

Trends in prenatal diagnosis of Down syndrome in the Czech Republic (1994-2011)

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<http://www.vrozene-vady.cz/>



Czech Republic

Population: 10 548 527 (in 2011)

Area: 78,866 km²

Regions: 13 regions and the capital Prague; 76 districts in total

Population density: 133/km²

Annual births: approx. 100 000 (119 570 in 2008)

Capitol and largest city: Prague (1 241 000 inhabitants)

Life expectancy (years): Males - 73.54; Females - 80.28

Language: Czech

Ethnicity: Czech 90.4%, Moravian 3.7%, Slovak 1.9%, other 4%

Religions: Roman Catholic 27%, Protestant 2%, unaffiliated 59%



History and Current State I

National Registry of Congenital Anomalies of the Czech Republic (NRCA)

- Unofficial monitoring in former Czechoslovakia started in **1961**
- Official monitoring started on 1st of January **1964**
- **First stage (1964 – 1974)** – only **36** selected diagnoses of congenital anomalies (CA) were registered
- **Second stage (1975 – 1993)** – **60** diagnoses of CA registered
- **Present time: (1994 – now)** – **all cases** in terminations of pregnancies (TOPs), stillbirths and live births are registered (age limit for reporting = **15 years**)

Cooperating centre:



eurocat
european surveillance of
congenital anomalies

History and Current State II

Registry: population based (whole area of the Czech Republic)

Law: The registration is compulsory, required by the Internal Law of Ministry of Health (nr. 14/2001). The database is run by the Institute of Health Information and Statistics of the Czech Republic

Cases: all cases in TOPs, live births and stillbirths (above 1000g) are reported

Coding: ICD-10 (international), no verbal description

Sources: Multiple sources, including departments of medical genetics, genetic laboratories, pediatric and neonatology departments, delivery units, ultrasound diagnostics departments etc.

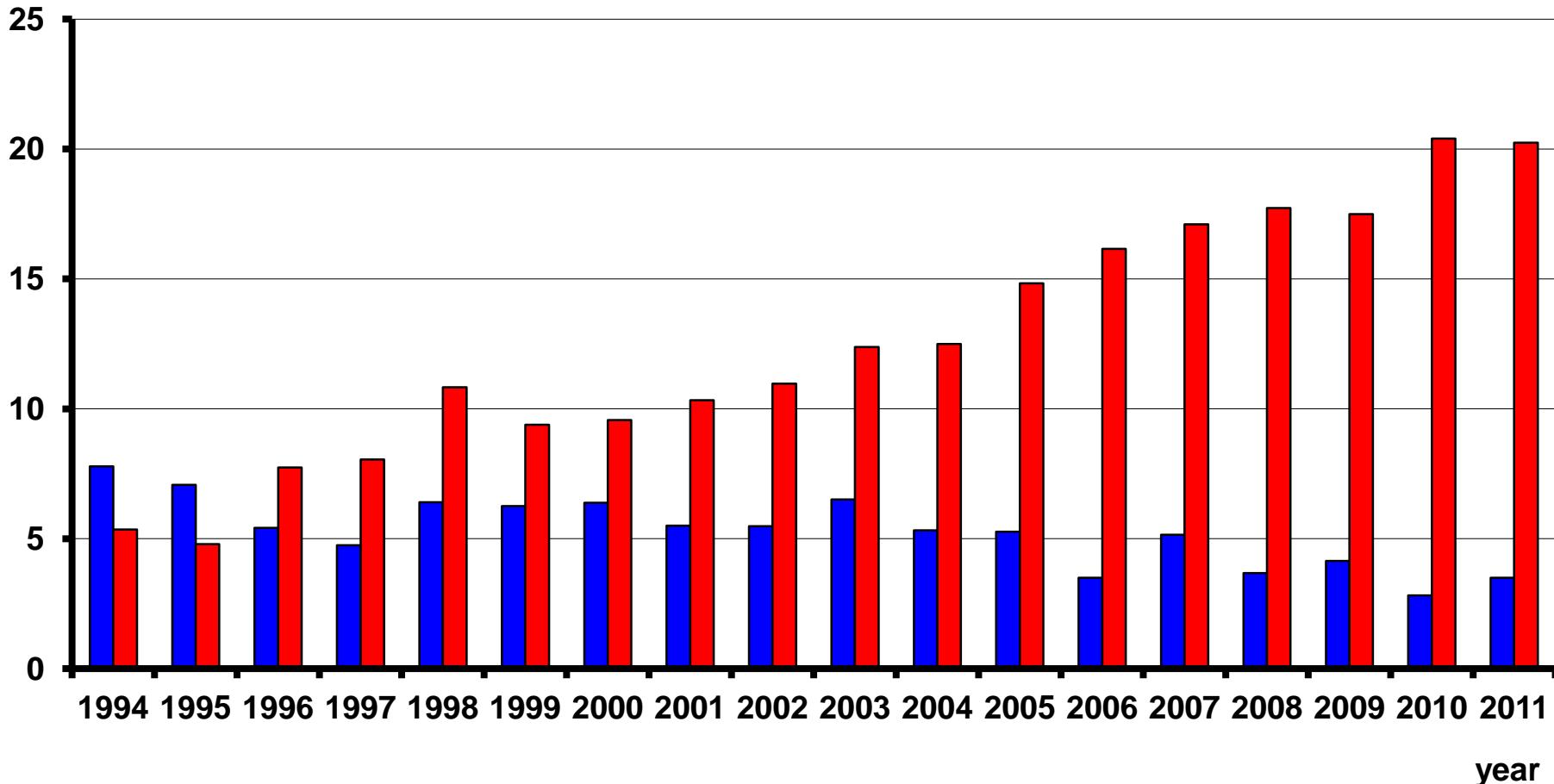
Termination of Pregnancy: Legal, up to the 24th week of gestation (from genetic reasons)

