

# questions

## d'économie de la santé

Issues in health economics

results

### Background

The Decennial Health Survey (EDS) has been performed every ten years by the INSEE (French National Institute for Statistics and Economic Studies) since 1960, in association with numerous partners including IRDES. Its objective is measuring the health condition of the population and the consumption of healthcare and prevention. It allows consumption to be related to the declared health conditions and the socio-demographic characteristics of individuals.

Our study on declared diseases completes the health condition panorama of the French population, already approached by synthetic perceived health indicators, chronic diseases or functional limitations, as well as other health determinants such as alcohol consumption or obesity.

### What do we suffer from? Evaluation of declared diseases in France Decennial Health Survey, INSEE 2002-2003

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In 2002-2003, according to the Decennial Health Survey (EDS), eight out of ten persons declared suffering from at least one health disorder on a given day. More than one out of two persons declare eyesight problems (myopia, presbyopia, hypermetropia) or mouth and teeth diseases (caries, dental prosthesis). The most frequent diseases are then osteoarticular diseases, endocrine diseases, nutritional and metabolic diseases and cardiovascular diseases that affect approximately one out five persons.

The nature of the diseases evolves with age in particular, from the age of 40, with the appearance followed by the predominance of cardiovascular risk factors and diseases. Women declare more health problems than men and suffer more from depressive conditions, thyroid and venous insufficiency problems, while men declare more heart disease. Finally, variations are observed depending on the social situation: high blood pressure, diabetes and obesity are pathologies seen more frequently in persons with a disadvantaged social situation.

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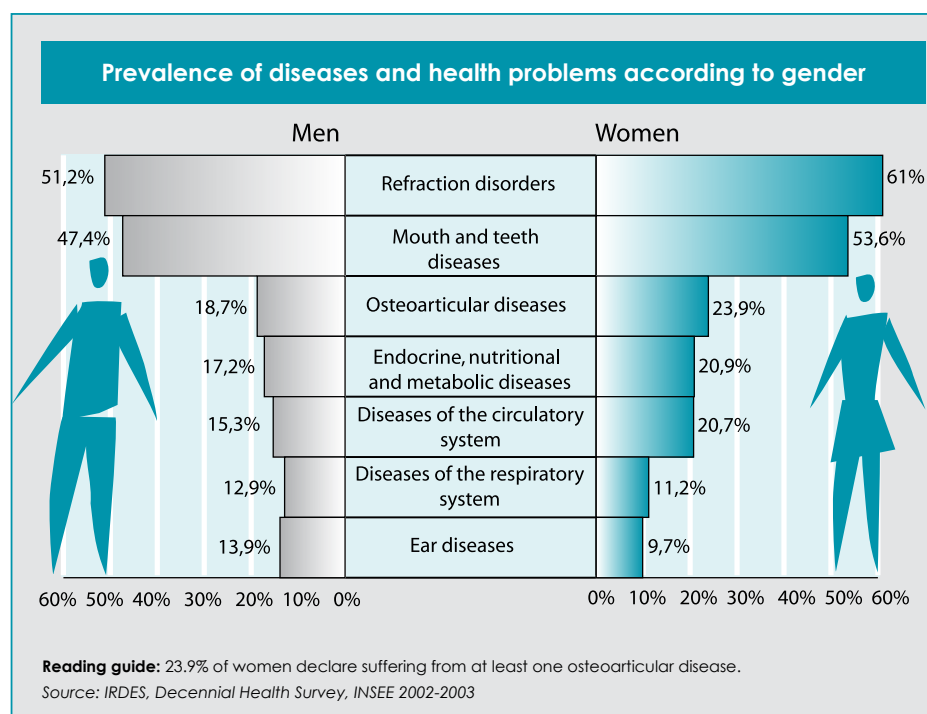
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The diversity of the health condition of a population may be given by numerous indicators: prevalence of the most common diseases, functional aspects of health or also the perception that the individual has of his/her own health condition.

For many years, the national health surveys allowed the interrogation of a large representative sample of the population residing in France in order to collect multiple information on health problems and healthcare consumption (c.f. box opposite). In the absence of health registries or medical databases, the declaration of individuals remains the only method to obtain a large scale of information on incident<sup>1</sup> and prevalent<sup>2</sup> diseases (Bergman *et al.*, 2004). While the information on these diseases is subjective and imperfect, as it is based on the declarations of the persons surveyed, it nonetheless reflects part of the healthcare needs of the individuals and can provide, at a lower cost, an overall image of the situation of the population.

