nc			
20-24	15	0	0	nc	nc			
25-29	10	0	0	nc	nc			
30-34	8	0	0	nc	nc			
35-39	9	0	0	nc	nc			
40-44	9	0	0	nc	nc			
45+	1	0	0	nc	nc			

nc = not calculable

South Africa: SABDSS

South African Birth Defects Surveillance Systems

History:
The Programm started in 1988 and became a full member of the ICBDMS in 1992.

Size and coverage:
The Programme is hospital based covering 9 sentinel sites in the country with approximately 30,000 annual or 3% of all births in South Africa.

Legislation and Funding:
Participation in the Programme is voluntary and is funded by the Department of National Health.

Sources of ascertainment:
Notifications are obtained from delivery units and paediatric units of the participating hospitals.

Exposure information:
No exposure information is routinely available.

Background information:
Total births for some participating hospitals are not accurately known.

Address for further information:
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Fax: 27-21-4066163

E-mail: db@cormack.uct.ac.za
rauf@cormack.uct.ac.za

South Africa: SABDSS, 2001

Live births (L)	21,649
Stillbirths (S)	nr
Total births	nr
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	6	nr	nr	2.77	nc	0.56	2	
Spina bifida	29	nr	nr	13.40	nc	1.8	3	▲
Encephalocele	2	nr	nr	0.92	nc	1.25	9	
Microcephaly	1	nr	nr	0.46	nc	0.31	5	
Arhinencephaly / Holoprosencephaly	1	nr	nr	0.46	nc	1.03	5	
Hydrocephaly	8	nr	nr	3.70	nc	1.24	9	
Total Anophthalmos / Microphthalmos (incl. unspecified)	1	nr	nr	0.46	nc	0.26	5	
Anophthalmos	nr	nr	nr	nc	nc	nc		
Microphthalmos	1	nr	nr	0.46	nc	0.29	5	
Total Anotia / Microtia (incl. unspecified)	1	nr	nr	0.46	nc	1.43	3	
Anotia	nr	nr	nr	nc	nc	nc		
Microtia	1	nr	nr	0.46	nc	6.67	6	
Transposition of great vessels	4	nr	nr	1.85	nc	2.94	9	
Tetralogy of Fallot	nr	nr	nr	nc	nc	nc		
Hypoplastic left heart syndrome	1	nr	nr	0.46	nc	0.98	9	
Coarctation of aorta	nr	nr	nr	nc	nc	nc		
Choanal atresia, bilateral	8	nr	nr	3.70	nc	1.93	5	
Cleft palate without cleft lip	9	nr	nr	4.16	nc	2.18	9	
Cleft lip with or without cleft palate	9	nr	nr	4.16	nc	1.25	9	
Oesophageal atresia / stenosis with or without fistula	10	nr	nr	4.62	nc	2.06	7	
Small intestine atresia / stenosis	8	nr	nr	3.70	nc	1.62	5	
Anorectal atresia / stenosis	11	nr	nr	5.08	nc	2.39	9	
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc	nc		
Hypospadias	8	nr	nr	3.70	nc	0.83	6	
Epispadias	2	nr	nr	0.92	nc	2.06	3	
Indeterminate sex	2	nr	nr	0.92	nc	0.67	4	
Renal agenesis	1	nr	nr	0.46	nc	0.56	9	
Cystic kidney	2	nr	nr	0.92	nc	1.87	4	
Bladder exstrophy	3	nr	nr	1.39	nc	1.53	2	
Polydactyly, preaxial	nr	nr	nr	nc	nc	nc		
Total Limb reduction defects (incl. unspecified)	9	nr	nr	4.16	nc	1.8	9	
Transverse	nr	nr	nr	nc	nc	nc		
Preaxial	nr	nr	nr	nc	nc	nc		
Postaxial	nr	nr	nr	nc	nc	nc		
Intercalary	nr	nr	nr	nc	nc	nc		
Mixed	nr	nr	nr	nc	nc	nc		
Diaphragmatic hernia	4	nr	nr	1.85	nc	1.69	9	
Total Abdominal wall defects (incl. unspecified)	16	nr	nr	7.39	nc	2.23	9	▲
Omphalocele	12	nr	nr	5.54	nc	2.38	9	
Gastroschisis	4	nr	nr	1.85	nc	1.92	7	
Prune belly sequence	1	nr	nr	0.46	nc	0.99	6	
Trisomy 13	7	nr	nr	3.23	nc	2.85	7	
Trisomy 18	1	nr	nr	0.46	nc	0.33	3	
Down syndrome, all ages (incl. age unknown)	26	nr	nr	12.01	nc	1.48	9	
<20	nr	nr	nr	nc	nc	nc		
20-24	2	nr	nr	3.19	nc	0.89	9	
25-29	2	nr	nr	3.55	nc	0.82	9	
30-34	6	nr	nr	17.32	nc	1.72	9	
35-39	5	nr	nr	28.87	nc	1.15	9	
40-44	3	nr	nr	69.28	nc	1.11	7	
45+	1	nr	nr	92.59	nc	1.85	6	

nr= not reported
nc= not calculable

South Africa: SABDSS, time trend analysis 1992-2001

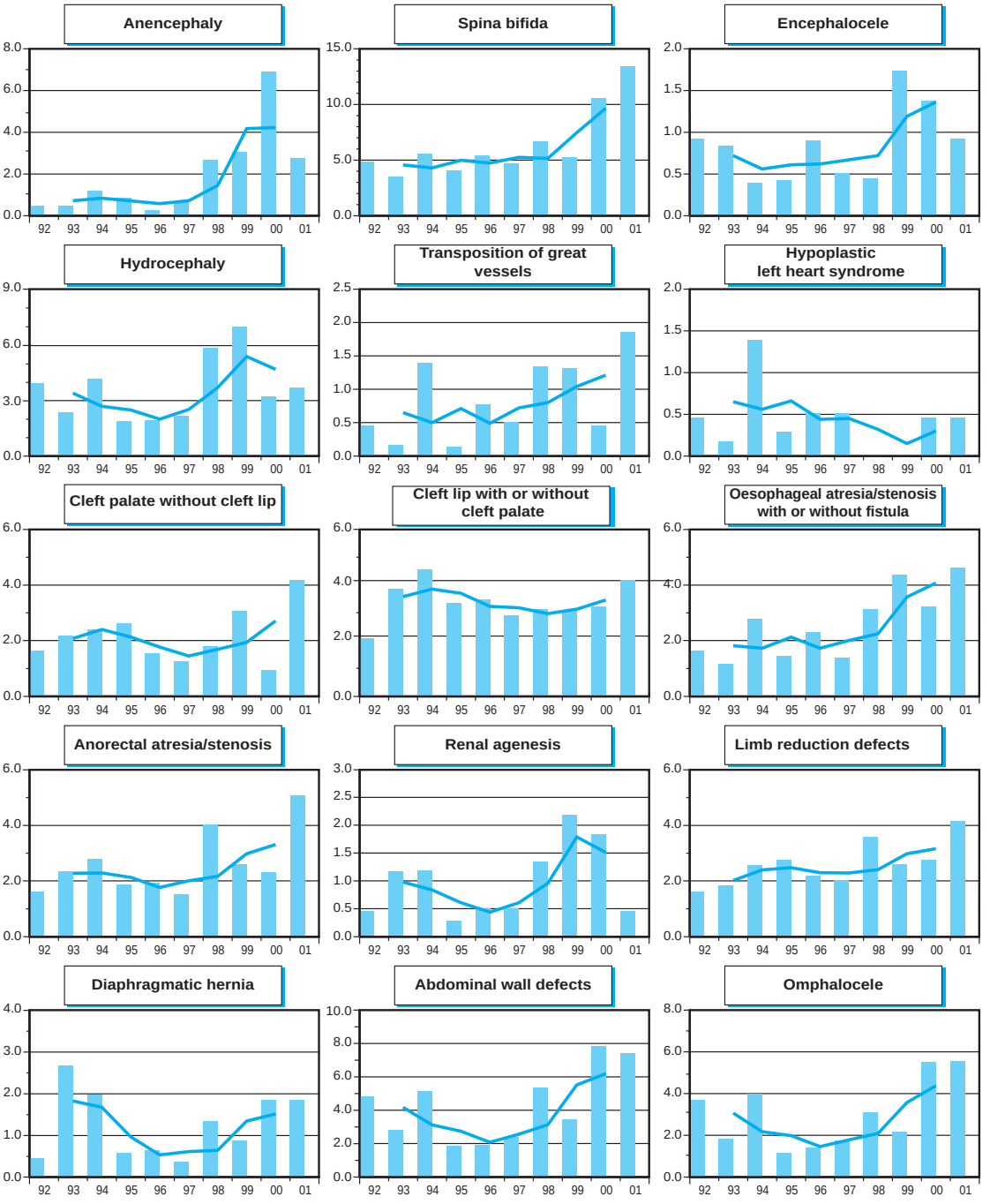
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95*	1996-00	2001	Trend
Births				222,614	224,155	21,649	
Anencephaly				0.76	1.56	2.77	▲
Spina bifida				4.40	5.75	13.40	▲
Encephalocele				0.63	0.85	0.92	
Microcephaly					1.47	0.46	
Arhinencephaly / Holoprosencephaly					0.45	0.46	
Hydrocephaly				2.92	3.03	3.70	
Total Anophthalmos / Microphthalmos (incl. unspecified)					1.78	0.46	▼
Microphthalmos					1.61	0.46	▼
Total Anotia / Microtia (incl. unspecified)					0.32*	0.46	nc
Microtia				0.06	0.08*	0.46	
Transposition of great vessels				0.49	0.76	1.85	
Hypoplastic left heart syndrome				0.54	0.40	0.46	
Choanal atresia, bilateral					1.92	3.70	
Cleft palate without cleft lip				2.25	1.56	4.16	
Cleft lip with or without cleft palate				3.50	3.17	4.16	
Oesophageal atresia / stenosis with or without fistula				1.71	2.36	4.62	▲
Small intestine atresia / stenosis					2.28	3.70	
Anorectal atresia / stenosis				2.16	2.10	5.08	
Undescended testis (36 weeks of gestation or later)					5.35		
Hypospadias				6.01	3.97	3.70	▼
Epispadias					0.45*	0.92	nc
Indeterminate sex					1.38*	0.92	
Renal agenesis				0.76	0.89	0.46	
Cystic kidney					0.49*	0.92	
Bladder exstrophy					0.91*	1.39	nc
Total Limb reduction defects (incl. unspecified)				2.25	2.36	4.16	
Diaphragmatic hernia				1.44	0.76	1.85	
Total Abdominal wall defects (incl. unspecified)				3.46	3.17	7.39	▲
Omphalocele				2.47	2.19	5.54	
Gastroschisis				0.67	0.98	1.85	▲
Prune belly sequence				0.50	0.44*	0.46	
Trisomy 13				0.92	1.25	3.23	▲
Trisomy 18				1.67	0.00*	0.46	nc
Down syndrome, all ages (incl. age unknown)				7.91	8.30	12.01	
<20				2.09	1.89		
20-24				3.46	3.69	3.19	
25-29				3.25	5.42	3.55	
30-34				10.39	9.76	17.32	
35-39				25.27	25.09	28.87	
40-44				54.42	66.93	69.28	
45+				83.61	29.64*	92.59	

