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Continuous Morbidity Registration Dutch Sentinel General Practice Network 2011

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Contents

Foreword

Two new subjects characterize the year 2011 for the Continuous Morbidity Registration (CMR) Sentinel GP Network: the sensitivity of streptococcus for antibiotics and the early symptoms of abdominal tumours. The influenza season showed a short, mild epidemic, dominated by influenza virus A(H3N2).

In the first year of the surveillance of the sensitivity of streptococcus for antibiotics nearly two thousand samples have been collected with an adequate distribution in region, age and address density. In only 2 out of 100 samples streptococcus was found, and therefore the surveillance will continue in 2012 to enable finding sufficient information on the antibiotics sensitivity of these bacteria. This annual report will presents a first report of this surveillance started in 2011.

Studies into the early diagnosis of abdominal tumours showed that it is not clear which symptoms are specific for the start of tumours. The aim of this new data collection is to find characteristic symptoms for the diagnosis of abdominal tumours in order to improve the diagnostic trajectory in general practice. The focus is on abdominal tumours, such as colorectal cancer, ovarian cancer, bladder cancer and other types of abdominal cancer. The collected data in the sentinel practices is part of a comparable data collection in eight countries, led by the university of Tromsö. In addition to the Dutch CMR sentinel practices, GP practices in Canada, Scotland, Belgium, Australia, Sweden, Denmark and Norway participate in the study. In the prospective study systematic data are registered about symptoms of patients consulting the GP and after 6 months we check which of these patients have had the diagnosis of a tumour. This study too is described in this annual report for the first time.

The increased attention for undesirable effects of cosmetics has led to the registration of these side-effects in the CMR sentinel practices, parallel to

research into complaints caused by the use of cosmetics, registered by dermatologists and directly reported by consumers via a website of the RIVM. Information from these sources has been brought together and has led to a warning on the relevant side-effects caused by the use of some cosmetic products to the Netherlands Food and Consumer Product Safety Authority. By now, a Dutch report has been published about this issue and an article has been accepted for publication in an English scientific journal. Make-up and hydrating creams cause the most complaints and isothiazolinols and flagrance products were the highest in showing to be allergen. In this annual report, you will find how large a problem this is in GP practice taking into account differences between men and women. At the end of 2011, the data collection in the GP practice on this issue was finished.

The subject of urinary tract infections, which was started in 2009, was continued in 2010 and 2011 for the target groups where urinary tract infections occur less frequently, but who need specific treatment guide-lines for various reasons, such as pregnant women, children and men. Data on the antibiotics sensitivity of uropathogens isolated in men are hardly available. The increasing (multi) resistance found in the hospital population and the increasing prevalence of the so-called Extended Spectrum Beta-lactamases (ESBL) in the veterinary sector urge us to gain insight into the antibiotics sensitivity of unselected uropathogens that originate from GP practice. GPs send urine-samples of these patients with urinary tract infections to Maastricht University Medical Centre for bacteriological examination and assessment of resistance. The sentinel practices make it possible to gain insight, in this way, into the resistance patterns in the extramural setting, also for men, children and pregnant women. Luckily, these data give generally speaking a more favourable picture regarding resistance to antibiotics than the data from hospitals, as has been published in English articles about men and women.

The study into the so-called gut-feeling regarding cancer that was started in 2010 in the CMR-sentinel practices was continued and in 2011 presented at the international CaPHRI conference. Although the importance of intuition at the suspicion of a cancer diagnosis is widely recognised, even with verdicts of disciplinary committees, qualitative research has not been done before into this matter. In this prospective study the cause of gut-feeling is explored, GP’s follow-up policy and the diagnosis three months later. The

study should answer the question whether intuition may become part of evidence based medicine and whether experience and training in this matter may advance early diagnosis of cancer.

In 2011, Mrs. Ebun Abarshi graduated at the “Vrije Universiteit” in Amsterdam on end-of-life research with a total of seven published English articles, for which data have been collected in the CMR sentinel practices. This study resulted in important information concerning care aspects and communication in the last stage of life and the differences in this matter between the Netherlands and Belgium. Study results were presented at national and international conferences and partly also published in Dutch. The study is continued in 2012 in cooperation with the GP networks in Italy, Spain and Belgium. Research into requests for euthanasia, which was started in 1976 in the sentinel practices was also published as a chapter in an English book focussed on comparing trends in the scope and the reasons to ask for euthanasia before and after the Dutch law on Euthanasia on 2002.

After two seasons with influenza epidemics caused by influenza A(H1N1)pmd2009, the season 2011/2012 was characterised by a late and mild epidemic with a peak incidence in week 10 of 2012, especially caused by influenza virus A(H3N2), but also influenza virus B co circulated. In the Netherlands, less people had influenza than during the pandemic in 2009 and the epidemic of 2010. However, until after week 20 influenza viruses were found in the samples.

These examples from this annual report of 2011 underline the importance of the registration and collection of data by GPs in the CMR sentinel practices for public health and health care.

Prof. dr. F.G. Schellevis
Chairman of the Counseling Committee

1 Introduction

Continuous Morbidity Registration (CMR) is an information system based on records kept by general practitioner GPs. A national network of general practices, covers with the patients registered in these practices about 0.7% of the Dutch population. The network structure takes account of the geographical distribution of the population and its distribution over areas with different degrees of urbanisation (see pp 17-20). The GPs participating in the sentinel network, weekly assess and deliver data with regard to certain illnesses, events and procedures in general practice.

Since 2009, the data on the topics are exclusively electronically registered and delivered. Most GP-information systems now contain an application, the so-called sentinel module, that facilitates the registration of these data. For participating practices, not having the integrated module at their disposal yet, a web application has been made available. Supplementary data gathered via questionnaires still are mostly registered by pencil and paper. This annual report is based on data assembled electronically, either via the sentinel module or via the web application.

Each year an update is made of the composition of populations of the sentinel practices by gender and age. Consequently it is known to what population the gathered data are related (the epidemiological denominator). Usually, data are presented as frequencies per 10,000 men or women (see page 30). Each year the Counselling Committee selects the topics for which data will be registered. The Committee also considers requests and suggestions for new topics by other parties. If a decision is made for the inclusion of a new topic a supervisor working at Nivel or from outside who is responsible for the registration is assigned.
At least five conditions must be met for a disease or occurrence to be registered:

1 The importance of the topic must be described.
2 Strict and unambiguous criteria must be definable for the disease or occurrence to be registered.
3 Application of these criteria must not take too much time and must fit in with the GP's work.
4 A need must exist for representative information at the national level.
5 The CMR Sentinel Practices must be the best source of information.

The recording of data for a topic is discontinued if the topic ‘owner’ feels that data has been collected for a sufficiently long period of time, or if a different registration system is going to gather more or less the same information, or if insurmountable problems have arisen in the recording of data.

This report provides background information on each topic included in the registration for the first time. Refer to previous reports for information about "old" topics. See pages 169-172 for an overview of the years when topics were first included in the registration.

1.1 International cooperation

The CMR Sentinel General Practice Network has been participating in international projects since 1985.
At present the oldest international project is the European Influenza Surveillance Scheme (EISS). From August 2008 this international collaborative program of, among others, all EU-countries is executed by the European Center of Disease Control (ECDC) in Stockholm. In ECDC sentinel networks of GPs and national influenza centers of participating countries collaborate. Apart from all EU countries also Norway, Ukraine, Switzerland, Serbia and Turkey are involved. At the same time, flu data delivered to the ECDC are also delivered to the World Health Organization (WHO).

In end-of-life research also from the beginning (2005) work has been done in international cooperation, initially only with Belgium, but over the past years with more European countries, such as Spain and Italy.

That is also the case for research started in 2011 into early diagnosis of abdominal tumours. The data collection in the sentinel practices for this study is part of a comparable data collection in eight countries, led from the university of Tromsö. In addition to the Dutch CMR sentinel practices, GP practices in Canada, Scotland, Belgium, Australia, Sweden, Denmark and Norway also take part in the study. In the prospective study systematic data are registered about symptoms of patients consulting the GP and after 6 months it is checked which of these patients have had the diagnosis of a tumour.

2 Counselling Committee

A condition of the grant received from the Ministry of Health, Welfare and Sport is that the Counselling Committee that oversees the registration system must in principle consist of:

The committee members in 2011 were:

Counselling Committee:	Mrs. Dr. Ir. B.H.B. van Benthem, (RIVM)
	Drs. R. Poos, (RIVM)
	P.J. van Dalen, Ministry from VWS
	S.M. Handgraaf, Sentinel GP
	J.Korevaar, NIVEL
	Dr. Ir. M.H. Mossink, Ministry from VWS
	Mrs. Dr. E.E. Stobberingh, MD PhD, microbiologist (Maastricht University Medical Centre)
	Prof. Dr. F.G. Schellevis, PhD, NIVEL (Chairman)
Project leader:	Mrs. Dr. G.A. Donker, (GP and Epidemiologist)
Secretary:	Mrs. M. Heshusius-van Valen

The counselling committee met twice in 2011.
In close collaboration with the National Information Network of GPs (LINH), in which NIVEL, IQ Healthcare*, the National GP Association (LHV), and the Dutch GP Society (NHG) are partners, the CMR project team consists of the following persons:

Project leader	Mrs. Dr. G.A. Donker, (GP and Epidemiologist)
Secretary	Mrs. M. Heshusius-van Valen (NIVEL)
ICT support	Mrs. P. ten Veen, Mr. S. Visscher, mr. J. Gravestein and mr. R Davids (NIVEL) Mr. W Tiersma (IQ healthcare)
Contact	Mrs. C. Walk and Mrs. E. Wentink (IQ healthcare)

* IQ Healthcare is a Department of Radboud UMC Nijmegen.

3 Sentinel General Practice Network staff seminar in 2011

For the appropriate functioning of the Sentinel Network it is of utmost importance that Sentinel GPs and their co-workers, the Counselling Committee, the topic managers and project leaders meet regularly. Every year, at the start of a new registration period, which runs from the first of January to December 31, an annual meeting is held. From 2009, this annual meeting is combined with participants and GPs of the Netherlands Information Network of GPs (LINH). The GPs could assemble their own programme by choosing from the various workshops that were provided. This meeting was highly appreciated.

During the meeting held on January 16, 2011, the 15th anniversary of the was celebrated.

The program contained presentations on the following subjects:

PLENARY SESSION

Prof.dr. P.P.Groenewegen, director NIVEL	15 years of National Information Network First Line Care.
Prof. Dr. M. Pringle (university of Nottingham)	Trust in Electronic Medical Records; the UK experience.

SEPARATE SESSIONS FOR CMR SENTINEL PRACTICES AND LINH-PRACTICES

CMR sentinel

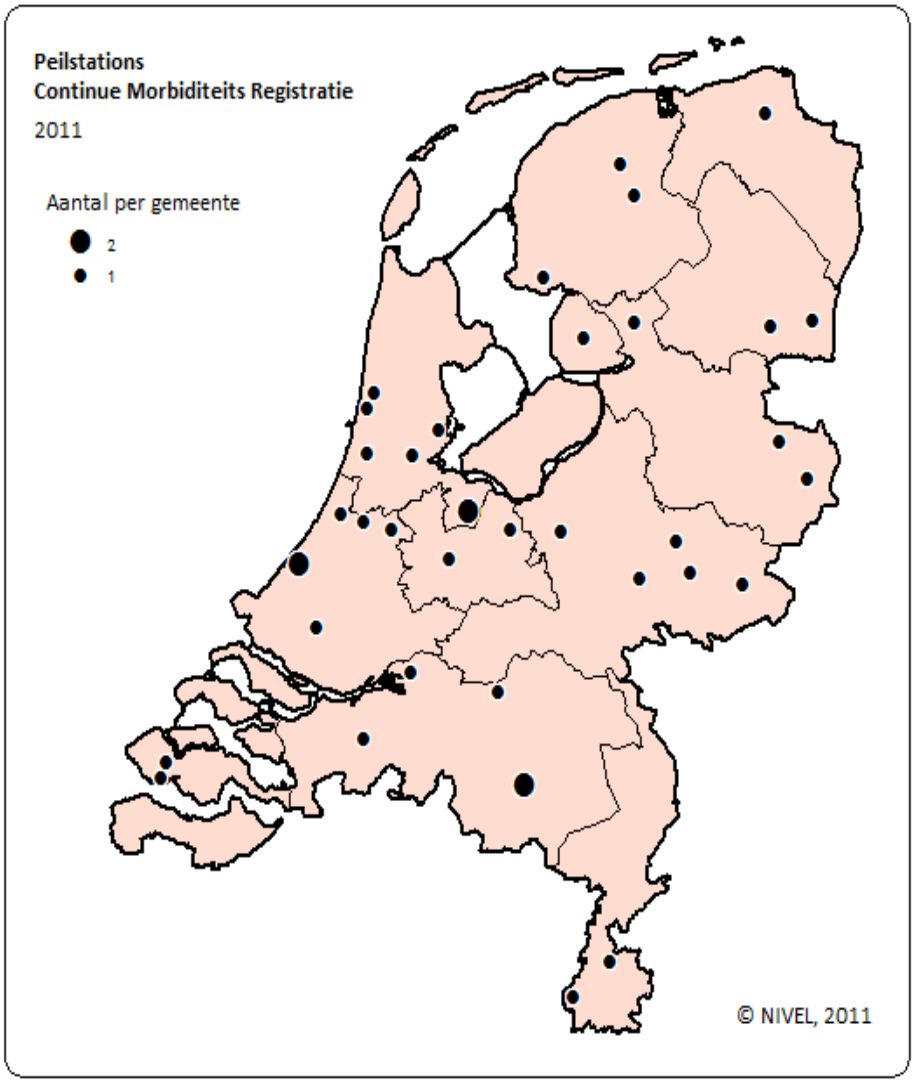
Gé Donker (NIVEL)	What do we register in 2011; a synopsis of results of sentinel research in 2010.
François Schellevis (NIVEL)	Early diagnosis coloncarcinoma – a new topic.
Ellen Stobberingh, Maastricht UMC	Surveillance of haemolytic streptococcus – a new topic.

OPTIONAL SESSIONS

	Parallel session 1
Casper den Heijer (Maastricht UMC)	Urinary tract infections – increase of ESBL; is the NHG-standard up-to-date?
Eric Stolper (MUMC, department first line health care)	Good feeling or gut –feeling? What to do?
Ebun Abarshi (EMGO, VU) and Florien van Heest (GP in Schoonoord, consultant palliative care IKN)	End-of-life study – communication and early recognition of the palliative phase. Suggestions for practice.
	Parallel session 2
Peter Verhaak (NIVEL)	Mental problems in GP practice.
Irina Stirbu (NIVEL)	The attainability of collecting quality indicators via the HIS.
Margot Tacken (IQ healthcare)	Seasonal influenza and human swine influenza: the level of vaccination in the Netherlands.

4 Distribution of sentinel practices in the Netherlands

Figure 4.1



For location level practice see p. 167-168

4.1 Practices

There were 40 sentinel practices in the Netherlands in 2011. The number of participating GPs working in the sentinel practices was 54.

In this annual report the following breakdown and codes are used in processing and discussing the data:

N stands for the Groningen, Friesland and Drenthe province group (northern provinces);
O stands for the Overijssel, Gelderland and Flevoland province group (eastern provinces);
W stands for the Utrecht, Noord Holland and Zuid Holland province group (western provinces);
Z stands for the Zeeland, Noord Brabant and Limburg province group (southern provinces);
1 stands for address density category 5 (rural municipalities);[1]
2 stands for address density category 4-3-2 (urbanised rural municipalities and municipalities with urban features);
3 stands for address density category 1 (municipalities with 100,000 or more inhabitants).

Appendix 1 (pp167-168) contains a list of the GPs who participated in the sentinel practices in 2011. Two or more GPs cooperate at nine of the sentinel practices (two GPs cooperate in 6 practices, three in 2 practices, and one in five practice). The percentage of GPs working in a group practice nationwide in January 2011 was 81.7%; but 44% for the sentinel practices. In the sentinel practices a relative overrepresentation of single practice exists. There were thirteen dispensing sentinel doctors, twelve in rural areas and 1 in an urbanised rural municipality, which is 23% of the total number of sentinel GPs. The figure for the Netherlands as a whole is 5.8%.[2]

Tables 4.1 and 4.2 show the distribution of the number of sentinel doctors and sentinel practices in each province group and address density group in the 2002-2011 period.

Table 4.1 Distribution of sentinel GPs and sentinel practices per province group in the 2002-2011 period[3]

	N; Groningen, Friesland and Drenthe		E; Overijssel, Gelderland and Flevoland		W; Utrecht, Noord- and Zuid- Holland		S; Zeeland, Noord-Brabant and Limburg	
province-group	GPs	sentinel practices	GPs	sentinel practices	GPs	sentinel practices	GPs	sentinel practices
2002	13	6	15	10	23	18	14	10
2003	11	5	14	9	24	18	14	10
2004	12	5	7	6	23	17	14	10
2005	12	5	12	11	28	24	13	9
2006	10	4	9	9	25	22	9	7
2007	14	8	12	10	25	20	10	7
2008	14	8	12	10	24	19	11	8
2009	13	8	12	10	23	16	11	8
2010	12	8	13	10	23	14	15	9
2011	7	7	14	9	18	15	15	9

Table 4.2 Distribution of sentinel GPs and sentinel practices per address density in the 2002-2011 period

	1; rural municipalitie < 500/km^2		2; urbanised rural municipalities together with municipalities with urban characteristics 500-2500/km^2		3; municipalities with 100,000 or more inhabitants >2500/km^2		total	
address density	GPs	sentinel practices	GPs	sentinel practices	GPs	sentinel practices	GPs	sentinel practices
2002	10	7	43	27	12	10	65	44
2003	8	5	44	28	11	9	63	42
2004	6	4	39	25	11	9	56	38
2005	11	9	43	31	11	9	65	49
2006	11	9	28	21	18	14	53	42
2007	12	10	36	26	13	9	61	45
2008	14	11	33	25	14	9	61	45
2009	10	9	32	24	17	9	59	42
2010	14	11	36	23	13	7	63	41
2011	14	11	28	20	12	9	54	40

4.2 Practice populations

A census of most practice populations was held in 2011. The results of the census have been used in processing the CMR Sentinel General Practice Network data from 1 January 2011. The Sentinel GP Network was organised with the aim of achieving a sample of approximately 1% of the population of

the Netherlands. The structure of the project aims to be representative by geographical distribution (the 'province groups' referred to above) and distribution over areas with differing population density). A check was done to see whether these criteria were still met. The tables show that he northern part of the country is overrepresented, whereas the western regions are underrepresented. In the last few years, the Sentinel GP Network represents 0.7% of the Dutch population. This is accounted for in the recruitment of new practices.

The population of the Netherlands increased in 2010 by 80,810 and stood at 16,655,799 on 1 January 2011 (www.cbs.nl).

Table 4.3 Comparison of the population of the sentinel practices with the total population of the Netherlands, 2011

	population of the Netherlands**	population of sentinel practices* (with percentages)	
province group:			
N	1,717,729	16,832	(1.0)
E	3,531,103	25,449	(0.7)
W	7,448,595	44,436	(0.6)
S	3,958,372	32,747	(0.8)
gender:			
men	8,243,482	59,274	(0.7)
women	8,412,317	60,190	(0.7)
total (1-1-2011)	16,655,799	119,464	(0.7)

* Practices census 2011

** 1-1-2011 Netherlands Statistics *(Centraal Bureau voor de Statistiek).*

The total practice population of all Sentinel Practices at the beginning of 2011 was 119,464 persons, 0.7% of the Dutch population consisting of > 16 million inhabitants. The table below shows the percentages of men and women in the Dutch population who are registered with the sentinel practices in 2010, with a breakdown by age group and province group in table 4.4.

Table 4.4 Percentage of men and women in the Dutch population registered with sentinel practices, by age group, province group and for the Netherlands as whole in 2011

	province group								Netherlands	
	N		E		W		S			
	m	f	m	f	m	f	m	f	m	f
0-4	0.9	0.9	0.7	0.7	0.6	0.6	0.8	0.8	0.7	0.7
5-9	1.0	1.0	0.7	0.8	0.6	0.6	0.8	0.7	0.7	0.7
10-14	1.1	1.1	0.8	0.8	0.6	0.6	0.8	0.7	0.7	0.7
15-19	1.0	1.0	0.8	0.8	0.6	0.6	0.7	0.7	0.7	0.7
20-24	0.9	0.9	0.7	0.7	0.6	0.6	0.9	0.9	0.7	0.7
25-29	0.8	1.0	0.6	0.6	0.6	0.7	1.1	1.0	0.7	0.7
30-34	0.8	0.8	0.6	0.6	0.6	0.6	1.0	1.0	0.7	0.7
35-39	0.9	0.9	0.7	0.7	0.6	0.6	1.0	0.9	0.7	0.7
40-44	1.1	1.1	0.7	0.7	0.6	0.6	0.8	0.8	0.7	0.7
45-49	1.2	1.1	0.8	0.8	0.6	0.6	0.8	0.7	0.7	0.7
50-54	1.1	0.9	0.7	0.7	0.6	0.6	0.8	0.7	0.7	0.7
55-59	0.9	1.0	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7
60-64	1.0	1.0	0.7	0.7	0.7	0.6	0.8	0.8	0.7	0.7
65-69	1.1	1.1	0.8	0.8	0.6	0.6	0.9	0.8	0.8	0.8
70-74	1.1	1.0	0.8	0.7	0.6	0.6	0.9	0.9	0.8	0.7
75-79	1.1	0.9	0.7	0.7	0.6	0.5	0.9	1.0	0.7	0.7
80-84	0.9	0.8	0.8	0.7	0.6	0.6	1.0	0.9	0.7	0.7
>85	1.0	0.8	0.7	0.6	0.6	0.6	0.9	0.9	0.7	0.7
total	1.0	1.0	0.7	0.7	0.6	0.6	0.8	0.8	0.7	0.7

4.3 Scale and continuity of reporting

The number of days per year that each sentinel practice reports and the combined number of reporting days per week of all sentinel practices have been checked and processed since 1975. This check is made to monitor the completeness and continuity of reporting. The sentinel doctors are requested to let it be known when they are unable to report due to holidays or personal circumstances.
The maximum number of days on which reporting is possible depends on the number of weeks in the year and on the number of sentinel practices. The number in 2011 was 10,140: 52 weeks x 5 days x 37 sentinel practices; 3 practices registered 26, 34, and 44 weeks, due to the start of their participation during the year.

In table 4.5 the absolute numbers and percentages are given.

Table 4.5 Maximum number and actual number of reporting days per year (2002-2011)

year	maximum number of reporting days	actual number (absolute)	reporting day percentage
2002	11,440	8,948	78.2%
2003	10,920	8,445	77.3%
2004	10,070	7,983	79.3%
2005	12,740	10,011	78.6%
2006	10,465	7,905	75.5%
2007	10,860	9,205	84.8%
2008	10,450	9,087	87.0%
2009	10,755	9,381	87.0%
2010	10,480	9,965	95.0%
2011	10,140	9,432	93.0%

The percentage of reporting days in 2011 is lower than in 2010
The table below contains a breakdown by province group and address density.

Table 4.6 Reporting by province group and address density in 2011

province group		address density	
N	96.5%	1	89.6%
E	93.7%	2	96,1%
W	90.8%	3	90.3%
S	92.0%		

Figure 4.2 shows the weekly reporting of all sentinel practices. The influence of public holidays is clearly visible. The average number of non-reporting days of all sentinel practices together per week is 14 (maximum is 200 days).