2 As a continuation of a study describing the health condition according to three synthetic indicators (Lanoë et Makdessi-Raynaud, 2005), our analysis

### Decennial Health Survey 2002-2003 and population studied

This study is performed from the data of the 2002-2003 Health Survey.

This survey is part of a set of surveys carried out every ten years since 1960. It is carried out by the INSEE in collaboration with several partners among which the IRDES, which coded the pathologies and medical

treatment declared. It concerns a representative sample of ordinary households, drawn at random from the census data, i.e. approximately 40,000 persons. Its objective is assessing the health condition of the population and the consumption of healthcare and prevention.

The information collection was carried

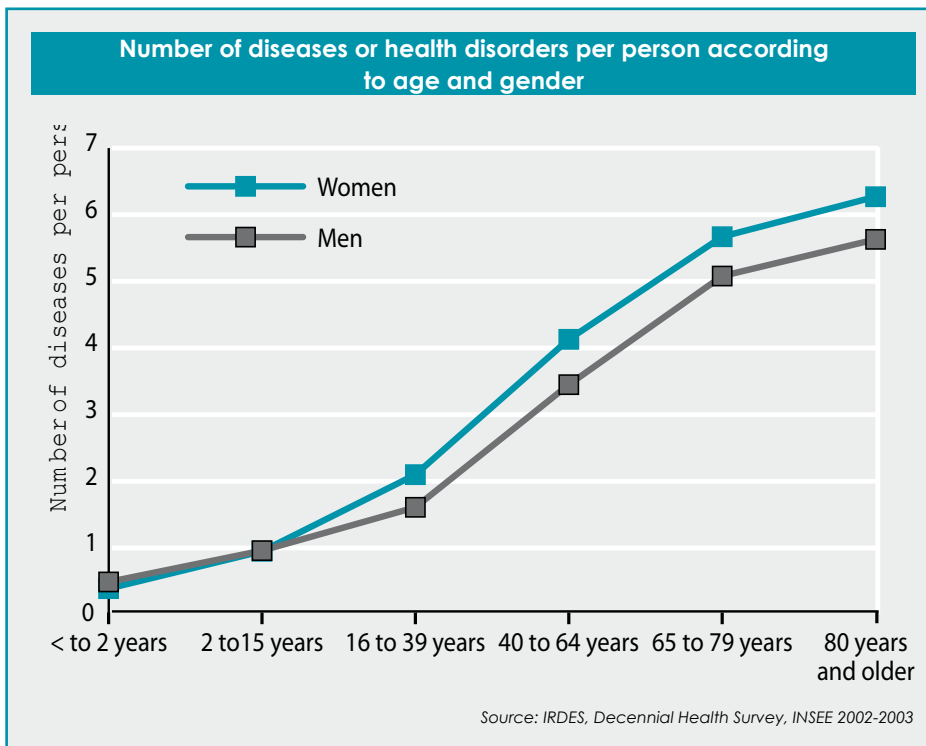
out over two months. Each household was interviewed 3 times, at a month's interval by an INSEE surveyor, and filled in, in addition, a self-questionnaire of its age group that contains all the information concerning specific health problems and a compilation of tobacco and alcohol consumption.

reviews the health condition of the population residing in France, from the diseases declared by persons interrogated during the last Decennial Health Survey carried out in 2002-2003. It allows an estimate of the prevalence of diseases and explores the gender and social category differences. However, due to the modification of the methodology of this survey, the information collected in 2002-2003 could not be compared to that obtained in 1991-1992.

### The majority of the diseases declared are chronic diseases

Eight out of ten persons (82.6%) declare at least one disease or health disorder on a given day. After excluding dental prosthesis and eyesight problems such as myopia or presbyopia, there are still close to seven out of ten persons (67%), all ages included, who suffer from a disease, in most cases a chronic disease. Six out of ten persons declare one or several chronic or long-term diseases, two out of ten a short acute disease or symptom, and one out of ten an acute disease with a duration of more than four weeks.