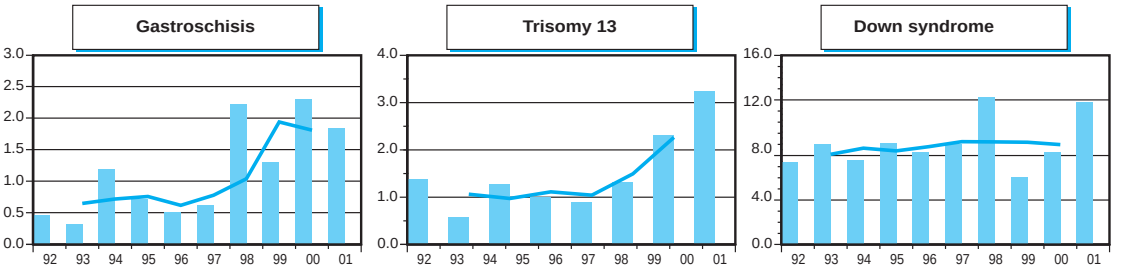
* = data incl. less than five years
nc= not calculable

South Africa: SABDSS

Time trends 1992-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, 3-year moving average trend



Note: L+S rates, 3-year moving average trend

South America: ECLAMC

Latin American Collaborative Study of Congenital Malformations

History:
The Programme started in 1967 and has grown in size and coverage. The Programme became a full member of the ICBDMS in 1977.

Size and coverage:
The number of participating hospitals has grown from 20 in 1977 to 70 at the present time, distributed over most South American countries. The annual number of births covered is at present approximately 150,000, less than 1% of all births. Stillbirths of at least 500g birthweight have been included since 1978.

Legislation and funding:
The Registry is a research programme with voluntary participation of hospitals and funded by research grants provided from several sources, mainly the national research councils of Argentina and Brazil.

Sources of ascertainment:
Reporting is made by collaborating pediatricians at the delivery units of participating hospitals.

Exposure information:
The mother of each reported infant and the mother of a control infant - the next non-malformed infant born at that hospital with the same sex as the proband - are interviewed on various exposures, including drug usage and parental occupation.

Background information:
Background information is obtained partly from summarising tables of births in each participating hospitals, partly from the matched control newborns.

Address for further information:
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Fax: 55-21-22604282

E-mail: castilla@centroin.com.br

South America: ECLAMC, 2001

Live births (L)	204,268
Stillbirths (S)	2,482
Total births	206,750
Number of terminations of pregnancy (ToP) for birth defects	not permitted

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	89	68		7.59		1.10	20	
Spina bifida	201	13		10.35		1.01	6	
Encephalocele	48	6		2.61		0.92	5	
Microcephaly	80	6		4.16		1.23	7	
Arhinencephaly / Holoprosencephaly	27	5		1.55		1.02	3	
Hydrocephaly	225	25		12.09		1.05	7	
Total Anophthalmos / Microphthalmos (incl. unspecified)	32	6		1.84		0.98	14	
Anophthalmos	12	1		0.63		1.76	27	
Microphthalmos	20	5		1.21		0.78	12	
Total Anotia / Microtia (incl. unspecified)	101	5		5.13		1.21	27	
Anotia	9	1		0.48		1.67	4	
Microtia	92	4		4.64		1.26	4	
Transposition of great vessels	37	1		1.84		1.23	4	
Tetralogy of Fallot	49	2		2.47		1.84	11	▲
Hypoplastic left heart syndrome	21	2		1.11		1.04	5	
Coarctation of aorta	20	0		0.97		1.05	8	
Choanal atresia, bilateral	5	0		0.24		1.50	27	
Cleft palate without cleft lip	111	6		5.66		1.46	12	▲
Cleft lip with or without cleft palate	254	11		12.82		1.03	7	
Oesophageal atresia / stenosis with or without fistula	65	3		3.29		1.03	10	
Small intestine atresia / stenosis	62	0		3.00		1.24	5	
Anorectal atresia / stenosis	107	9		5.61		1.14	9	
Undescended testis (36 weeks of gestation or later)	144	3		7.11		1.29	7	▲
Hypospadias	105	1		5.13		0.98	7	
Epispadias	5	0		0.24		0.89	27	
Indeterminate sex	37	13		2.42		1.32	27	
Renal agenesis	40	9		2.37		1.05	8	
Cystic kidney	98	10		5.22		1.30	5	
Bladder exstrophy	8	2		0.48		1.75	25	
Polydactyly, preaxial	81	1		3.97		1.48	27	▲
Total Limb reduction defects (incl. unspecified)	112	14		6.09		1.00	9	
Transverse	61	4		3.14		1.12	23	
Preaxial	24	6		1.45		0.93	8	
Postaxial	7	0		0.34		0.87	27	
Intercalary	7	2		0.44		0.91	27	
Mixed	11	0		0.53		1.02	27	
Diaphragmatic hernia	75	4		3.82		1.09	7	
Total Abdominal wall defects (incl. unspecified)	129	23		7.35		0.98	4	
Omphalocele	54	13		3.24		1.07	8	
Gastroschisis	56	2		2.81		0.97	5	
Prune belly sequence	23	1		1.16		1.06	8	
Trisomy 13	27	5		1.55		2.66	18	▲
Trisomy 18	35	11		2.22		1.18	6	
Down syndrome, all ages (incl. age unknown)	394	14		19.73		1.07	6	
<20	35	1		8.61		1.20	27	
20-24	46	1		7.98		0.84	6	
25-29	44	1		9.60		1.06	12	
30-34	57	1		17.79		1.13	27	
35-39	110	5		59.39		1.24	27	
40-44	83	4		160.04		1.02	27	
45+	19	1		578.03		2.06	27	▲

South America: ECLAMC, time trend analysis 1974-2001

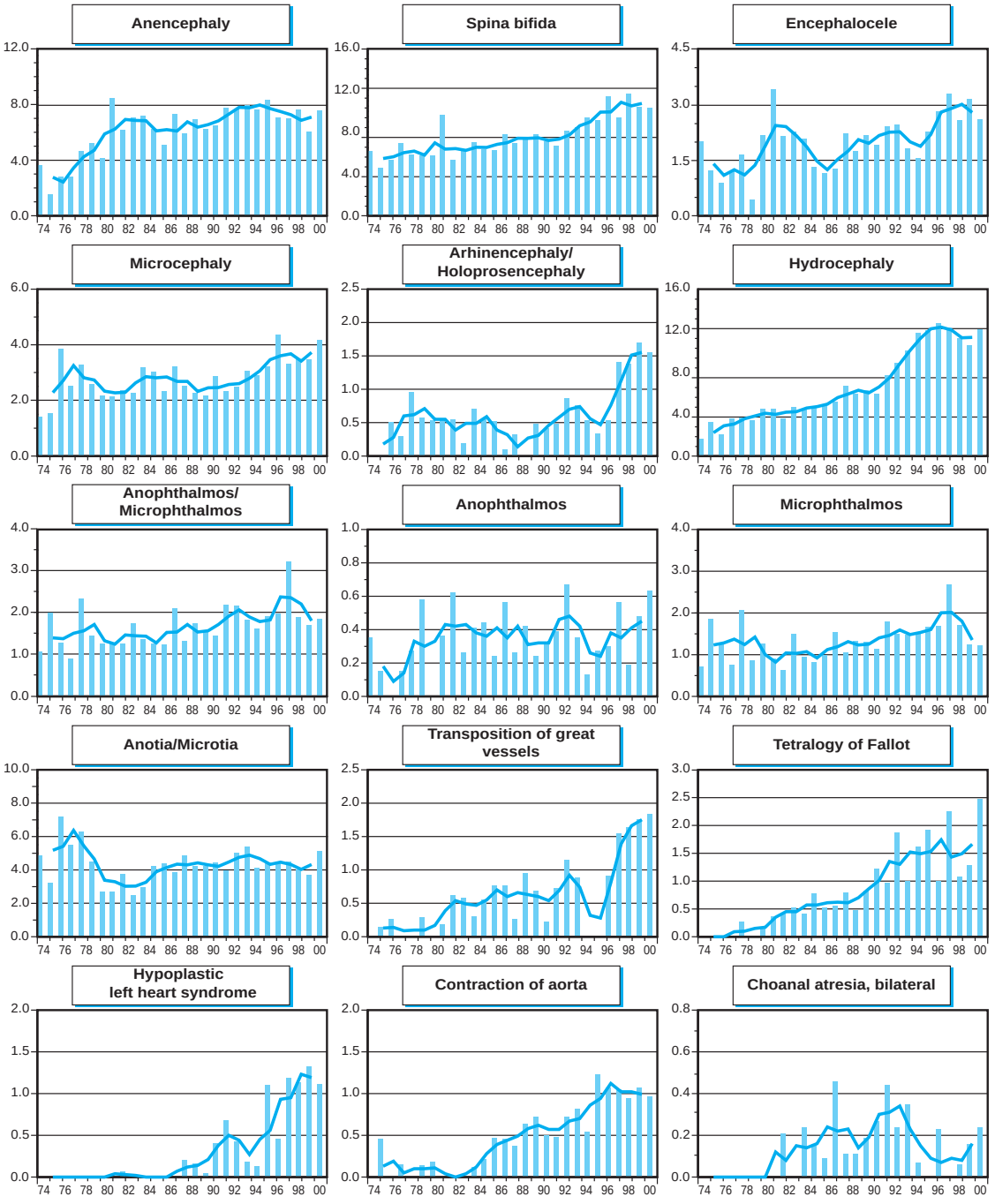
Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	493,467	706,137	992,563	953,726	766,457	206,750	
Anencephaly	3.55	6.81	6.28	7.45	7.16	7.59	▲
Spina bifida	5.82	6.56	7.25	7.86	10.41	10.35	▲
Encephalocele	1.36	2.04	1.70	2.07	2.83	2.61	▲
Microcephaly	2.49	2.69	2.50	2.71	3.54	4.16	▲
Arhinencephaly / Holoprosencephaly	0.41	0.51	0.29	0.61	1.12	1.55	▲
Hydrocephaly	3.06	4.39	5.80	8.63	11.70	12.09	▲
Total Anophthalmos / Microphthalmos (incl. unspecified)	1.46	1.39	1.58	1.86	2.11	1.84	▲
Anophthalmos	0.22	0.42	0.34	0.39	0.37	0.63	
Microphthalmos	1.24	0.96	1.24	1.47	1.75	1.21	▲
Total Anotia / Microtia (incl. unspecified)	5.01	3.31	4.29	4.58	4.18	5.13	
Anotia					0.29*	0.48	
Microtia					3.69*	4.64	
Transposition of great vessels	0.10	0.48	0.69	0.73*	1.21	1.84	▲
Tetralogy of Fallot	0.06	0.52	0.63	1.33	1.49	2.47	▲
Hypoplastic left heart syndrome	0.00	0.01	0.08	0.39	1.07	1.11	▲
Coarctation of aorta	0.12	0.08	0.53	0.61	1.07	0.97	▲
Choanal atresia, bilateral	0.00	0.14	0.19	0.28	0.09	0.24	▲
Cleft palate without cleft lip	3.14	3.48	3.33	3.92	3.91	5.66	▲
Cleft lip with or without cleft palate	10.98	10.22	10.72	10.84	12.85	12.82	▲
Oesophageal atresia / stenosis with or without fistula	1.97	2.51	2.66	2.95	3.52	3.29	▲
Small intestine atresia / stenosis	0.57	1.67	1.42	1.82	2.43	3.00	▲
Anorectal atresia / stenosis	2.76	3.84	3.84	4.48	5.18	5.61	▲
Undescended testis (36 weeks of gestation or later)	1.54	3.94	4.53	4.83	5.58	7.11	▲
Hypospadias	3.53	4.87	3.79	4.59	5.39	5.13	▲
Epispadias	0.12	0.41	0.27	0.31	0.18	0.24	
Indeterminate sex	1.07	2.24	1.89	1.80	1.89	2.42	▲
Renal agenesis	0.43	0.69	1.02	1.67	2.41	2.37	▲
Cystic kidney	0.57	1.10	1.74	2.09	4.02	5.22	▲
Bladder exstrophy	0.12	0.28	0.28	0.22	0.39	0.48	▲
Polydactyly, preaxial	2.76	2.46	2.47	2.75	3.00	3.97	▲
Total Limb reduction defects (incl. unspecified)	4.17	5.57	4.76	5.55	6.48	6.09	▲
Transverse	2.27	2.69	2.56	2.80	3.14	3.14	▲
Preaxial	0.63	1.13	0.94	1.15	1.67	1.45	▲
Postaxial	0.26	0.50	0.27	0.44	0.46	0.34	
Intercalary	0.45	0.55	0.35	0.49	0.59	0.44	
Mixed	0.45	0.62	0.50	0.50	0.52	0.53	
Diaphragmatic hernia	0.81	1.26	1.83	2.40	3.67	3.82	▲
Total Abdominal wall defects (incl. unspecified)	1.52	3.13	3.20	4.73	7.29	7.35	▲
Omphalocele	1.09	2.20	2.24	2.61	3.20	3.24	▲
Gastroschisis	0.08	0.47	0.62	1.51	2.90	2.81	▲
Prune belly sequence	0.02	0.64	0.75	0.81	1.19	1.16	▲
Trisomy 13	0.18	0.59	0.36	0.57	0.81	1.55	▲
Trisomy 18	0.24	0.86	0.88	1.20	1.89	2.22	▲
Down syndrome, all ages (incl. age unknown)	14.63	15.05	15.04	15.86	18.91	19.73	▲
<20	7.62	6.36	7.08	6.87	8.01	8.61	
20-24	7.12	6.75	7.27	7.67	9.71	7.98	▲
25-29	8.14	8.02	7.14	8.45	10.24	9.60	▲
30-34	13.99	15.12	16.20	15.16	17.48	17.79	
35-39	54.11	43.66	45.57	47.05	52.63	59.39	
40-44	163.64	158.38	134.57	156.76	182.31	160.04	
45+	295.12	248.45	278.51	281.23	316.71	578.03	