Figure 4.2 Number of days in 2011 that data were recorded

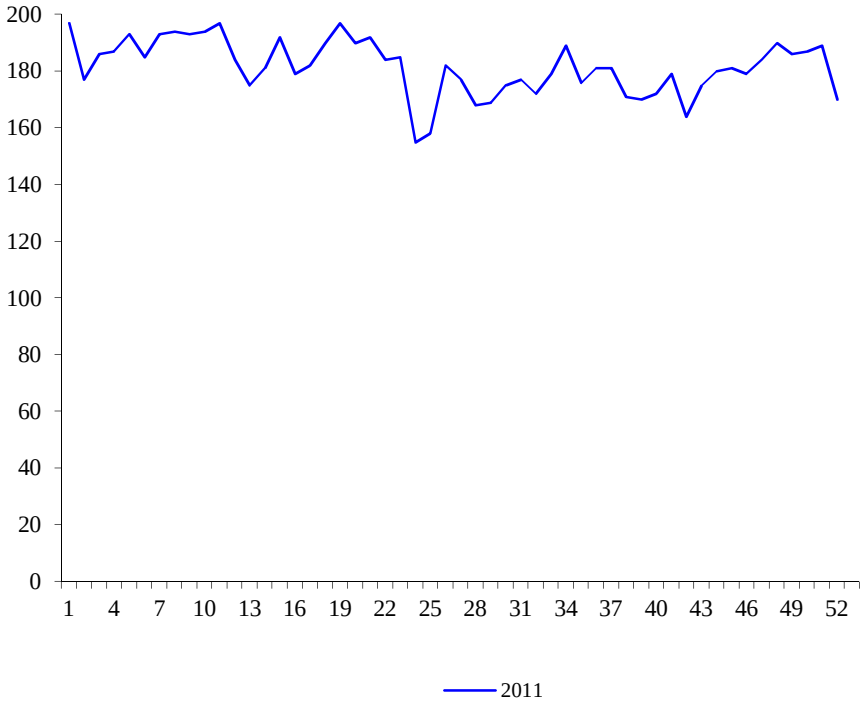


Table 4.7 shows the frequency distribution of the number of non-reporting days at each sentinel practice. The average number of non-reporting days per sentinel practice in 2011 was 18, which is more than in 2010 (13).
A breakdown into single and group practices reveals a significant difference, i.e. 20 and 11 days, respectively. This is in agreement with the hypothesis that in collaborative practices the continuity of reporting is better guaranteed.

Table 4.7 Frequency distribution of the number of non-reporting days per sentinel practice (2002-2011)

number of non reporting days	number of sentinel stations									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
0	3	2	2	1	2	3	8	-	5	7
1-9	1	1	-	-	1	8	3	7	18	12
10-19	1	1	-	1	1	6	15	8	8	10
20-29	-	2	3	4	3	5	4	10	4	5
30-39	7	5	3	7	4	5	2	9	5	1
40-49	12	12	9	12	8	6	4	4	1	2
50-59	8	7	15	11	8	5	1	1	-	-
60-69	2	3	2	4	7	2	2	1	-	1
70-79	1	1	-	2	-	1	2	-	-	1
80-89	2	-	1	2	1	-	1	-	-	-
90-99	-	-	-	1	1	2	1	-	-	-
>99	7	8	3	4	6	2	2	2	-	1
total number of sentinel practices	44	42	38	49	42	45	45	42	41	40
average	56	59	55	56	61	37	31	33	13	19
median	48	48	52	49	66	31	17	23	7	11

Closer examination of the table reveals an increase in non reporting days over the years until 2006, after which it decreased but increased again in 2011. A major failure to report i.e. no reporting by a sentinel practice on more than 50 days per year does occur in 2011 in three practices (7.5%); in 2010 it did not occur, in 2009 in 10% and in 2008 in 20% of the sentinel

practices. The three practices that did not report in 2011 for more than 50 days did so for reasons of illness of the GP, problems with the electronic registration and for the third practice it was not clear what the reason was. Illness of the GP, moving of the practice and shift to a new His-system were the most frequent reasons for non-reporting over a prolonged period of time in the previous years.

4.4 Surveillance topics

In 2011 data were registered from the following topics. Between brackets the year is given in which the topic was entered for the first time.

1 Influenza (and influenza-like illnesses) (1970);
2 End-of-Life study (2005);
3 Suicide (and attempted suicide) (1979);
4 STD (2008);
5 Gastro-enteritis (1996);
6 Unwanted pregnancy (2003);
7 Urinary tract infections (2009);
8 Whooping cough (1998);
9 Cosmetic side effects (2009);
10 Gut feeling (2010);
11 Eating disorders (1985);
12 Request for euthanasia (1976);
13 Palliative sedation (2005);
14 Diabetes Mellitus (2007);
15 Streptococcus surveillance (2011);
16 Abdominal symptoms and cancer (2011).

In principle, a weekly report is the base. This means that also patients that are seen by a locum doctor outside office hours, are reported, except influenza(like illness). Diagnosis by telephone or advices given by telephone are not reported; influenza is also here an exception.

An alphabetical list of all topics since 1970 is provided in appendix 2 (pp 169), together with the years during which the data were registered.

4.5 Analyses

This report contains the results of registration of topics in 2011. The data were processed at NIVEL.

Three tables are presented routinely for each subject:
1 absolute number of patients by gender and age group;
2 absolute number of patients by gender and province group;
3 absolute number of patients by gender and address density.

Tables 1, 2 and 3 are produced each week for surveillance purposes and each quarter and year for annual reporting purposes. For the participating doctors a feedback report is produced for each sentinel practice, presenting the average score per topic per 10,000 patients of the practice and this is compared to the averages of all sentinel practices.

With the exception of the information provided per sentinel practice, the data is also presented per 10,000 of the total practice population (relative frequencies). Frequencies have been rounded off. A frequency below 0.5 per 10,000 inhabitants is rounded off to '0'. '_' denotes that no cases were reported.
A frequency based on fewer than five reported cases is stated in brackets. A frequency of new cases of a disease in a certain period of time is referred to as 'incidence' or 'incidence rate' in epidemiology. The term 'prevalence' refers to all cases of the disease that exist in a certain period of time or at a certain moment in time. There are also absolute and relative incidences and prevalences.
The cumulative incidence of periodic prevalence (per year) in general practice is calculated in this report in all instances per 10,000 inhabitants, men or women. Appendix 4 (p 173) shows the age structure of the Dutch population on 1 January 2011, which can be used to calculate absolute numbers for the Netherlands.

Data from practices reporting only 0, 1 or 2 days of the week are not processed i.e. the reported cases are not included in the "numerator" and the practice population not included in the "denominator". Data from practices reporting more than 2 days per week were processed normally.

A correction factor used to be applied because enquiries among sentinel doctors revealed that an absence of 1 or 2 days merely meant that the work was shifted to a different time.
The tables were produced using the weekly returns, with frequencies being calculated on the basis of the average population present in the period concerned.

As mentioned in the introduction, the purpose of this report is to present data, not to provide a complete analysis of that data.

The following annual tables are included (pp 175-180).

1 Cumulative, i.e. all sentinel practices in a standardised format, year 2011, weeks 01-52, pp 1-3.[4]
2 Province group standardised according to illness, year 2011, weeks 01-52 pp 1-3.[4]
3 Address density, standardised according to illness, year 2011, weeks 01-52, pp 1-3.[4]

4.6 Extrapolation of observed frequencies to the Dutch population as a whole

For each topic a general impression is extrapolated of the numbers of patients, consultations, actions and events in the Netherlands. The figures presented are based on frequencies calculated using data recorded by sentinel practices in the Continuous Morbidity Registration programme. As pointed out in previous reports, readers should bear in mind when examining the tables that while the populations of the sentinel practices represent the Dutch population as a whole with reasonable accuracy (see also pages 20-23), the sentinel doctors are a select group. Consequently it is impossible to determine conclusively to what extent the results vary from the situation that exists in reality. Variations may differ depending on the nature of the topic. Caution should be exercised when examining topics that include intervention by a GP. Similarly, the 'suicide and attempted suicide'[5] topic appears to differ from data recorded elsewhere, probably because these occurrences are not always reported to a GP. With regard to the topics: end-of-life and sexually transmitted diseases only practices reporting these items in 2011 and previous years were included in the analysis in order to decrease underreporting. Nevertheless, readers should examine **not only** the extrapolated numbers, but should also refer to the chapters concerned. To allow correct interpretation of the extrapolated figures, the details of the total Dutch population per year are presented in table 4.8, in thousands.

Table 4.8 Dutch population by gender, in thousands, 2002-2011 (CBS)*

year	men	women	total
2002	7,972	8,133	16,105
2003	8,016	8,177	16,193
2004	8,046	8,212	16,258
2005	8,066	8,240	16,306
2006	8,077	8,257	16,334
2007	8,089	8,269	16,358
2008	8,112	8,293	16,405
2009	8,156	8,329	16,486
2010	8,203	8,372	16,575
2011	8,244	8,412	16,656

* Numbers as on 1 January of each year.

4.7 Confidence intervals

Reliability margins have to be applied when examining the incidence rates and prevalence rates estimated for the entire Dutch population. The table below provides an impression of the incidence rates and prevalence rates, for relative and absolute numbers.

The table should be read in the following way. If a frequency of 1 per 10,000 patients is observed in the sentinel practices' total population of approximately 119,464 patients (1st column), the 95% confidence interval is 0.43 – 1.57 per 10,000 (2nd column). It then follows that the estimated absolute number in the Dutch population is 1666 (3rd column), and that the 95% confidence interval is between 771 and 2610. The table shows how these estimates relate to a frequency at the sentinel practices of 1 to 1,000 per 10,000 patients with some intermediate 'steps'. The confidence intervals are particularly high at the lower frequencies.

Table 4.9 Confidence intervals of estimates of incidence and prevalence and sentinel station practices per 10,000 and the absolute numbers

frequency per 10,000		Netherlands (absolute numbers)	
frequency	95%CI	absolute number	95%CI
1	0,43 - 1,57	1666	771 – 2,610
10	8,21 – 11,79	16656	13,671 – 19,641
100	94,36 – 105,64	166560	157,162 – 1754,958
1,000	9832,99 - 1017,074	1665600	1637,265 – 1693,935

For the total groups of men and women separately, each comprising about half of the total population, the confidence intervals are only a little wider than shown in the table. For separate 5 or 10-year age groups, the intervals obviously are much wider, because these groups are smaller in size (with thanks to Dr. C. van Dijk, NIVEL).

5 Influenza(-like illness)

Topic owner: National Influenza Centre *(Nationaal Influenza Centrum)*
(1970-2011)

Introduction

Influenza is an important health care and public health problem.
Influenza has been linked to an increase in the number of consultations and visits by GPs, as well as to an increased workload in health care and nursing institutions, an extra load on hospitals as a result of more referrals and admissions and an increase in the mortality rate. In addition, absenteeism due to influenza means loss of production from the workforce and pupils not attending school.

Cases of influenza occur every year in the Netherlands and throughout the rest of the world. The usual 'influenza season' runs from week 40 to week 20 of the following year. In the so-called inter pandemic situation an influenza epidemic actually only occurs in the winter in the northern hemisphere. A pandemic also may occur outside this season and this phenomenon did happen in 2009. Since registration of influenza-like illness (ILI) began, the influenza epidemics have always started between mid-November and the beginning of March, except for the pandemic in 2009, that from the beginning of October (week 41) lead to an epidemic in the Netherlands, earlier than ever before over the 40 years of registration of ILI in the CMR sentinel practices.

The history of well-described outbreaks of respiratory infections dates from 1173-1174. The incidence of airway infection described in that winter is considered to be a good description of an influenza epidemic. Since the end of the 12th century a number of descriptions of (sometimes worldwide) outbreaks of what appeared to be influenza do exist.
In the 20th and 21st century the world was hit by four pandemics (the Spanish flu (1918-1919), the Asian flu (1957-1958), the Hong Kong flu (1968-1970) and the Mexican flu (2009-2010) of which the flu outbreak in 1918-1919 made the most impression and left frightened people in its wake:

approximately 40 million dead throughout the entire world.
In 1933 various pieces of the influenza puzzle started to fall into place and the influenzavirus was identified and held responsible for small or larger outbreaks of acute respiratory infections where it was not unusual for the infected person to die. It was also proven that influenza could be transmitted from animal to animal, from animal to human and from human to human.

After the 2nd World War the newly set up World Health Organisation decided in 1949 to monitor influenza. National Influenza Centres were established to track the occurrence of influenza and report to the WHO. However, it was only at the start of the 1960s that sentinel doctors began to register the occurrence of influenza among the population (in England and Wales). Other European countries followed. For example, the Netherlands set up the CMR Sentinel General Practice Network system in 1970 as a representative national network that succeeded the local networks in a number of large cities.
At the start of the 1990s the quality of the influenza surveillance system was further improved. From 1992/1993, sentinel GPs in an increasing number of European countries took a nose and/or throat swab from patients with an influenza-like illness (ILI) or an acute respiratory infection. These swabs were then sent for further tests at the laboratory of the National Influenza Centre for virological determination. This procedure is also applied in the Netherlands.

Method

The GPs register patients who consult them for an acute influenza-like illness known as ILI, that meets the Pel criteria.[6] These are defines as follows: (Pel.1965)*)

1 An acute start, so a maximum prodromal stage of three to four days (included pre-existing infection of the respiratory system at not-ill-making level).
2 The infection should also involve rise in temperature of at least 38^0, rectal.
3 At leastone of the following symptoms should occur: cough, nasal catarrh, sore throat, frontal headache, retrosternal pain, myalgia.

*) Pel, J.Z.S., 1965 Proefonderzoek naar de frequentie en de aetiologie van griepachtige ziekten in de winter 1963-1964. Huisarts en Wetenschap 1965:86:321.

The age of the patient is also recorded.
The doctor is asked to take a nose and throat swab from 2 patients per week which are then sent for further testing to the National Institute for Public Health (RIVM) (Infectious Diseases Diagnostics and Screening Laboratory). This laboratory tests for a number of pathogens, including the influenza and RS viruses. The number of pathogens for which tests are performed can differ from year to year.
The results are analysed and reported throughout the year but they are presented in this report from week 40 to week 20 of the following year.

Results

In the 2011/2012 season the baseline above which raised level of flu activity can be observed, was maintained at 51 per 100,000. This line is based on statistical analysis of the incidence of ILI during the last 10 seasons outside the epidemic period. Increased influenza activity is defined as the incidence of ILI surpasses the baseline of 51 per 100,000 for two consecutive weeks and if samples sent to RIVM are found to contain influenza viruses. The method for calculation of the baseline was developed by the European Influenza Surveillance Scheme (EISS) in order to harmonize the baselines of the various European Countries, taking into account the variety in health systems.
The season 2011/2012 was characterized by a late epidemic. In week 7, 2012, the incidence was for the first time above the baseline of 51 per 100,000 inhabitants. At the same time, the weekly number of virus detections and hospital admissions increased. In week 10, the highest incidence of the (mild) epidemic was reached with 79 cases per 100,000 inhabitants; hereafter, the incidence increased to under the baseline, even though in April a few local outbreaks in care homes were reported. In the Netherlands, less people had the flu than during the pandemic in 2009 and the epidemic in 2010. Indeed, up to and included week 20 (and even after that) flu viruses were found in samples, influenza A(H3N2) as well as influenza B. Sporadically influenza A(H1N1) was found, the virus that

caused the pandemic in 2009. In week 11 all clinical parameters had returned to background levels and that continued to be so until the end of the season. The epidemic lasted for only 4 weeks, but flu viruses were found in samples from week 1 to week 20. (Figure 5.1). The surveillance activities in the sentinel practices were maintained also in this year during the whole year.

RIVM received 396 samples from week 40, 2011, to and including week 23, 2012 from patients with ILI and 588 samples of patients with other respiratory tract infections (ARI). During the week with the highest incidence of the epidemic, in 38% of the samples of patients with ILI the influenza virus was found, but in the following 2 weeks 44% and 62%, respectively. Of all influenza viruses of patients with ILI and ARI, from week 40 in 2011 up to and including week 20 in 2012, 78% was influenza virus A and 22% influenza virus B. The dominating subtype this season was influenza virus A(H3N2). In 74% of the positive samples, this subtype was found. In the previous 2 seasons the in 2009 pandemic influenza virus A(H1N1)2009 was the dominating subtype. Virologically seen it was, therefore, a surprising season. Influenza virus type B co-circulated with the this season dominant influenza virus A(H3N2), less frequently than in the previous season. In 4% of the samples from patients with ILI and 6% of the samples of patients with ARI RS-virus was found. All types A and B influenza viruses that were tested on sensitivity to the antiviral remedies oseltamivir and zanamivir turned out to be sensitive to it.
All influenza A(H3N2) viruses that were tested on sensitivity to the adamantine antiviral remedies (amantadine and rimantadine) turned out to be resistant.

No marked regional differences in influenza activity were observed. The highest incidence (10.1 per 10,000 inhabitants, figure 5.2) was noted in week 10 in the southern part of the country.
The incidence was the lowest in the rurelarea (Figure 5.3). As usual, the highest incidence did occur in the age group 0-4 years, who were not vaccinated this season, like the previous year (Figure 5.4). This season, relatively more people of the age over 65 years were suffering from ILI, than in the previous season.

Figure 5.1 Number of incidental patients with influenza-like illness per week per 10,000 inhabitants, for the Netherlands in, 2009/2010 and 2010/2011 and 2011/2012

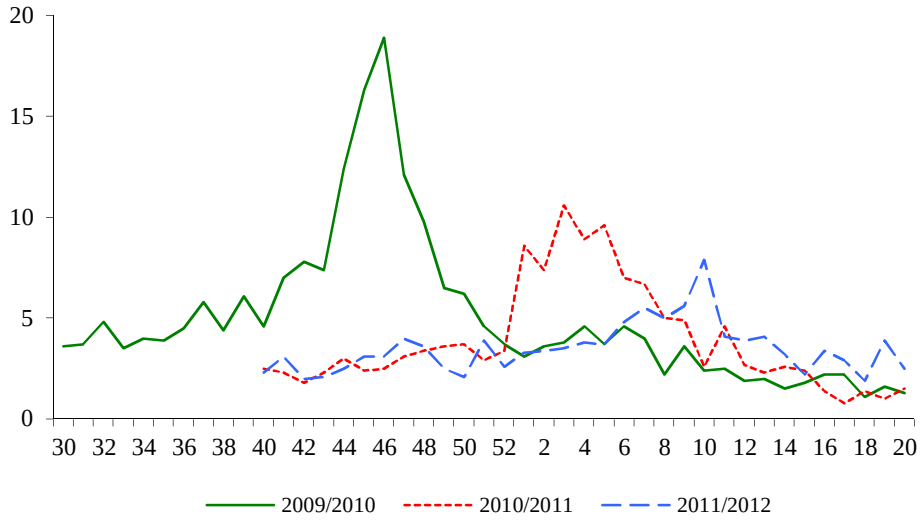


Figure 5.2 Number of incidental patients with influenza-like illness per week per 10,000 inhabitants, according to population density in 2011/2012

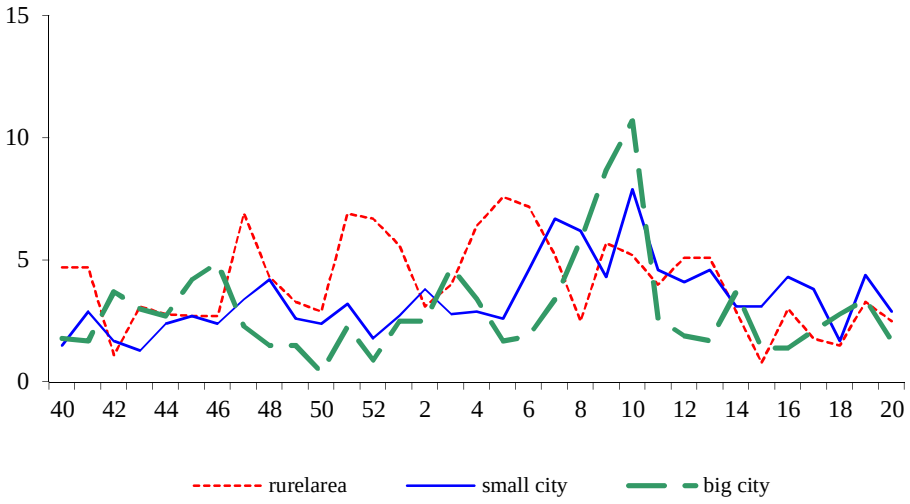


Figure 5.3 Number of incidental patients with influenza-like illness per week per 10,000 inhabitants, per province group in 2011/2012

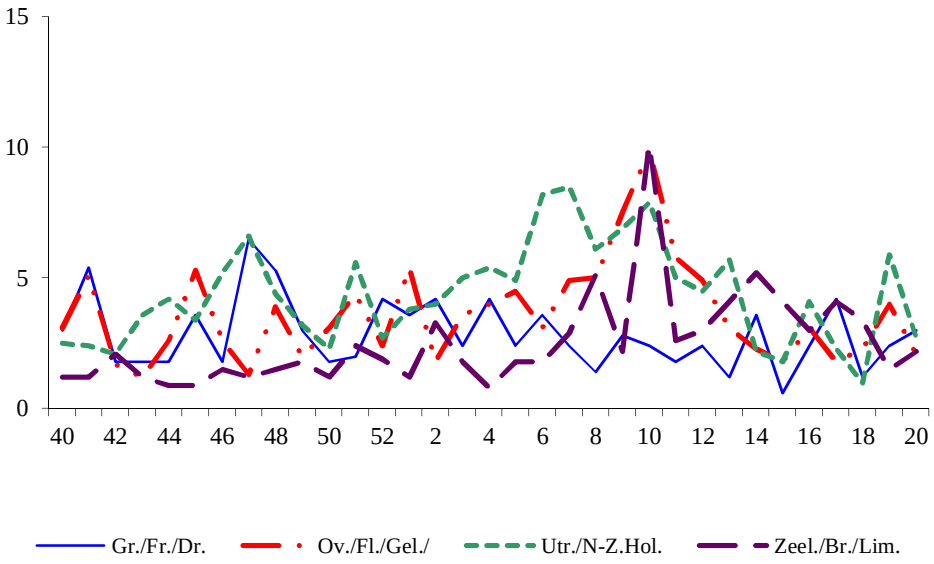


Figure 5.4 Number of incidental patients with influenza-like –illness, per 10,000 per age group, season 2011-2012

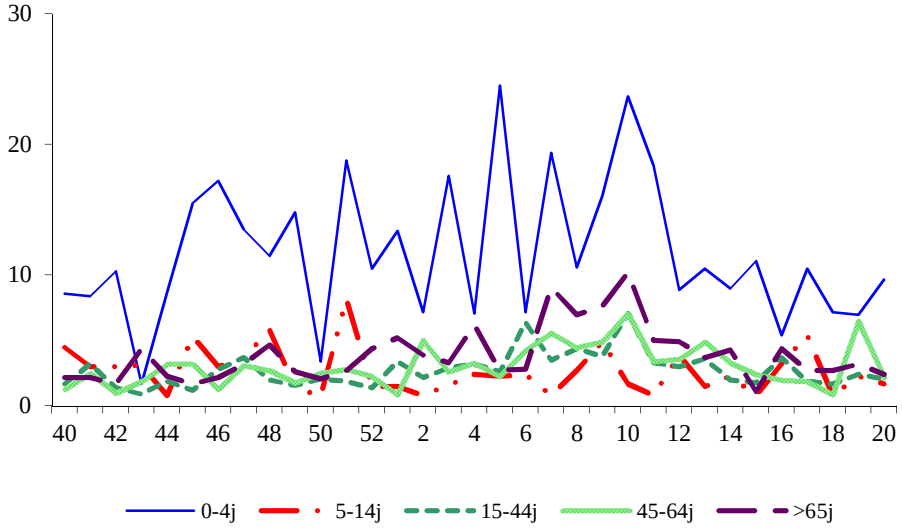


Table 5.1 Number of incidental patients with influenza(-like illness), per 10,000 inhabitants, 2002-2012

year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
total calendar year	157	122	71	208	190	141	168	275	128	186	
highest weekly incidence per 'season'		7	15	26	14	8	7	15	19	11	8

Extrapolation

Table 5.2 Extrapolation of incidence rates influenza like illness to the Dutch population

	frequency incidence rate (per 10,000)*	Netherlands** (absolute numbers)
topic year	total (m+f)	total (m+f)
influenza like complaints		
2002	157	253,000
2003	122	198,000
2004	71	116,000
2005	208	339,000
2006	190	310,000
2007	131	219,000
2008	168	276,000
2009	275	442,000
2010	128	212,000
2011	186	310,000

* number influenza like complaints per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

The season 2011/2012 was characterized by a late start of the epidemic in week 7 and another subtype than the previous season. The dominating subtype this season was influenza virus A(H3N2) In 74% of the positive

samples this subtype was found. In the Netherlands, less patients were reported with ILI by the GP than during the pandemic in 2009 and the epidemic in 2011. The surveillance by the sentinel practices was this year also maintained during the whole year. The epidemic started in week 7 2012 and lasted for four weeks. The peak incidence was reached in week 10; 7.9/10,000 were reported that week by the GPs. Thereafter the incidence decreased quickly, but the percentage of nose- and throat swabs of patients with ILI containing influenza virus remained high. In week 11 the clinical epidemic was finished. No extra risk groups were vaccinated outside the usual ones. As usual the highest incidence did occur in the age group 0-4 year. The incidence among persons > 65 years was higher than in the previous 2 seasons.