Down syndrome

Per 10 000 live births

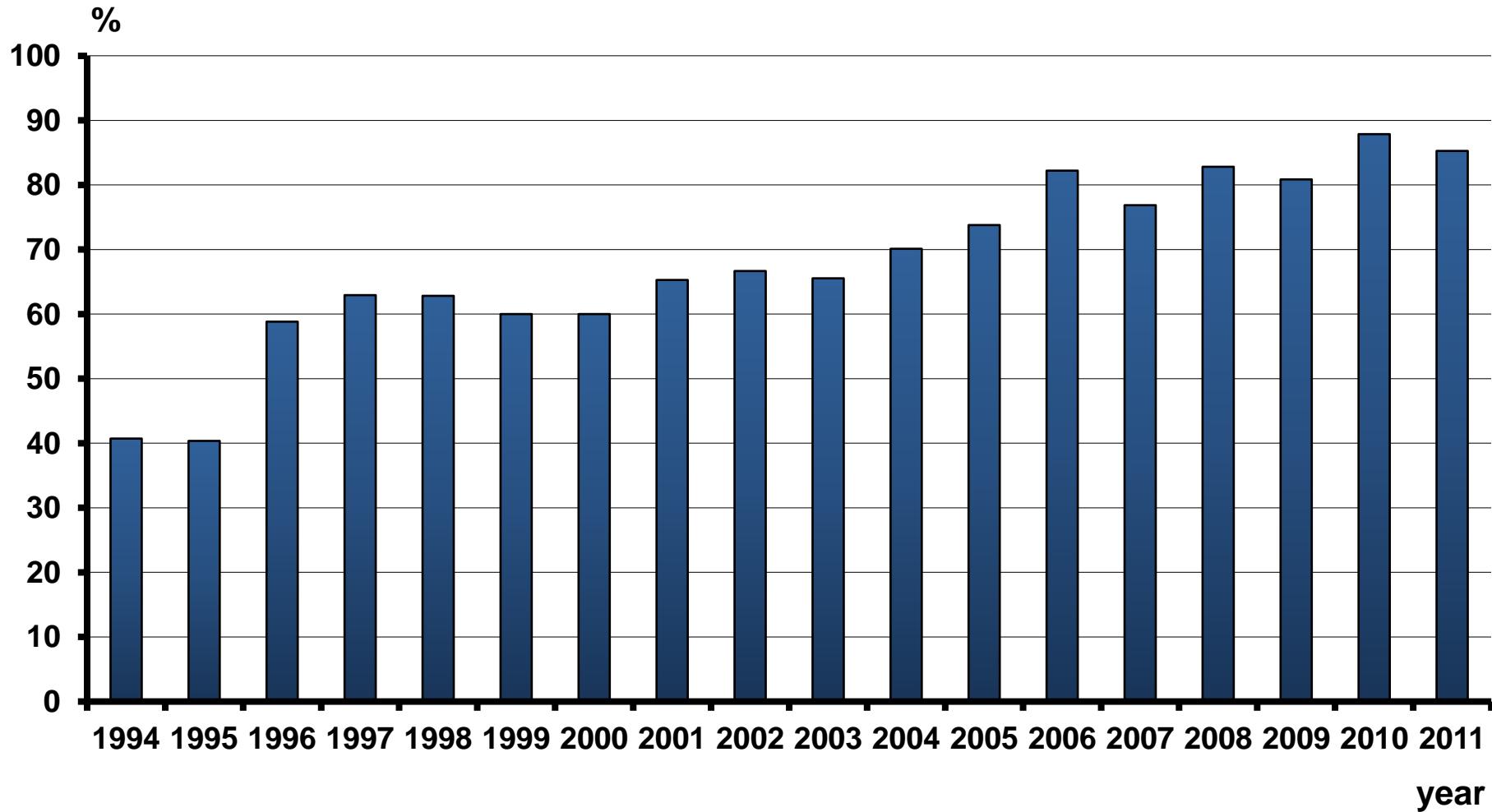
■ Births

■ Prenatal diagnosis



Down syndrome – All cases in births and prenatal diagnosis

Down syndrome

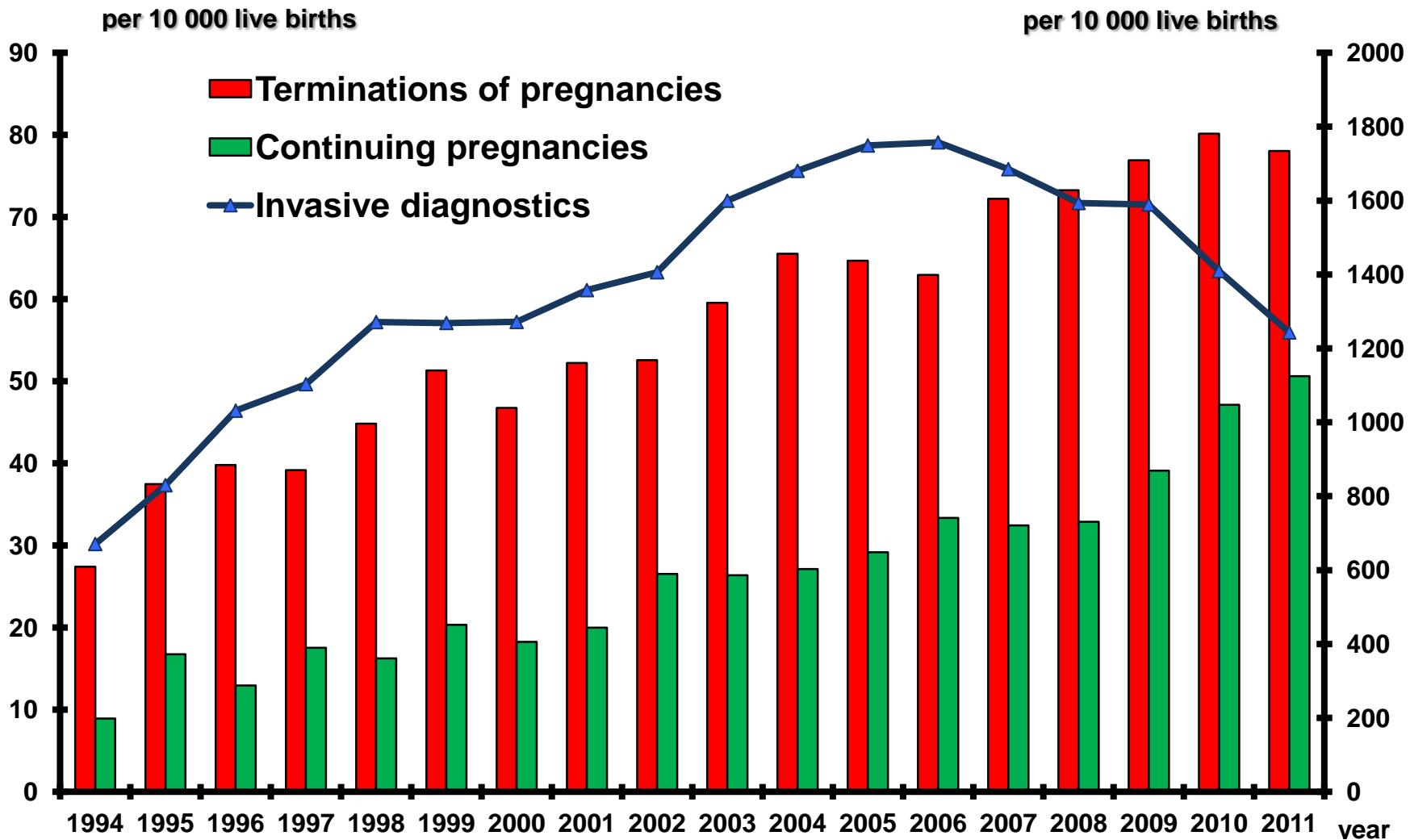


Down syndrome – relative number of prenatally diagnosed cases (%)