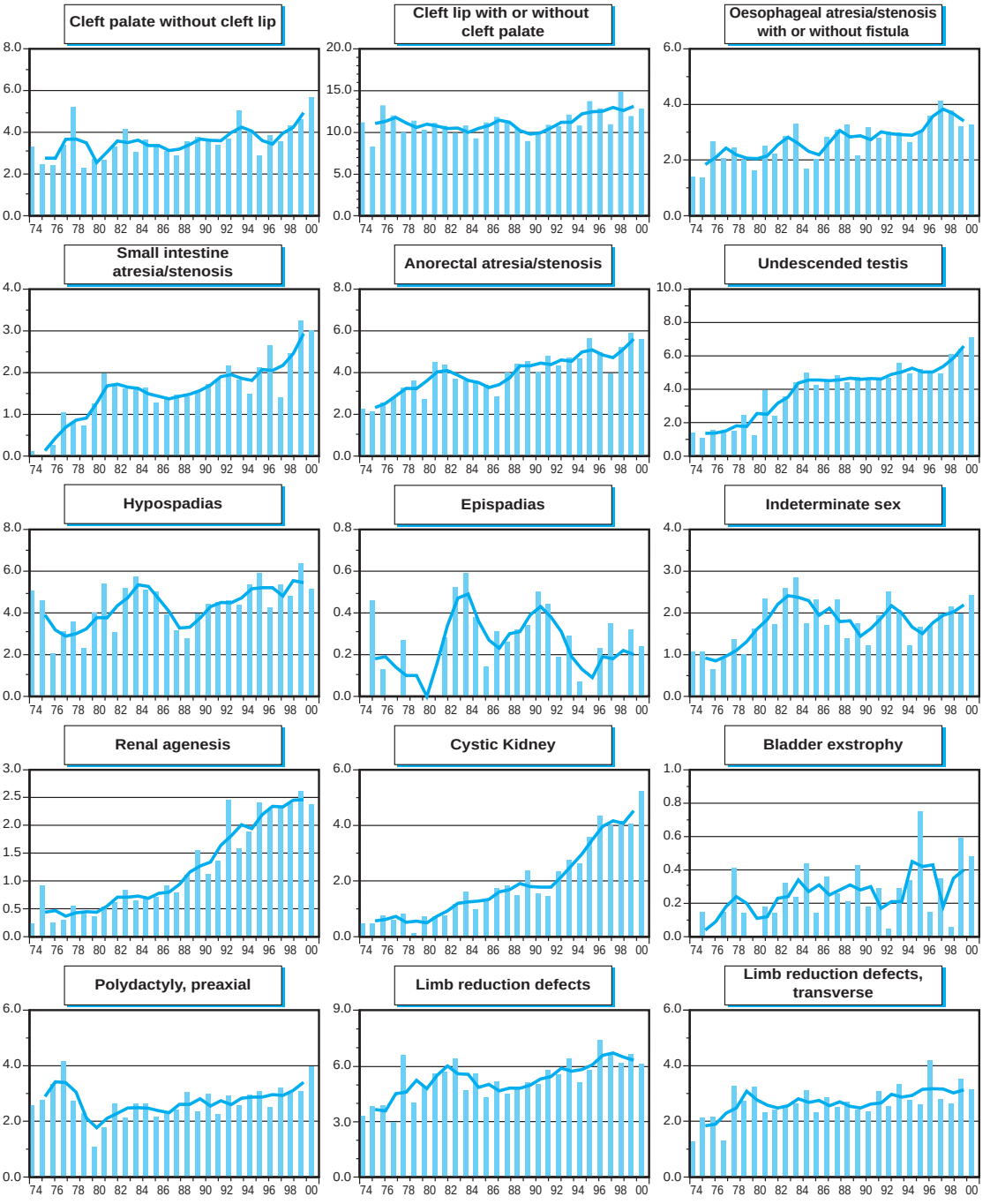
* = data incl. less than five years

South America: ECLAMC

Time trends 1974-2001 (Birth prevalence rates per 10,000)



Note: L+S rates, 3-year moving average trend



Note: L+S rates, 3-year moving average trend

Note: L+S rates, 3-year moving average trend

8 *Monitoring Systems*

Spain: ECEMC
Spanish Collaborative Study of Congenital Malformations

History:
The Programme was created in 1976 by Prof. Dr. María Luisa Martínez-Frías, as a hospital-based case-control study and surveillance system. It became a full member of the ICBDMS in 1979. In January 2002 the ECEMC Programme became integrated into the CIAC (Research Center on Congenital Anomalies), of the Instituto de Salud Carlos III (Ministerio de Sanidad y Consumo) of Spain, and is also directed by Prof. Martínez-Frías.

Size and coverage:
Reports are obtained from hospitals (86 at present) distributed all over Spain. The annual number of births surpasses 100,000, representing 26.74% of all Spanish births. Stillbirths of at least 24 weeks or 500 g. have been included since 1980.

Legislation and funding:
The Registry is a research programme with voluntary participation of hospitals, and is financed mainly by the Spanish Administration and, partially, by non-governmental organisations.

Sources of ascertainment:
The detection period is the first 3 days of life, including major and/or minor/mild defects. Reports come from delivery units and paediatric departments of the participating hospitals. Mothers are interviewed directly to fill in the ECEMC standard protocols, which include more than 300 data for each child (family history, demographic and obstetrical data, prenatal exposures, etc), whether case or control. Controls are defined as the next non-malformed infant born at the same hospital that the case with the same sex as the malformed infant. In many instances, photographs, imaging studies, high-resolution bands karyotypes and molecular analysis when needed (which are performed at the central group of the ECEMC), and other complementary studies are available.

Exposure information:
The mother of each reported infant (case or control) is interviewed on various exposures (parental occupation, maternal acute or chronic diseases, drug usage, exposure to other chemical or physical factors) within the first three days after delivery.

Background information:
Total number of births by sex and number of twin pairs in each participating hospital are gathered. Other background information is obtained from the control material.