This topic remains on the weekly returns

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6 Streptococcus Surveillance

Topic owner: Ellen Stobberingh (SWAB) (2011)

Introduction

Streptococcus haemolyticus, also called S. Pyogenes, is part of the commensal throat flora, but is also the pathogen of several less serious to (very) serious diseases. It is often the pathogen of tonsillitis and pharynchitis in children, but cmay also cause life-threatening infections such as sepsis, necrotizing fasciitis and toxic shock syndrome. Because of the last mentioned infections the bacteria is also in popular speech indicated as “carnivorous bacteria”. Streptococcus are, so far, still sensitive to penicillin. Frequently, a macrolide is given as an alternative therapy, especially the long lasting medicines (azitromycine) are popular with prescribers and patients, because the ease of use. Drawback of these long lasting medicines is the risk of macrolide resistance. Updated data on the resistance to antibiotics of Dutch patients in the GP practice are not available, The most recent data are from a study in 1995 (van Asselt et al.). A surveillance of clinical isolates identified in a university hospital in 2005 and 2006 has recently been described (van Leer Buter et al.). During a two-years study period an increase in macrolide resistance was observed from 4.5% in the beginning to 8% in 2006. Because macrolides are the drugs of choice in case of penicillin hypersensitivity knowledge of the resistance is important.

Surveillance aim:

Establishment of actual antibiotics resistance of haemolytic streptococcus isolated in patients in GP practice.

Rationale:

- there are no updated resistance data known
- because of the increase in the use of (long-lasting) macrolide an increase in resistance could be anticipated
- knowledge of the resistance is important because the chosen medicines in case of penicillin hypersensitivity are macrolides.

Method

- All patients, children too, who visit the physician, is eligible to participate in the study. It is advised to take swabs, during several days a week in the beginning of the week, from the first patient every day and every patient with a sore throat (one per day).
- The examination consists of taking a throat swab and filling in some patient characteristics such as: date of birth and gender of the patient and the sentinel practice number.
- The questionnaire also asks questions about the use of antibiotics, in addition to the above mentioned questions, the use at the moment as well as the use in the last three months, and the reason of the visit –see the questionnaire with the swabs; does the patient have throat complaints or doesn't he.
- The swabs are sent to the Maastricht University Medical Centre (MUMC) in Maastricht, at the same day they are taken, in a prepaid envelop, preferably more samples in one envelop to reduce the cost of sending.
- In the MUMC the swabs are analysed on occurrence of β-haemolytic streptococcus. Also, the sensitivity to antibiotics is established (penicillin, macrolides, clindamycine, doxycycline).
- All necessary materials are delivered by the MUMC.

Results

Table 6.1 The number of received samples per province group, by address density and for the Netherlands in 2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2011	337	282	539	744	173	1266	463	1902

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Dispersed over the Netherlands 1902 samples were collected in 2011, with a pretty good spread in address density.

Age distribution

Table 6.2 Number of samples by gender per age group in 2011

	2011		
age group	m	f	t
< 1	0	2	2
1-4	22	16	38
5-9	29	37	66
10-14	41	31	72
15-19	48	60	108
20-24	57	89	146
25-29	41	63	104
30-34	40	77	117
35-39	61	52	113
40-44	52	80	132
45-49	48	92	140
50-54	70	97	167
55-59	70	77	147
60-64	83	69	152
65-69	63	63	126
70-74	51	70	121
75-79	51	28	79
80-84	11	24	35
> 85	8	13	21
Total	851	1051	1902

The collected samples were divided over all age groups and were taken a bit more often from women than from men with a woman-man ratio if 1.24.

Micro-organisms

Table 6.3 shows the total number of samples sent in 2011 and the percentage of throat complaints within these (36%) and the percentage of samples in which β-haemolytic streptococcus were found (1.9%).

Table 6.3 Number of samples by morbidity and micro-organisms found in 2011

aantal monsters	< 3mnd keelklachten		micro-organisme t/m 16/3/2012
	absoluut	relatief	
1902	685	36%	β-haemolytische streptococ 36 (1.9%)

The number of samples in which β-haemolytic streptococcus were found is rather low, i.e. 1.9%, making it impossible to draw conclusions about the sensitivity to antibiotics of these bacteria. This is the reason that the surveillance will continue in 2012.

Discussion

The first year, over 1900 samples have been collected with an adequate spread in region, age and address density. The number of samples in which β-haemolytic streptococcus were found is rather low, i.e. 1.9%, making it impossible to draw conclusions about the sensitivity to antibiotics of these bacteria.

This topic will be continued in 2012.

7 Whooping cough

Topic owner: Dr. H. de Melker, (RIVM) (1998-2011)

Introduction

Whooping cough is an acute, very infectious disease of the upper airways that is caused by the bacteria *Bordetella pertussis* and in some cases by *Bordetella parapertussis*.
Notably in children younger than 3 months whooping cough may have very serious complications such as brain damage and convulsions**,** actelectasis of the lungs, pneumothorax, and pulmonary emphysema and even death.
Immunity is built up both after having had whooping cough and after having a vaccination, but in both cases the immunity decreases again with the passage of time.
Vaccination against *Bordetella pertussis* has been included in the Dutch government's vaccination programme 1952. The percentage of people reached by this programme is high (> 96%).

The vaccine that was developed in the 1950s was effective in preventing the infection but did not wipe out the bacteria. The bacteria remained in circulation and in spite of the large numbers of people who have been vaccinated the incidence of whooping cough in the Netherlands has been increasing since 1996. Every few years it reaches epidemic levels. Analysis of the available data showed that the proportion of vaccinated people among the indicated disease cases of whooping cough had increased.[7] From July 2001 children at the age of 4 are therefore re-vaccinated with a specific a-cellular vaccine.
Since 2005 vaccination with a whole cell vaccine in the first year of life have been substituted by an acellular vaccine.

Whooping cough is one of the diseases included in the national mandatory notification. However, the development of the illness and the criteria for registration lead to significant under-reporting and the number of notifications do not reflect the real picture. Underreporting can be caused by

3 reasons. Firstly, many people, notably adults who have been coughing for a few weeks, do not quickly decide to consult a doctor. Secondly, if a patient consults a doctor and the doctor suspects whooping cough, then a laboratory test will not always be requested. Thirdly, not all GPs report all proven cases of chickenpox to the health authorities.

Direct registration of whooping cough in general practice is one way of gaining insight into the extent of under-reporting. At the end of the 1990s information about the incidence of whooping cough was not available in general practice and was just as difficult to obtain from other sources. Further research into the changes in the epidemiology of whooping cough was considered desirable, especially after the introduction of an improved vaccine in 1998. In 1998, it was decided to explore prevention of whooping cough and the diagnostic method in the sentinel surveillance. Because of the recent changes in the strategy of vaccination against whooping cough it is desirable that monitoring will be continued. In 2010, further analysis into the shifts in epidemiology and age distribution took place, since the introduction of the acellular vaccine (Donker and Van der Gevel).

Method

The sentinel doctor is asked to register every patient with whooping cough, divided up into gender and age group. A case description is not easy because of the often atypical development of whooping cough in vaccinated people. The sentinel doctors use the following definition for whooping cough: Long-term cough (longer than 3 weeks) with more or less typical characteristics and/or proof of *Bordetella pertussis/parapertussis* infection (according to the protocol of the National Coordination Centre for Combating Infectious Diseases (*Landelijke Coördinatiestructuur Infectieziektebestrijding*).

Using an additional questionnaire, a difference is made between clinical whooping cough that is not laboratory-confirmed and a symptomatic infection (typically or not) with *Bordetella pertussis/Bordetella parapertussis* that is confirmed by a laboratory test. By making this distinction, insight may be obtained into the frequency of whooping cough diagnosed by the GP on basis of clinical signs only.

A few weeks after registering a case of whooping cough the GP is asked to provide additional information about the registration and about the results of the laboratory test if one was requested. The GP will also be asked whether the patient has ever been vaccinated against whooping cough and if so, how many doses of inoculation have been applied.
The information, together with other sources of information about the occurrence of whooping cough, is used by the Centre for Infectious Diseases, Epidemiology and Surveillance of the RIVM at Bilthoven to interpret the progress of whooping cough in the Netherlands.

Results

Distribution by province group and address density.

In 2011 25 patients were reported with whooping cough, which amounts to 2 per 10,000 patients. This incidence is lower than in the previous year (see table 7.1), therefore, 2011was not an epidemic year. The beginning of 2012 does show a rise, but this is beyond the scope of this annual report. There is an epidemic every three to four years. Since the introduction of the acellular vaccine - for four year olds in 2001 and for zero year olds in 2005 – the epidemics are decreasing (Donker and Van der Gevel Huisarts en Wetenschap 2011;54(2):53).

Table 7.1 Number of patients with whooping cough by province group, address density and for the Netherlands as a whole, per 10,000 people, 2002-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2002	2	2	5	6	2	4	7	4
2003	0	1	4	3	0	2	7	3
2004	6	10	8	9	7	7	12	8
2005	0	6	6	11	6	6	5	6
2006	1	7	2	1	7	2	2	3
2007	4	6	4	8	7	5	3	5
2008	3	1	3	15	5	5	2	5
2009	2	5	4	1	2	4	2	3
2010	3	2	3	3	1	3	3	3
2011	-	3	2	4	2	2	3	2

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

No consistent differences have been found in province group and population density during all the years of registration.

Distribution by age group

Table 7.2 shows the numbers of patients with whooping cough per 10,000 inhabitants and per age group.

Table 7.2 Number of patients with whooping cough by age group per 10,000 inhabitants, 2002-2011

age group	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<1	5	(7)	(29)	(8)	(18)	(8)	9	-	(7)	(18)
1-4	21	14	35	30	17	17	8	17	(4)	11
5-9	20	11	33	18	(7)	10	9	7	(4)	(3)
10-14	10	(3)	23	10	10	17	24	7	10	(5)
15-19	(2)	(4)	10	(3)	(7)	14	6	7	(4)	8
20-24	(1)	-	(3)	-	-	(3)	(2)	(2)	(4)	(3)
25-29	(2)	(2)	-	-	-	0	(3)	-	(1)	-
30-34	(1)	(1)	6	5	(3)	(6)	(2)	(2)	(3)	(2)
35-39	(1)	(3)	6	4	(1)	(1)	(4)	-	-	-
40-44	(0)	-	-	(1)	-	(5)	6	(3)	(3)	(1)
45-49	-	(1)	(3)	6	-	6	(1)	(1)	(3)	(1)
50-54	(1)	(1)	(6)	(4)	-	0	(1)	-	(1)	(1)
55-59	-	-	(3)	(5)	-	(1)	(4)	(1)	(1)	-
60-64	(2)	(2)	-	(6)	-	(2)	(2)	-	(2)	(1)
65-69	-	-	(5)	-	-	0	-	-	(2)	(2)
>70	(1)	-	(0)	(2)	-	-	-	-	(2)	-

The numbers between bracket are based on N<5

Whooping cough may occur at any age. Analysis of the period 1998-2009 in three groups of 4 years shows that since the introduction of the acellular vaccine – for four year olds in 2001 and for zero year olds in 2005 – the peak incidence gradually shifts from toddler to teenager (Donker and Van der Gevel 2011). In 2011 too, the highest incidence is found in the age groups 0-19 years, but the peak incidence was found in the sub group 0-4 years.

Extrapolation

Table 7.3 Extrapolation of incidence rates whooping cough to the Dutch population

	frequency incidence rate (per 10,000)*	Netherlands** (absolute numbers)
topic	total	total
year	(m+f)	(m+f)
whooping cough		
2002	4	6,500
2003	3	5,000
2004	8	13,000
2005	6	9,800
2006	3	4,900
2007	5	8,000
2008	5	8,000
2009	3	5,000
2010	3	5,000
2011	2	3,000

* number whooping cough per 10,000 men and women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

In spite of the large number of people being vaccinated against whooping cough it still does occur relatively often in the population.
Whooping cough occurs in all age groups. According to the registration by GPs whooping cough has the highest incidence between 0-19 years. Since the introduction in 2001 of vaccination with an acellular vaccine at the age

of 4 years and the replacement of a cellular vaccine by an a-cellular vaccine in the first year after birth in 2005, the peak incidence gradually shifts towards teenage groups. This was not the case in 2010, when a peak incidence was in the age group 0-4 years. In the legal reports the incidence up to and including 7 years is low and the peak incidence occurs in children and adolescents from 8 years old. The year 2011 was, with an incidence of 2 per 10,000 inhabitants, not an epidemic year. The beginning of 2012 shows in the sentinel practices and the legal reports a rise, but this is beyond the scope of this annual report.

The topic will be continued in 2012.

Publications based fully or partly on continuous morbidity registration data

Donker Gé, van der Gevel Joost. *Kinkhoest van kinder- naar tienerziekte.* Huisarts en Wetenschap 2011;54(2):53

Greeff de Sabine C. Lugnér Anna K. Heuvel van den Danielle M, Mooi Frits R, Melker de Hester E. *Economic analysis of pertussis illness in the Dutch population: Implications for current and future vaccination strategies.* Vaccine 2009;(27):1932-1937

8 Acute gastro-enteritis

Topic owner: Dr. W. van Pelt (RIVM-CIE) (1992-1993) (1996-2011)

Introduction

Gastro-enteritis is among the top ten illnesses in the Netherlands in terms of incidence. It is an illness that places a considerable burden on the primary health care system.[8]
Gastro-enteritis was added again to the surveillance of the CMR Sentinel GPs Network in the Netherlands in 1996. Also in 1992 and 1993 the subject has been registered by the sentinel practices.
Initially (until 1999) the investigation mainly focused on the assessment of trends in the incidence of gastro-enteritis, campylobacteriosis and salmonellosis and the burden of health care involved, also with regard to specific pathogens. The results of this research have been published before.

Since 2000 this topic has been maintained in accordance with the first of the above aims: the monitoring of trends in the incidence of acute gastro-enteritis in general practice. In 2001-2002 supplementary information was collected about laboratory diagnosis of patients sent in for consultation within the frame-work of regular health care. The results of this study are published elsewhere (van den Brandhof et al. 2006).

Method

Sentinel GPs are asked to report patients with a new episode of gastro-enteritis. A new episode includes that the patient is seen for the first time during the current episode and has not shown symptoms for at least 14 days following an earlier report. Patients who consult their GP solely by phone are not reported.
In 2001 and 2002 the doctors were also asked to indicate when the GP decided as part of regular health care to perform a faeces test. The doctors

were asked to indicate the reason why the test was requested, the micro-organisms for which the test was performed and whether antibiotics were prescribed.

In 2003 it was requested to only report the occurrence of acute gastro-enteritis and to indicate whether or not a faeces test was performed. No other questions with regard to the indication or result of the test are asked.

The sentinel doctors adhere to the following definition of gastro-enteritis:
- thin bowel movements three or more times a day, differing from the normal situation for the person concerned, or
- thin stools and two of the following symptoms: fever, vomiting, nausea, stomach ache, stomach cramps, blood or mucus in the stools or
- vomiting and two of the following symptoms: fever, nausea, stomach ache, blood or mucus in the stools.

Results

Table 8.1 shows the number of reports of acute gastro-enteritis, by province group, address density and for the Netherlands as a whole.

Table 8.1 Numbers of cases of acute gastro-enteritis by province group, address density and for the Netherlands as a whole, per 10,000 men and per 10,000 women, 2002-2011

		province group				address density			Netherlands
		N	E	W	S	1*	2*	3*	
2002	male	65	109	106	113	81	99	151	104
2003		111	127	103	104	121	103	117	109
2004		76	115	90	135	141	91	109	103
2005		73	125	90	101	131	82	117	96
2006		85	135	112	167	121	119	126	121
2007		69	36	110	110	66	77	135	86
2008		92	53	89	130	105	71	150	90
2009		73	43	72	59	64	56	84	64
2010		86	57	75	96	80	73	97	79
2011		52	46	58	50	62	42	64	52
2002	female	58	108	113	110	70	95	135	98
2003		93	142	103	118	134	104	115	112
2004		61	102	98	107	136	82	97	94
2005		45	112	96	108	100	87	107	93
2006		71	124	122	143	107	122	112	117
2007		67	36	122	139	56	95	134	95
2008		83	57	91	152	88	79	158	93
2009		68	62	77	65	73	60	92	70
2010		110	57	83	112	95	87	95	90
2011		66	71	80	74	74	60	99	74

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Table 8.1 Numbers of cases of acute gastro-enteritis, by province group, address density and for Netherlands as a whole, per 10,000 men and per 10,000 women 2002-2011 (cont.)

		province group				address density			Netherlands
		N	E	W	S	1*	2*	3*	
2002	total	58	109	113	110	76	97	143	101
2003		102	134	103	111	128	103	116	110
2004		68	109	94	121	138	86	103	98
2005		59	119	93	104	116	85	112	94
2006		78	129	117	155	114	120	119	119
2007		69	36	116	124	61	86	135	90
2008		88	55	90	141	92	75	154	91
2009		70	53	75	61	69	58	88	67
2010		99	57	79	104	88	80	96	84
2011		59	59	69	62	68	51	82	63

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

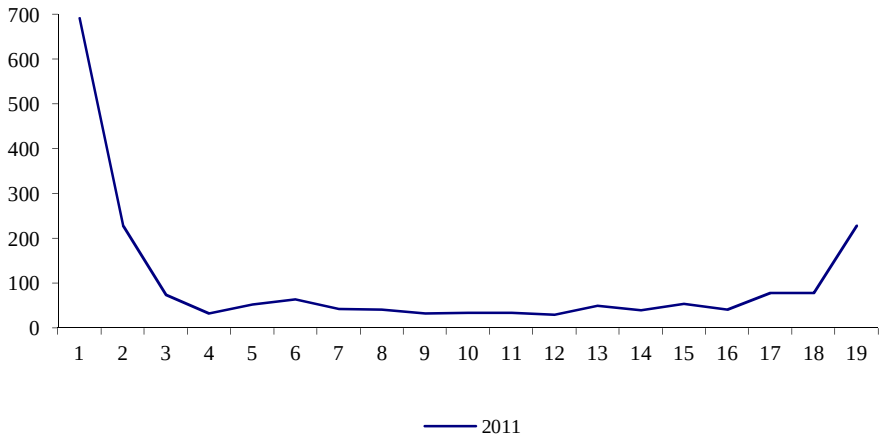
The highest incidence for men and women was seen in 2006.
In 2011 the incidence is lower than in 2010, but comparable to that in 2009, for men and women. The highest incidence is found in the big cities and in the western part of the country. The difference between men and women has been inconsistent for several years.

Age distribution

Table 8.2 Numbers of patients with acute gastro-enteritis per 10,000 inhabitants, 2002-2011

	total									
age group (year)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<1	653	613	765	687	690	588	689	432	741	692
1-4	412	437	341	296	472	349	368	267	313	228
5-9	195	197	136	163	156	114	114	85	107	74
10-14	96	125	80	79	107	56	61	76	58	33
15-19	86	83	82	100	84	53	54	49	61	53
20-24	101	118	99	80	121	84	85	53	85	64
25-29	105	95	87	72	104	82	80	46	79	42
30-34	72	94	99	67	80	84	83	64	75	41
35-39	69	84	71	56	86	44	72	35	49	32
40-44	63	52	55	55	61	38	56	42	45	34
45-49	48	66	70	49	65	49	44	36	46	34
50-54	59	65	67	57	67	57	42	28	45	29
55-59	50	54	57	57	67	76	53	41	43	49
60-64	46	68	48	78	61	48	54	36	60	40
65-69	65	56	58	76	92	63	73	65	41	54
70-74	63	72	54	82	102	100	61	35	73	41
75-79	38	49	101	98	125	131	119	72	92	78
80-84	58	110	115	131	193	152	141	88	133	78
>85	86	81	104	131	166	152	174	178	219	228

Figure 8.1 Numbers of patients with acute gastro-enteritis in 2011, by age group per 10,000 inhabitants



Age group distribution (years) X-axis

1=< 1 years	2=1-4 years	3=5-9 years	4=10-14 years	5=15-19 years
6=20-24 years	7=25-29 years	8=30-34 years	9=35-39 years	10=40-44 years
11=45-49 years	12=50-54 years	13=55-59 years	14=60-64 years	15=65-69 years
16=70-74 years	17=75-79 years	18=80-84 years	19=> 85 years	

During the whole registration period, most cases of acute gastro-enteritis were diagnosed among babies and 1-4 years olds. In 2011 this was also the case. Similarly as during the years 2003-2010, a higher incidence was found once again for persons older than 75 years in 2011.

Seasonal influences

Table 8.3 shows the numbers of cases of acute gastro-enteritis that were reported per season.

Table 8.3 Numbers of patients with acute gastro-enteritis per 10,000 inhabitants from 2002-2011, arranged per quarter

quarter	1 : weeks 1-13	2 : weeks 14-26	3 : weeks 27-39	4 : weeks 40-52
2002	27	25	23	25
2003	40	23	28	18
2004	25	22	24	27
2005	30	19	24	21
2006	41	28	27	23
2007	25	24	18	22
2008	37	18	17	16
2009	24	11	15	14
2010	32	18	17	19
2011	23	14	12	15

Similarly as in most earlier years the highest incidence in 2011 is seen during winter time (first quarter).