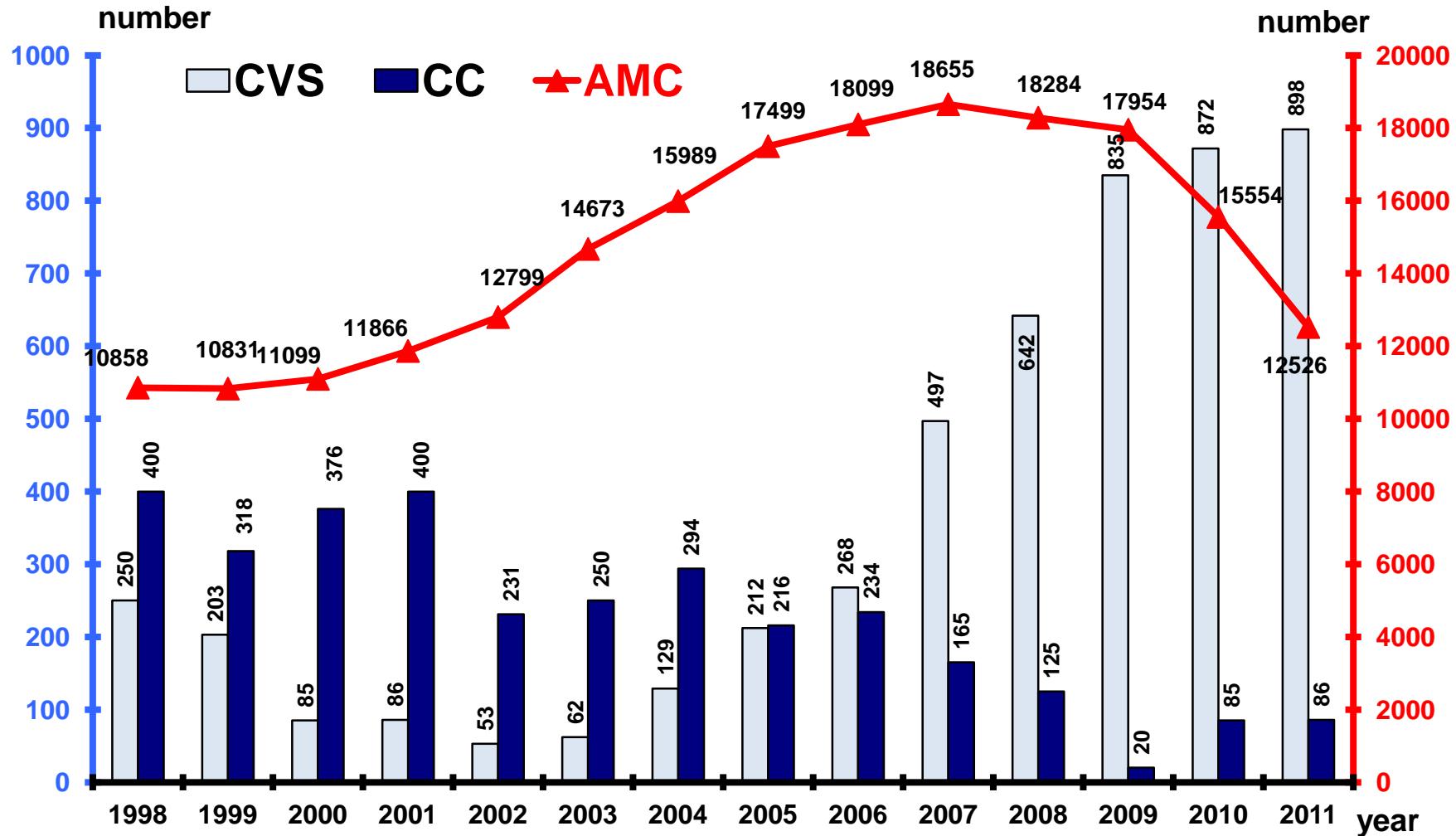
Down syndrome

Year	Absolute numbers				Relative numbers (per 10 000)		
	DS - Births	DS - Prenatal diagnosis	DS - Total	Total births in the CZE	DS - Births	DS - Prenatal diagnosis	DS - Total
1994	83	57	140	106 579	7,79	5,35	13,14
1995	68	46	114	96 097	7,08	4,79	11,86
1996	49	70	119	90 446	5,42	7,74	13,16
1997	43	73	116	90 657	4,74	8,05	12,80
1998	58	98	156	90 535	6,41	10,82	17,23
1999	56	84	140	89 471	6,26	9,39	15,65
2000	58	87	145	90 910	6,38	9,57	15,95
2001	50	94	144	90 978	5,50	10,33	15,83
2002	51	102	153	93 047	5,48	10,96	16,44
2003	61	116	177	93 685	6,51	12,38	18,89
2004	52	122	174	97 664	5,32	12,49	17,82
2005	54	152	206	102 498	5,27	14,83	20,10
2006	37	171	208	105 831	3,50	16,16	19,65
2007	59	196	255	114 642	5,15	17,10	22,24
2008	44	212	256	119 570	3,68	17,73	21,41
2009	49	207	256	118 348	4,14	17,49	21,63
2010	33	239	272	117 153	2,82	20,40	23,22
2011	38	220	258	108 673	3,50	20,24	23,74
Total	943	2346	3289	1 816 784	5,08	11,42	16,50