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Spain: ECEMC, 2001

Live births (L)	102,951
Stillbirths (S)	453
Total births	103,404
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	3	0	nr	0.29	nc	3.06	2	
Spina bifida	17	1	nr	1.74	nc	0.81	6	
Encephalocele	1	0	nr	0.10	nc	0.48	5	
Microcephaly	15	0	nr	1.45	nc	0.74	21	
Arhinencephaly / Holoprosencephaly	1	1	nr	0.19	nc	0.39	21	
Hydrocephaly	23	0	nr	2.22	nc	0.85	21	
Total Anophthalmos / Microphthalmos (incl. unspecified)	12	0	nr	1.16	nc	0.78	8	
Anophthalmos	1	0	nr	0.10	nc	0.40	16	
Microphthalmos	11	0	nr	1.06	nc	0.81	8	
Total Anotia / Microtia (incl. unspecified)	15	0	nr	1.45	nc	0.85	20	
Anotia	1	0	nr	0.10	nc	0.92	19	
Microtia	14	0	nr	1.35	nc	0.84	20	
Transposition of great vessels	8	0	nr	0.77	nc	0.60	16	
Tetralogy of Fallot	10	0	nr	0.97	nc	0.82	14	
Hypoplastic left heart syndrome	1	0	nr	0.10	nc	0.13	21	▼
Coarctation of aorta	6	0	nr	0.58	nc	0.74	15	
Choanal atresia, bilateral	0	0	nr	0.00	nc	0.00	21	
Cleft palate without cleft lip	31	1	nr	3.09	nc	0.69	18	▼
Cleft lip with or without cleft palate	26	0	nr	2.51	nc	0.58	6	▼
Oesophageal atresia / stenosis with or without fistula	21	0	nr	2.03	nc	1.05	21	
Small intestine atresia / stenosis	6	0	nr	0.58	nc	0.51	21	
Anorectal atresia / stenosis	26	0	nr	2.51	nc	1.13	21	
Undescended testis (36 weeks of gestation or later)	34	0	nr	3.29	nc	1.26	19	
Hypospadias	21	0	nr	2.03	nc	1.04	16	
Epispadias	4	0	nr	0.39	nc	1.46	21	
Indeterminate sex	10	0	nr	0.97	nc	1.31	15	
Renal agenesis	0	0	nr	0.00	nc	0.00	9	
Cystic kidney	12	0	nr	1.16	nc	0.72	18	
Bladder exstrophy	5	0	nr	0.48	nc	1.82	21	
Polydactyly, preaxial	21	0	nr	2.03	nc	1.07	21	
Total Limb reduction defects (incl. unspecified)	50	0	nr	4.84	nc	0.77	16	
Transverse	18	0	nr	1.74	nc	0.67	18	
Preaxial	7	0	nr	0.68	nc	0.80	17	
Postaxial	0	0	nr	0.00	nc	0.00	21	
Intercalary	2	0	nr	0.19	nc	0.49	21	
Mixed	13	0	nr	1.26	nc	1.14	21	
Diaphragmatic hernia	11	0	nr	1.06	nc	1.05	3	
Total Abdominal wall defects (incl. unspecified)	8	1	nr	0.87	nc	0.67	9	
Omphalocele	5	1	nr	0.58	nc	0.70	9	
Gastroschisis	3	0	nr	0.29	nc	0.66	21	
Prune belly sequence	1	0	nr	0.10	nc	0.32	9	
Trisomy 13	3	0	nr	0.29	nc	0.66	21	
Trisomy 18	5	1	nr	0.58	nc	0.66	21	
Down syndrome, all ages (incl. age unknown)	84	0	nr	8.12	nc	0.79	5	▼
<20	0	0	nr	0.00	nc	0.00	9	
20-24	10	0	nr	9.05	nc	1.71	19	
25-29	16	0	nr	4.85	nc	0.70	21	
30-34	29	0	nr	7.82	nc	1.40	1	
35-39	20	0	nr	11.87	nc	0.61	4	▼
40-44	8	0	nr	37.56	nc	0.63	11	
45+	0	0	nr	0.00	nc	0.00	20	

nr= not reported
nc= not calculable

Spain: ECEMC, time trend analysis 1980-2001

Birth prevalence rates: (L+S) * 10,000

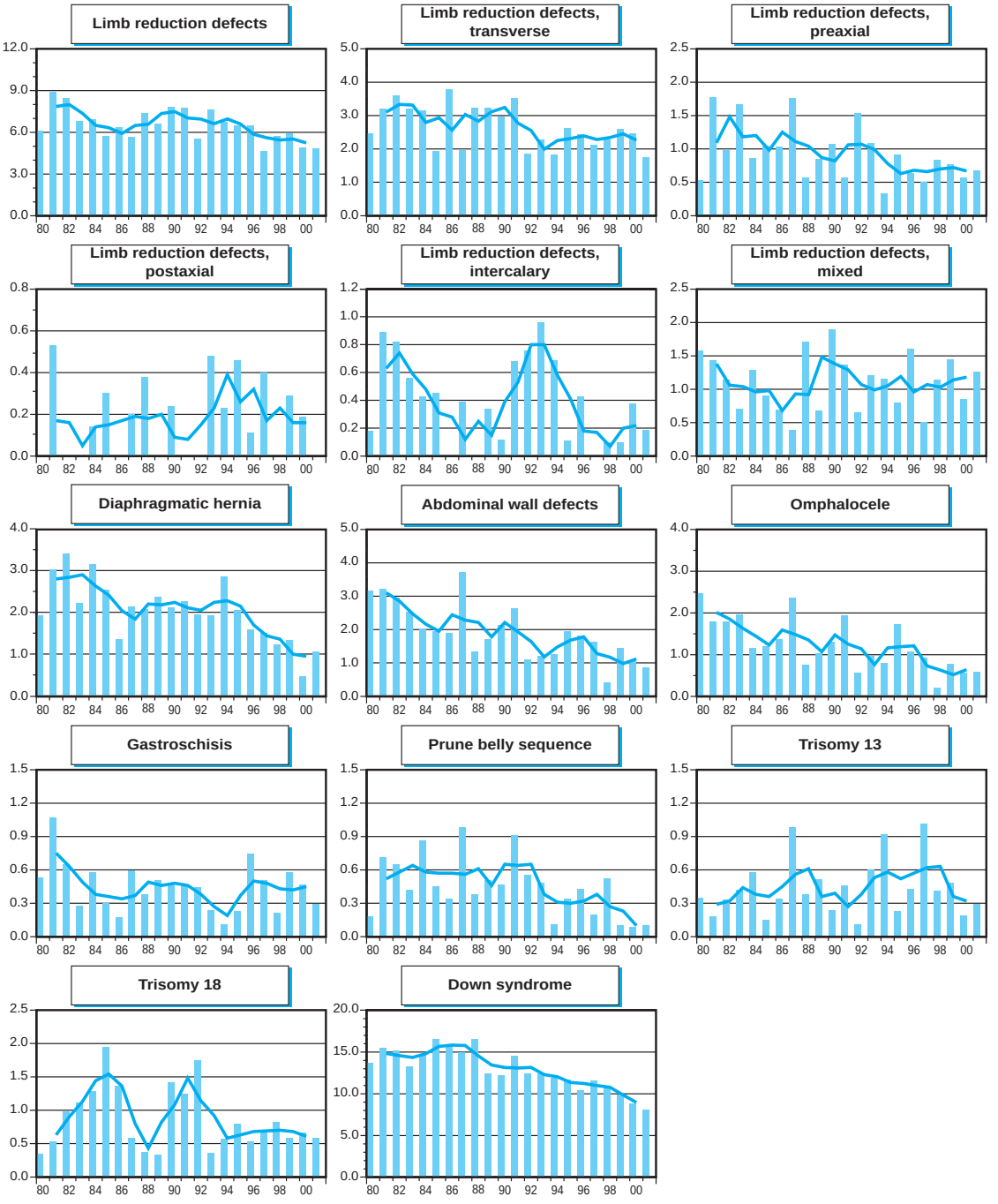
	1974-80*	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	57,010	325,477	305,405	436,852	499,647	103,404	
Anencephaly	6.14	4.39	2.06	1.01	0.44	0.29	▼
Spina bifida	4.21	4.70	4.39	3.20	2.12	1.74	▼
Encephalocele	1.05	1.17	0.65	0.82	0.20	0.10	▼
Microcephaly	1.93	2.15	2.03	2.29	1.54	1.45	▼
Arhinencephaly / Holoprosencephaly	0.53	0.46	0.52	0.57	0.44	0.19	
Hydrocephaly	3.33	2.40	2.82	2.95	2.22	2.22	
Total Anophthalmos / Microphthalmos (incl. unspecified)	2.46	2.46	2.13	1.88	1.48	1.16	▼
Anophthalmos	0.70	0.74	0.33	0.21	0.20	0.10	▼
Microphthalmos	1.75	1.87	1.80	1.67	1.30	1.06	▼
Total Anotia / Microtia (incl. unspecified)	2.98	2.15	1.64	1.42	1.70	1.45	▼
Anotia	0.00	0.03	0.00	0.21	0.12	0.10	▲
Microtia	2.98	2.12	1.64	1.24	1.60	1.35	▼
Transposition of great vessels	0.88	0.61	1.11	1.51	1.32	0.77	▲
Tetralogy of Fallot	0.18	0.31	0.79	1.14	1.34	0.97	▲
Hypoplastic left heart syndrome	0.18	0.49	0.59	1.10	0.70	0.10	
Coarctation of aorta	0.18	0.37	0.56	0.78	0.94	0.58	▲
Choanal atresia, bilateral	0.00	0.12	0.36	0.30	0.22	0.00	
Cleft palate without cleft lip	4.74	5.19	4.35	4.81	3.94	3.09	▼
Cleft lip with or without cleft palate	5.26	5.84	5.21	5.91	4.14	2.51	▼
Oesophageal atresia / stenosis with or without fistula	1.40	2.46	1.64	2.31	1.50	2.03	
Small intestine atresia / stenosis	1.05	1.11	1.02	1.49	0.96	0.58	
Anorectal atresia / stenosis	1.93	2.64	2.29	2.01	2.10	2.51	
Undescended testis (36 weeks of gestation or later)	1.23	1.90	2.55	2.84	2.72	3.29	▲
Hypospadias	2.81	2.70	2.13	2.04	1.70	2.03	▼
Epispadias	0.18	0.34	0.36	0.27	0.16	0.39	
Indeterminate sex	0.35	1.20	1.11	0.66	0.58	0.97	
Renal agenesis	0.53	0.71	0.92	0.60	0.38	0.00	▼
Cystic kidney	1.75	1.08	1.64	1.76	1.72	1.16	
Bladder exstrophy	0.35	0.28	0.33	0.23	0.24	0.48	
Polydactyly, preaxial	1.40	1.78	1.74	2.20	1.84	2.03	
Total Limb reduction defects (incl. unspecified)	6.14	7.28	6.88	6.82	5.52	4.84	▼
Transverse	2.46	3.01	3.05	2.43	2.38	1.74	▼
Preaxial	0.53	1.26	1.05	0.89	0.66	0.68	▼
Postaxial	0.00	0.18	0.16	0.23	0.20	0.00	
Intercalary	0.18	0.61	0.16	0.64	0.20	0.19	▼
Mixed	1.58	1.08	1.15	1.03	1.10	1.26	
Diaphragmatic hernia	1.93	2.86	2.03	2.22	1.22	1.06	▼
Total Abdominal wall defects (incl. unspecified)	3.16	2.49	2.13	1.63	1.26	0.87	▼
Omphalocele	2.46	1.57	1.34	1.19	0.70	0.58	▼
Gastroschisis	0.53	0.55	0.43	0.30	0.50	0.29	
Prune belly sequence	0.18	0.61	0.52	0.48	0.26	0.10	▼
Trisomy 13	0.35	0.34	0.46	0.46	0.50	0.29	
Trisomy 18	0.35	1.20	0.88	0.96	0.66	0.58	
Down syndrome, all ages (incl. age unknown)	13.68	14.96	14.11	12.59	10.27	8.12	▼
<20	3.10	7.62	9.17	6.84	1.73	0.00	▼
20-24	8.14	6.22	6.38	5.31	3.72	9.05	
25-29	5.42	6.60	7.93	7.55	6.05	4.85	
30-34	9.97	12.36	13.16	13.60	9.85	7.82	▼
35-39	36.63	48.56	38.97	35.43	20.85	11.87	▼
40-44	96.43	174.96	154.63	60.03	53.42	37.56	▼
45+	82.99	246.31	188.09	264.15	531.91*	0.00	▲