Faeces test in cases of acute gastro-enteritis

Table 8.4 shows a summary of the number of reports of acute gastro-enteritis for which the GP requested a faeces test, arranged per province group, by address density and for the Netherlands as a whole.

Table 8.4 Number of times that the GP requested a faeces test in cases of acute gastro-enteritis, per province group by address density and for the Netherlands as a whole, per 10,000 inhabitants for 2002-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2002	7	11	16	19	14	13	19	14
2003	20	31	26	25	34	23	20	25
2004	17	29	24	20	30	15	34	22
2005	21	13	25	22	18	19	33	21
2006	35	10	32	18	22	24	34	26
2007	20	33	29	13	16	25	31	25
2008	6	3	13	22	9	11	13	11
2009	10	5	11	7	8	7	13	9
2010	15	8	9	9	8	10	11	10
2011	3	6	11	3	5	4	10	6

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

The number of requests for faeces tests in 2011 was lower than in 2010, and the previous years. In 2011, the number of requests for a test was the highest in the big cities and in the western provinces, which is consistent with the higher incidence in these areas.

Age distribution

Table 8.5 shows the number of requests for a faeces test in cases of acute gastro-enteritis per age group and per 10,000 persons.

Table 8.5 Number of requests for a faeces test in cases of acute gastro-enteritis per age group per 10,000 inhabitants from 2002-2010

age group (year)	2002	%	2003	%	2004	%	2005	%	2006	%
<1	86	13	90	15	49	6	82	11	45	13
1-4	50	12	78	18	45	13	57	16	61	12
5-9	11	6	36	18	30	15	18	10	25	6
19-14	13	13	15	12	15	19	24	23	19	13
15-19	19	22	13	16	17	21	32	24	26	22
20-24	17	17	32	27	22	22	17	17	42	17
25-29	13	12	32	34	22	25	16	19	41	12
30-34	15	21	26	31	27	27	22	25	31	21
35-39	13	18	19	37	17	24	20	27	19	18
40-44	10	17	22	33	23	42	22	28	23	17
45-49	9	19	19	29	20	29	19	28	10	19
50-54	6	10	19	29	24	36	12	18	22	10
55-59	14	28	16	30	23	40	16	22	19	28
60-64	12	26	11	16	12	25	17	18	27	26
65-69	(4)	6	17	30	32	60	25	25	20	6
70-74	(5)	7	15	21	19	32	13	14	21	7
75-79	(6)	15	31	63	(7)	7	3	3	26	15
80-84	-	0	13	12	(10)	9	20	13	31	0
>85	-	0	(5)	6	(7)	7	0	0	(7)	0

% = number of faeces tests: number of reports of acute gastro-enteritis x 100

Numbers in brackets are based on N<5

Table 8.5 Number of requests for a faeces test in cases of acute gastro-enteritis per age group per 10,000 inhabitants for 2002-2011

age group (year)	2007	%	2008	%	2009	%	2010	%	2011	%
<1	118	17	28	4	(16)	4	(15)	2	55	7
1-4	77	18	30	8	31	112	31	10	27	10
5-9	27	19	(6)	5	(6)	7	9	8	8	10
19-14	9	14	(3)	5	(3)	4	8	14	3	(9)
15-19	21	29	(8)	15	(1)	2	16	26	-	-
20-24	29	26	12	14	12	23	11	13	6	(9)
25-29	35	30	13	16	14	30	10	13	5	(10)
30-34	25	23	10	12	(6)	9	13	17	5	(10)
35-39	24	35	12	17	11	31	(5)	10	9	21
40-44	13	25	(9)	16	(6)	26	8	18	4	(10)
45-49	22	31	(9)	20	(5)	14	9	20	5	(13)
50-54	18	24	12	29	(4)	11	(6)	13	4	(12)
55-59	14	15	15	28	11	39	(5)	12	10	18
60-64	26	35	(8)	15	(4)	10	(5)	8	4	(10)
65-69	24	27	(9)	12	15	42	13	32	2	(3)
70-74	15	13	(5)	8	17	57	15	31	2	(6)
75-79	10	7	(9)	8	(3)	4	(5)	5	3	(4)
80-84	17	10	13	9	0	0	(7)	5	4	(5)
>85	(12)	7	(2)	1	(14)	8	(4)	2	5	(2)

% = number of faeces tests: number of reports of acute gastro-enteritis x 100

Overall, the number of registered requested faeces tests per 10,000 people per age group shows the same pattern as for the total number of reports of acute gastro-enteritis per age group. In absolute numbers most requests for a faeces test were made in 2011 for 1-4 years olds.

However, this is not the case for the number of faeces tests per age group as a percentage of the total number of reported cases of acute gastro-enteritis in

that age group. In adults a faeces test is performed more often.
Children (< 15 years old) with acute gastro-enteritis consult their GP more often than older children or adults. When people of 45-60 years of age consult their GP with the symptoms of acute gastro-enteritis the GP will relatively more often request a faeces test in 2011.

Extrapolation

Table 8.6 Extrapolation of incidence rates gastro-enteritis to the Dutch population

	frequency incidence rate (per 10,000)*			Netherlands** (absolute numbers)		
topic year	m	f	total	m	f	total
gastro-enteritis						
2002	104	98	101	83,000	80,000	163,000
2003	109	112	110	88,000	91,000	179,000
2004	103	94	98	83,000	86,000	164,000
2005	96	93	94	77,000	77,000	154,000
2006	121	117	119	98,000	97,000	194,000
2007	86	95	90	71,000	80,000	151,000
2008	90	93	91	73,000	77,000	150,000
2009	64	70	67	52,000	58,000	110,000
2010	79	90	84	65,000	75,000	139,000
2011	52	74	63	43,000	62,000	105,000

* number gastro-enteritis per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

In 2011 the incidence was lower than in 2010, but comparable to 2009. In 2006 the incidence was the highest, predominantly in the first quarter. Similarly as in 2002/2003 this coincided with a high incidence of Norovirus and the occurrence of a Rotavirus epidemic.[9, 10]
As part of regular health care GPs request a faeces test relatively more often in 2011 for patients in the age group 45-60. This is also the result of a difference in consultation behaviour between cases of acute gastro-enteritis involving children (< 15 years old) and cases involving adults (> 15 years old). This second group consults the doctor when they have more serious symptoms that last longer. Diarrhoea following a trip abroad occurs more often in adults.

This topic is unchanged continued in 2012.

Publications based fully or partly on continuous morbidity registration data

Pelt W van, Notermans D, Mevius DJ, Vennema H, Koopmans MPG, Duynhoven YTHP van. *Trends in gastro-enteritis van 1996 – 2006: Verdere toename van ziekenhuisopnames, maar stabiliserende sterfte.* Infectieziekten Bulletin 2008;19(1)

Pelt van W, Friesema I, Doorduyn Y, Jager de CM, Duynhoven YTHP. *Trends in gastro-enteritis in Nederland; notitie met betrekking tot 2007.* RIVM project V/210221/TS. RIVM, Bilthoven, December 2008

Pelt van W, Notermans D, Giessen AW, Mevius DJ, Vennema H, Koopmans M, Asten van L, Duynhoven van YTHP. *Trends in gastro-enteritis van 1996-2005; Toename van ziekenhuisopnames en sterfte: een toenemende rol van virale infecties?* Infectieziekten Bulletin 2006;10:364-70

Brandhof van den WE, Bartelds AIM, Koopmans MPG, Duynhoven van YTHP. *General practitioner practices in requesting laboratory tests for patients with gastro-enteritis in the Netherlands*, 2001-2002; BMC Family Practice 2006;7:56

9 Sexually Transmitted Diseases (STD)

Topic owner: Mrs. dr. I. Van den Broek (RIVM)(2008-2011)

Introduction

Together with respiratory, gastro-intestinal and urinary tract infections, Sexually Transmitted Diseases (STD) are the most frequently occurring infectious diseases in the Netherlands. Chlamydia, gonorrhea, syphilis, HPV-infection, hepatitis-B and HIV infection are the most important STDs.

National surveillance of STD is predominantly performed by the electronic SOAP registration of the RIVM, used since 2004 by the STD out patients clinics of the municipal health agencies (GGD), and through registration of infections by the HIV Monitoring Foundation. The GGD out patients clinics offer low threshold STD-care to high risk groups and persons who prefer to remain anonymous. In recent years the number of STD consultations at the GGD out patients clinics has increased substantially.

However, it is estimated that GPs account for 65-75% of all STD-related consultations. This was recently confirmed by the results from the CMR topic “fear of STD” and from estimates based on LINH data (Netherlands Information Network of General Practices). In previous years GPs have noticed a steady increase in the number of STD-related consultations (see van den Broek et al, 2010). This increasing trend is also described in the annual surveillance report of the RIVM (Trienekens et al., 2012). Therefore, registration by CMR sentinel practices, may serve as a welcome addition to these data, especially because the questionnaires that have been included will provide insight into the background and reasons of a request for an STD test. In consultation with the RIVM and STD-AIDS the Netherlands, the topics ’fear of AIDS’ and ‘urethritis in men’ have been replaced by ‘STD’ in men and women from 1-1-2008 onwards. In this chapter only data regarding STD-related consultations by sentinel GPs are being reported. The collected additional data are published separately.

Method

The sentinel GPs are instructed to register this topic as a new STD consultation, except if a consultation was asked for information on i.e. prescription of anticonceptives. Proof of STD is not mandatory for registration. Also fear of STD and the possibility of STD and/or AIDS should be registered. In addition a questionnaire addressing additional information emerging from the consult should be completed. If diagnostic STD-tests are requested, a form with the test results should be added to the questionnaire. The diagnostic tests for chlamydia, gonorrhea, trichomonas, HIV and/or syphilis are performed by the regional laboratory of the participating practice. Only sentinel practices reporting SOA at least once per year were included.

Results

The results are based on data from 35 reporting practices. The number of STD-related consultations per10,000 patients per province group and address density are presented in table 9.1.The incidence is the highest in the western part of the Netherlands and in the big cities. The number of STD-related consultations is in 2011 higher than in the previous three years.

Table 9.1 Number of new STD-related consultations per province group, address density and for the Netherlands as a whole per 10,000 in 2008-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2008	35	38	65	50	20	46	88	49
2009	37	22	64	46	21	37	85	45
2010	37	32	60	50	32	48	60	47
2011	35	41	91	62	35	61	89	66

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Age distribution

In table 9.2 the data on new STD-related consultations are shown per age group. The age group between 20 and 30 years consults the GP the most for these problems. More women than men consult the GP for STD and/or fear for AIDS.

Table 9.2 Number of new STD-related consultations per age group and per 10,000 inhabitants, 2008-2011

	2008			2009			2010			2011		
age group	m	f	t	m	f	t	m	f	t	m	f	t
10-14	0	12	6	0	15	7	0	(6)	3	0	4	2
15-19	32	121	76	57	137	97	51	145	97	66	246	155
20-24	178	302	241	148	217	183	165	263	215	236	342	209
25-29	141	175	158	144	169	157	150	140	145	143	274	210
30-34	58	116	87	70	102	87	80	100	90	135	156	146
35-39	64	90	77	68	65	66	60	76	68	63	70	67
40-44	47	49	48	54	28	41	30	48	39	60	64	62
45-49	23	38	31	43	35	37	22	41	32	47	12	30
50-54	10	23	16	19	14	16	17	25	21	27	47	37
55-59	16	14	15	(12)	23	17	22	19	20	14	13	14
60-64	5	15	15	18	0	9	13	(8)	11	13	16	15
65-69	5	10	8	0	(4)	(2)	0	(3)	(2)	9	0	4
70-74	13	0	6	(10)	(14)	12	(5)	(4)	(5)	11	0	6
75-79				(7)	(5)	(6)	(0)	(5)	(3)	0	0	0
80-84	-	-	-	-	-	-	-	(6)	(4)	0	0	0
total	38	60	49	40	51	45	39	55	47	53	78	66

The numbers between bracket are based on N<5

Extrapolation

Table 9.3 Extrapolation of incidence rate STD to the Dutch population

	frequency incidence rate (per 10,000)*			Netherlands** (absolute number)		
topic year	m	f	total (m+f)	m	f	total (m+f)
STD						
2008	38	60	49	31,000	50,000	81,000
2009	40	50	45	32,500	41,500	74,000
2010	39	55	47	32,000	46,000	78,000
2011	53	78	66	44,000	66,000	110,000

* number STD per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

As expected, the highest incidence of new STD-related consultations were reported in the big cities and the western part of the Netherlands, where most of the big cities are located, with an age peak between 20 and 30 years. GPs are consulted more frequently by women than by men for STD and/or fear of AIDS.

The incidence rates from the sentinel practices are lower than from LINH. LINH estimated the incidence of STD/HIV or fear of STD/HIV on basis of the relevant ICPC codes. The LINH estimate for 2010 was 104 per 10,000. The lower estimates of the sentinel practices are due to differences in the applied criteria for STD-related consultations, for which a questionnaire was filled in at the sentinel practices in comparison with those for the STD-

episodes based on ICPC codes. The additional data from the questionnaires will be compared with the data from LINH and other sources. These will be reported separately.

This topic will be continued in 2012.

Publications based fully or partly on continuous morbidity registration data

Dorsman S, Donker G, Van den Broek IVF, Van Bergen J. *Twenty-two years of HIV-related consultations in Dutch general practice Increasing testing rates by trend analyses. 2012* Submitted for publication

Trienekens SCM, Koedijk FDH, van den Broek IVF, Vriend HJ, Op de Coul ELM, van Veen MG, van Sighem AI, Stirbu-Wagner I, van der Sande MAB. *Sexually transmitted infections including HIV, in the Netherlands in 2011.* Annual STI-report RIVM, available at: http://www.rivm.nl/rapporten

Dorsman S, Donker G, Van den Broek IVF, Van Bergen J. Angst voor HIV/AIDS. *Hulpvragen bij de huisarts in de periode van 1988 tot en met 2009.* Rapport NIVEL mei 2011

Van den Broek IVF, Verheij RA, van Dijk CE, Koedijk FDH, van der Sande MAB and van Bergen JEAM. *Trends in sexually transmitted infections in the Netherlands, combining surveillance data from general practices and sexually transmitted infection centers.* BMC Family Practice 2010;May 20:11:39

Vriend HJ, Donker GA, Bergen van JE, Sande van der MAB, Broek van den I. *Urethritis bij de man in de huisartspraktijk. SOA's vooral op jongere leeftijd.* Nederlands Tijdschrift Geneeskunde 2009;153:A323

Koedijk FDH, Vriend HJ, van Veen MG, Op de Coul ELM, van den Broek IVF, van Sighem AI, Verheij RA, van der Sande MAB. *Sexually transmitted infections including HIV, in the Netherlands in 2008.* Annual STI-report RIVM, available at: http://www.rivm.nl/bibliotheek/rapporten/210261005.html

Donker Gé, Wolters Irmin, Bergen van Jan. *Huisartsen moeten risicogroepen testen op hiv.* Huisarts en Wetenschap 2008; 51:(419)

10 Urinary tract infection

Topic owner: Dr. E.E. Stobberingh, SWAB (2009-2011)

Introduction

Urinary tract infections are common in general practice. The incidence varies from 40-60 per 1000 patients, depending on the population. The initial treatment with antibiotics by the GP is not based on the outcome of bacteriological analysis. The choice of an antibiotic is predominantly based on the guidelines from the Dutch GP Association and sometimes on other considerations. This approach is also followed if the first treatment has no effect. Only when treatment failure occurs for a second time bacteriological analysis will be performed.
The empirical choice of antibiotics should be based on the actual sensitivity percentages for antibiotics of the microorganisms to be treated, being unselected urological pathogens. For an optimal choice actual data are necessary. The most recent data stem from 2003-2004. In that period research was being performed in the CMR sentinel practices on the antibiotic sensitivity of unselected micro-organisms isolated from women between 12-70 years consulting their GP for an uncomplicated urinary tract infection. Because of the increasing incidence of (multi) resistance in hospitals (Nethmap 2010) and the increasing prevalence of so-called Extended Spectrum Beta-lactamases (ESBL) in the veterinarian sector (D. Mevius, personal communication) it is important to repeat the 2002-2003 study in order to obtain actual data. It has also become clear that sensitivity data for urological pathogens isolated from men are lacking or scarce. In connection with the extramural antibiotic surveillance of SWAB a surveillance of antibiotic sensitivity for urological pathogens has been started in general practices in 2009. The results will be reported elsewhere.

The aim of the study is:
determination of antibiotic sensitivity of urological pathogens isolated from men and women consulting the GP with symptoms indicative for a urinary tract infection. In 2011 research was aimed at men, children and pregnant women, because there were already enough samples of not-pregnant women, collected in 2009.

Method

- All male and female patients with symptoms of a urinary tract infection should be included, independant of the applied therapy, including patients with a catheter.
- Incidence and prevalence are determined using ICPC-codes U71 (cystitis) and U70 (pyelitis).
- The usual diagnosis and way of treatment in general practice is continued. This is not influenced by the current study.
- In the freshly produced urine a uricult is immersed, marked with the code of the GP and patient number, to be sent to the bacteriological laboratory of the Maastricht University Medical Centre (MUMC).
- Isolation and determination of the uropathogens will be performed according to the standard microbiological methods of SWAB.
- The GP receives the bacteriological results weekly.
- The project leader and SWAB are informed yearly. The results are published in Nethmap every year.
- When many samples are received per day the GPs are requested to sent the first 2 samples of that day.

Results

Table 10.1 shows the number of reported episodes with a urinary tract infection stratified by region and address density, men, women and total. The incidences are based on analysis of episodes with the ICPC codes U70 (pyelitis) and U71 (cystitis). Underreporting is likely, because most of the activities were performed by GP assistants and the results were available only one day later. The reported incidences in 2011 are slightly lower than in the previous years, especially for women, because there was no need to send

samples for not-pregnant women. As usual, the incidence in women is much higher than in men.

Table 10.1 Number of episodes with a urinary tract infection per province group and address density in the Netherlands, per 10,000 men and 10,000 women in 2009-2011

		province group				address density			Netherlands
		N	E	W	S	1*	2*	3*	
2009	m	186	167	111	230	137	181	131	161
2010		144	150	119	212	150	158	156	156
2011		201	127	103	151	114	170	89	136
2009	f	946	1054	817	1471	836	1082	955	1014
2010		776	959	795	1157	915	905	984	922
2011		579	1094	515	738	682	816	532	708
2009	t	570	614	478	849	479	942	557	596
2010		463	557	468	679	528	538	579	543
2011		389	612	316	441	392	497	315	424

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Age distribution

The incidence of urinary tract infection in women is in all years more than 5 times higher than in men. For both groups the incidence increases especially after the age of 60 years (Table 10.2). The differences between men and women are reducing with age: at 85+ years the incidence of urinary tract infection in women is about 2 times higher than in men.

Table 10.2 Number of episodes with a urinary tract infection per age group and per 10,000 men, women and total in 2009-2011

	2009			2010			2011		
age group	m	f	t	m	f	t	m	f	T
< 1	14	-	7	136	61	98	128	36	82
1-4	49	275	159	92	14	300	48	272	157
5-9	82	464	264	72	509	282	26	352	184
10-14	33	360	191	29	264	142	30	186	105
15-19	31	824	425	47	950	489	6	686	343
20-24	29	1138	594	36	1061	553	6	683	347
25-29	37	952	507	45	907	480	35	601	323
30-34	60	921	496	67	830	451	41	342	192
35-39	75	724	411	67	737	402	52	609	327
40-44	70	850	458	104	772	437	42	425	233
45-49	103	752	430	66	736	396	40	473	251
50-54	87	794	436	138	720	426	94	475	280
55-59	123	847	490	159	878	521	108	634	376
60-64	310	1171	737	241	958	597	240	743	488
65-69	414	1286	864	298	1118	714	358	637	498
70-74	509	1759	1163	416	1456	953	416	1186	814
75-79	498	2274	1508	624	1706	1238	665	1867	1332
80-84	1138	2818	2174	905	2295	1753	686	2393	1722
> 85	1653	3512	2979	1319	2506	2161	1726	3527	2981
total	161	1014	596	156	922	543	136	708	424

Extrapolation

Table 10.4 Extrapolation of the incidence rate of urinary tract infection to the Dutch population

	frequency incidence rate (per 10,000)*			Netherlands** (absolute number)		
topic year	m	f	total (m+f)	m	f	total (m+f)
Urinary tract infection						
2009	161	1014	596	131,000	845,000	983,000
2010	156	922	543	128,000	772,000	900,000
2011	136	708	424	112,000	596,000	706,000

* number urinary tract infection per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

Regular monitoring of antibiotic sensitivity to unselected urological pathogens is the basis for an evidence based empirical choice of antibiotic treatment of a urinary tract infection. The national increase of antibiotic resistance found in human and veterinarian isolates and the fact that the last surveillance took place 5 years ago were the main reasons to start a new surveillance in 2009. The results show that the incidence in women is much higher than in men and that the incidence increases especially after the age of 60 years, both in men and women. The incidence totals found in all three years of reporting are consistent with other studies in general practice, showing an incidence of 40-60 per 1000 patients. There for, potential

underreporting in this registration is comparable to other studies. Sufficient insight had been reached before 2011, into antibiotic sensitivity in not-pregnant adult women with urinary tract infections in general. Articles on this subject have been published in English as well as Dutch scientific journals. Possibly, the request in 2011 to send only samples of children, men and pregnant women explains the slightly lower incidence in especially women in 2011 compared to 2009 and 2010.

The topic will be continued in 2012 concerning testing samples of pregnant women, because sufficient samples have been collected of the other groups.

Publications based fully or partly on continuous morbidity registration data

Den Heijer CDJ, Van Dongen MCJM, Donker GA, Stobberingh EE. *Diagnostic approach to urinary tract infections in male general practice patients: a national surveillance study.* Brit J Gen Pract 2012;DOI: 10.3399/bjgp12X658313

Den Heijer CDJ, Van Dongen MCJM, Donker GA, Stobberingh EE. Diagnostic approach to urinary tract infections in male general practice patients. Clinical Microbiology and Infection 2012; 18 (s3):428 (Poster presentation 22nd European Congress of Clinical Microbiology and Infectious Diseases. London. April 2012)

Den Heijer CDJ, Van Dongen MCJM, Donker GA, Stobberingh EE. Male urinary tract infections in Dutch general practices. Poster presentation at European Scientific Conference on Applied Infectious Disease Epidemiology. Stockholm. November 2011)

Den Heijer CDJ, Donker GA, Maes J, Stobberingh EE. *Antibiotica bij ongecompliceerde urineweginfecties: geen toename van resistentie in de afgelopen 5 jaar.* Nederlands Tijdschrift Geneeskunde 2011;155(3):102-106

Den Heijer CDJ, Donker GA, Maes J, Stobberingh EE. *Antibiotic susceptibility of unselected uropathogenetic Escherichia Coli from female Dutch general practice patients: a comparison of two surveys with a five year interval.* J Antimicrob Chemother 2010;65(10):2128-33. Epub 2010 Aug 3 doi:10.1093/jac/dkq286

Koeijers, J.J., Verbon, A., Kessels, A.G.H., Bartelds, A., Donker, G., Nys, S., Stobberingh, E.E. *Urinary tract infection in male general practice patients: uropathogens and antibiotic susceptibility.* Urology:2010;76(2):336-340

Den Heijer CDJ, Donker GA, Maes J, Stobberingh EE. *Antibiotic susceptibility of unselected uropathogenic Escherichia coli from female Dutch general practice patients: a comparison of two surveys with a 5-year interval.* European Journal of Public Health 2010;20(S1):82-83 (Oral Presentation 3rd European Public Health conference Amsterdam, November 2010)

11 Unwanted pregnancy

Topic owners: Mrs. Dr. C. Wijsen (Rutgers WPF) (2003-2011)

Introduction

Registration of unwanted pregnancy is difficult because there is no objective measure for 'unwanted'. Before unwanted pregnancy was added as topic to the weekly returns in 2003, only the number of abortions served an indicator for its incidence. In the Netherlands the annual abortion rate amounts to about 33,000, of which 4,450 (13%) are performed in women not living in the Netherlands. Since the beginning of the nineties the number of abortions has increased: from 6.0 per 1,000 women in the age group 15-44 years in 1994 to 8.7 per 1,000 more than ten years later and a few years later it has slightly decreased to 8.6 per 1000 women.[11,12]

However, apart from being a good indicator, the data on abortions cannot be used to estimate the true incidence of unwanted pregnancy. The incidence of unwanted pregnancy is higher than the abortion rate because part of the women do not decide for an abortion. In the statistics, these pregnancies cannot be disclosed as unwanted. On the other hand, a number of abortions will be performed on women with a wanted pregnancy for reasons such as congenital defects. Results from a study on a representative sample of >2000 women between 19-49 years of age indicate that almost 7% of the pregnancies in the last year were unwanted.[14] Insight into the extent of unwanted pregnancy as it presents in general practice, and its developments during a number of years, will be an important supplement to the existing registrations.