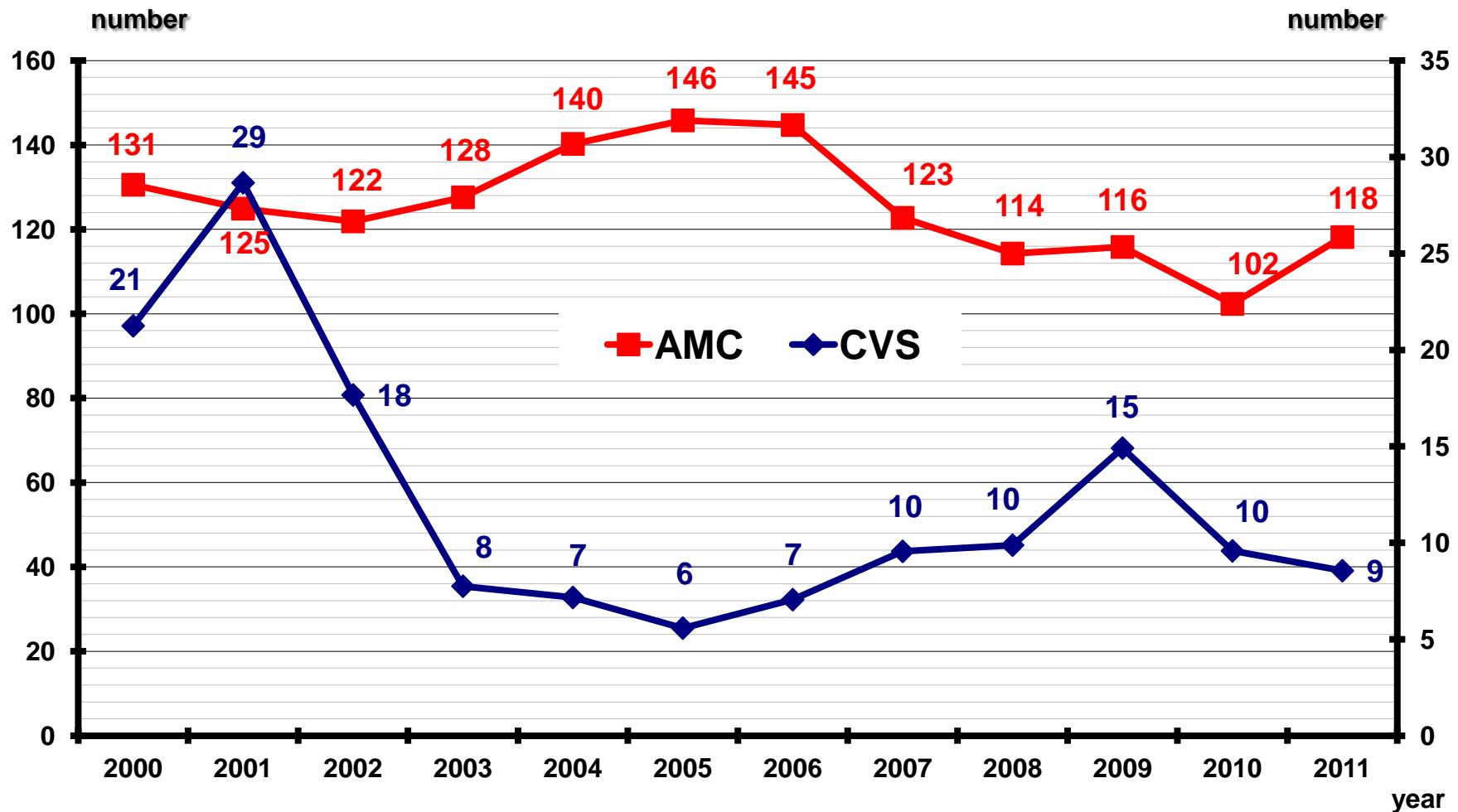
Prenatal diagnosis - Numbers



Invasive prenatal diagnosis

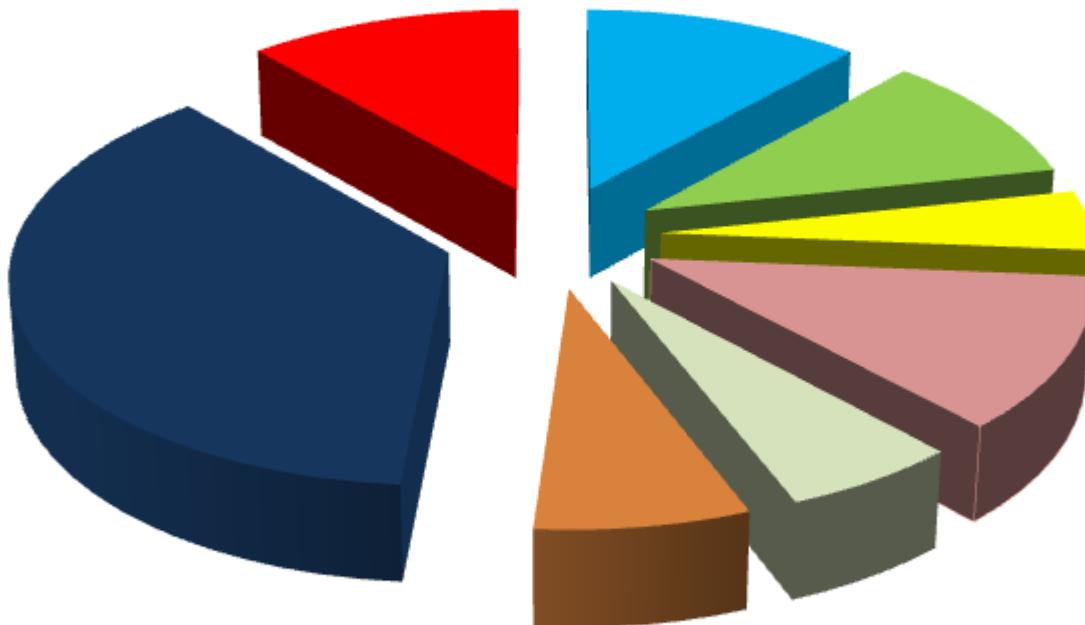


Effectiveness



Number of invasive procedures needed for one diagnosis of Down syndrome