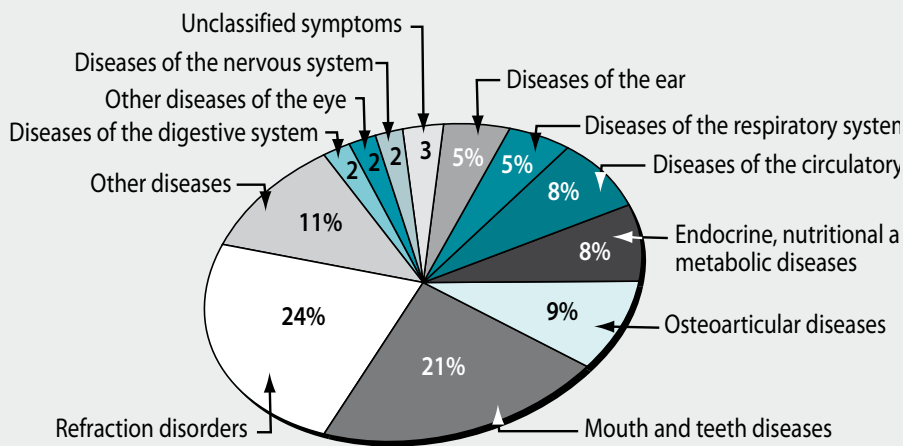
On a given day, each person declares on average 2.9 health problems. Women declare more diseases than men, 3.2 diseases for women versus 2.5 for men and the number of diseases increases with age, reaching 6 diseases for persons 80 years old and above (see figure below).



1 Incident morbidity: number of new cases of a given disease or persons suffering from the disease, over a given period, in a specific population.

2 Prevalent morbidity: number of cases of a given disease or persons suffering from the disease or any other morbid event, existing in a specific population at a given moment, without differentiation between new and old cases.

**Distribution of health disorders declared by major categories**



Source: IRDES, Decennial Health Survey, INSEE 2002-2003

**Most frequently declared health disorders and diseases**

The most frequent health disorders are refraction disorders such as myopia, hypermetropia or presbyopia. They represent 24% of all the health problems declared and concern 56% of the persons. They are followed by mouth and teeth disorders, which include mainly caries and the use of fixed or mobile dental prosthesis. They include 21% of the declarations and affect 51% of the persons. Excluding the refraction disorders and the dental prosthesis, the average number of diseases per person is just at 1.7.

After these benign health disorders, which affect the majority of persons, the most frequent pathologies are diseases of the osteoarticular system (9% of diseases and 21% of the persons), endocrine, nutritional and metabolic diseases, represented mainly by obesity and lipid disorders (8% and 19%), then circulatory system diseases (8 % and 18%) and finally respiratory system diseases (5% and 12%) (cf. figure above). Ear diseases, mainly hearing disorders, represent 5% of diseases and affect 12% of the persons (cf. box p. 6).

In a more detailed level, high blood pressure as well as back disorders (lum-

bar pain, sciatica) concern 10.2% of the persons surveyed, deafness and hypoa-cusia, 10% and obesity<sup>3</sup> 9.5%. Finally we will cite among the most frequently declared disorders, lipid metabolism disorders (7.1%), dental problems apart from dental prosthesis (gingivitis, periodontolysis, caries) (11.9%), peripheral arthrosis (6 %), allergies and allergic rhinitis (5.2%), asthma (3.9%) and depressive conditions (3.1%) (cf. table p. 5).

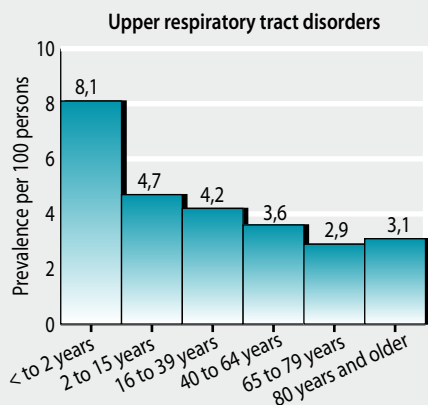
**Women declare more diseases than men**

Apart from ear diseases, in particular deafness, and respiratory pathologies that are more frequent in men, women declare more health problems for all major pathology groups. This tendency is greatly marked for mental and behaviour disorders (6.6 % of women versus 3.1 % of men) and nervous system diseases (7.8 % versus 4.3 %), essentially migraines.