Method

The GP is requested to register every patient who seeks advise for unwanted pregnancy. Whether the pregnancy is wanted or not, usually is discussed in

the consultation, of course. For each report of an unwanted pregnancy an additional questionnaire is completed on the patient's background information and the circumstances that have led to the unwanted pregnancy. Six months after the first questionnaire, the GPs complete a second questionnaire, which is mainly focussed on the result of the pregnancy. The questionnaires will be analysed by Rutgers WPF. The results will be published separately.

Results

In 2011 the number of unwanted pregnancies was comparable to that in the previous years. Extrapolated to the whole population the incidence amounted to 16 per 10,000 woman, representing 9.6% of all pregnancies for which the GP is consulted (table 11.1).

Subdivided to province group and address density, it appears that in preceding years the incidence was the highest in the western provinces and in the big cities.

Table 11.1 Number of women consulting the GP for unwanted pregnancy per 10,000 women, per province group by address density and for the Netherlands, 2003-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2003	29	31	32	17	36	21	39	28
2004	13	23	28	19	14	20	32	22
2005	15	24	24	8	11	18	36	19
2006	16	17	30	15	16	17	40	23
2007	13	11	29	29	13	17	46	21
2008	9	4	31	9	4	11	48	15
2009	10	8	26	9	8	9	38	15
2010	14	9	22	20	5	16	33	17
2011	5	4	24	18	2	11	30	16

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Age distribution

The number of women consulting the GP for an unwanted pregnancy, by age group, is shown in table 11.2.

Table 11.2 Number of women consulting the GP for an unwanted pregnancy by age group per 10,000 women, in 2003-2011

age group	2003	2004	2005	2006	2007	2008	2009	2010	2011
10-14	30	60	-	(7)	(3)	-	(3)	-	-
15-19	79	83	48	58	75	45	42	40	31
20-24	108	43	57	105	84	68	57	76	55
25-29	53	54	58	65	71	60	55	69	52
30-34	48	49	45	56	53	22	27	37	66
35-39	52	22	45	43	47	29	34	33	21
40-44	22	(3)	23	21	12	12	27	12	20
45-49	10	-	(4)	(3)	(0)	10	(2)	(8)	(5)
50-54	7	-	-	-	(3)	-	-	-	-

The numbers between bracket are based on N<5

In 2011, no unwanted pregnancy was registered in the age group of 10-14 years, and 10 unwanted pregnancies in the age group of 15-19 years, which amounts to 31 per 10,000. This adds up to 10 unwanted teen-age pregnancies, which is less compared to previous years. From all registered unwanted pregnancies in 2011 12% were from women younger than 20 years (24% in 2010, 18% in 2008 and 2009, 21% in 2007, 16% in 2006 and 14% in 2005). In 2011, the highest proportion originated from women between 30-34 years. In previous years the peak age is lower, between 20 and 30 years. In 2011, no unwanted pregnancies occurred above 50 years. In the reproductive period of 15-44 years, the incidence of unwanted pregnancies was 40 per 10,000 women.

Extrapolation

Table 11.3. Extrapolation of the incidence rate of unwanted pregnancies to the Dutch population

	frequency incidence rate (per 10,000)*	Netherlands** (absolute numbers)
topic year	f	f
unwanted pregnancy		
2003	28	22,000
2004	22	18,000
2005	19	16,000
2006	23	19,000
2007	22	18,000
2008	15	12,000
2009	15	12,000
2010	17	14,000
2011	16	12,000

* number of unwanted pregnancies per 10,000 women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

If the incidence of 16 unwanted pregnancies per 10,000 women is adjusted for the group in which pregnancy is especially likely to occur (age group between 15 and 44 years), the number of unwanted pregnancies reported to GPs amounts to 40 per 10,000 women.
This is lower than the annual incidence of abortions (86 per 10,000).[13] There are three possible explanations for this difference. Firstly, data from the National Abortion Registry indicate that three out of ten women, visiting an abortion clinic are not referred by a GP.[13] Secondly, a number of women decide not to have an abortion. Thirdly, some women decide to end an unwanted pregnancy when the results of prenatal tests are unfavorable.
The previously reported decrease in total number of unwanted pregnancies remains stable in the last few years. The percentage of unwanted pregnancies is 9.6% of the total number of pregnancies for which the GP is consulted. Because these consultations are optional, the percentage of unwanted pregnancies is likely to be even smaller.

The topic has been finished in 2012, because no unfavourable trend could be observed and the collected information is found to be sufficient for the time being.

Publications based fully or partly on continuous morbidity registration data

Donker Gé, Goenee Maaike. *Besluiten bij ongewenste zwangerschap.* Huisarts en Wetenschap 2012;55(2):86

12 End-of–Life research

Topic owner: Prof. L. Deliens, Free University Brussels (2005-2011)

Introduction

The percentage of persons not dying acutely, and therefore needing medical treatment and care at the end of life, is increasing. Most people die at old age, and the mortality per 1000 persons is increasing because of the absolute and relative increase in the number of elderly people. Because of this demographic change it is increasingly important to offer adequate care at the end of life, aiming at the highest quality of life possible.
At population level, nationally and internationally, scientific knowledge is lacking on how patients actually die. Existing epidemiological studies have assessed how many persons die, from what disease, and whether death was preceded by an end of life decision with the intentional or accidental effect that life was shortened. However, information about care at the end of life, the place of death, the specific problems of the patients, the quality of dying and the role of the GP in providing terminal care, is limited.
Therefore, research on these topics is mandatory, to improve the care of patients in the final months before dying. GPs are highly involved with the decease of most patients. If patients die outside the practice (hospital or other institutions), they are informed about this event. Therefore they are particularly apt to provide data about end of life decisions. With this information indicators for quality of care at the end of life are developed. In this chapter only information is provided on the number of deaths per region, address density, season and age group. Additional research with regard to care provided at the end of life will be published separately.

Methods

Sentinel physicians are asked to report the death of a patient, registered in their practice, who did not die unexpectedly or acutely. The GP is also asked

to provide additional information on the type of care the patient may have received during the last 3 months before dying and from which caregiver, which disease(s) have led to the decease of the patient, what type of care the patient preferred, the place of death, and the amount of suffering the patient has encountered shortly before dying. A similar, but more extensive research program is currently being performed in Belgium and in Italy and Spain. Only sentinel practices that have registered >1 death are involved in the analyses, because 0 or 1 death in one year is suspect of underreporting.

Results

The number of patients per 10,000 reported for the end-of-life study is presented in table 12.1, per province group and by address density and for the Netherlands from 2005 to and including 2011. The numbers are based on 35 sentinel practices with >1 registration in all years. Five sentinel practices were excluded in 2011 (2 with 0 registrations and 3 with 1 registration). Most reported cases came from the northern part of the country and from practices in the countryside. In the eastern, western and southern part of the Netherlands the registrations are lower than in previous years. It might be that patients have, more than in previous years, spent the last stage in an nursing home or hospice which is not part of the general practice.

Table 12.1 Number of reported End-of-Live study per 10,000 inhabitants, per province group, by address density and for the Netherlands, 2005-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2005	26	50	46	62	40	49	40	48
2006	37	49	53	60	36	54	50	50
2007	43	42	66	52	40	50	83	52
2008	46	44	50	38	50	44	47	46
2009	42	48	37	29	46	34	50	40
2010	50	50	52	50	43	52	53	51
2011	47	36	35	35	42	34	37	37

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Seasonal influences

The number of patients per 10,000, reported in the end-of-life study, grouped by quarter is presented in table 12.2.

Table 12.2 Numbers of reported End-of-Live study by quarter, per 10,000 inhabitants, 2005-2011

	weeks 1-13	weeks 14-26	weeks 27-39	weeks 40-52
2005	13	11	12	11
2006	12	12	16	11
2007	14	12	12	13
2008	12	10	13	11
2009	10	10	10	10
2010	14	12	11	13
2011	10	8	7	10

In 2011 the reported number of end-of-life cases was the highest in the first and last quarter. In the first quarter there was an influenza epidemic.

Age distribution

The age distribution of the patients reported for the end-of-life study in 2011 is presented in table 12.3.

Table 12.3 Numbers of reports End-of-Live-study, per 10,000 inhabitants, by age group, 2005-2011

age group	2005	2006	2007	2008	2009	2010	2011
<1	(26)	(21)	(20)	(22)	(0)	(0)	49
1-4	(0)	(0)	(10)	(2)	(0)	(4)	-
5-9	-	(0)	(0)	0	(0)	0	(2)
10-14	(3)	(0)	(0)	0	(1)	0	-
15-19	(3)	0	(0)	0	(1)	(3)	-
20-24	0	(2)	10	(4)	(3)	(1)	-
25-29	(1)	(2)	(2)	0	(3)	(1)	(2)
30-34	0	(2)	(2)	(6)	0	(1)	(2)
35-39	7	(2)	(5)	(6)	(3)	(4)	(2)
40-44	10	(6)	(4)	(6)	6	8	(3)
45-49	10	13	14	11	12	9	9
50-54	20	19	24	32	30	27	20
55-59	38	21	27	40	25	40	17
60-64	68	87	62	62	36	56	41
65-69	85	80	120	64	66	87	78
70-74	131	173	138	137	134	143	76
75-79	268	282	248	201	177	227	177
80-84	402	426	413	308	294	358	274
>85	1106	915	918	761	626	808	605

The numbers between bracket are based on N<5

In the first year of life babies die from, among other things, incurable congenital diseases. In 2010 and 2009, no cases of end of life in the youngest category were reported, in 2011 5. Subsequently the mortality rates are low until the age of 50, after which they steadily increase.

Extrapolation

Table 12.4 Extrapolation of the reported deaths to the Dutch population

	frequency incidence rate (per 10,000)*			Netherlands** (absolute numbers)		
topic year	m	f	total (m+f)	m	f	total (m+f)
End-of-Live study						
2005			48			78,000
2006			50			82,000
2007			52			87,000
2008			46			75,000
2009			40			66,000
2010			51			85,000
2011			37			57,000

* number of deaths per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

In the Netherlands the total mortality amounted to 135,741 in 2011, 8 per 1000 inhabitants. (Dutch Statistics, www.CBS.nl). Part of the patients who die are not under the direct care of a GP, such as patients in nursing homes or hospices. Therefore, registration by GPs results in a lower incidence rate than registered by CBS, because nursing homes have a high death rate and admission to a hospice generally is meant for terminal care.
According to the second Dutch National Survey of General Practice the mortality rate reported in general practice is 41 per 10,000.[14] This lower rate

may be due to underreporting. In the sentinel registration, with a rate of 37 per 10,000 that appears to be the case to. Extrapolation shows that 46% of the total number of estimated deceased patients are reported in this registration. Apparently, not all deceased patients are reported by the sentinel GPs, this could be due to the care being taken over by a nursing home or a hospice. Underreporting may also be due to the extensive questionnaire that has to be filled in for this project. Nevertheless, the study provides a wealth of information with regard to the primary care provided at the end of life in the Netherlands. It has resulted in various publications and presentations at international meetings. A comparative study with the end of life care in Belgium has been published in several scientific papers.

The topic is maintained in 2012 and some subjects in the questionnaire have been changed.

Publications based fully or partly on continuous morbidity registration data

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Abarshi E, Echteld MA, Van den Block L, Donker G, Deliens L, Onwuteaka-Philipsen B. *The oldest old and GP end-of-life care in the Dutch community: a nationwide study. Age and Ageing* 2010; 39(6):716-22. Epub 2010 Sep 4. Doi: 10.1093/ageing/afq097

Abarshi E, Echteld M, van den Block L, Donker G, Deliens L, Onwuteaka-Philipsen B. *Recognising patients who will die in the near future: A nationwide study via Dutch GPs.* Brit J Gen Practice 2010;61(587):371-8

Abarhi E, Echteld M, Donker GA, van den Block L, Onwuteake-Philipsen B, Deliens L. *Discussing end-of-life issues in the last months of life :a nationwide study among General Practitioners.* J Palliat Med. 2011 Jan 21. [Epub ahead of print] doi 21254811

Abarshi E, Echteld M, Block van den L, Donker G, Bossuyt N, Meeussen K, Bilsen J, Onwuteaka-Philipsen B, Deliens L. *Use of palliative care services and end-of-life GP visits in the Netherlands and Belgium*. Journal of Pain and Symptom Management 2010; 41(2):Epub2010;Sep15.doi10.1016/j.painsymman;2010.04.16

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Abarshi E, Echteld M, Van den Block L, Donker G, Deliens L, Onwuteaka-Philipsen B. *Transitions between care settings at the end of life in the Netherlands: results of a nationwide study*. European Journal of Public Health 2009;19(S1):55 (Oral Presentation 2nd European Public Health Conference Lodz, November 2009)

Abarshi E, Onwuteaka-Philipsen B, Donker G, Echteld M, Van den Block L, Deliens L. *GP awareness of preferred place of death and correlates of dying in a preferred place: a nationwide mortality follow-back study in the Netherlands.* Suiss Medical Weekly 2009;S175:43S (Oral Presentation 110 15th WONCA-conference Basel, September 2009)

Abarshi E, Onwuteaka-Philipsen B, Donker G, Echteld M, Block van den L, Deliens L. *GP awareness of preferred place of death and correlates of dying in a preferred place: a nationwide mortality follow-back study in the Netherlands.* Journal of Pain of Symptoms management 2009;38:568-77

Abarshi Ebun, Echteld Michael, Block van den Lieve, Donker Gé, Deliens Luc, Onwuteaka-Philipsen Bregje. *Transitions between care settings at the end of life in The Netherlands: results from a nationwide study.* Palliative Medicine:2009;24(2):166-74 doi:10.1177/0269216309351381

Echteld MA, Abarshi E, Block van den L, Deliens L, Donker GA, Onwuteaka-Philipsen B. *Factors associated with well-being at the end of life and good death.* Presentation at the EAPC conference in Vienna 2008

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Abarshi E, Echteld M, Philipsen B, Donker G, Block van den L, Deliens L. *Transities in zorgsetting aan het levenseinde in Nederland. Vijfde onderzoeksforum Nederland-Vlaanderen*, workshop 17 november 2007

Block van den L, Bossuyt N, Meeussen K, Abarshi E, Deliens L. *Monitoring end-of-life care via general practice in Europe: a study with the Sentinel Surveillance Networks of General Practitioners.* Workshop at the 13th WONCA Europe Conference in Paris, October 2007

13 (Attempted) suicide

Topic owner: Mrs. Dr. G.A. Donker (NIVEL) (1979-2011)

Introduction

In consultation with the Health Care Inspectorate, this topic is included in the sentinel surveillance since 1979.
Research on suicide is also carried out in other institutions (e.g. hospitals, prisons) in order to gain insight into the scope, trend and other aspects of suicide and attempted suicide.

Method

The name of the topic is also its definition. The primary question is not whether the patient's attempt was successful, but whether the patient intended to commit suicide.
At the same time the Health Care Inspectorate made a request for additional data to be collected about the reported cases. To this end a questionnaire was designed. The form included questions about whether the attempt had been successful and about the method employed. Other questions relate to characteristics of the patient and features of care, such as contacts with health care institutions prior to the suicide (attempted suicide).

Results

The absolute numbers of reported cases (which exceeds the number of patients as recurrence is not rare) in the years 2002-2011 were 47, 43, 55, 71, 24, 49, 28, 40, 46 and 33 respectively.

The number of attempts per province group and by address density per 10,000 inhabitants is shown in Table 13.1. Breaking down the numbers into subgroups is of limited value in view of the low frequency.
In 2006, 2008 the lowest number of suicide (attempts) of the last 10 years is reported. When address density is taken into account the highest incidence is consistently found in the big cities, except for 2002 and 2007. This was also the case in 2011.
The distribution by province group shows a less consistent picture, possibly due to the small number of cases. In the previous 5 years the incidence in the western part of the country was the highest. In this part of the country most big cities are situated.

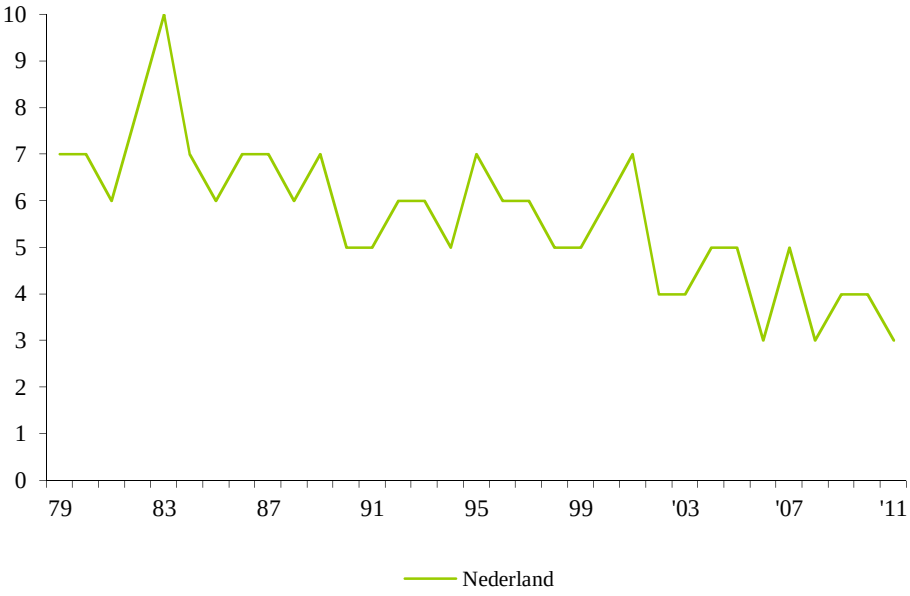
Table 13.1 Number of (attempted) suicides reported per 10,000 inhabitants, per province group, by address density and for the Netherlands as a whole, 2002-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2002	3	5	4	3	5	4	4	4
2003	1	5	3	6	4	3	6	4
2004	2	3	6	6	3	5	9	5
2005	4	9	6	2	2	6	8	5
2006	1	4	3	1	1	3	3	3
2007	3	4	6	4	6	4	6	5
2008	1	3	4	2	1	3	4	3
2009	3	4	4	3	3	3	6	4
2010	4	2	5	3	3	3	7	4
2011	3	1	5	2	4	2	4	3

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

The figure shows the gradually decreasing trend in the number of attempted suicides registered in general practice during a period of 33 years.

Figure 13.1 Number of (attempted) suicides reported per 10,000 inhabitants for the Netherlands as a whole, 1979-2011



Age distribution

In 2004 a peak incidence was found for adolescents, however in other years no specific age group was prominent. On the other hand, through the years the lowest incidences were found in the youngest age group (0-14 years) and in the age group > 65 years and in 2011 the incidence was the highest in the age group 45-54 years.

Table 13.2 shows the frequency of suicide and attempted suicide per 10,000 inhabitants, by age group in the last 10 years.

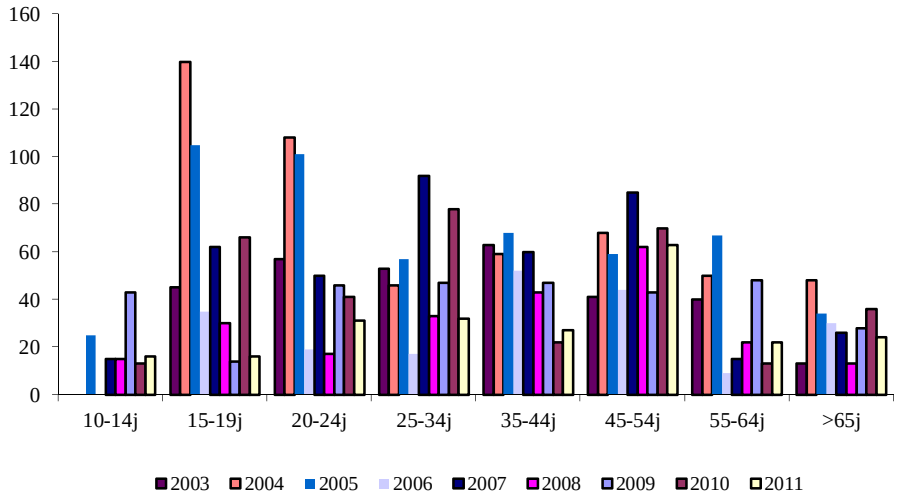
Table 13.2 shows the frequency per 100,000 inhabitants by age group in the last 10 years.

Table 13.2 Number of (attempted) suicides reported per 100,000 inhabitants, by age group, 2002-2011

age group	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
10-14	-	-	-	(25)	-	(15)	(15)	(43)	(13)	(16)
15-19	(43)	(45)	140	105	(35)	(62)	(30)	(14)	66	(16)
20-24	78	57	108	101	(19)	(50)	(17)	(46)	(41)	(31)
25-34	34	53	46	57	(17)	92	33	47	78	(32)
35-44	65	63	59	68	52	60	43	47	(22)	(27)
45-54	45	41	68	59	44	85	62	43	70	63
55-64	38	40	50	67	(9)	(15)	(22)	48	(13)	(22)
>65	(25)	(13)	48	34	(30)	(26)	(13)	28	36	(24)

The numbers between bracket are based on N<5

Figure 13.2 Number of (attempted) suicides reported per 100,000 inhabitants by age group, 2003-2011



Extrapolation

Table 13.3 Extrapolation of the incidence rate of (attempted)suicide to the Dutch population

	frequency incidence (per 10,000)*	Netherlands** (absolute number)
topic	total	total
year	(m+f)	(m+f)
(attempted)suicide		
2002	4	7,000
2003	4	7,000
2004	5	8,000
2005	5	8,000
2006	3	5,000
2007	5	8,000
2008	3	5,000
2009	4	7,000
2010	4	7,000
2011	3	5,000

* number (attempted)suicide per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

The numbers of 2011 do not support the concern expressed by others that the incidence of suicide (attempts) is increasing. In 2006, 2008 and 2011 the lowest incidence was reported since the start of the surveillance in 1979. The breakdown in age groups is of limited value due to the small absolute numbers which may lead to large fluctuations. Over the years, the registration does not show a preferential age group. In 2011, the highest incidence occurred in the age group 45 up to and including 54 years

This topic is continued in 2012

Publications based fully or partly on continuous morbidity registration data

Donker GA, Wolters I, Schellevis F. *Risk factors and trends in attempting or committing suicide in Dutch general practice in 1983-2009 and tools for early recognition.* European Journal of Public Health 2010;20(S1):50 (Oral Presentation 3rd European Public Health conference Amsterdam, November 2010)

Donker GA, Wolters I, Schellevis F. *Trends and determinants in attempting or committing suicide in Dutch general practice and the role of the general practitioner in 1983-2009.* Oral Presentation 16th WONCA-conference Malaga, October 2010

Marguet RL, Donker G, *Praten over suicidegedachten.* Huisarts en Wetenschap 2009;52(6):267

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14 Unwanted side effects of cosmetics

Topic owner: Mw. Dr. Ir. J.Salverda-Nijhof (RIVM) (2009-2011)

Introduction

The interest in unwanted side effects of consumer products, including cosmetics, has increased markedly in recent years. Consumers may sometimes experience complaints after having used cosmetics, despite EU-rules and monitoring the safety of cosmetics. In literature, several different health complaints caused by the use of cosmetics have been described: hair loss due to shampoo, chemically induced burns caused by hair dye and a raised risk for cancer due to skin bleaching agents (J.Salverda-Nijhoff et al. CESES-annual report 2010). However, most related to cosmetics complaints concern reactions of the mucosa and the skin. Irritating contact eczema and allergic contact eczema are the most important skin complaints. Irritating contact eczema occurs most frequently and this concerns an inflammation caused by damaged skin due to irritating substance.