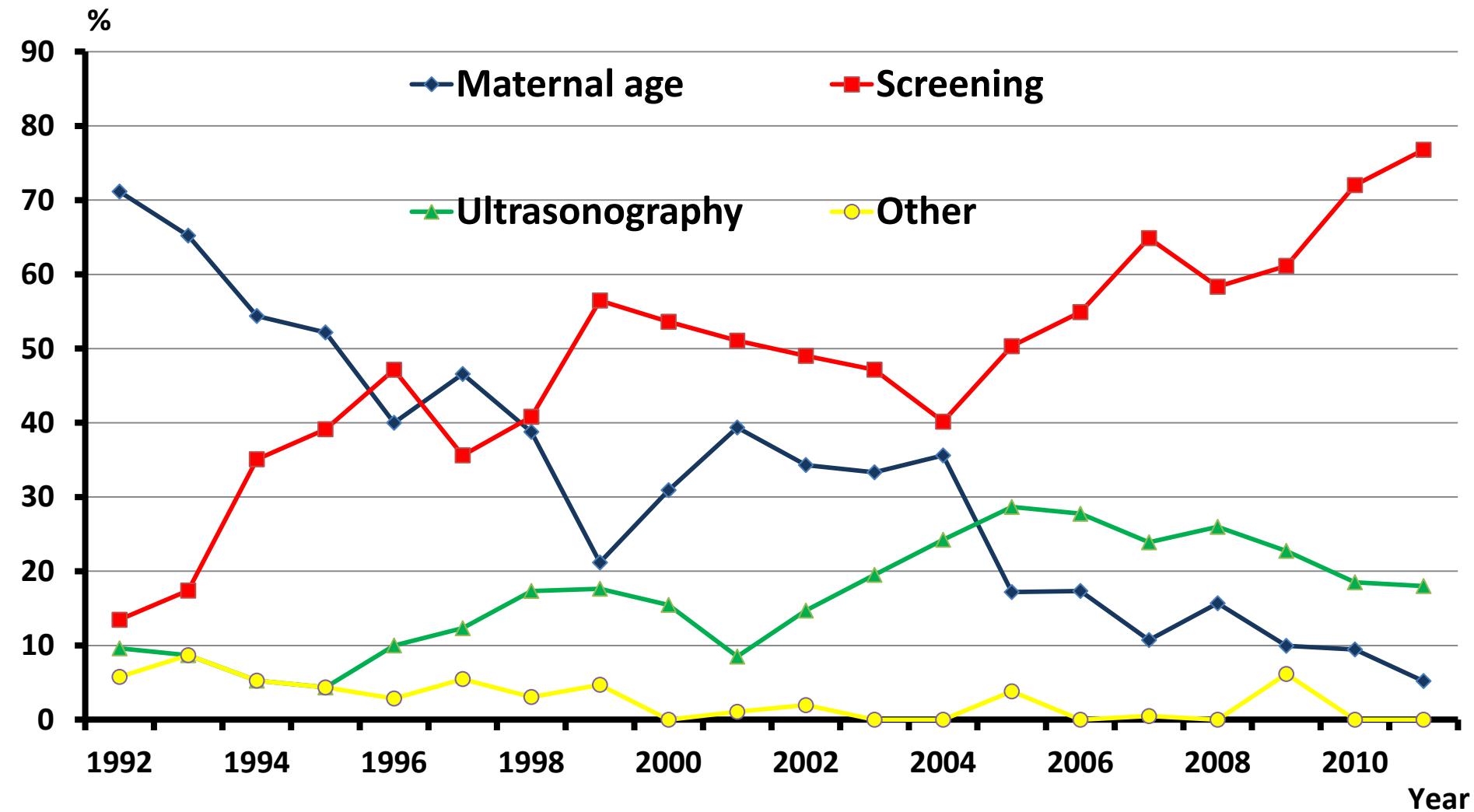
Spectrum of diagnoses



- CA of neural tissue
- CA of cardiovascular tract
- Cleft lip and/or palate
- CA of urinary tract