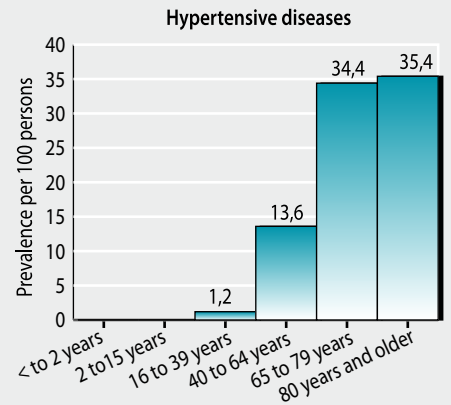
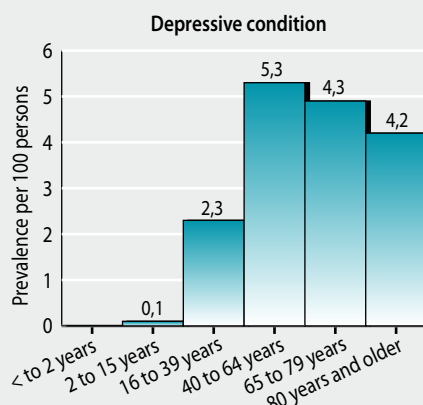
More specifically, the prevalence of thyroid disorders, depressive conditions, venous insufficiency and headaches or migraines is 2.5 to 7 times higher in

<sup>3</sup>Obesity is defined by a BMI (weight/height<sup>2</sup>, in kg/m<sup>2</sup>) greater than or equal to 30.

**Prevalence of declarations of certain diseases depending on age per 100 persons**



Reading guide: 8.1 % of children under 2 suffer from an upper respiratory tract disease.



Source: IRDES, Decennial Health Survey, INSEE 2002-2003

**List of most frequent diseases or health problems by gender**

	Number of ill men		Number of ill women		Number of ill persons	
	Raw sample size	Per 100 persons	Raw sample size	Per 100 persons	Raw sample size	Per 100 persons
Dental prosthesis	6 203	37.69	8 031	45.33	14 234	41.62
Presbyopia	4 145	24.82	4 949	27.99	9 094	26.45
Myopia	3 370	19.53	4 725	25.38	8 095	22.54
Astigmatism	1 843	10.74	2 911	15.70	4 754	13.29
Hypertensive diseases	1 449	8.47	2 050	11.87	3 499	10.22
Back pathologies	1 606	10.02	1 813	10.30	3 419	10.17
Hearing disorders	1 927	11.87	1 415	8.27	3 342	10.02
Obesity	1 533	9.14	1 743	9.75	3 276	9.46
Lipid disorders	1 171	6.86	1 280	7.42	2 451	7.14
Hypermetropia	1 047	5.98	1 481	7.88	2 528	6.96
Dental caries	1 230	7.75	1 080	5.93	2 310	6.82
Circulation problems (including venous problems)	603	3.74	1 535	9.00	2 138	6.44
Peripheral arthrosis	641	4.06	1 337	7.78	1 978	5.97
Periodontolysis-Gingivitis	734	4.58	973	5.57	1 707	5.09
Rheumatism - pain - joint disease	609	4.03	830	5.13	1 439	4.60
Heart disease (including ischemic)	834	5.01	647	4.00	1 481	4.49
Upper respiratory tract disorders	677	4.08	733	3.95	1 410	4.01
Asthma	698	4.10	647	3.64	1 345	3.86

Source: IRDES, Decennial Health Survey, INSEE 2002-2003

Download the detailed tables (<http://www.irdes.fr/EspaceRecherche/Qes/Qes123.htm>).

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women than in men. Conversely, men suffer more frequently from heart disease (1.6 times more) and hearing problems (1.4 times more).

### Pathologies specific to each age group

The pathologies of children under 2 years old are dominated by upper respiratory tract diseases (mainly rhinopharyngitis) which concern 8.1 % of children on a given day, and eczema which affects 6.6% of them.