Stimulated by a recently adopted resolution by the European Council, the Dutch Food and Wares Authority (NVWA) has indicated the necessity to install a surveillance system on unwanted skin reactions provoked by cosmetics in the Netherlands. By order of NVWA the RIVM has established a registration system named: Consumer Exposure, Skin Effects Surveillance (CESES). In 1992-1993 the sentinel practices already reported about GP consultations for skin and other reactions caused by cosmetics. The current registration may be considered as its follow-up and extension.

Within the CESES project four aims can be distinguished:

1 ***Incidence/prevalence:***
More information will be obtained about incidence, prevalence and severity of skin symptoms by consumers and patients after the use of cosmetics.

2 ***Identification:***
Based on the reports and the ensuing dermatological investigations cosmetic products and/or ingredients can be identified which evoke unwanted side effects and therefore pose a risk for public health.

3 ***Intervention:***
The project will enable NVWA to intervene better and more rapidly if complaints about cosmetic products involve a risk for the safety of the consumer, so that escalation of the problem can be prevented or limited.

4 ***Data-sharing:***
Through the project participating physicians will receive description of complaints evoked by specific cosmetic products, which enables a rapid diagnosis if similar complaints do occur in their practice.

The ultimate aim of the project is to test, based on the reported cases, whether the current European safety net for unwanted side effects of cosmetics suffices. This is relevant for policy advice and policy making regarding cosmetic products.

Since July 2009 registration of symptoms in the clinical setting is performed by dermatological clinics spread over the country, and since January 2009 by the GPs of the sentinel practices, who register unwanted skin reactions after the use of cosmetics. In 2010, a questionnaire has been added to this registration, to obtain more specific information about the complaints and possible causes.

Method

In connection with the CESES project GPs report skin complaints after the use of cosmetics. In 2010 and 2011, additional data were collected via questionnaires, enabling reporting identifying by age, gender, geographic area, address density, type of complaints and the products causing the complaints.

Results

The number of reported patients with complaints about cosmetics per 10,000 persons, per province group, address density and for the Netherlands per year is presented in table 14.1. Most reports about related to cosmetics complaints are from the big cities, as was the case in previous years. The incidence of complaints is lower than in previous years.

Table 14.1 Number of patients with cosmetics complaints reported per 10,000 inhabitants, per province group, by address density and for the Netherlands as a whole, 2009-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2009	17	14	23	25	8	15	43	20
2010	7	9	14	21	8	12	24	13
2011	3	9	16	7	6	7	20	10

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Age distribution

The age distribution of reported patients with a cosmetic complaint is presented in table 14.2 for every year. It is noteworthy that cosmetic allergy may occur already at an early age, albeit with a low incidence. The incidence in women is more than four times higher than in men.

Table 14.2 Number of patients with cosmetics complaints per age group, per 10,000 inhabitants in 2009-2011

	2009			2010			2011		
age group	m	f	t	m	f	t	m	f	t
< 1	0	0	0	0	(15)	(7)	-	-	-
1-4	19	(12)	16	(4)	(8)	(6)	-	-	-
5-9	(5)	15	10	(3)	20	11	-	(13)	(7)
10-14	(8)	15	11	(3)	14	8	(3)	(10)	(6)
15-19	(6)	39	22	0	27	13	-	47	23
20-24	25	45	35	(11)	27	19	(6)	28	17
25-29	(10)	34	22	(6)	17	11	(6)	25	16
30-34	(6)	30	19	(6)	37	22	(10)	(9)	10
35-39	(8)	24	16	0	24	12	(3)	18	10
40-44	(7)	20	14	0	23	11	(5)	17	11
45-49	(7)	33	20	(4)	12	8	-	17	8
50-54	13	28	20	(7)	33	20	(3)	19	11
55-59	(11)	24	18	(8)	33	20	-	20	10
60-64	16	33	25	(5)	23	14	(8)	17	13
65-69	23	29	26	(3)	16	10	(8)	(11)	10
70-74	(10)	40	26	(13)	20	17	(5)	-	(2)
75-79	(20)	(10)	14	(18)	19	18	(7)	(11)	(9)
80-84	(43)	(21)	29	(10)	(6)	(7)	-	-	-
> 85	(51)	61	58	0	(12)	(9)	(17)	(15)	(16)
total	12	28	20	5	22	13	4	17	10

The numbers between bracket are based on N<5

Extrapolation

Table 14.3 Extrapolation of the incidence rate cosmetic allergy to the Dutch population

	frequency incidence rate (per 10,000)*			Netherlands** (absolute number)		
topic year	m	f	total (m+f)	m	f	total (m+f)
cosmetic allergy						
2009	12	28	20	10,000	23,000	33,000
2010	5	22	13	4,000	18,000	22,000
2011	4	17	10	3,000	14,000	17,000

* number cosmetic allergy per 10,000 men and/or women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

Complaints related to cosmetics may already occur at an early age, albeit at a low incidence. The incidence in women is more than four times higher than in men and the highest incidence is in big cities. This can be explained by the fact that women use more cosmetic products than men. Also, cosmetics are perhaps initially associated with products that, generally speaking, women use, like make-up and skin moisturizer. However, shaving foam and aftershave are also cosmetic products. Consumers might not be aware that they may also report complaints after having used these products. Additionally, women might be more inclined to report a complaint, for themselves, a partner or child, on a web site, or to have it sorted out in more detail by a GP and/or a dermatologist. Literature shows, however, that

women also develop complaints caused by cosmetic products relatively more often than men. In 2011 the incidence is somewhat lower than in previous years. The introduction of the questionnaire in 2010 might have reduced the number of reports because the questionnaire is also a kind of control system on the registration and it might also be that the number of unwanted side effects of cosmetic products has decreased as a result of increased attention for these possible effects. The results of this study have been obtained, in combination with comparable data, via dermatologists and via a public web site published in a report and an English article.

The topic is discontinued in 2012.

Publications based fully or partly on continuous morbidity registration data

Salverda JGW, Bragt PJC, de Wit-Bos L, Rustemeyer T, Coenraads PJ, Tupker RA, Kunkeler LCM, Laheij–de Boer AM, Stenveld HJ, van Ginkel KJW, Kooi MW, Bourgeois FC, van Gorcum TF, van Engelen JGM, van Dijk R, de Graaf J, Donker GA, de Heer C, Bruynzeel D. *Undesirable effects attributed to cosmetic products. Results of a cosmetovigilance survey in the Netherlands.* Contact Dermatitis 2012;accepted for publication

Salverda-Nijhof JGW, Kooi MW, De Wit-Bos L, Bourgeois FC, Van Gorcum TF, Colijn JJ, Van Engelen JGM, Donker GA. *Huidklachten door cosmetische producten.* Eindrapportage CESES. RIVM Rapport 320113004/2011

15 Gut feeling related to cancer diagnosis

Topic owner: Dr. G.A. Donker, NIVEL (2010-2011)

Introduction

During their training, GPs learn systematically by asking questions and by examination, to synthesize a diagnosis. In practice, GPs not apply a only structured approach, but also use their intuition and experience. The difference between "feeling right versus not-right" plays a role in this. Stolper et al (2009) in Maastricht studied the concept "gut feelings". They discussed with focus groups of GPs about these about the concept and described the different aspects of "gut feelings". The GPs participating in the study indicated that the "gut feeling" is sometimes almost a physical sensation. Often there is a "gut feeling" without any objective arguments, distrust in the situation because of insecurity about the prognosis of complaints and the need to intervene. It may be a sudden feeling, but also a slowly arising feeling. Knowledge of the history and the context of a patient play a role. But that may go in two directions. Knowing the patient may facilitate the "gut feeling", but it may also interfere by a way of sympathy or reluctance, feeling guilty. Training and experience also play a role. Often experienced GPs report this feeling. It is part of a rather automatic process. GP trainers say it can be learned: reflection on one's own professional behaviour is a way to use one's feelings as part of the process of making a diagnosis. GPs differ in the extend of experience and/or use of "gut feelings". Men, as well as women, indicate to know this feeling.
Stolper [15,16] et al. conclude that the "gut feeling" often acts as a diagnostic instrument. The "gut feeling" mainly works as an alarm bell or a compass. It stimulates to find objective reasons for this feeling, and stimulates, as such, the diagnostic process.

The existence of a "gut feeling" is broadly considered as shown in the assertion of the "Centraal Tuchtcollege voor de Gezondheidszorg" (Central Disciplinary Committee of Health Care) at 11 December 2008, as published in "Medisch Contact". The Disciplinary Committee judged that "the internist

wrongly ignored his ‘gut feeling’.
Stolper et al. (2010) [15-17] clarified the diagnostic meaning of the “gut feeling” in general practice with literature search, focus groups of GPs and by consulting experts in a Delphi consensus procedure.
In addition to Stolper’s study we have conducted quantitative research from the beginning of 2010 and we have monitored in daily general practice to what extent GPs intuition (“gut feeling”) may contribute to an early diagnosis of cancer. This pilot project may serve as a preparation of an international research project.
Objective of this study is to highlight the following aspects:

- Characterise patients that arouse GPs feeling (intuition, gut feeling) that cancer may exist in this case.
- Make explicit the factors that cause this gut feeling/intuition in GPs
- Make explicit the characteristics of GPs as well as patients that could possibly partly influence the “gut feeling” , such as gender, age, number of years of experience as a GP and study the other factors of the meaning of this clinical intuition for forecasting the diagnosis cancer.

Method

1 GPs fill in a questionnaire for this study, for every patient that gives them a feeling that something is not right and that cancer might be diagnosed.
2 GPs register the diagnostic ICPC code “A29” for every patient that gives them a feeling that something is not right and that cancer is possible, in the patient’s electronic file. It concerns all patients where this feeling is aroused relate to cancer: from those patients that give the GP only a vague gut feeling, to those patients whose diagnosis is almost sure at the first examination.
3 The GP fills in the questionnaire with data on the patient and the care.
4 Three months after the consultation, the GP receives a second questionnaire to evaluate the result of case arousing the gut feeling.
5 The results of the questionnaire are reported separately.

Results

Table 15.1 Number of patients per 10,000 inhabitants causing the GP a gut feeling of possible cancer, per province group, by address density and for the Netherlands as a whole in 2010-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2010	6	13	15	7	13	9	14	11
2011	9	12	9	8	17	9	7	10

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

At this stage of the study, regional differences in the frequency of occurring gut feelings cannot be considered yet as very meaningful. A first analysis of the first year of the data collection via questionnaires has been published in 2011 in Huisarts & Wetenschap.

Age distribution

Table 15.2 Number of patients per 10,000 inhabitants according to age group, causing the GP a gut feeling of possible cancer in 2010-2011

	2010			2011		
age group	m	f	t	m	f	t
40-44	(2)	21	11	-	(5)	(2)
45-49	(6)	(4)	5	(7)	(2)	(5)
50-54	16	12	14	16	(3)	9
55-59	23	20	21	(12)	(12)	12
60-64	37	15	26	25	23	24
65-69	30	(13)	21	39	23	31
70-74	39	(12)	25	(15)	(9)	12
75-79	36	(9)	21	56	50	53
80-84	37	30	41	(33)	57	48
> 85	(29)	49	43	(51)	45	47
total	12	10	11	10	9	10

The numbers between bracket are based on N<5

In general, the frequency of gut feelings increases as the patients are older, in line with the increasing incidence of cancer at that age. It is more frequent for men and here the peak is at a slightly younger age (75-79 years) than for women (80-84 years), in line with the shorter life expectancy for men. Patients younger than 40 years sporadically cause gut feelings concerning cancer. These data have been collected, however, they are not shown in the above table. The incidence in the higher age groups is therefore higher than in the general population, where the group of younger than 40 years has been included in the calculation.

Extrapolation

Table 15.3 Extrapolation of the incidence rate of gut feeling in GPs to the Dutch population

	frequency incidence rate (per 10,000)*			Netherlands** (absolute number)		
topic year	m	f	total (m+f)	m	f	total (m+f)
gut feeling						
2010	12	10	11	9,000	8,000	17,000
2011	10	9	10	8,000	8,000	16,000

* number gut feeling per 10,000 men and women (data from sentinel practices)

** extrapolation of the incidence rates to the Dutch population as a whole (for the year in question), rounded off to the nearest thousand

Discussion

Gut feelings in GPs about possible cancer occur more often as patients are older and slightly more with men than with women. This is consistent with the increasing incidence at higher age and the slightly lower life expectancy for men than for women. The incidence of 11 gut feelings per 10,000 registered patients, that we found in 2011, seems low compared to the reported incidence at the web site of the union of integrated cancer centers of 54 new invasive and 6 in situ tumors per 10,000 inhabitants in 2008.[18]
Less serious cases of cancer, like skin cancer, is expected to be diagnosed by GPs and treated without causing any gut feeling.
Analysis of questionnaires will have to show more characteristics of the gut feeling of symptoms, patients and GPs. The analyses of the questionnaires have been published in 2011 in Huisarts & Wetenschap and these data have been presented at the international Ca-PRI conference.

The topic is continued in 2012. The foundation Stoffels-Hornstra has awarded a grant for the analyses of the questionnaires in 2012.

Publications based fully or partly on continuous morbidity registration data

Donker G en Dorsman S. *Niet-pluisgevoel: een diagnostisch instrument*. Huisarts & Wetenschap 2011;54(8): 449.

Donker GA. *Cancer-related gut feelings among general practitioners in the Netherlands.* Oral Presentation Ca-PRI conference 25-27 May 2011, Noordwijkerhout, The Netherlands. Abstract book Ca-PRI conference 2011

16 Diabetes mellitus

Topic owner: Prof. Dr. G. Nijpels, VU University Medical Center, Amsterdam (2007-2011)

Introduction

The number of patients with diabetes type 2 will increase in the coming years, especially due to increasing population ageing. It is known that diabetes is associated with an increased mortality risk, predominantly due to cardiovascular complications. Structured diabetes care may lead to a better regulation of therapy and may have a favorable effect on complications compared to standard care. The aim of the present study is to compare the efficacy and costs of different types of primary diabetes care in the Netherlands. This chapter describes the concept of the study and its participants. The results will be described in the coming years.

Method

Study design

Three types of diabetes care will be compared. The first group consists of GPs belonging to the CMR sentinel practices. This group is considered to provide standard diabetes care according to the guidelines prepared by the National Association of General Practitioners (NHG). The second group consists of GPs from the Amstelland region. A structured programme of diabetes care has been implemented by this group. Important characteristics of this programme include a centralized registration system which is accessible for different disciplines involved in diabetes care, and the supervision by a diabetes nurse practitioner who takes care of quality control. The third study group concerns diabetes care as is provided by the diabetes care system (DZS) in the West Friesland region. For their annual check-up the patients in this group are not consulting a GP but a specialized diabetes center. Apart from the annual check-up education is provided and self management is stimulated. The diabetes care is coordinated by this

centre and a centralized registration system provides insight into patient data for involved care providers. Twice a year a diabetes nurse visits the GP to discuss individual patients. The GP also receives information about the mean values of risk factors of the patients in his practice, compared with values from other practices.

Patients

Patients suffering from diabetes type 2 for at least 2 years in the age group 40-75 years are eligible to be included in the study. Mastering the Dutch language is mandatory in order to allow independent completion of questionnaires. Patients are excluded from participation when, according to the GP, participation is too much of a burden for the patient personally. This is only the case for a very few patients. A drop-out of 25% after one year is anticipated.

Evaluation

The study will last for 2 years during which evaluations will take place at 3 time points: at baseline and after 1 and 2 years. At each evaluation the patient completes a questionnaire and a diary about costs. The questionnaire includes questions concerning satisfaction about the received diabetes care and the (perceived) health status of the patient. The diary contains questions about the care the patient has used and about possible absence from work as a consequence of the disease. This diary will be kept for 3 months.
The first evaluation was done in the summer of 2007 and was completed in 2008. The second evaluation started in 2008 and was completed in 2009. In the summer of 2009 the third evaluation was started. The last questionnaires and diaries have been filled in by the patients and returned at the end of 2010. In the second half of 2010 collection of the data from the HIS of participating patients was started. In 2011 the data have been further developed and analyzed. The study was approved by the medical ethical committee of the VU University; all patients have given their informed consent.

Primary end results

1 (Changes in) the risk to develop coronary heart disease, measured by the UKPDS (United Kingdom Prospective Diabetes Study)-risk score.
2 All direct and indirect costs related to diabetes care that was provided and the effects of this care, absence from work included.

Results

1 Seventeen CMR sentinel practices participated in the study. In these practices a total of 1098 patients were invited to join the study; 482 (44%) agreed to participate.
2 The group in Amstelland consists of 12 GPs. They invited 802 patients with diabetes, 293 (37%) were included in the study.
3 From the database in West Friesland 450 patients with diabetes were randomly selected to participate in the study, 164 (36%) agreed to be included. They are patients of 84 GPs.

In the table the response rates to the questionnaires and cost diaries are presented, by the three study groups. The two groups belonging to the CMR sentinel practices and Amstelland are more or less comparable. The percentage of patients that completed and returned the questionnaires is 90% for the CMR sentinel practices and 89% for the Amstelland group. The provisional response rates show that the average percentage of patients that completed and returned their cost diaries amounts to about 80%. The collection of data in West Friesland started later.

Patient satisfaction

Using the QUOTE questionnaire the patients were asked to value the different aspects of care provided by the different care systems and to share their experience with these aspects. Their satisfaction with the GP, diabetes nurse and dietician were judged separately.

Aspects that were considered important were: information about diabetes and good guidance when therapy was changed and discussion of laboratory results. Aspects of care that were rated high by patients, considering all care givers in all groups, were:

1 information about diabetes,
2 discussion of laboratory results,
3 discussion about aims and course of therapy,
4 discussion of current therapy.

Information about new developments and proper guidance when therapy had to be changed were points of improvement for all care givers in all groups. Patients belonging to the DZS group were more satisfied about the dietician and the continuity of care (at least 1 annual control of feet and eyes, and measurement of weight, blood pressure and kidney function), than patients in the other groups. It may be concluded that there is room for improvement of diabetes care. Patients are clear about this. There are some indications that patients participating in a structured care system are satisfied about more aspects than when standard care is given.

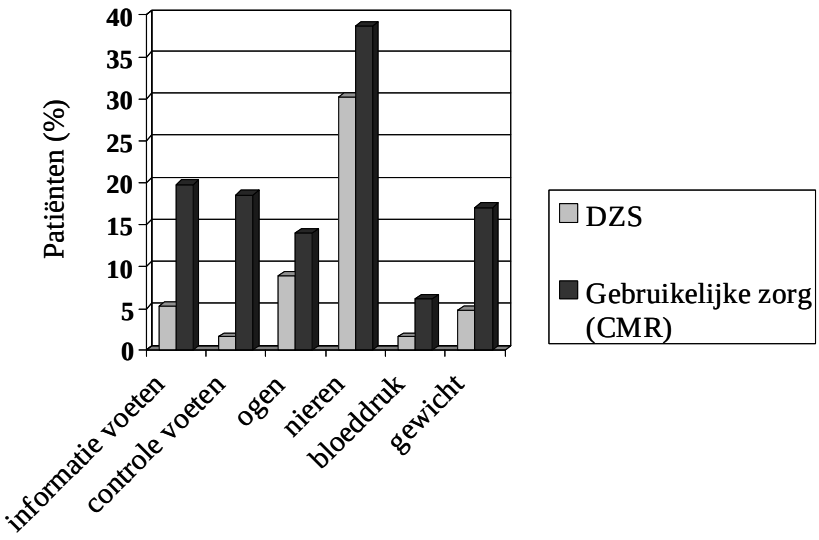
Diabetes care and costs

Care and the costs of care for patients with diabetes treated by DZS were compared with care and costs for patients receiving the current standard diabetes care. Using QUOTE questionnaires it was asked which measurements were done in the past year, such as control of complications in feet, eyes and kidney and measurement of blood pressure and weight. Via the cost diaries completed at regular intervals by the patient, the average use of care and absence of work were estimated, and the corresponding costs were calculated.

The percentage of patients indicating that the regular controls mentioned above were not performed was significantly higher when patients were treated with regular care than when patients were treated by DZS. (see figure 16.1). The latter patients were referred less frequently to an internist or eye specialist, but consulted a dietician more often.

The costs made by diabetes patients was generally lower in the DZS group than in the group receiving standard care. However, this difference was only statistically significant for patients who were diabetic for at least 6 years.

Figure 16.1: Percentage of self reported controls that have not taken place, in the previous year



Conclusion

The participation of patients in this study is good. At the start of the study the total study population consisted of 939 patients. We anticipated a drop-out of about 25% after 1 year, in 2008 the drop-out was about 20%. The currently available data have been used for analysis of patient satisfaction, process of care and costs. The data that have been collected at the end of 2010 and processed in 2011 are used for long term cost efficiency analysis. The study shows that structured diabetes care results in higher client satisfaction, more check-ups of feet, eyes, kidneys, blood pressure and weight and cut in cost I cases with more than six years existing diabetes mellitus.