Spain: ECEMC

Time trends 1980-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, 3-year moving average trend

Note: L+S rates, 3-year moving average trend



Note: L+S rates, 3-year moving average trend

Sweden

The Swedish Registry of Congenital Malformations and the Medical Birth Registry.

History:
The Registry of Congenital Malformations started in 1964, the Medical Birth Registry in 1973. The Programme was a founding member of the ICBDMS and contributed with data until 1994. The registry has a new regime from 1999 and is since then again a full member of the ICBDMS.

Size and coverage:
All births in Sweden are included, approximately 100,000-120,000 annual births. The definition of stillbirth in Sweden is more than 28 weeks. Since 1999 all fetal deaths with congenital malformations more than 22 weeks are reported to the Swedish Registry of Congenital Malformations. In 1999 a special fetal congenital anomalies surveillance system was started to include those fetuses with congenital malformations who were terminated as a result of prenatal diagnosis.

Legislation and funding:
Reporting is compulsory for children with malformations, but not for terminated pregnancies with fetuses with congenital malformations.

Sources of ascertainment:
Reports are received from delivery units, paediatric clinics, pathology departments, child cardiology clinics, and cytogenetic laboratories.

Exposure information:
Some exposure information for all births is available in the Medical Birth Registry; maternal occupation, socio-economic factors, maternal smoking, drug use during pregnancy, contraceptive usage, maternal diseases.

Background information:
Epidemiological background data are available on all birth in the Medical Birth Registry.

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Sweden, 2001

Live births (L)	91,466
Stillbirths (S)	349
Total births	91,815
Number of terminations of pregnancy (ToP) for birth defects	368

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	3	1	35	0.44	4.23			
Spina bifida	13	0	34	1.42	5.10			
Encephalocele	1	0	7	0.11	0.87			
Microcephaly	1	0	0	0.11	0.11			
Arhinencephaly / Holoprosencephaly	3	0	4	0.33	0.76			
Hydrocephaly	14	1	22	1.63	4.01			
Total Anophthalmos / Microphthalmos (incl. unspecified)	6	0	1	0.65	0.76			
Anophthalmos	2	0	1	0.22	0.33			
Microphthalmos	4	0	0	0.44	0.43			
Total Anotia / Microtia (incl. unspecified)	18	1	0	2.07	2.06			
Anotia	17	1	0	1.96	1.95			
Microtia	1	0	0	0.11	0.11			
Transposition of great vessels	33	0	5	3.59	4.12			
Tetralogy of Fallot	22	0	0	2.40	2.39			
Hypoplastic left heart syndrome	14	0	0	1.52	1.52			
Coarctation of aorta	36	0	2	3.92	4.12			
Choanal atresia, bilateral	9	0	0	0.98	0.98			
Cleft palate without cleft lip	46	0	8	5.01	5.86			
Cleft lip with or without cleft palate	79	0	9	8.60	9.55			
Oesophageal atresia / stenosis with or without fistula	24	0	1	2.61	2.71			
Small intestine atresia / stenosis	16	0	0	1.74	1.74			
Anorectal atresia / stenosis	21	0	3	2.29	2.60			
Undescended testis (36 weeks of gestation or later)	nr	nr	nr	nc	nc			
Hypospadias	206	0	0	22.44	22.35			
Epispadias	2	0	1	0.22	0.33			
Indeterminate sex	0	0	1	0.00	0.11			
Renal agenesis	7	1	15	0.87	2.50			
Cystic kidney	15	0	19	1.63	3.69			
Bladder exstrophy	1	0	0	0.11	0.11			
Polydactyly, preaxial	45	1	2	5.01	5.21			
Total Limb reduction defects (incl. unspecified)	36	1	6	4.03	4.66			
Transverse	29	0	5	3.16	3.69			
Preaxial	0	0	0	0.00	0.00			
Postaxial	1	0	0	0.11	0.11			
Intercalary	1	1	0	0.22	0.22			
Mixed	5	0	1	0.54	0.65			
Diaphragmatic hernia	15	0	8	1.63	2.50			
Total Abdominal wall defects (incl. unspecified)	21	2	20	2.51	4.66			
Omphalocele	10	2	12	1.31	2.60			
Gastroschisis	11	0	8	1.20	2.06			
Prune belly sequence	0	0	1	0.00	0.11			
Trisomy 13	5	0	14	0.54	2.06			
Trisomy 18	15	0	44	1.63	6.40			
Down syndrome, all ages (incl. age unknown)	133	1	96	14.59	24.95			
<20	1	0	0	6.01	6.01			
20-24	5	0	2	4.21	5.90			
25-29	32	0	5	10.61	12.26			
30-34	36	1	17	11.79	17.19			
35-39	41	0	41	28.74	57.31			
40-44	16	0	26	67.40	175.00			
45+	1	0	5	111.11	631.58			

Ukraine: UABDP

Ukrainian-American Birth Defects Program

History:
The Programme was established in 1998. Birth defects surveillance began in 2000. It became an associate member of the ICBDMS in 2001.

Size and coverage:
The Programme monitors nearly 27,000 births in two provinces (Rivne and Volyn).

Legislation and funding:
Participation is an integral part of the State Health System. Funding is in part provided by the United States Agency for International Development, by the Ukrainian Ministry of Health, by the Oblasts (Province) Health Administration and private sources.

Sources of ascertainment:
Reports are obtained from delivery, neonatology and pediatric units. Hospital admission/discharge summaries are reviewed. Cytogenetic, pathology and other sources of data are also explored.

Exposure information:
Routine information collection is minimal except when ad hoc circumstances are noted. Plans for systematic collection of exposure data are being drawn.

Prenatal diagnosis information:
Birth defects data collection teams include specialists in prenatal diagnosis. However, rural areas are under served.

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E-mail: bdrivne@bdp.rovno.ua

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Ukraine, 2001

Live births (L)	24,650
Stillbirths (S)	96
Total births	24,746
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	0	3	17	1.21	nc			
Spina bifida	8	1	16	3.64	nc			
Encephalocele	4	1	4	2.02	nc			
Microcephaly	5	0	nr	2.02	nc			
Arhinencephaly / Holoprosencephaly	0	0	nr	0.00	nc			
Hydrocephaly	11	1	nr	4.85	nc			
Total Anophthalmos / Microphthalmos (incl. unspecified)	4	1	nr	2.02	nc			
Anophthalmos	0	0	nr	0.00	nc			
Microphthalmos	4	1	nr	2.02	nc			
Total Anotia / Microtia (incl. unspecified)	5	0	nr	2.02	nc			
Anotia	0	0	nr	0.00	nc			
Microtia	5	0	nr	2.02	nc			
Transposition of great vessels	7	0	nr	2.83	nc			
Tetralogy of Fallot	3	0	nr	1.21	nc			
Hypoplastic left heart syndrome	0	0	nr	0.00	nc			
Coarctation of aorta	2	0	nr	0.81	nc			
Choanal atresia, bilateral	0	0	nr	0.00	nc			
Cleft palate without cleft lip	5	0	nr	2.02	nc			
Cleft lip with or without cleft palate	19	0	nr	7.68	nc			
Oesophageal atresia / stenosis with or without fistula	3	0	nr	1.21	nc			
Small intestine atresia / stenosis	3	0	nr	1.21	nc			
Anorectal atresia / stenosis	7	0	nr	2.83	nc			
Undescended testis (36 weeks of gestation or later)	96	0	nr	38.79	nc			
Hypospadias	10	0	nr	4.04	nc			
Epispadias	1	0	nr	0.40	nc			
Indeterminate sex	1	0	nr	0.40	nc			
Renal agenesis	1	1	nr	0.81	nc			
Cystic kidney	1	0	nr	0.40	nc			
Bladder exstrophy	1	0	nr	0.40	nc			
Polydactyly, preaxial	6	0	nr	2.42	nc			
Total Limb reduction defects (incl. unspecified)	11	0	nr	4.45	nc			
Transverse	9	0	nr	3.64	nc			
Preaxial	0	0	nr	0.00	nc			
Postaxial	1	0	nr	0.40	nc			
Intercalary	1	0	nr	0.40	nc			
Mixed	0	0	nr	0.00	nc			
Diaphragmatic hernia	4	1	nr	2.02	nc			
Total Abdominal wall defects (incl. unspecified)	2	0	nr	0.81	nc			
Omphalocele	2	0	nr	0.81	nc			
Gastroschisis	0	0	nr	0.00	nc			
Prune belly sequence	0	0	nr	0.00	nc			
Trisomy 13	1	0	nr	0.40	nc			
Trisomy 18	0	0	nr	0.00	nc			
Down syndrome, all ages (incl. age unknown)	27	0	nr	10.91	nc			
<20	2	0	nr	6.73	nc			
20-24	7	0	nr	6.70	nc			
25-29	6	0	nr	9.04	nc			
30-34	4	0	nr	13.14	nc			
35-39	1	0	nr	7.66	nc			
40-44	4	0	nr	123.08	nc			
45+	3	0	nr	1666.67	nc			

nr= not reported
nc= not calculable

United Arab Emirates

Program: Congenital abnormality study group

History:
Although started 1992, the Programme started continuous monitoring only in 1994. It is now an Associate Member of the ICBDMS.