- Diaphragmatic hernia and abdominal wall defects
- CA of bone and muscle tissue
- Cromosomal abnormalities
- Other

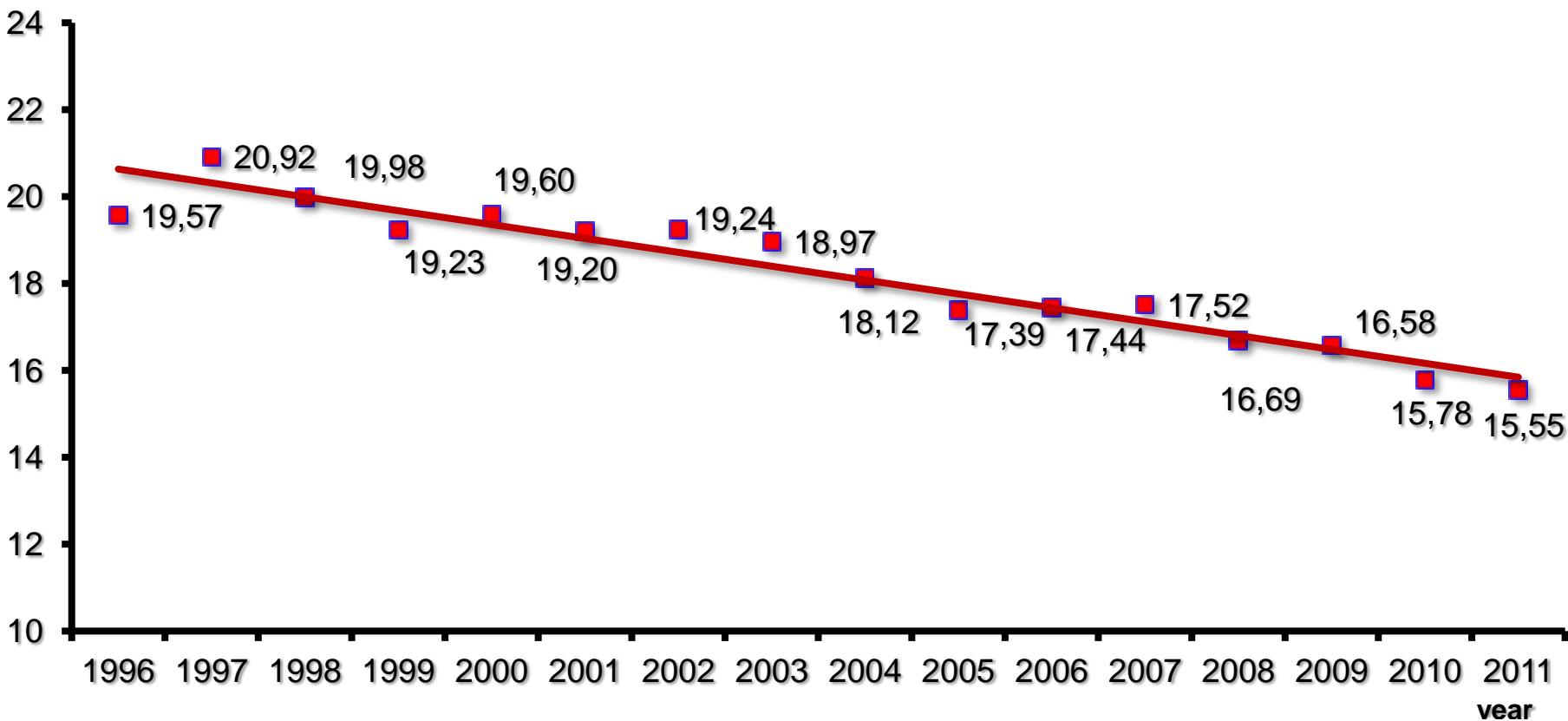
Spectrum of diagnoses – Prenatal diagnosis – All cases (2011)