Publications based fully or partly on continuous morbidity registration data

Amber AWA van der Heijden AWA, De Bruijne MC, Dekker JM, Baan CA, Bot SDM, Feenstra TL en Nijpels G. *Cost-effectiveness of integrated care for patients with type 2 diabetes. Design of a pragmatic controlled clinical trial*. 2011 Aangeboden voor publicatie

Van der Heijden AWA, De Bruijne MC, Feenstra TL, Dekker JM, Baan CA, Bot SM, Donker GA, Rootjes IG, Kaiser P en Nijpels G. *Integrated care for type 2 diabetes patients. An analysis of resource use and costs*. 2011 Aangeboden voor publicatie

Van der Heijden AWA, Rene L, De Bruijne MC, Dekker JM, Baan CA, Bot SDM, Feenstra TL, Donker GA, Nijpels G. *Quality of care from the perspective of patients with type 2 diabetes. A comparison between integrated and usual diabetes care.* 2011 Aangeboden voor publicatie

17 Abdominal symptoms and cancer

Topic owner: Dr. Knut Holtedahl, Norwegian Research Council(2011)

Introduction

Previous studies into early diagnosis of abdominal tumors showed that it is not clear which symptoms are specific for the growth of these tumors. Researchers hope to find characteristic symptoms, by collecting and analyzing clinical data, for the diagnosis of abdominal tumors in general practice, in order to improve the diagnostic trajectory in general practice. The focus is on abdominal tumors, such as colorectal cancer, ovarian cancer, bladder cancer and other types of abdominal cancer.
The data collection in the sentinel practices is part of a similar data collection in eight countries, led by the Norwegian Research Council. The GPs score symptoms in a random sample of 200 patients who visit them at consulting-hours during two weeks and they are asked 6 months later about diagnoses concerning abdominal tumors in this group of patients.
It is anticipated that per two fte GPs one patient will have had the diagnosis abdominal cancer. The following countries participate in this study: Canada, Scotland, The Netherlands (CMR Sentinel practices), Belgium, Australia, Sweden, Denmark and Norway.

Objective of the study

Studies on the predictive value of symptoms and the judgment of the GP on patients consulting with abdominal cancer.

Method

GPs were asked to fill in a score-list (on paper) during 10 working days within one month for the first 20 patients per day. The registration period was in May 2011.

Six months after the registration, GPs received lists of the initially scored patients and were asked to indicate in which patients a tumor had been established.

Results

Participation of the GPs was good. Almost all practices succeeded in delivering a complete set of data of the 200 patients with the scored symptoms and the results half a year later. The data collection of the follow-up questionnaires continued during 2012; it is therefore not possible to include a detailed analysis in this annual report regarding the number of patients with cancer and the symptoms that preceded. This will be reported in 2012. The data of the various European countries together will be published in international literature.

The second data collection will be at the start of 2012.

18 Requests for Euthanasia

Topic owner: Dr. G.A. Donker, (NIVEL) (1976-2011)

Introduction

Since 1976 consultations about the end of life, during which the GP is requested to apply euthanasia, are reported. It is not registered whether the GP has granted the request or not. Only patients with an incurable disease are included in the study.

Methods

At the start of the year, the sentinel doctors are informed that a study is going to be conducted. At the end of the year, all sentinel doctors receive a form on which they are asked to state whether patients with incurable disease have requested euthanasia or assistance in suicide in the past year and, if so, the reason for the requests. The doctors are also asked to report the age, gender, disease and nursing location and whether or not a 'euthanasia declaration' was signed.[19] The data per patient can be found at the end of this section.

Results

In 2011 the number of requests is 36 (24 men and 12 women) from 38 reporting practices. This amounts to 2.4 per 10,000, less than in the previous years (4.2, 3.2 and 3.5 per 10,000 in 2010, 2009 and 2008, respectively). Of the patients who requested euthanasia in 2011 69% had a malignancy, which is slightly less than in previous years (76% in the period 1976-2011). Most patients were tended at home. In 69% of the cases (25) the request is supported by a living will. Thirty six patients asked for euthanasia. Two patients asked for physician assisted suicide or euthanasia. In 56% of the cases the SCEN-doctor (Support and Consultation in Euthanasia in the

Netherlands) was called in. If this SCEN-doctor is not called in, the reason is (almost always) that the eventual application of euthanasia or physician assisted suicide was not yet relevant, or the patient died without intervention.

Requests for euthanasia 2002-2011

Table 18.1 shows the distribution of the number of requests by province group by address density and by gender.

Table 18.1 Absolute numbers of patients who requested GPs to participate actively in euthanasia, by gender, province group, address density and for the Netherlands as a whole, 2002-2011

			province group				address density			Netherlands
absolute	m	f	N	E	W	S	1*	2*	3*	
2002	19	11	4	7	17	4	4	19	9	32
2003	16	21	4	8	21	4	3	25	9	37
2004	15	13	3	3	16	6	2	19	7	28
2005	13	22	2	7	23	3	5	24	6	35
2006	11	18	2	4	21	5	4	18	10	32
2007	16	16	9	7	14	2	9	18	5	32
2008	17	20	7	5	19	6	8	20	9	37
2009	20	18	5	5	22	6	3	21	14	38
2010	28	27	8	12	23	12	12	37	6	55
2011	24	12	6	8	15	7	12	18	6	36

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

The data per 10,000 inhabitants (not shown because of small numbers) indicate that in 2011 relatively few patients in big cities asked for euthanasia, as was the case in 2010.

Age distribution

The age distribution of patients who requested euthanasia is shown in table 18.2

Table 18.2 Absolute numbers of patients asking their GP for euthanasia or physician assisted suicide per age group, 2002-2011

	<54	55-64	65-74	75-84	>85	total
2002	6	5	6	9	6	32
2003	5	6	12	6	8	37
2004	3	6	13	5	1	28
2005	4	8	13	8	2	35
2006	3	5	10	7	7	32
2007	3	5	12	7	5	32
2008	5	8	8	12	4	37
2009	8	5	14	6	5	38
2010	10	8	11	12	14	55
2011	3	3	11	13	6	36

Overview of reported requests

Since 1976 the sentinel general practice network has collected data on 1277 requests for euthanasia or physician assisted suicide, 652 (51%) by men. The International Classification of Diseases (1975, 9th version) was used to obtain insight into the illnesses underlying the requests for euthanasia or physician assisted suicide. One of the problems in classification is the co-morbidity, which is inherent to old age. Another problem is that sometimes no disease is reported at all: in the ICD-9-group of symptoms and not fully described diseases the request of a 93 year old and a 84 year old lady are included with motivation “completed life”, a 91 year old lady who was “tired

of life” and a 99 year old bedridden patient without described disease.

Five categories of illnesses are used:
- malignant neoplasms;
- cardiovascular diseases;
- chronic obstructive pulmonary diseases;
- symptoms and insufficiently defined illnesses;
- other diseases, including neurological and endocrine illnesses and AIDS.

Table 18.3 indicates the diseases underlying the request for euthanasia or physician assisted suicide. In 2011 the distribution is comparable to previous years.

Table 18.3 Diseases leading to euthanasia requests, 1976-2011

	N	%
malignant neoplasms	964	75
cardiovascular diseases	72	6
chronic obstructive pulmonary diseases	54	4
symptoms and insufficiently defined diseases	65	5
other diseases	122	10
total	1277	100

Over the years, the reported percentage of living wills has increased from 15% in 1984 to 69% in 2011. This percentage was the highest in 2009 with 92% living wills in the reported requests. Discussing a request for euthanasia in an early stage of the illness is expected to have led to a slight decrease of this percentage in the last two years.

Discussion

The registration of the requests for euthanasia or physician assisted suicide by the Dutch CMR Sentinel General Practice Network shows consistently a slightly higher percentage in men, around 51% versus 49% in women over the period 1976-2011. In the mentioned studies so far one other result is consistently present: mainly patients with a malignant disease ask for euthanasia and in this group euthanasia is practiced relatively more frequently. Also, it is concluded that the percentage of patients with a malignant disease at higher age is decreasing. The data of the Dutch CMR Sentinel General Practice Network show this too: over the period 1976-2011 75% of the patients who asked for euthanasia or physician assisted suicide had cancer. In the higher age group this is also the most frequently occurring reason, but COPD, heart failure and Alzheimer disease are also frequently occurring reasons.

Data that have been collected over a longer period of time, on requests for euthanasia and physician assisted suicide, show a gradual change in reasons to ask the GP for euthanasia. Unbearable pain and physical suffering are becoming less important motives: hopelessness and loss of dignity due to the disease are now more important reasons to request euthanasia.[20] Loss of dignity turns out to be more often the motive for men than for women to request euthanasia. [20]
Alzheimer's disease is apparently no longer an absolute contra-indication for euthanasia, provided the request was done when the patient was coherent.

Until the early 1990s, hardly any possibilities existed to compare data collected in the Dutch CMR Sentinel General Practice Network on requests for euthanasia and physician assisted suicide with the findings of other data registration projects and research.[21] Since then, major studies have been carried out to determine the action taken by GPs and other doctors in the Netherlands with regard to euthanasia, physician assisted suicide and decisions concerning the end of life of patients.[22-25] In 2001 and 2005, another large-scale study was conducted into euthanasia and other end-of-life medical practices.[26, 27]

Substantial methodological differences exist between the above-mentioned studies and the registration of data by GPs participating in the CMR Sentinel

General Practice Network. An extensive discussion of these differences is beyond the scope of this report. However, there is one difference that bears mentioning: unlike the recent studies mentioned above, the data of the CMR Sentinel General Practice network are derived exclusively from GPs, and not only deal with applied cases of euthanasia, but also with discussions and deliberations about requests for euthanasia which in due course may be granted.

Also the annual reports of the Regional Assessment Committee Euthanasia provide useful information. From the 2008 annual report we know that 2331 cases of executed euthanasia or physician assisted suicide are reported to the Committee.[28] In 2008 the number was higher than in previous years, most likely because the percentage of cases actually reported to the Assessment Committees has increased.[28, 29] In most reported cases the physicians had strictly followed the rules required by law. Only in 10 instances this was not the case at a national level. The increase noted by the Regional Assessment Committee is not found in the CMR sentinel practices, however, differences in study design should be taken into consideration. The percentage of living wills has increased during the past years; from 15% in 1984 to 69% in 2011. However, in 2009 it was 92%. Although a higher percentage can be considered as an indicator for the quality of care when discussing decisions at the end of life, the percentage could also decrease if these discussions took place at an earlier stage in the illness, long before euthanasia is an actual issue. This appears to be a plausible explanation for the slightly deceasing percentage in the last two years. Many of these requests were not yet actual issues, apparently.

The study will be continued in 2012.

Publications based fully or partly on continuous morbidity registration data

Donker GA and Alphen van JE (2011). *The Impact of the Dutch Euthanasia Act on the Number of Requests for Euthanasia and Physician Assisted Suicide* - A Cohort Study in General Practice between 1977 and 2007
In: Euthanasia - The "Good Death" Controversy in Humans and Animals, Josef Kuře (Ed.), ISBN: 978-953-307-260-9, InTech, Available from: http://www.intechopen.com/articles/show/title/the-impact-of-the-dutch-euthanasia-act-on-the-number-of-requests-for-euthanasia-and-physician-assist

Alphen van JE, Donker GA, Marquet RL. *Euthanasieverzoeken voor en na de euthanasiewet.* Huisarts en Wetenschap 2011;54(1):18-22

Alphen van Jojanneke E, Donker Gé A, Marquet Richard L. *Request for euthanasia in general practice before and after implementation of the Dutch Euthanasia Act.* British Journal of General Practice: 2010;60:263-267

Donker GA, Van Alphen JE, Marquet RL. The impact of the Euthanasia Act on the number of requests for Euthanasia and Physician assisted suicide. European Journal of Public Health 2009;19(S1):110 (Oral Presentation 2nd European Public Health Conference Lodz, November 2009)

Marquet RL, Bartelds A, Visser GJ, Spreeuwenberg P, Peters L. *Twenty five years of requests for euthanasia and physician assisted suicide in Dutch general practice: trend analysis.* BMJ 2003;327:201-2

Appendix 1

Table 18.4 Requests made by patients for active euthanasia in 2011

age	gender	disease reported	reason for request
95	v	deafness, low vision, balance disorder	request in case of no curative options
90	m	Kahler disease	tired of life
90	v	terminal phase of cancer	pain, depression
88	v	heart failure	deterioration, anxiety
87	m	colon carcinoma	wish to avoid suffering
85	m	carcinoma	wish to avoid pain
84	v	ageing	pain
82	m	metastatic colon carcinoma	exhausted
82	m	unknown terminal disease	exhausted, bedridden, suffering
81	m	lung fibrosis	severe dyspnea
81	m	metastatic lung cancer	suffering with loss of prospect
81	m	metastatic colon carcinoma	loss of prospect, anxiety
81	m	epiglottic carcinoma	terminal phase
81	v	metastatic lung carcinoma	unbearable suffering
80	m	metastatic lung carcinoma	increase in dyspnea, malaise
80	m	Alzheimer disease	loss of dignity
79	m	COPD	dyspnea, serious impairness
79	m	metastatic bladder carcinoma	exhausted
75	m	metastatic laryngeal carcinoma	unbearable suffering, pain, dyspnea

Table 18.4 Requests made by patients for active euthanasia, 2011 (cont.)

age	gender	disease reported	reason for request
74	m	lung fibrosis	deterioration, dyspnea
74	m	colon carcinoma	exhausted, wish for dying with dignity
73	v	none	general decline
72	m	acute myeloid leucaemia	rapid deterioration
71	m	primary lateral sclerosis	deterioration
70	m	colon carcinoma	unbearable suffering
69	v	lung carcinoma	unbearable suffering
69	m	kidney cell carcinoma	pain
68	m	lung carcinoma, prostate carcinoma	unbearable suffering without prospect
67	v	metastatic kidney carcinoma	questions of partner
66	v	metastatic lung carcinoma	increasing pain, dyspnea, cachexia
63	v	oropharynx carcinoma	deterioration
61	m	lung carcinoma	hemiplegia
59	v	lung carcinoma	terminal phase, dyspnea
54	v	metastatic breast cancer	unbearable suffering without prospect
52	m	metastatic colon carcinoma	loss of dignity, deterioration
42	m	hard drugs addiction	mental decline

19 Palliative Sedation

Topic owner: Mrs. Dr. G.A. Donker, NIVEL (2005-2011)

Introduction

Even when palliative care is optimal at the terminal phase of a disease process, situations may arise in which treatment no longer provides sufficient alleviation of symptoms. Predominant features are severe agitation, dyspnea, pain, nausea, vomiting and fear. They leave a dreadful impression on all persons concerned in palliative care. The patient is suffering severely and may become desperate; family and friends are hardly able to stand the situation, and doctors and caregivers feel they have failed.

In the past years severe suffering at the end of life is increasingly considered as unacceptable. Caregivers are requested to alleviate this suffering, which is felt as meaningless. Doctors may then decide, on certain conditions, to apply deep sedation: decrease consciousness to a moderate or severe degree, short term or intermittantly, using sedative drugs (sleeping agents). The objective is to alleviate suffering, not to terminate life.

In 2002 palliative sedation was performed by Dutch GPs in 2.5% of all deaths and has found to be increasingly applied.[25,26] The end of life study reports in its fourth national survey in 2008 that continuous deep sedation is applied in 12.8% of all deaths occurring at home, hospital or nursing home.[28]

The question has been raised whether the strict criteria formulated for a request for euthanasia, should also be followed for palliative sedation. When discussing this issue, fear has been expressed that in doing so palliative sedation will become an alternative for euthanasia, which is scrutinized by an external evaluation committee. It remains to be seen to what extent euthanasia and palliative sedation are complimentary in alleviating suffering at the end-of-life. Investigations into the practice of palliative sedation by GPs may provide some answers to these questions.

Method

Sentinel GPs were requested to register each case of palliative sedation in their practice. At the end of each year they provide additional information by completing a questionnaire in which questions are being asked about the reason why palliative sedation was applied, the nature of the underlying disease, whether the patient also requested for euthanasia, and who was involved in the decision-making for palliative sedation. In 2007 it was asked for the first time which circumstance had been the predominant factor to decide for palliative sedation when a request for euthanasia has been posed as well.

Results

In 2011 38 sentinel practices reported 15 patients who were treated with palliative sedation, which is 4.2% of all reported deaths in 2011. This is absolutely and relatively less than in the previous years. In 2011 the decision for sedation was taken in 9 men and 6 women. Of these patients 15 had cancer, i.e. 80%.
GPs reported that for 12 patients (80%) the presence of 2 or more refractory symptoms had prompted the decision to decrease the consciousness of the patient. For 2 patients only 1 refractory symptom was indicated (respectively pain and delirium) and for one patient the symptoms were not mentioned (see also appendix 1, table 19.5).

Untreatable pain (8 patients, 53%) was the most prominent reason to decide for palliative sedation in 2011, like in previous years. Also untreatable dyspnea (6 patients, 40%), nausea (4 patients, 27%) vomiting (5 patients, 33%) and fear (4 patients, 27%) are prominent reasons to sedate and often occur in combination with pain.

From the 15 reported patients 4 (27%) also requested for euthanasia. The reasons to apply palliative sedation and not euthanasia in these 4 patients were, respectively: not possible to arrange euthanasia due to holiday GP, patient has a delirium, patient does not want to choose a date for euthanasia and euthanasia failed.

Table 19.1 Absolute number of patients treated by their GP with palliative sedation, per province group, address density and for the Netherlands in 2005-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2005	4	4	15	3	7	17	2	26
2006	5	4	18	4	4	23	4	31
2007	4	2	18	6	5	24	1	30
2008	3	2	10	3	4	9	5	18
2009	7	10	9	5	7	21	3	31
2010	5	10	8	8	5	23	3	31
2011	4	1	8	2	4	6	5	15

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

In 2011 the highest number of patients (absolutely and per 10,000) are reported in the western provinces. Sorted by address density most patients per 10,000 in 2011 were reported to live in large cities. (table 19.1 and 19.2)

Table 19.2 Number of patients per 10,000 treated by their GP with palliative sedation, per province group, address density and for the Netherlands as a whole in 2005-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
2005	(1.8)	(1.5)	2.5	(1.2)	3.0	1.9	(0.9)	2.0
2006	3.0	(2.3)	4.0	(2.5)	(2.4)	4.2	(1.7)	3.3
2007	(1.6)	(0.9)	4.4	3.2	2.8	3.5	(0.5)	2.8
2008	(1.2)	(0.8)	2.9	(1.5)	(2.0)	1.4	3.1	1.7
2009	2.6	4.1	1.9	2.5	2.5	2.7	(1.1)	2.7
2010	1.9	3.8	1.9	2.5	1.9	3.0	(1.4)	2.5
2011	(3.8)	(0.4)	2.1	(0.7)	(2.3)	1.1	1.6	1.5

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

The numbers between bracket are based on N<5

Age distribution

The age distribution is given in table 19.3.

Table 19.3 Absolute number of patients per age group treated with palliative sedation by their GP in 2005-2011

	<54	55-64	65-74	75-84	>85	total
2005*	3	9	3	8	2	26
2006	2	6	8	8	7	31
2007	1	5	10	8	6	30
2008	4	3	2	5	4	18
2009	7	4	7	7	6	21
2010	2	7	9	6	7	31
2011	3	2	4	4	2	15

*In 2005 the age of one patient was unknown.

Palliative sedation sometimes is applied at a relatively young age and does not seem to be related to age.

Summary of reported requests

Similarly as for the topic ‘requests for euthanasia’ (see chapter 18) five major disease groups were shown to obtain insight into the disorders underlying the use of palliative sedation.

Table 19.4 Disorders for which palliative sedation was applied in 2005-2011

	N	%
malignant tumors	135	74
cardio-vascular diseases	20	11
chronic obstructive pulmonary disease	5	3
symptoms and incompletely described diseases	7	4
other diseases	15	8
total	182	100

Discussion

Similarly as for requests of euthanasia (chapter 18), cancer is the most prominent disease leading to the decision for palliative sedation.
Mostly the presence of more than one refractory symptom is the reason to apply palliative sedation. Untreatable pain and dyspnea play a major role. In 2011 palliative sedation was applied in 4.2% of the reported deaths. This is considerably lower than the 12.8% mentioned in the fourth national survey concerning medical decisions at the end of life.[24] However, this latter study involves also deaths in hospitals and nursing homes and at home and therefore is not comparable with our study in a general practice population, in which patients in nursing homes normally are not included. Our study shows annual fluctuations, but no increasing trend since the start of the study in 2005. This is an unexpected finding because in the past couple of years the literature reported an increasing trend of palliative sedation.[26,27]
In the 4 patients who had also asked for euthanasia there was no indication that palliative sedation had been applied to avoid euthanasia. The reasons for palliative sedation were clearly defined. These results indicate that requests for euthanasia and palliative sedation largely relate to different motives, despite similarities in the nature of underlying diseases. The study does not support the notion that the boundary between euthanasia and palliative

sedation is becoming indistinct. This is also supported by the thesis about palliative sedation by Jeroen Hasselaar 2009.[30] The guideline on palliative sedation issued by the KNMG in 2005 (www.knmg.nl), undoubtedly has contributed to professionalize this intervention.

The topic will be continued 1n 2012.

Appendix 1

Table 19.5 Characteristics of patients treated with palliative sedation in 2011

age	gender	disease reported	reason for request
92	v	malignancy of unknown primary location	not mentioned
87	m	acute myocardial infarction	pain
84	m	lung carcinoma	dyspnea, pain, vomiting
83	v	multiple sclerosis	delirium, restlessness
81	v	breast cancer, metastatic	loss of dignity, cachexia
76	m	pancreatic carcinoma	delirium, dyspnea, pain
68	m	bronchial carcinoma, colon carcinoma and Parkinson disease	delirium, dyspnea, pain
68	v	lung carcinoma	delirium, dyspnea, pain
66	m	bladder carcinoma	pain, nausea, vomiting, fatigue, exhausted
65	m	larynx carcinoma	dyspnea, anxiety
64	m	prostate carcinoma	pain, diabetic symptoms
60	v	meningeoma	pain, nausea, vomiting, anxiety
52	v	lung carcinoma	dyspnea, anxiety
50	m	lung carcinoma	delirium, nausea, vomiting, anxiety
40	m	metastatic melanoma	pain, nausea, vomiting

20 Eating disorders

Topic owner: Prof. H.W. Hoek, Parnassia Bavo group
(1985-1989, 1995-2011)

Introduction

It is unclear whether the incidence rate of serious eating disorders such as anorexia nervosa and boulimia nervosa is increasing. Sentinel doctors registered both of these disorders between 1985 and 1989. By a renewal of registration from 1995 it is studied whether these disorders are increasing. This chapter only provides an indication of trends in the number of patients with eating disorders in general practice. Results emerging from the questionnaires will be published separately.

Methods

The trend in the incidence of eating disorders from 1995 onward will be calculated per age group, province group and address density and will be compared with the period 1985-1989. These data are not corrected yet for double counts and contain figures about incidence as well as prevalence. The numbers should therefore be interpreted with caution. For that reason no extrapolation to a national level is presented.
The sentinel GPs have been asked to complete a questionnaire with additional information for each registered patient. Was the eating disorder newly diagnosed in 2011 and was the patient referred to a different care provider? In addition, information was gained about some demographic data of the patient, the physical aspects of the disease and referral. The results of this study are published elsewhere.

Results

In table 20.1 the distribution is shown of the number of patients diagnosed by the GP with an eating disorder, per 10,000 inhabitants, per province group and address density and for the Netherlands as a whole, from 1985-1989 and from 1995-2011. In 2011 eating disorders are diagnosed in 27 women and 2 men.