Size and coverage:
The Programme covers about 8000 births a year occurring in three major hospitals of the Al Ain Medical District, situated in the eastern part of the Abu Dhabi Emirate. It has a population of about 270,000. Still births with a weight of more than 500 gm are included.

Legislation and funding:
The Programme is funded by the Faculty of Medicine and Health Sciences of the UAE University.

Sources of ascertainment:
In each hospital, there is a neonatologist who examines, identifies abnormalities and records at birth in a form provided. The diagnosis is further assisted by a clinical geneticist/dysmorphologist and pediatricians.

Exposure information:
Some basic information on exposure such as maternal disease is collected in all cases.

Background information:
General epidemiological data for all births are available.

Address for further information:
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United Arab Emirates, 2001

Live births (L)	8,307
Stillbirths (S)	59
Total births	8,366
Number of terminations of pregnancy (ToP) for birth defects	not permitted

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	3	2		5.98		1.08	5	
Spina bifida	13	0		15.54		2.69	5	▲
Encephalocele	3	0		3.59		1.24	5	
Microcephaly	3	0		3.59		1.70	5	
Arhinencephaly / Holoprosencephaly	1	0		1.20		0.76	5	
Hydrocephaly	5	0		5.98		1.14	5	
Total Anophthalmos / Microphthalmos (incl. unspecified)	1	0		1.20		nc		
Anophthalmos	1	0		1.20		nc		
Microphthalmos	0	0		0.00		nc		
Total Anotia / Microtia (incl. unspecified)	3	0		3.59		4.55	5	
Anotia	0	0		0.00		nc		
Microtia	3	0		3.59		4.55	5	
Transposition of great vessels	0	0		0.00		0.00	5	
Tetralogy of Fallot	1	0		1.20		0.70	3	
Hypoplastic left heart syndrome	4	0		4.78		1.30	5	
Coarctation of aorta	0	0		0.00		0.00	3	
Choanal atresia, bilateral	1	0		1.20		1.14	5	
Cleft palate without cleft lip	0	0		0.00		0.00	5	
Cleft lip with or without cleft palate	7	1		9.56		1.65	5	
Oesophageal atresia / stenosis with or without fistula	4	0		4.78		5.63	3	
Small intestine atresia / stenosis	5	0		5.98		1.75	5	
Anorectal atresia / stenosis	1	0		1.20		0.19	5	
Undescended testis (36 weeks of gestation or later)	nr	nr		nc		nc		
Hypospadias	nr	nr		nc		nc		
Epispadias	nr	nr		nc		nc		
Indeterminate sex	0	0		0.00		0.00	5	
Renal agenesis	5	0		5.98		4.55	5	
Cystic kidney	6	0		7.17		1.70	5	
Bladder exstrophy	0	0		0.00		0.00	5	
Polydactyly, preaxial	1	0		1.20		4.55	5	
Total Limb reduction defects (incl. unspecified)	1	0		1.20		0.35	5	
Transverse	0	0		0.00		0.00	3	
Preaxial	0	0		0.00		0.00	3	
Postaxial	0	0		0.00		0.00	3	
Intercalary	0	0		0.00		nc		
Mixed	0	0		0.00		nc		
Diaphragmatic hernia	4	0		4.78		0.87	5	
Total Abdominal wall defects (incl. unspecified)	3	0		3.59		1.14	5	
Omphalocele	3	0		3.59		1.70	5	
Gastroschisis	0	0		0.00		0.00	5	
Prune belly sequence	1	0		1.20		0.65	5	
Trisomy 13	4	0		4.78		4.55	5	
Trisomy 18	1	0		1.20		1.22	4	
Down syndrome, all ages (incl. age unknown)	22	0		26.30		1.41	5	
<20	0	0		nc		nc		
20-24	1	0		nc		nc		
25-29	3	0		nc		nc		
30-34	4	0		nc		nc		
35-39	3	0		nc		nc		
40-44	4	0		nc		nc		
45+	1	0		nc		nc		

nr= not reported
nc= not calculable

United Arab Emirates, time trend analysis 1996-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births					38,052	8,366	
Anencephaly					5.52	5.98	
Spina bifida					5.78	15.54	
Encephalocele					2.89	3.59	
Microcephaly					2.10	3.59	
Arhinencephaly / Holoprosencephaly					1.58	1.20	
Hydrocephaly					5.26	5.98	
Total Anophthalmos / Microphthalmos (incl. unspecified)					0.00	1.20	
Anophthalmos					0.00	1.20	
Microphthalmos					0.00	0.00	
Total Anotia / Microtia (incl. unspecified)					0.79	3.59	
Anotia					0.00	0.00	
Microtia					0.79	3.59	
Transposition of great vessels					2.89	0.00	
Tetralogy of Fallot					1.71*	1.20	nc
Hypoplastic left heart syndrome					3.68	4.78	
Coarctation of aorta					0.85*	0.00	nc
Choanal atresia, bilateral					1.05	1.20	
Cleft palate without cleft lip					4.20	0.00	
Cleft lip with or without cleft palate					5.78	9.56	
Oesophageal atresia / stenosis with or without fistula					1.84	4.78	
Small intestine atresia / stenosis					3.42	5.98	
Anorectal atresia / stenosis					6.31	1.20	
Indeterminate sex					2.37	0.00	
Renal agenesis					1.31	5.98	
Cystic kidney					4.20	7.17	
Bladder exstrophy					0.79	0.00	
Polydactyly, preaxial					0.26	1.20	
Total Limb reduction defects (incl. unspecified)					3.42	1.20	▼
Transverse					0.85*	0.00	nc
Preaxial					1.28*	0.00	nc
Postaxial					0.43*	0.00	nc
Intercalary					0.00*	0.00	nc
Mixed					0.00*	0.00	nc
Diaphragmatic hernia					5.52	4.78	
Total Abdominal wall defects (incl. unspecified)					3.15	3.59	
Omphalocele					2.10	3.59	
Gastroschisis					1.05	0.00	
Prune belly sequence					1.84	1.20	
Trisomy 13					1.05	4.78	
Trisomy 18					1.58	1.20	▼
Down syndrome, all ages (incl. age unknown)					18.66	26.30	

* = data incl. less than five years
nc= not calculable

USA: Atlanta
Metropolitan Atlanta Congenital Defects Program

History:
The Programme started in 1967 and was a founding member of the ICBDMS. The Programme is a full member of the ICBDMS.

Size and coverage:
The Programme covers all births within a five county area in metropolitan Atlanta, Georgia. The annual number of births in this area is approximately 50,000. Stillbirths and terminations of at least 20 weeks gestations (or a birth weight of at least 500 grams) are included. Terminations less than 20 weeks are included for selected defects.

Legislation and funding:
In 1994 the Georgia Department of Human Resources (GDHR) added birth defects to the list of legally reportable conditions in Georgia. In 1997 the GDHR authorized the Birth Defects Branch at the Centers for Disease Control and Prevention (CDC) to act with and on its behalf to collect health information on children with birth defects. The Programme is funded by the Centers for Disease Control and Prevention.

Sources of ascertainment:
Multiple sources, such as delivery units, pediatric departments, laboratories, prenatal diagnostic centers and other specialties, are used to ascertained malformed infants born in the defined area with a follow-up to age six years.

Exposure information:
Exposure information is obtained by interview for mothers of reported malformed infants who participate in various research projects.

Background information:
Number of live births and demographic information on the five counties are obtained from vital statistics.

Address for further information:
Dave Erickson, Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities, Mailstop E-86, 1600 Clifton Road, Atlanta, GA 30333, USA

Phone: 1-404-498-3550

Fax: 1-404-495 3890

E-mail: DErickson@cdc.gov

USA: Atlanta, 2001

Live births (L)	50,746
Stillbirths (S)	557
Total births	51,303
Number of terminations of pregnancy (ToP) for birth defects	nr

Birth Defects	Number of cases			Rates*10.000		O/E	YB	Remark
	L	S	ToP	L+S	L+S+ToP	L+S		
Anencephaly	3	2	10	0.97	nc	0.56	14	
Spina bifida	12	1	5	2.53	nc	0.98	10	
Encephalocele	4	0	3	0.78	nc	0.73	14	
Microcephaly	30	0	0	5.85	nc	0.93	22	
Arhinencephaly / Holoprosencephaly	1	0	0	0.19	nc	0.22	27	
Hydrocephaly	31	3	4	6.63	nc	1.02	20	
Total Anophthalmos / Microphthalmos (incl. unspecified)	13	0	0	2.53	nc	0.74	19	
Anophthalmos	2	0	0	0.39	nc	0.75	27	
Microphthalmos	11	0	0	2.14	nc	0.73	19	
Total Anotia / Microtia (incl. unspecified)	10	0	0	1.95	nc	1.28	27	
Anotia	2	0	0	0.39	nc	2.38	27	
Microtia	8	0	0	1.56	nc	1.14	27	
Transposition of great vessels	29	0	0	5.65	nc	1.10	27	
Tetralogy of Fallot	17	0	0	3.31	nc	0.87	27	
Hypoplastic left heart syndrome	16	1	0	3.31	nc	1.28	27	
Coarctation of aorta	32	0	0	6.24	nc	1.38	27	
Choanal atresia, bilateral	1	0	0	0.19	nc	0.56	27	
Cleft palate without cleft lip	31	1	1	6.24	nc	1.14	27	
Cleft lip with or without cleft palate	33	2	0	6.82	nc	0.75	18	
Oesophageal atresia / stenosis with or without fistula	15	0	0	2.92	nc	1.30	27	
Small intestine atresia / stenosis	10	0	0	1.95	nc	1.14	27	
Anorectal atresia / stenosis	18	0	0	3.51	nc	0.94	26	
Undescended testis (36 weeks of gestation or later)	37	0	0	7.21	nc	nc		
Hypospadias	38	0	0	7.41	nc	0.87	5	
Epispadias	2	0	0	0.39	nc	0.73	18	
Indeterminate sex	6	1	1	1.36	nc	1.02	22	
Renal agenesis	3	1	1	0.78	nc	0.78	16	
Cystic kidney	30	0	3	5.85	nc	1.18	12	
Bladder exstrophy	2	0	0	0.39	nc	1.56	27	
Polydactyly, preaxial	13	0	0	2.53	nc	1.05	27	
Total Limb reduction defects (incl. unspecified)	23	3	1	5.07	nc	0.96	27	
Transverse	13	3	1	3.12	nc	0.96	27	
Preaxial	5	0	0	0.97	nc	1.05	27	
Postaxial	0	0	0	0.00	nc	0.00	27	
Intercalary	1	0	0	0.19	nc	0.72	27	
Mixed	3	0	0	0.58	nc	0.76	7	
Diaphragmatic hernia	14	0	0	2.73	nc	1.19	27	
Total Abdominal wall defects (incl. unspecified)	14	2	1	3.12	nc	0.64	27	
Omphalocele	6	1	1	1.36	nc	0.54	20	
Gastroschisis	8	1	0	1.75	nc	0.82	27	
Prune belly sequence	5	0	0	0.97	nc	2.56	26	
Trisomy 13	5	0	2	0.97	nc	0.88	27	
Trisomy 18	6	4	15	1.95	nc	1.05	23	
Down syndrome, all ages (incl. age unknown)	66	2	22	13.25	nc	1.23	23	
<20	3	0	0	6.12	nc	0.85	21	
20-24	3	0	1	2.61	nc	0.35	21	
25-29	11	1	0	8.95	nc	1.26	21	
30-34	13	0	4	9.67	nc	0.86	19	
35-39	30	1	15	45.56	nc	1.99	21	▲
40-44	6	0	2	49.75	nc	0.80	21	
45+	0	0	0	0.00	nc	0.00	21	