Refraction disorders appear in the 2-15 years age group: 9.6% of them have myopia and 7.3% astigmatism. The wearing of dental braces also concerns close to one out of ten children (10.2%). Apart from these disorders, asthma, allergies, eczema and allergic rhinitis are strongly present at these ages. Thus asthma affects 6% of children, eczema 4.3% and allergies and allergic rhinitis 3.7% and 2.4%, respectively.

The prevalence of eyesight disorders continues to increase strongly for the following age group: 27.1% of the 16-39 years group have myopia and 13.3% astigmatism. Furthermore, 10.6% declare dental caries. Back pathologies including all back and spinal column pains and disorders are already very frequent: they concern 9.7% of the persons in this age group. Finally, asthma and allergies remain very frequent, each affecting 4% of persons.

The 40-64 age group is the one in which cardiovascular risk factors appear. Hypertension, whose prevalence was almost nil in the previous age group, now concerns 13.6% of adults 40-64 years old (cf. figure in p. 3). Obesity affects 13.7% of the persons, lipid disorders 10.4% and diabetes 4.3%. Back diseases reach their maximum prevalence with 15.6% of persons affected and peripheral arthroses begin to appear (7.6% of the persons).

In the over 65, and apart from dental prosthesis and eyesight disorders, two groups of pathologies predominate. The first is that of cardiovascular diseases with heart diseases (including ischemic heart disease) which affect 16.3% of persons aged 65 to 79 years and 29.7% of persons over 80, hypertension concerns more than one elderly person out of three, and the other circulatory system diseases (including venous problems) affect 18.3% of persons aged 65 to 79 years and 24.5% of persons over 80. The second major group is that of osteoarticular problems. At 65-79 years, 20.5% of persons declare a peripheral arthrosis, 10.7% rheumatism or other joint pains, and 12.2% back pathologies. At 80 years and older, the prevalence of these diseases is 24.6%, 13.6% and 10.6%, respectively. Finally, the high prevalence of hearing disorders in the very elderly which affect 4 out of 10 persons, should be reported.

**The number and nature of the pathologies declared vary depending on the social background**

The average number of declared pathologies varies depending on the social characteristics of the individuals. Excluding eyesight disorders and dental prosthesis, the individuals belonging to farming households<sup>4</sup> are those that declare the most diseases (2.3 diseases per person), followed by blue-collar households which declare on average 1.9, then craft workers and tradespeople households (1.8) and intermediate professions (1.6), while manager households declare on average 1.5. This difference persists after taking into account the age and gender.

If we now examine the probability of declaring at least one disease (except eyesight disorders and dental prosthesis) in blue-collar and clerk households, this probability at comparable age and

**Hearing disorders**

In the Decennial Health Survey 2002-2003, 10% of individuals declare a hearing disorder. In 1991, 5.3% of the persons declared a deafness or hypoacusia. The other data available on the prevalence of hearing disorders are also from declarative surveys: the Health and Social protection 2002 survey estimates at 7.8% the persons with a hearing disorder. In the HID survey, the prevalence is of 9%. In the EDS 2002-2003, men declared more frequently than women a hearing disorder (12% versus 8%). Above the age of 65 years, more than a quarter of the population suffers from a hearing disorder. Finally, for the 80 years old and older, 40% of the persons are concerned by these disorders, often badly treated when they need a device.

gender is higher than in manager class households (OR<sup>5</sup> = 1.3 [1.2-1.4]). This is also true, to a lesser extent, for households in which the reference person is a farmer (OR = 1.1 [1.0-1.3]),

<sup>4</sup>We use here the social background defined by the socio-professional category of the reference person of the household. Most of the time it is the man in a couple, the parent in a single-parent family, or the oldest man. If there are several reference persons possible, the priority is given to the active person, then to the eldest, if necessary. If the reference person is retired, it is his/her last profession which is taken into account (or the last profession of the spouse for widows/widowers who never worked).

<sup>5</sup>Odds ratio expresses the effect of a variable (for example the fact of being part of a blue-collar household) with respect to a reference variable (being part of a manager household) on the probability of declaring a health problem.

In this case, an individual from a blue-collar household has a "risk" 1.3 times higher of declaring a disease (apart from eyesight disorders and dental prosthesis) than an individual from a manager household.