Table 20.1a Absolute numbers of patients for whom GPs diagnosed an eating disorder (boulimia and/or anorexia nervosa), per province group, address density and for the Netherlands as a whole, 1985-1989 and 1995-2011

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
absolute/year								
average:								
1985-1989	7	10	35	10	6	33	24	61
1995	11	11	26	16	5	49	10	64
1996	6	8	22	9	3	37	5	45
1997	12	10	11	9	8	29	4	42
1998	10	17	15	9	5	36	10	51
1999	4	14	12	13	1	38	4	43
2000	4	9	13	9	3	26	6	34
2001	5	6	6	7	4	19	1	24
2002	2	12	14	8	5	24	7	36
2003	1	14	24	4	2	29	12	43
2004	3	11	14	11	3	30	6	37
2005	4	8	15	1	10	16	2	28
2006	2	8	16	6	5	19	8	32
2007	4	8	19	9	5	27	8	40
2008	8	12	16	13	11	31	7	49
2009	5	8	22	9	5	26	13	44
2010	6	7	16	5	6	20	8	34
2011	1	9	12	7	6	16	7	29

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

Table 20.1b Numbers of women for whom GPs diagnosed an eating disorder (boulimia and/or anorexia nervosa), per province group, address density and for the Netherlands as a whole, 1995-2011, per 10,000 women

	province group				address density			Netherlands
	N	E	W	S	1*	2*	3*	
per 10,000 women								
1995	8.9	6.4	8.1	9.1	5.2	10.5	6.9	8.1
1996	4.7	4.7	8.9	4.8	3.0	8.9	3.3	6.2
1997	7.8	5.5	4.2	4.8	6.5	5.3	4.3	5.3
1998	7.2	9.1	6.7	5.6	8.6	7.1	11	7.1
1999	(3.3)	8.5	5.4	8.4	(1.1)	7.9	4.4	5.2
2000	(3.2)	4.6	3.9	6.1	(2.3)	4.9	3.8	4.2
2001	3.4	4.0	2.5	4.6	(4.4)	4.0	0.9	3.6
2002	(1.5)	7.3	5.4	3.5	4.9	4.5	4.5	4.6
2003	(0.8)	11.6	7.8	(2.3)	(1.8)	5.9	9.0	6.0
2004	(1.3)	7.0	2.6	2.9	(2.9)	3.5	2.3	3.0
2005	(3.3)	5.4	4.1	(0.6)	8.2	4.9	(1.2)	3.5
2006	(2.4)	9.2	6.6	7.5	6.0	6.6	6.5	6.4
2007	(3.2)	7.3	9.1	9.5	(5.5)	7.1	8.0	7.0
2008	6.0	8.8	8.7	12.4	10.5	8.3	8.4	8.7
2009	3.7	6.3	9.8	9.8	5.2	7.4	5.2	7.6
2010	4.5	4.5	8.0	4.9	3.1	6.2	7.5	5.8
2011	1.3	7.9	6.4	5.0	6.4	5.8	4.8	5.5

* 1: <500/km^2 2: 500-2500/km^2 3: > 2500/km^2

The absolute and relative number of reports in 2011 is slightly lower than in previous years.
During the past 10 years the reported number of female patients with an eating disorder has been the lowest in the northern province group. In 2011 the number of reported eating disorders was the highest in the eastern part of the country and in rural areas, in contrast to previous years.

Age distribution

Table 20.2 shows the distribution of reported eating disorders by age group.

Table 20.2 Absolute numbers of patients for whom GPs reported an eating disorder (boulimia and/or anorexia nervosa), by age, 1985-1989 and 1995-2011

women	1985-1989	1995	1996	1997	1998	1999	2000	2001
1-4	-	-	-	1	-	-	-	-
5-9	-	-	-	1	-	-	-	1
10-14	1	1	1	0	2	-	1	1
15-19	8	13	15	10	9	7	9	6
20-24	12	14	9	11	14	74	5	2
25-29	14	10	7	7	5	6	9	4
30-34	6	9	4	3	4	6	4	5
35-39	7	8	6	3	11	91	3	3
40-44	4	2	2	4	4	6	1	-
45-49	1	4	1	1	1	-	1	-
50-54	1	2	-	-	-	-	1	1
55-59	1	-	-	-	1	1	-	-
60-64	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70-74	-	-	-	-	-	-	-	-

Table 20.2 Absolute numbers of patients for whom GPs reported an eating disorder (boulimia and/or anorexia nervosa), by age, 1985-1989 and 1995-2011 (cont.)

women	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1-4	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	-	-
10-14	1	-	1	1	-	3	1	2	2	4
15-19	5	5	5	9	5	6	12	7	11	5
20-24	3	7	10	2	9	7	2	9	7	5
25-29	8	7	8	2	4	4	5	7	3	6
30-34	2	5	-	6	3	5	7	4	1	2
35-39	5	5	2	1	6	3	7	5	2	-
40-44	4	6	5	6	1	3	3	3	3	1
45-49	2	5	4	-	1	5	6	4	-	1
50-54	2	2	-	-	1	1	3	-	2	1
55-59	-	-	-	-	-	-	1	3	1	1
60-64	-	1	-	1	1	1	-	-	1	1
65-69	-	-	-	-	-	-	-	-	1	-
70-74	-	-	-	-	1	-	-	-	-	-
75-79	-	-	-	-	-	-	-	-	-	-
80-84	-	-	-	-	-	1	-	-	-	-

The peak incidence in 2011 lies in the age groups 20-30 years. Also, it is remarkable that eating disorders sometimes still occur at old age.

Discussion

In 2011 there are relatively few reported eating disorders. In 2011 the highest incidence occurred in the rural areas and in the eastern part of the country, in contrast to previous years. Previous studies have shown that living in big cities is a risk factor for boulimia nervosa.[31,32]

The study will be continued in 2012

Publications based fully or partly on continuous morbidity registration data

Son van GE. *Eating disorders in a primary care based cohort.* Dissertation 2010

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21 General comments

1 The Counselling Committee has decided to include the following topics on the weekly returns in 2012.

   a Influenza and influenza-like illnesses
   b Research on end-of-live decisions
   c Suicide and attempted suicide
   d STD
   e Gastro-enteritis
   f Whooping cough
   g Pneumonia
   h Tree pest
   i Screening breast cancer > 25 years
   j Gut feeling related to cancer
   k Urinary tract infections in pregnant women – sensitivity for antibiotics
   l Request for euthanasia
   m Eating disorders
   n Diabetes mellitus
   o Palliative sedation
   p Streptococcus surveillance
   q Abdominal symptoms and cancer

2 The Counselling Committee welcomes suggestions concerning new topics and adjustments of existing topics.

3 Data contained in this report may be reproduced provided that the source is acknowledged.

4 A translation into English will be published on the web site of NIVEL.

22 Literature list

List of other publications based fully or partly on the data from Continuous Morbidity Registration Sentinel Practices from 2000

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23 Footnotes

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   a An acute beginning, therefore a prodromal phase of not more than three to four days (including pre-existing airway infections at a non-pathogenic level).
   b The infection must be accompanied by a rectal temperature increase of at least 38º C.
   c At least one of the following symptoms must be present: cough, coryza, sore throat, frontal headache, retrosternal pain, myalgins.
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Appendix 1: participating doctors in 2011

Name:	Location:	Province:
J. Mulder*	't Zand	Groningen
P.S. Wiersema*	Oostermeer	Friesland
W.J.M. Brunninkhuis	Drachten	Friesland
H.J. Dijkstra*	Bakhuizen	Friesland
Mw. F.B. van Heest*	Schoonoord	Drenthe
S.M. Handgraaf	Nieuw Weerdinge	Drenthe
J.H. Vaartjes	Emmen	Drenthe
J.F.E. Borm*	Albergen	Overijssel
Dr. R.A. de Groot/Mw. J.T. Bos		
Mw. E.J.A. Idema *	Oldemarkt	Overijssel
P.J. van Beek	Oldenzaal	Overijssel
D.G. de Jong	Barneveld	Gelderland
M.T.W. van der Velden	Dieren	Gelderland
J.H.M. van der Holst	Groenlo	Gelderland
L.B.P.M. Hendrikx*	Steenderen	Gelderland
R.J.M. Kimmenaede	Zutphen	Gelderland
J.A. Nielen	Emmeloord	Flevoland
Mw. I.K.I.de Jongh-Kilian /Mw. M.G.C.L. Smit		
L.J.A.L. Kroft	Amersfoort	Utrecht
P.B. den Hertog (to 01.07.2011)	Utrecht	Utrecht
Mw. Y.E.V. van Hazel/P. Olie	Amsterdam	Noord-Holland
H.R. Neijs*)(to 01.04.2011)		
S. Tedjoe (from 01.04.2011)	Broek in Waterland	Noord-Holland
Mw. A. Verdam-de Witte	Hilversum	Noord-Holland
Mw. M.H. Brooks	Hilversum	Noord-Holland
A. Leemhuis/W. van der Maarel	Castricum	Noord-Holland
C. Zwart	Haarlem	Noord-Holland
C. Noordzij (from 01.03.2011)	Heemskerk	Noord-Holland

Appendix 1: participating doctors in 2011 (continued)

P. de Bos	Rotterdam	Zuid-Holland
A.M. van Meurs	Den Haag	Zuid-Holland
J.C.B.M. Rensing/Mw. A. Rensing-van Dijk	Den Haag	Zuid-Holland
Mw. E. Sleeboom	Voorhout	Zuid-Holland
Mw. D. Nijman*	Nieuwveen	Zuid-Holland
W.H. van der Linden/Mw. E.A.A. van Rosmalen*	Leimuiden	Zuid-Holland
R.R. Lankhorst	Middelburg	Zeeland
P.B.A. Crama	Vlissingen	Zeeland
R.J.P. de Gardeyn	Sleeuwijk	Noord-Brabant
M.G.A.M. de Gouw	Rosmalen	Noord-Brabant
W.L.M. Rijnders/J.A.M. Disseldorp	Etten-Leur	Noord-Brabant
J.J.J. Meulenberg/J.D.M. schelfhout	Eindhoven	Noord-Brabant
P. Meulesteen/L. Kessels/ L. Klinkers		
L. Burghout/J. Landaete	Eindhoven	Noord-Brabant
M.J.F.M. Klaassen*	Oirsbeek	Limburg
P.H.M. Vaissier)	Maastricht	Limburg

*) With dispensary

Appendix 2: registered topics 1970-2012 (alphabetical)

abortion, spontaneous	1982-1983
abortion, induced	1971-1979
abortion requests	1970-1975
accidents	1971
accidents in a private setting	1981-1983
acute atypical headache	1988-1992
acute otitis media	1971 and 1986
acute respiratory infection	2001-2004
addiction to smoking (consultation)	1974 and 2003-2006
AIDS (fear of)	1988-2007
alcoholism	1975
anti-hypertensives and/or diuretics (prescription of)	1976
bee or wasp stings	1992-1993
bites by household pets	1986
burns	1988-1989
cerebrovascular accident	1986-1987
cervical smear	1976-1998
chickenpox	2000-2010
childbirth (at □ 28 weeks)	1982-1983
child abuse (suspicion of)	1973-1974
chronic benign pain disturbance	1995-1996
dementia	1987-1988
depression	1983-1985 and 2000-2002
diabetes mellitus	1980-1983 and 1990-1994 and 2000-2002
diarrhoea of unknown origin (acute)	1970
dog bite	1987 and 1998-1999
drug use (consultation)	1972-1973 and 1979-1981

Appendix 2: registered topics 1970-2012 (alphabetical) (cont.)

dwelling (certificate issued for another)	1975
echography requests	1988
environment-related health complaints	2003
exanthema of unknown origin	1970
family planning (advice)	1970-1976
gastro-enteritis	1992-1993 and 1996-2012
hay fever	1978-1982
hepatitis	1994
herpes zoster	1997-2001
gut feeling related to cancer	2010-2012
infectious mononucleosis	1977-1979 and 1991
influenza and influenza-like illnesses	1970-2012
injuries to the skeletal and locomotor systems	1984-1985
liver, gall bladder and pancreas diseases	1995-1997
malignancies	1984-1985
mammography (outpatient)	1988-2000
measles	1975-1979
measles/mumps	1990
medical aids	1999-2002
mental health care (referral)	2001-2003
morning-after pill, prescription of	1972-1991
myocardial infarction	1978 and 1983-1985 and 1991-1994
neuraminidase inhibitor (prescription)	2003-2004
oestrogen, prescription of	1994-1998
Parkinson's disease	1980-1985
penicillin, prescriptions and side effects	1982-1983
peptic ulcer (first time/relapse)	1985-1986
physical violence	1996-1999
p.i.d. (pelvic inflammatory disease)	1994-1998
pneumonia	2008-2010and 2012
pregnancy (despite contraception)	1987-1991

Appendix 2: registered topics 1970-2012 (alphabetical) (cont.)

premature birth	1982-1983
prostate complaints	1997-2002
psoriasis	1976-1977
psychiatric patients	
- discharged	1986-1988
- admitted	1988
referrals to a specialist	1984
referrals to a speech-language pathologist	1988-1989
referral/authorization for physiotherapy	1985
referral for psychosocial problems	1986-1987
research on end-of-live decisions	2005-2012
rohypnol prescriptions	1987-1988
rubella and rubella-like illnesses	1971
screening breast cancer >25 years	2012
sexual problems and sexual violence	2003-2008
side-effects of cosmetics (suspected)	1992-1993 and 2009-2011
sports injuries	1979-1983 and 2005 2007
skull traumas in traffic accidents	1975-1977
sterilization of men (performed)	1972-1999
sterilization of women (performed)	1974-1999
sexually transmitted diseases (STD)	2008-2012
suicide and attempted suicide	1970-1972 and 1979-2012
Tree pest	2012
tonsillectomy or adenotomy	1971
tranquillizer prescribed	1972-1974
unwanted pregnancy	2003-2011
urethritis in men	1992-2007
urinary tract infection (medicine prescribed)	1977
urinary tract infection	2003-2004 and 2009-2011
ventricular/duodenal ulcer	1975
whooping cough	1998-2012
zanamivir (Relenza)	2000-2002

Appendix 3: list of incidental studies

Incidental studies and other additional studies 1977-2012 (alphabetical)

acute intoxication at work	1994-1995
aggression against GP and practice staff	1997-2000
alternative treatments (registration possible?)	1980
anorexia nervosa and boulimia	1985-1989 and 1995-2012
antibiotic resistance of Staphylococcus in general practice	2005-2006
diabetes mellitus (prevalent cases)	2000 and 2007-2012
euthanasia (request for)	1976-2012
incest	1988
lyme disease	1991-1994
malignancies	1982-1983
multiple sclerosis	1977-1982
puerperal mastitis	1982
regret after sterilization	1980-1984
serum collection	1980 and 1985
palliative sedation	2005-2012
vaccination against influenza	1992

Appendix 4: age population of the Netherlands

Age distribution of the population of the Netherlands, by gender, in thousands, 1 January 2011 (CBS)

age	men	women	total
0-4	472	451	923
5-9	504	481	985
10-14	511	488	999
15-19	515	492	1,007
20-24	523	512	1,035
25-29	504	497	1,001
30-34	503	502	1,005
35-39	560	561	1,121
40-44	654	642	1,296
45-49	655	643	1,298
50-54	601	595	1,196
55-59	547	543	1,090
60-64	554	550	1,104
65-69	391	400	791
70-74	303	335	638
75-79	219	280	499
80-84	139	222	361
>85	89	218	307
total	8,244	8,412	16,656

Appendix 5: annual tables

Continuous Morbidity Registration Sentinel Practices
Age group by topic

all practices	year 2011						weeks 1 t/m 52				
age group	population			Influenza	STD*			Whooping-cough	Urinary tract infection*		
	M	F	M+F	M+F	M	F	M+F	M+F	M	F	M+F
<1	548	549	1098	1530	0	0	0	18	128	36	82
1-4	2312	2202	4514	505	0	0	0	11	48	272	157
5-9	3120	2956	6076	263	0	0	0	3	26	352	184
10-14	3337	3065	6403	194	0	4	2	5	30	156	105
15-19	3247	3177	6423	173	66	246	155	8	6	686	343
20-24	3192	3238	6429	166	236	342	290	3	6	683	347
25-29	3135	3242	6376	176	143	274	210	2	35	601	323
30-34	3140	3162	6302	140	135	156	146	0	41	342	192
35-39	3478	3399	6877	148	63	70	67	1	52	609	327
40-44	4073	4051	8123	137	60	64	62	1	42	425	234
45-49	4258	4062	8321	117	47	12	30	1	40	473	251
50-54	3841	3685	7526	124	27	47	37	0	94	475	280
55-59	3320	3455	6775	174	14	13	14	1	108	934	376
60-64	3586	3499	7085	120	13	16	15	2	240	743	488
65-69	2573	2623	5197	158	9	0	4	0	358	637	498
70-74	2020	2167	4187	115	11	0	6	0	416	1186	814
75-79	1429	1784	3213	153	0	0	0	0	665	1867	1332
80-84	904	1396	2299	161	0	0	0	0	686	2393	1722
>84	585	1344	1929	161	0	0	0	0	1726	3527	2981
Total	52098	53056	105153	186	53	78	66	2	136	708	424

* not all GPs were included

Continuous Morbidity Registration Sentinel Practices

Age group by topic

year 2011 weeks 1 t/m 52

all practices age group	population			Gastro-enteritis no feces test			Gastro-enteritis feces test			Gut feeling related to cancer		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
<1	548	549	1098	602	783	692	109	0	55	0	0	0
1-4	2312	2202	4514	225	232	228	22	32	27	0	5	2
5-9	3120	2956	6076	61	88	74	6	10	8	0	0	0
10-14	3337	3065	6403	18	49	33	3	3	3	0	0	0
15-19	3247	3177	6423	49	57	53	0	0	0	3	0	2
20-24	3192	3238	6429	31	96	64	3	9	6	3	3	3
25-29	3135	3242	6376	26	59	42	6	3	5	0	0	0
30-34	3140	3162	6302	25	57	41	6	3	5	0	0	0
35-39	3478	3399	6877	23	41	32	6	12	9	3	0	1
40-44	4073	4051	8123	39	30	34	2	5	4	0	5	2
45-49	4258	4062	8321	31	37	34	2	7	5	7	2	5
50-54	3841	3685	7526	13	46	29	0	8	4	16	3	9
55-59	3320	3455	6775	48	49	49	6	14	10	12	12	12
60-64	3586	3499	7085	28	51	40	6	3	4	25	23	24
65-69	2573	2623	5197	66	42	54	4	0	2	39	23	31
70-74	2020	2167	4187	45	37	41	5	0	2	15	9	12
75-79	1429	1784	3213	56	95	78	0	6	3	56	50	53
80-84	904	1396	2299	77	79	78	0	7	4	33	57	48
>84	585	1344	1929	188	246	228	17	0	5	51	45	47
Total	52098	53056	105153	52	74	63	6	7	6	10	9	10

* not all GPs were included

age group by topicss

year 2011 weeks 1 t/m 52

all practices age group	population			Unwanted pregnancy	Cosmetic allergy			End-of-life* stydy	Suicide
	M	F	M+F	F	M	F	M+F	M+F	M+F
<1	548	549	1098	0	0	0	0	49	0
1-4	2312	2202	4514	0	0	0	0	0	0
5-9	3120	2956	6076	0	0	14	7	2	0
10-14	3337	3065	6403	0	3	10	6	0	2
15-19	3247	3177	6423	31	0	47	23	0	2
20-24	3192	3238	6429	56	6	28	17	0	5
25-29	3135	3242	6376	52	6	25	16	2	5
30-34	3140	3162	6302	66	10	9	10	2	2
35-39	3478	3399	6877	21	3	18	10	2	3
40-44	4073	4051	8123	20	5	17	11	3	2
45-49	4258	4062	8321	5	0	17	8	9	7
50-54	3841	3685	7526	0	3	19	11	20	8
55-59	3320	3455	6775	0	0	20	10	17	4
60-64	3586	3499	7085	0	8	17	13	41	0
65-69	2573	2623	5197	0	8	11	10	78	0
70-74	2020	2167	4187	0	5	0	2	76	2
75-79	1429	1784	3213	0	7	11	9	177	6
80-84	904	1396	2299	0	0	0	0	274	0
>84	585	1344	1929	0	17	15	16	605	10
Total	52098	53056	105153	16	4	17	10	37	3

* not all GPs were included

Province group by topic

year 2011 weeks 1 t/m 52

all practices province group	population			Influenza	STD*			Whooping-cough	Urinary tract infection*		
	M	F	M+F	M+F	M	F	M+F	M+F	M	F	M+F
GR+FR+DR	7467	7406	14873	180	25	46	35	0	201	579	389
OV+GLD+FLE	11310	11399	22710	239	35	47	41	3	127	1094	613
UTR+NH+ZH	18879	20130	39009	209	72	108	91	2	103	515	316
ZLD+NB+LIM	14441	14122	28563	114	53	71	62	4	152	738	441
Total	52097	53057	105155	186	53	78	66	2	136	708	424

* not all GPs were included

Continuous Morbidity Registration Sentinel Practices

Province group by topic

year 2011 weeks 1 t/m 52

all practices province group	population			Gastro-enteritis no feces test			Gastro-enteritis Feces test			Gut feeling related to cancer		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
GR+FR+DR	7467	7406	14873	52	66	60	3	3	3	9	9	9
OV+GLD+FLE	11310	11399	22710	46	71	59	7	4	6	13	11	12
UTR+NH+ZH	18879	20130	39009	58	79	69	9	12	11	8	10	9
ZLD+NB+LIM	14441	14122	28563	50	74	62	2	4	3	10	6	8
Total	52097	53057	105155	52	74	63	6	7	6	10	9	10

* not all GPs were included

Continuous Morbidity Registration Sentinel Practices

Province group by topic

year 2011 weeks 1 t/m 52

all practices province group	population			Unwanted pregnancy	Cosmetic allergy			End-of-life study*	Suicide
	M	F	M+F	F	M	F	M+F	M+F	M+F
GR+FR+DR	7467	7406	14873	5	0	5	3	47	3
OV+GLD+FLE	11310	11399	22710	4	0	18	9	36	1
UTR+NH+ZH	18879	20130	39009	24	10	23	16	35	5
ZLD+NB+LIM	14441	14122	28563	18	1	13	7	35	2
Total	52097	53057	105155	16	4	17	10	37	3

* not all GPs were included

Continuous Morbidity Registration Sentinel Practices

Address density by topic

year 2011 weeks 1 t/m 52

all practices address density	population			Influenza	STD*			Whooping-cough	Urinary tract infection*		
	M	F	M+F	M+F	M	F	M+F	M+F	M	F	M+F
<500/KM2	9824	9437	19261	253	28	43	35	2	114	682	393
500-2500/KM2	27115	27821	54936	161	50	73	61	2	170	816	497
>2500/KM2	15158	15799	30957	187	73	104	89	3	89	532	315
Total	52097	53057	105154	186	53	78	66	2	136	708	424

* not all GPs were included

Address density by topic

year 2011 weeks 1 t/m 52

all practices address density	population			Gastro-enteritis no feces test			Gastro-enteritis Feces test			Gut feeling related to cancer		
	M	F	M+F	M	F	M+F	M	F	M+F	M	F	M+F
<500/KM2	9824	9437	19261	62	74	68	5	5	5	14	19	17
500-2500/KM2	27115	27821	54936	42	60	51	4	4	4	10	7	9
>2500/KM2	15158	15799	30957	64	99	82	9	13	11	7	7	7
Total	52097	53057	105154	52	74	63	6	7	6	10	9	10

* not all GPs were included

Continuous Morbidity Registration Sentinel Practices

Address density by topic

year 2011 weeks 1 t/m 52

all practices address density	population			Unwanted pregnancy	Cosmetic allergy		End-of-live study	Suicide
	M	F	M+F	F	M	F	M+F	M+F	M+F
<500/KM2	9824	9437	19261	2	2	11	6	42	4
500-2500/KM2	27115	27821	54936	12	0	12	7	34	3
>2500/KM2	15158	15799	30957	30	11	28	20	37	4
Total	52097	53057	105154	16	4	17	10	36	3

* not all GPs were included