Prenatal diagnosis - Indications



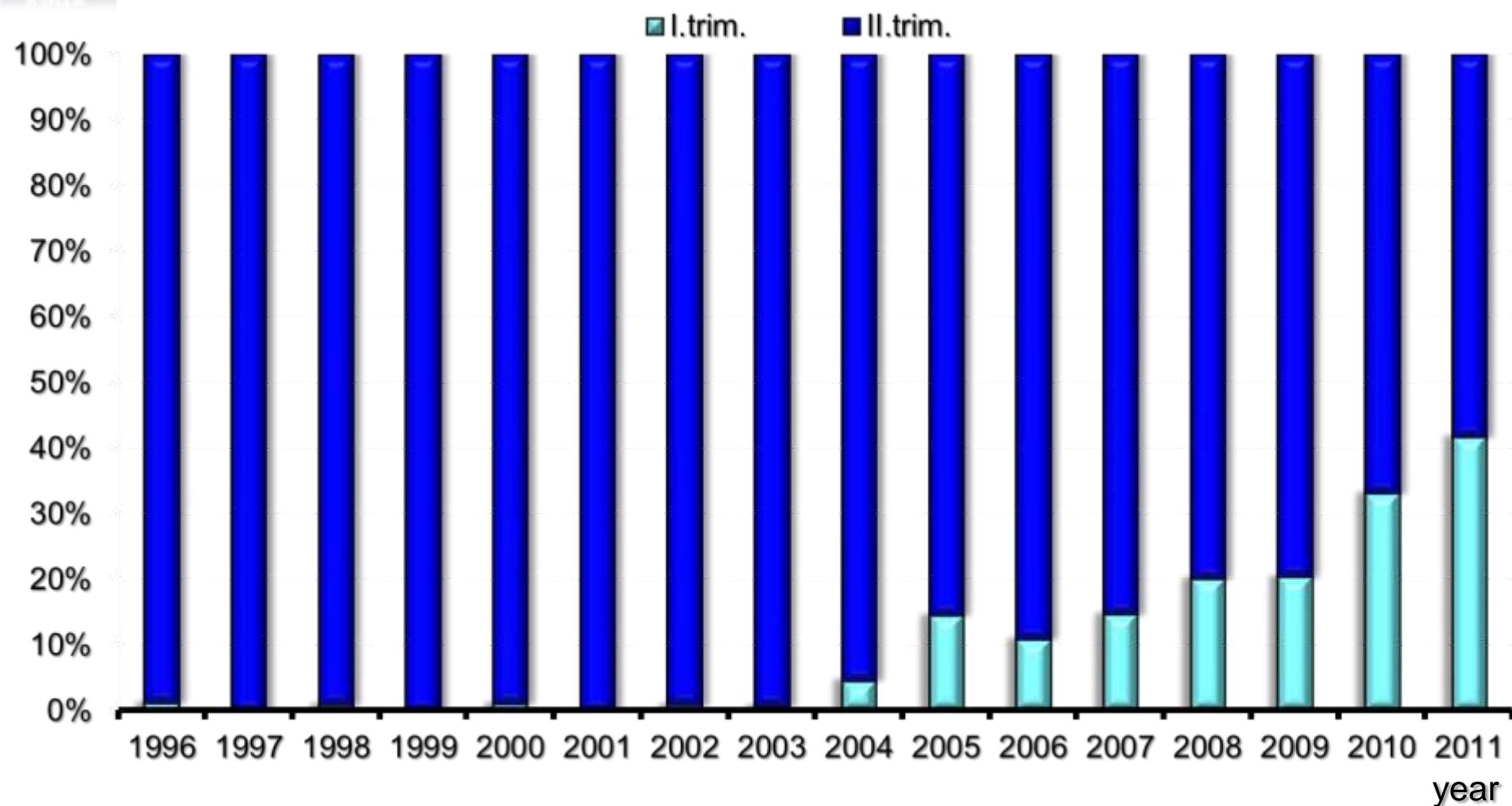
Time of diagnosis

Week of gestation



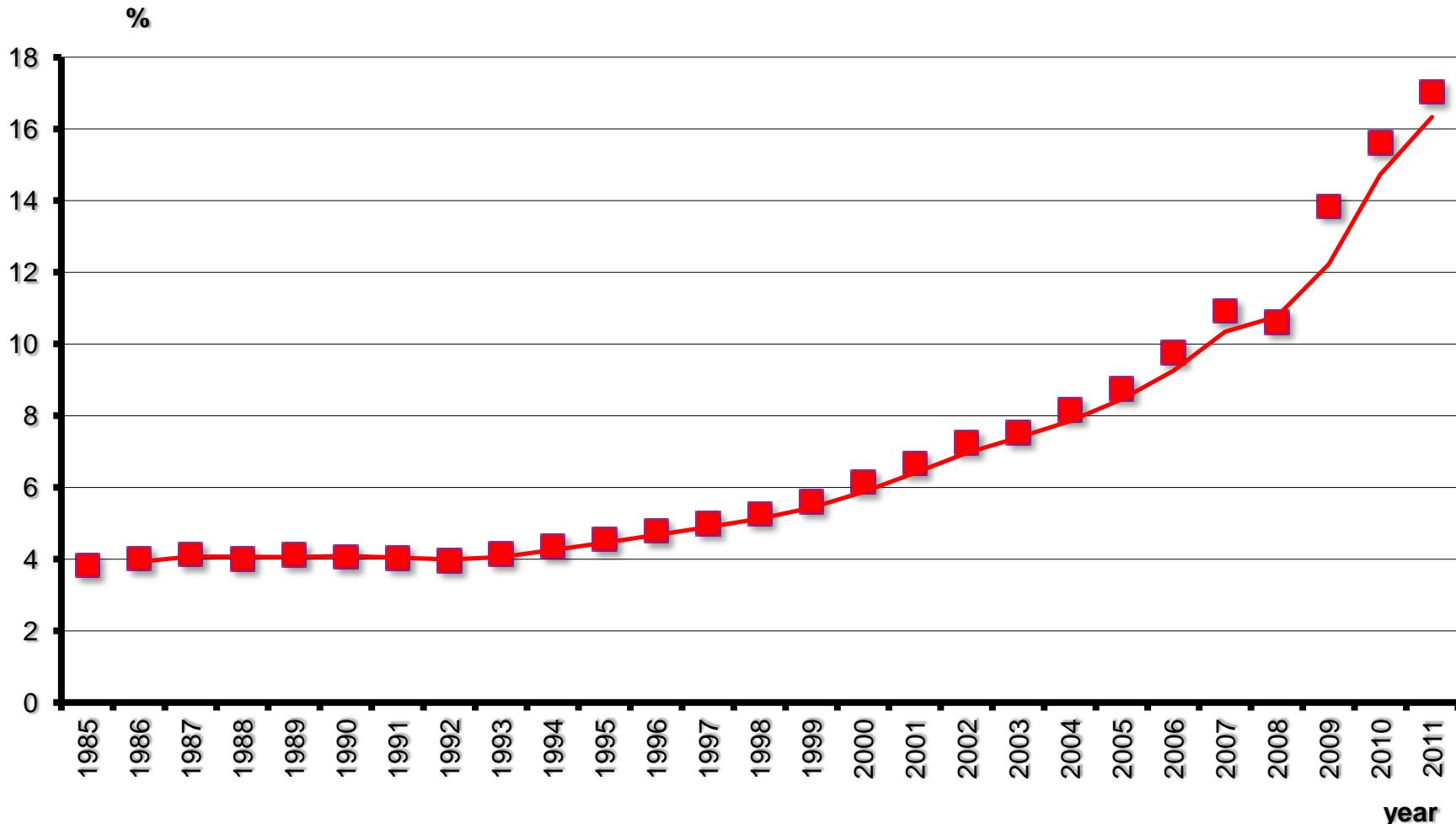
Average week of gestation at diagnosis of Down syndrome