**Odds ratios adjusted on age and gender, associated with the probability of declaring one of the following pathologies depending on social background, level of studies and level of income per consumption unit**

	Declared diseases	Arterial hypertension	Obesity	Diabetes	Arthrosis	Back pathologies	Allergy or allergic rhinitis	Upper respiratory tract pathologies
<b>SOCIAL MILIEU</b>	Reference population: manager							
	Farmer	<b>1.5 [1.2-1.7]</b>	<b>2.2 [1.8-2.6]</b>	0.98 [0.7-1.4]	1.1 [0.9-1.4]	0.9 [0.7-1.1]	<b>0.5 [0.4-0.7]</b>	0.8 [0.6-1.0]
	Craft worker-tradesman	1.1 [0.9-1.3]	<b>1.9 [1.6-2.3]</b>	<b>1.4 [1.1-1.9]</b>	0.9 [0.8-1.16]	1.0 [0.8-1.2]	1.0 [0.8-1.2]	<b>0.6 [0.5-0.8]</b>
	Intermediate profession	<b>1.4 [1.2-1.6]</b>	<b>1.7 [1.5-2.0]</b>	<b>1.6 [1.3-2.1]</b>	1.0 [0.9-1.2]	<b>1.2 [1.1-1.3]</b>	1.0 [0.9-1.2]	0.9 [0.8-1.1]
	Clerk	<b>1.3 [1.1-1.5]</b>	<b>2.1 [1.8-2.5]</b>	<b>1.6 [1.3-2.1]</b>	<b>1.2 [1.0-1.4]</b>	<b>1.2 [1.0-1.3]</b>	1.1 [0.9-1.2]	1.1 [0.9-1.3]
Blue-collar	<b>1.6 [1.4-1.8]</b>	<b>3.1 [2.7-3.5]</b>	<b>2.5 [2.0-3.1]</b>	<b>1.4 [1.2-1.8]</b>	<b>1.3 [1.8-1.5]</b>	<b>0.7 [0.6-0.8]</b>	0.9 [0.8-1.1]	
<b>LEVEL OF STUDIES</b>	Reference population: secondary education diploma + 2							
	Without diploma	<b>1.8 [1.5-2.0]</b>	<b>2.4 [2.2-2.7]</b>	<b>3.6 [2.8-4.6]</b>	<b>1.7 [1.4-2.0]</b>	<b>1.7 [1.5-1.9]</b>	<b>0.6 [0.5-0.7]</b>	<b>0.6 [0.5-0.8]</b>
	Bepc/bac (national examination at the end of year 9/secondary education diploma)	<b>1.9 [1.6-2.1]</b>	<b>1.9 [1.7-2.1]</b>	<b>2.2 [1.7-2.8]</b>	<b>1.6 [1.4-1.9]</b>	<b>1.7 [1.5-1.9]</b>	0.9 [0.8-1.0]	<b>0.7 [0.6-0.9]</b>
	Bac (Secondary education diploma)	<b>1.5 [1.2-1.7]</b>	<b>1.2 [1.0-1.4]</b>	<b>1.4 [1.0-1.9]</b>	<b>1.2 [1.0-1.5]</b>	<b>1.5 [1.4-1.8]</b>	1.1 [0.9-1.3]	0.9 [0.7-1.1]
<b>INCOME</b>	Reference population: yearly income per consumption unit* (cu) > 19 500 €							
	Income by cu < €9 370	<b>1.2 [1.1-1.5]</b>	<b>1.8 [1.6-2.0]</b>	<b>1.6 [1.3-1.9]</b>	1.0 [0.9-1.2]	1.0 [0.9-1.1]	<b>0.7 [0.6-0.9]</b>	<b>0.8 [0.7-0.9]</b>
	€9 370 < income by cu < €13 460	1.1 [0.9-1.2]	<b>1.5 [1.4-1.7]</b>	<b>1.4 [1.2-1.8]</b>	1.1 [0.9-1.2]	1.0 [0.9-1.2]	<b>0.8 [0.7-0.9]</b>	1.0 [0.9-1.2]
	€13 460 < income by cu < €19 500	1.0 [0.9-1.2]	<b>1.3 [1.1-1.4]</b>	1.2 [0.99-1.5]	1.1 [0.9-1.2]	1.1 [0.9-1.2]	1.0 [0.9-1.1]	0.9 [0.8-1.1]

**Reading guide:** An individual without diploma has a 1.8 times higher «risk» of declaring hypertension than an individual with secondary education + 2.