nr= not reported
nc= not calculable

USA: Atlanta, time trend analysis 1974-2001

Birth prevalence rates: (L+S) * 10,000

	1974-80	1981-85	1986-90	1991-95	1996-00	2001	Trend
Births	171,284	142,873	181,304	196,455	228,912	51,303	
Anencephaly	5.49	3.22	2.70	1.22	1.66	0.97	▼
Spina bifida	7.06	6.58	5.35	2.60	2.58	2.53	▼
Encephalocele	2.10	2.38	1.32	1.12	0.96	0.78	▼
Microcephaly	5.60	5.74	5.57	5.19	7.86	5.85	▲
Arhinencephaly / Holoprosencephaly	0.53	0.77	1.38	1.07	0.61	0.19	
Hydrocephaly	10.74	8.19	5.96	5.29	6.81	6.63	▼
Total Anophthalmos / Microphthalmos (incl. unspecified)	4.38	4.55	3.59	3.61	2.84	2.53	▼
Anophthalmos	0.64	0.56	0.50	0.71	0.26	0.39	
Microphthalmos	3.74	3.99	3.09	2.90	2.58	2.14	▼
Total Anotia / Microtia (incl. unspecified)	1.52	1.47	1.82	1.43	1.40	1.95	
Anotia	0.18	0.21	0.11	0.15	0.17	0.39	
Microtia	1.34	1.26	1.71	1.32	1.22	1.56	
Transposition of great vessels	5.08	5.53	4.74	5.24	5.20	5.65	
Tetralogy of Fallot	3.04	3.92	4.14	3.72	4.11	3.31	
Hypoplastic left heart syndrome	2.51	2.73	2.65	2.44	2.66	3.31	
Coarctation of aorta	3.74	4.48	4.91	4.22	5.02	6.24	
Choanal atresia, bilateral	0.35	0.21	0.33	0.31	0.48	0.19	
Cleft palate without cleft lip	7.01	4.06	5.35	4.84	5.77	6.24	
Cleft lip with or without cleft palate	11.56	11.06	9.21	8.70	8.39	6.82	▼
Oesophageal atresia / stenosis with or without fistula	2.34	2.80	1.99	2.34	1.97	2.92	
Small intestine atresia / stenosis	1.69	1.40	1.82	1.63	1.92	1.95	
Anorectal atresia / stenosis	4.55	3.78	4.03	3.41	3.32	3.51	▼
Undescended testis (36 weeks of gestation or later)					15.66*	7.21	nc
Hypospadias	1.11	2.17	4.91	4.78	8.56	7.41	▲
Epispadias	0.99	0.91	0.55	0.61	0.35	0.39	▼
Indeterminate sex	2.39	1.26	1.32	1.07	1.27	1.36	▼
Renal agenesis	2.10	1.75	0.99	1.07	0.83	0.78	▼
Cystic kidney	2.34	3.43	4.03	4.58	5.46	5.85	▲
Bladder exstrophy	0.53	0.14	0.22	0.31	0.09	0.39	
Polydactyly, preaxial	1.93	1.68	3.31	2.95	2.10	2.53	
Total Limb reduction defects (incl. unspecified)	6.01	4.20	4.36	5.70	5.77	5.07	
Transverse	3.68	3.01	2.65	3.87	3.01	3.12	
Preaxial	1.11	0.49	0.66	1.02	1.18	0.97	
Postaxial	0.23	0.14	0.33	0.36	0.26	0.00	
Intercalary	0.53	0.21	0.33	0.10	0.22	0.19	
Mixed	0.12	0.28	0.28	0.20	0.92	0.58	▲
Diaphragmatic hernia	2.57	1.96	3.03	1.93	2.05	2.73	
Total Abdominal wall defects (incl. unspecified)	5.49	5.04	4.96	4.89	4.28	3.12	
Omphalocele	3.85	3.22	2.48	2.34	2.23	1.36	▼
Gastroschisis	1.63	1.82	2.48	2.55	2.05	1.75	
Prune belly sequence	0.76	0.28	0.55	0.15	0.31	0.97	
Trisomy 13	1.23	1.05	1.21	1.02	1.05	0.97	
Trisomy 18	0.70	2.03	1.49	1.99	2.27	1.95	▲
Down syndrome, all ages (incl. age unknown)	9.28	10.57	10.42	10.94	11.40	13.25	▲
<20	11.25*	5.65	7.98	6.84	7.32	6.12	
20-24	8.44*	6.64	7.90	7.25	7.68	2.61	
25-29	9.54*	8.02	6.93	7.52	5.79	8.95	
30-34	13.97*	15.97	12.32	9.45	10.55	9.67	▼
35-39	36.73*	18.24	22.31	23.64	23.42	45.56	▲
40-44	0.00*	99.88	55.93	60.51	60.51	49.75	
45+	0.00*	0.00	0.00	206.19	255.32	0.00	

* = data incl. less than seven and five years
nc= not calculable

USA: Atlanta

Time trends 1974-2001 (Birth prevalence rates per 10,000)

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend

Note: L+S rates, ToP rates — 3-year moving average trend

8.1 Monitoring Systems, not contributing with annual data

Australia

Australian Birth Defects Monitoring System

History:
The mechanism for national monitoring of birth defects was established in 1981. However not all States and Territories collected birth defect data at this time. All the States and Territories now hold Perinatal Data Collections and birth defect information is collected as additional information. The national program became an associate member of the Clearinghouse in 1982 and full member in 1984. Australia has not contributed national data to the Clearinghouse for the last 2 years. Australian is currently under taking a national review of birth defect data collections and anticipates the resumption of data contribution to the ICBDMS in the foreseeable future.

Size and coverage:
All births in Australia are covered. Births have remained stable at approximately 250,000 annual births for the last 10 years. All births of 20 weeks or 400 grams gestation are registered.

Legislation and funding:
There is no national legislation requiring the reporting of birth defects at the national level. In some States, notification to their birth defect registry is required as part of their respective Public Health Acts. In most States and Territories, birth defect data is collected as part of another collection, and funding, if any is determined by the jurisdiction. The State and Territory Health Departments report to the central data custardian which receives funding from the Australian Institute of Health and Welfare.

Sources of ascertainment:
Birth defects are first notified to State and Territory birth defect registries from the perinatal data collection. The State and Territory birth defect registries operate independently and there is enormous variation in the breadth of notification sources and level of ascertainment. Other sources of notification may include death certificates, autopsies, hospital morbidity databases, notification from health professionals, cytogenetic and prenatal screening. At the minimum, State and Territory birth defect registries send electronic notification to the central data custardian annually.

Exposure information:
Currently not available.

Background information:
In the absence of national legislation, there is enormous variation is the scope, quality of data and ascertainment between the States and Territories. Australia is currently under taking a national data review with participation from all key stakeholders and jurisdictions. One of the stated out-comes of the data rewiew is to develop an agreed minimum data set, and, to expand the scope, improve the quality and consistency of data including standardized coding and agreed timeframes for reporting at the national and international levels.

Address for further information:
Dr Elizabeth Sullivan, AIHW National Perinatal Statistics Unit, 2nd Floor, McNevin Dickson Building, Randwick Hospital Campus, Randwick NSW 2031 Australia

Phone: 61-2-93821014

Fax: 61-2-93821025

E-mail: e.sullivan@unsw.edu.au

Website: http://www.npsu.unsw.edu.au

Australia: WABDR
Western Australian Birth Defects Registry

History:
The Registry was established in 1980, and is currently located in a teaching obstetric hospital. The objectives of the Registry have always been to establish how often birth defects occur, to conduct research into causes and prevention of birth defects, provide health professionals and the public with information about birth defects, and to monitor and evaluate screening, treatment and prevention Programmes.

Size and coverage:
Population-based in the state of Western Australia. 25,000 birth a year, ~6% reported with a birth defect.
Birth defects diagnosed prenatally in livebirths up to the age of 6 years, stillbirths and terminations of pregnancy are included.

Legislation and funding:
Following a period of short term funding from both Federal and State sources, the Registry is now wholly funded by the Western Australian Department of Health. There are several statutory sources of information (birth, death and hospital data collections), and a large number of voluntary sources. Statutory notification is being considered by the Department of Health.

Sources of ascertainment:
Statutory sources:
Midwives' Notification of Birth Forms (all births over 20 weeks gestation), Death Certificates (perinatal, infant and childhood), Hospital Morbidity (all hospital discharges in Western Australia).
Voluntary sources:
Maternity and paediatric hospitals
Obstetricians, paediatricians, orthopaedic surgeons
Community and Child Health Nurses
Cytogenetic laboratories
Pathology services (including prenatal screening services)
Ultrasound practices
Genetic services
Disability services

Exposure information:
No exposure information is routinely collected

Background information:
The data on the Registry are routinely linked to the Maternal and Child Health Research Data Base, a linked dataset of all births, deaths and hospital admissions for Western Australia. This linkage provides information on variables such as maternal and paternal age, labour and delivery data, and maternal illnesses, for both cases of birth defects (numerators) and all births in Western Australia (denominators).
Data from the Registry are provided to the National Perinatal Statistics Unit for monitoring birth defects in Australia as a whole.

Address for further information:
Carol Bower, Medical Specialist and Head, Birth Defects Registry, King Edward Memorial Hospital, PO Box 134
Subiaco 6008, Western Australia

Phone: 61-8-93402721

Fax: 61-8- 93402636

E-mail: caroline.bower@health.wa.gov.au

Canada: National

Canadian Congenital Anomalies Surveillance Network (CCASN)

History:
The Programme was started in 1966. The Programme was a full member until 1987, when it became an associate member. The Programme was discontinued as an associate member of the ICBDMS in the early 1990s, and reinstated its associate member status in 1996.