Screening methods

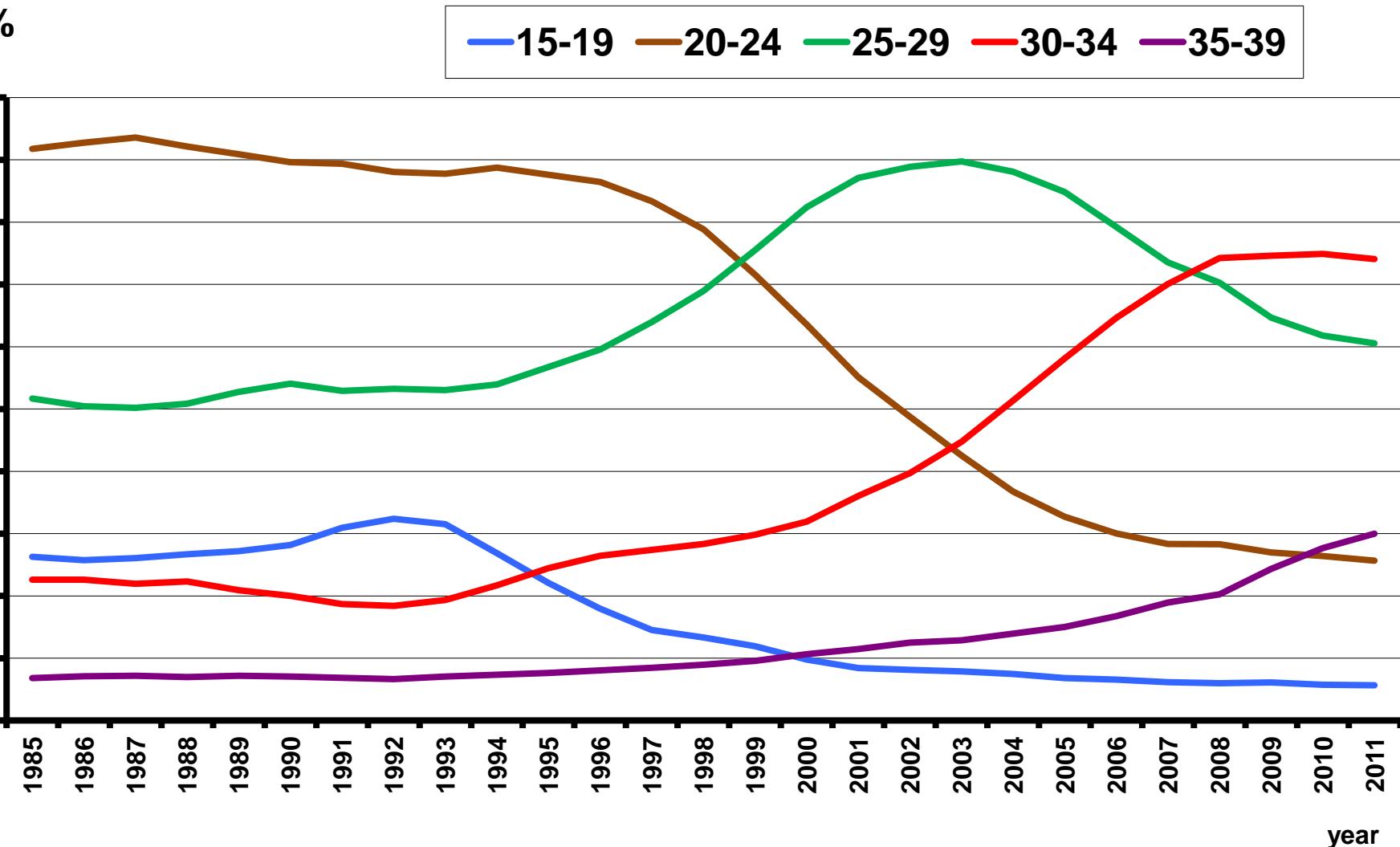


Share of the screening of 1st trimester in the total diagnosis of Down syndrome

Mothers over 35 years



Maternal age – Time trends



Conclusions

1. *The total number of prenatally diagnosed cases of Down syndrome is increasing*
2. *The number of Down syndrome cases in live births is decreasing*
3. *The indication criteria for the invasive prenatal diagnosis are changing during last years*
4. *The average maternal age is notably increasing during last years*
5. *The early prenatal diagnosis (during the first trimester of gravidity) is becoming much more important during last years*

Thank you for your attention!



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