\* To compare the standard of life of households with different size or composition, we use the income per consumption unit which retains the following weight: 1 cu for the first adult, 0.5 for the other persons 14 years old or older and 0.3 for children under 14 years.

**Text in bold:** significant at the 5 % threshold

Source: IRDES, Decennial Health Survey, INSEE 2002-2003

### Methodology in the collection of health problems in the 2002-2003 survey

In the 2002-2003 survey, the collection of pathologies was carried out using an individual questioning. For the individuals not capable of answering questions concerning health (under 18 years old, non-French speaking and handicapped persons) another member of the household was asked.

The nature of the diseases and health disorders from which the person answering the survey suffers was recorded throughout the survey, initially during the first visit by the question «Do you currently have one or several chronic diseases? What is

it?» and the question “Apart from this or these chronic disease(s), do you currently have other diseases or health problems? What is it?” This information is then completed during later visits by an interrogation on the diseases that cause various medical consumptions. Through these declarations, we obtain a picture of the diseases that individuals suffer from at a given moment.

The diseases and health disorders were coded by the intermediary of the International Classification of Diseases of the WHO (10th revision). For each disease en-

countered, we also added information on the “chronic”, “acute” or “variable term” nature of the disease or whether it was a “symptom”. Only the health problems prevalent on the first day of the survey were retained for this use according to the following procedure: diseases labelled “chronic” or “variable term” are considered as prevalent. “Acute” diseases or “symptoms” are prevalent if the person declares them on the 1st visit or if they were declared in the 2nd and 3rd visit while specifying that they had been forgotten.

revenues (OR = 0.8 [0.7-0.9] have a lower probability to declare allergies than persons from more privileged categories.

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The analysis of the diseases declared illustrates the concerns of the population in terms of health, especially its needs in medical care and prevention.

In 2002-2003, the number of diseases and health disorders per person is set at about 2.9 and is higher in women than in men at all ages. The most frequent diseases are osteoarticular, endocrine and metabolic diseases as well as cardiovascular diseases. Therefore, hypertension and back pathologies remain a major public health concern due to their frequency. The cardiovascular risk factors, obesity or excess weight and lipid disorders are also among the most often cited health problems and require pursuing active policies in their favour. Finally, the social differences demonstrated should incite the actors of the health system to give special attention to the specific needs of certain populations.

6 or intermediate profession (OR = 1.2 [1.1-1.3]).

Among the most frequent pathologies, not all are related in the same manner to the socio-economic situation of the individuals. Hypertension, diabetes and obesity are pathologies seen more frequently in persons with a disadvantaged social situation.

At comparable age and gender, persons from a blue-collar household declare more frequently hypertension (OR 1.6 [1.4-1.8]), obesity (OR = 3.1 [2.7-3.5]), or diabetes (OR = 2.5 [2.0-3.1]) than a person from a household in which the reference person is a manager. The level of studies influences the declarations in the same manner: the persons with the fewer diplomas declare most often hypertension, diabetes or obesity. Finally, persons who belong to the categories with the weakest revenues, suffer more frequently from diabetes, obesity and to a lesser extent hypertension.

The more “mechanical” pathologies such as arthrosis or back diseases remain related to the socio-professional category, and concern more frequently blue-collar households. However, there is no relationship for the other socio-professional categories (craft workers-tradespeople and farmers). The level of the diploma is highly related to the declaration of an arthrosis or a back problem: persons without diploma have a 1.7 times higher risk of declaring an arthrosis or back problem than persons having a level of secondary education diploma + 2 years at university. There was no income effect on those declarations.

Unlike these three groups of pathologies, allergies (including allergic rhinitis) and upper respiratory system diseases (mainly rhinopharyngitis) have a reverse social gradient. The persons from a farmer household (OR = 0.5 [0.4-0.7]), blue-collar (OR = 0.7 [0.6-0.8]), persons without diplomas (OR = 0.6 [0.5-0.7]) and with lower

### Further information

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