Size and coverage:
This system presently monitors about 330,000 births annually, which captures virtually all births in the 10 provinces and 3 territories of Canada. Data from Quebec and Nova Scotia have not been included in the national statistics provided to the ICBDMS, however, efforts are being made to include these 2 provinces in future submissions.
Live births to 1 year of age and registered stillbirths (a birth weight of greater or equal to 500 grams, or greater than or equal to 20 weeks in pregnancy) are captured.

Legislation and funding:
Reporting is based on an agreement between the Canadian Institute for Health Information, a non-profit organization, which collects and disseminates data on hospital admission/separation in Canada, and the central registry, which is run and funded by Health Canada. Alberta Congenital Anomalies Surveillance System and Manitoba provincial government also provide the two Canadian provinces' data.

Sources of ascertainment:
Cases from most provinces and territories are ascertained from hospital admission/separation summary records collected by the Canadian Institute for Health Information (CIHI). Two exceptions are Alberta and Manitoba. The Alberta Congenital Anomalies Surveillance System and the Manitoba government provide their own separate provincial data. Follow-up continues to one year of age.

Exposure information:
No exposure information is routinely collected in the central registry.

Background information:
Background information is based on hospital admission/separation summary records from the Canadian Institute for Health Information, or provided by Alberta Congenital Anomalies Surveillance System and Manitoba provincial government.

Address for further information:
Ruth Kohut, Programme Co-ordinator, Reproductive Health Section, Health Surveillance and Epidemiology Division, Bldg. #7, First Floor, Postal Locator 0701D, Tunney's Pasture, Ottawa, Ontario, Canada, K1A 0L2

Phone: 403-943-7874

Fax: 403-228-0796

E-mail: ruth_kohut@hc-sc.gc.ca

Hajnal Molnar-Szakacks, MD, Chief

E-mail: hainal_molnar-szakacs@hc.sc.gc.ca

Website: www.healthcanada.ca/ccasn

USA: California

California Birth Defects Monitoring Program

History:
The California Birth Defects Monitoring Program was established in 1983 to monitor rates and trends and conduct epidemiological investigations to find causes of birth defects. The Programme is funded through the California Department of Health Services and jointly operated with the March of Dimes Birth Defects Foundation. In 1997 the Centers for Disease Control designated the Programme one of eight Centers of Excellence in Birth Defects Research. The Programme is an associate member of the Clearinghouse.

Size and coverage:
The Programme operates a population-based registry among 56,000 births. The registry includes 8 counties whose birth defects rates and trends are representative of California and who reflect the state's racial/ethnic diversity.

Legislation and funding:
The Programme operates under statutory authority: Health and Safety Code, Division 102, Part 2, Chapter 1, Sections 103825-103855. State funding is appropriated each year through the state budget. The Programme also receives research grants from the National Institutes of Health and the Centers for Disease Control.

Sources of ascertainment:
Staff actively ascertains data at hospitals and genetic centers by reviewing logs and identifying children with structural birth defects (BPA 740-759) diagnosed prenatally through age 1. All diagnostic information is abstracted directly from medical records; registry files are cross-linked with vital statistics data to verify demographic information.

Exposure information:
Bilingual interviewers collect environmental exposure information through large, case-control interview studies. Exposures under investigation include nutrition, health status and family history, medications, lifestyle, and chemical exposures through hobbies and occupation. Study participants also submit biological samples for analysis of genetic factors that might be contributing. The Programme has published more than 200 articles reporting research and registry findings in medical and scientific journals.

Background information:
Registry data, research findings, publications, and a description of Programme activities are available on their website www.cbdmp.org.

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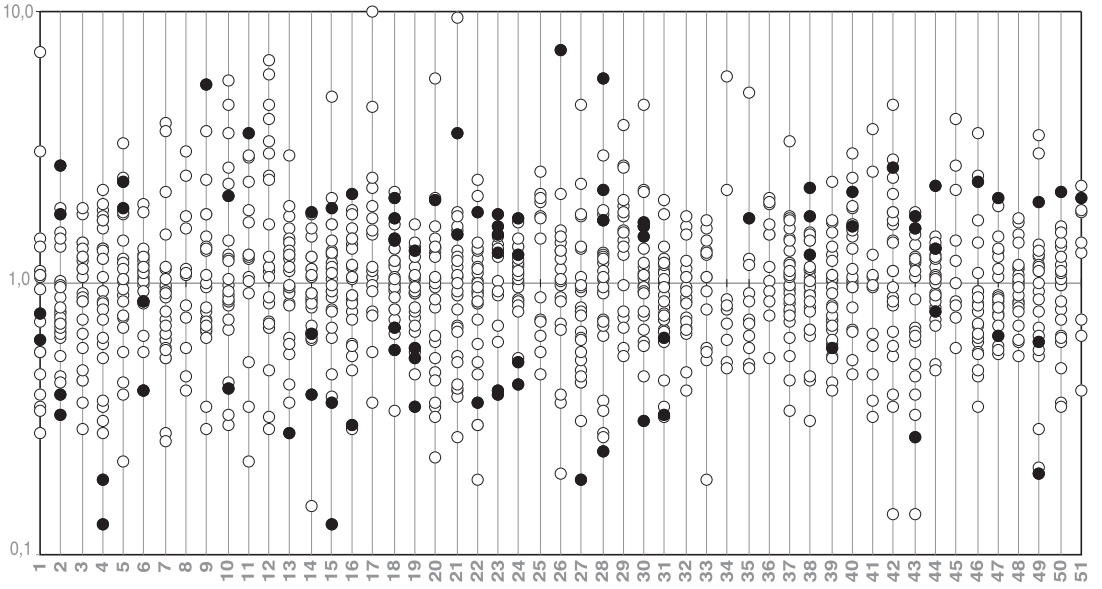
9.1 Summary of the Results of the Observed to Expected Ratios, 2001

Malformation	O/E ratio >1		O/E ratio <=1	
	Number	Statistically significant	Number	Statistically significant
Anencephaly	9	0	21	2
Spina bifida	7	2	23	2
Encephalocele	11	0	19	0
Microcephaly	14	0	16	2
Arhinencephaly / Holoprosencephaly	12	2	16	0
Hydrocephaly	19	0	11	2
Total Anophthalmos / Microphthalmos (incl. unspecified)	7	0	21	0
Anophthalmos	7	0	17	0
Microphthalmos	10	1	17	0
Total Anotia / Microtia (incl. unspecified)	12	1	15	1
Anotia	12	1	9	0
Microtia	13	0	11	0
Transposition of great vessels	13	0	15	1
Tetralogy of Fallot	10	1	16	2
Hypoplastic left heart syndrome	14	1	13	2
Coarctation of aorta	13	1	13	1
Choanal atresia, bilateral	12	0	15	0
Cleft palate without cleft lip	15	4	15	2
Cleft lip with or without cleft palate	12	1	18	3
Oesophageal atresia / stenosis with or without fistula	15	1	14	0
Small intestine atresia / stenosis	13	2	15	0
Anorectal atresia / stenosis	11	1	19	1
Undescended testis (36 weeks of gestation or later)	9	4	7	2
Hypospadias	15	2	14	2
Epispadias	7	0	13	0
Indeterminate sex	12	1	15	1
Renal agenesis	7	0	22	1
Cystic kidney	16	3	13	1
Bladder exstrophy	12	0	16	0
Polydactyly, preaxial	15	3	13	1
Total Limb reduction defects (incl. unspecified)	11	0	19	2
Transverse	7	0	13	0
Preaxial	8	0	11	0
Postaxial	2	0	17	0
Intercalary	4	1	14	0
Mixed	8	0	10	0
Diaphragmatic hernia	14	0	15	0
Total Abdominal wall defects (incl. unspecified)	14	3	15	2
Omphalocele	12	0	16	1
Gastroschisis	16	2	12	0
Prune belly sequence	5	0	16	0
Trisomy 13	13	1	15	0
Trisomy 18	13	2	15	1
Down syndrome, all ages (incl. age unknown)	18	2	11	1
<20	5	0	15	0
20-24	6	1	17	0
25-29	8	1	16	1
30-34	10	0	14	0
35-39	12	1	12	2
40-44	12	1	11	0
45+	6	1	13	0
Total	558	48	759	39

Note: The total number of ratios was 1,317. The reasons why the number of ratios is different malformation by malformation are due to the fact that some registries did not contribute in some malformations and that some expected ratios were not computable. The number of ratios is very high so we expect to have a certain number (about 5%) of significant ratios just by chance. The exact calculation of the number of "chance" significance is obstructed by the presence of correlated ratios (e.g. the ones related to the Down syndrome).

9.2 Summary of the Results of the Observed to Expected Ratios, 2001

Observed to Expected Ratio, 2001



Ratio of observed and expected number of selected malformations, 2001, plotted on a log scale. Expected numbers are calculated as mentioned in the "notes on statistical analysis".
Significant ratios are indicated by closed circles, the others by open circles.

Legend

1 Anencephaly
2 Spina bifida
3 Encephalocele
4 Microcephaly
5 Arhinencephaly / Holoprosencephaly
6 Hydrocephaly
7 Total Anophthalmos / Microphthalmos (incl. unspecified)
8 Anophthalmos
9 Microphthalmos
10 Total Anotia / Microtia (incl. unspecified)
11 Anotia
12 Microtia
13 Transposition of great vessels
14 Tetralogy of Fallot
15 Hypoplastic left heart syndrome
16 Coarctation of aorta
17 Choanal atresia, bilateral
18 Cleft palate without cleft lip
19 Cleft lip with or without cleft palate
20 Oesophageal atresia / stenosis with or without fistula
21 Small intestine atresia / stenosis
22 Anorectal atresia / stenosis
23 Undescended testis (36 weeks of gestation or later)
24 Hypospadias
25 Epispadias
26 Indeterminate sex
27 Renal agenesis
28 Cystic kidney
29 Bladder exstrophy
30 Polydactyly, preaxial
31 Total Limb reduction defects (incl. unspecified)
32 LRD, Transverse
33 LRD, Preaxial
34 LRD, Postaxial
35 LRD, Intercalary
36 LRD, Mixed
37 Diaphragmatic hernia
38 Total Abdominal wall defects (incl. unspecified)
39 Omphalocele
40 Gastroschisis
41 Prune belly sequence
42 Trisomy 13
43 Trisomy 18
44 Down syndrome, all ages (incl. age unknown)
45 Down syndrome, <20
46 Down syndrome, 20-24
47 Down syndrome, 25-29
48 Down syndrome, 30-34
49 Down syndrome, 35-39
50 Down syndrome, 40-44
51 Down syndrome, 45+

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