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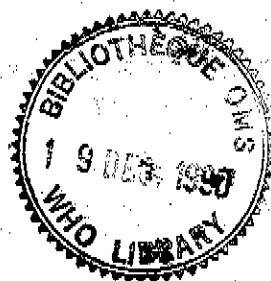
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ACUTE RESPIRATORY INFECTIONS AND PNEUMONIA IN THE EUROPEAN REGION

by

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EUR/HFA TARGET 4

This document gives a review of the present status concerning acute respiratory infections and pneumonia in the WHO European Region. It was presented as a working paper at the Meeting on Pneumonia in Children in Europe, held in Zagreb from 26 to 28 September 1990 in the overall effort to achieve the following target in the health for all strategy.^a

TARGET 4

REDUCING DISEASE AND DISABILITY

By the year 2000, the average number of years that people live free from major disease and disability should be increased by at least 10%.

Index terms

RESPIRATORY TRACT INFECTIONS — prevent/control
PNEUMONIA — prevent/control
CHILD
EUR

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^a *Targets for health for all. Copenhagen, WHO Regional Office Europe, 1985 (European Health for All Series No. 1).*

Acute respiratory infections (ARI) are undoubtedly the leading cause of all diseases in Europe (Table 1). Almost one third of the total population of the Region suffers from these diseases annually.

According to a WHO estimate, pneumonia globally causes over four million deaths per year in children under the age of five years. In developing countries, ARI are responsible for 25-30% of all deaths in this age group compared to 10-15% in industrialized countries.

About four million people in the European Region suffer from pneumonia each year. Most of them are young children and aging persons. Without treatment, 10-20% of pneumonia patients will die. As everywhere else, *Streptococcus pneumoniae* and *Haemophilus influenzae* are the major causes of severe pneumonia.

The problem areas of ARI and pneumonia in children are closely related to the geopolitical distribution of infant mortality rates (Fig. 1). Currently, at least 50% of European children are born in countries where infant mortality rates are over 20% (Albania, Bulgaria, Romania, Turkey, USSR, Yugoslavia). In each of these countries the areas can be identified with infant mortality rates over 40 per 1000 live births. Almost one fifth of these deaths are due to ARI and pneumonia (Fig. 2).

As a rule reporting on ARI and pneumonia in Europe is bad. In many Member States data on pneumonia in children were unavailable and therefore could not be provided. Owing to the very poor International Classification of Diseases, most cases of ARI and pneumonia are still registered as diseases of the respiratory system. Because of this classification many episodes of ARI and pneumonia are not considered as "infections".

Meanwhile, in Europe, almost 25% of the patients attending general practitioners are ARI patients. In the Netherlands (15 million inhabitants), of 1 145 883 patients suffering from various diseases reported to the public health services in 1988, 405 584 (35%) were ARI patients. The loss of working days through absenteeism was 5 370 179. So apart from the damage to health, ARI cause significant economic loss to European countries every year.

In the USSR, influenza and other ARI attack 16-27% of the total population annually (Table 2).

The etiology of ARI in Europe is rather complex. In a study conducted during 1967-1978 by several national laboratories, it was shown that 90% of ARI cases were caused by viruses, among which influenza A virus, respiratory syncytial virus and parainfluenza virus played a dominating role. Mycoplasma infection started to show its activity almost simultaneously with parainfluenza virus after the summer season, reaching a peak in November, while influenza A virus and respiratory syncytial virus infection went up during November and reached a peak in December and January (Fig. 3). Laboratory evidence of viral infection in Scotland (Fig. 4) demonstrates a high prevalence of respiratory viruses over other isolates.

It is interesting to note that diseases preventable through immunization continue to cause outbreaks in different countries from time to time. During 1989-1990 outbreaks of measles occurred in Belgium, Finland, Hungary and particularly in Albania (Figs. 5,6). Sweden, where the recommendations of the WHO expanded programme on immunization (EPI) have not been followed, records about 10 000 cases of pertussis every year (Figs. 7,8). The incidence of diphtheria and pulmonary tuberculosis is being reduced (Figs. 9,10).

Very few European countries are studying the etiology of bacterial pneumonia in children. As elsewhere, *Streptococcus pneumoniae* and *Haemophilus influenzae* are the most prevalent agents of the disease. The immunization currently recommended by the European Advisory Group on EPI includes among other antigens *Haemophilus influenzae* b (HIB) vaccine (Fig. 11).

However, it is clear that immunization alone will hardly solve the problem of the control of ARI and pneumonia. In many parts of Europe, as in other regions, it is the available control techniques developed by the Global ARI programme (which include immunization, case management and health education) that should be tried whenever appropriate at community, district or other subnational level in order to save as many children as possible from death or complications owing to ARI and pneumonia.

Several Member States initiated national ARI control programmes: Albania, Romania, Turkey, USSR, Yugoslavia. These programmes may develop more effectively provided the current WHO technology is taken into account.

Table 1. Communicable diseases^a of major public health concern
in the European Region (estimate for 1989)

Total population: 841.6 million inhabitants

Disease	Incidence rate per 100 000	Number of cases
1. Acute respiratory infection (total)	25 000	201 400 000
2. Genital herpes virus infection	11 000	92 576 000
3. Genital chlamydial infection	7 000	58 912 000
4. Influenza ^b	5 500	46 288 000
5. Acute enteric infection (total)	630	5 302 080
6. Varicella	550	4 628 800
7. Pneumonia	500	4 208 000
8. Viral hepatitis (all types)	200	1 683 200
9. Gonorrhoea	150	1 262 400
10. Warts (viral) ^c	140	1 178 240
11. Foodborne infections	120	1 009 920
12. Rubella	75	631 200
13. Measles	70	589 120
14. Scarlet fever	78	656 450
15. Mumps	61	513 376
16. Hepatitis B	40	336 640
17. Pertussis	30	252 480
18. Tuberculosis	20	168 320
19. HIV-infection	7.5	63 120
20. Meningococcal infection	4	33 664
21. Syphilis	3	25 248
22. Brucellosis	1.5	12 624
23. Haemorrhagic fever	1.0	8 400

^a Excluding zoonoses, fungal and parasitic diseases.

^b A year of increased activity.

^c Mostly caused by human papilloma virus (HPV).

Fig. 1. Europe infant mortality rates

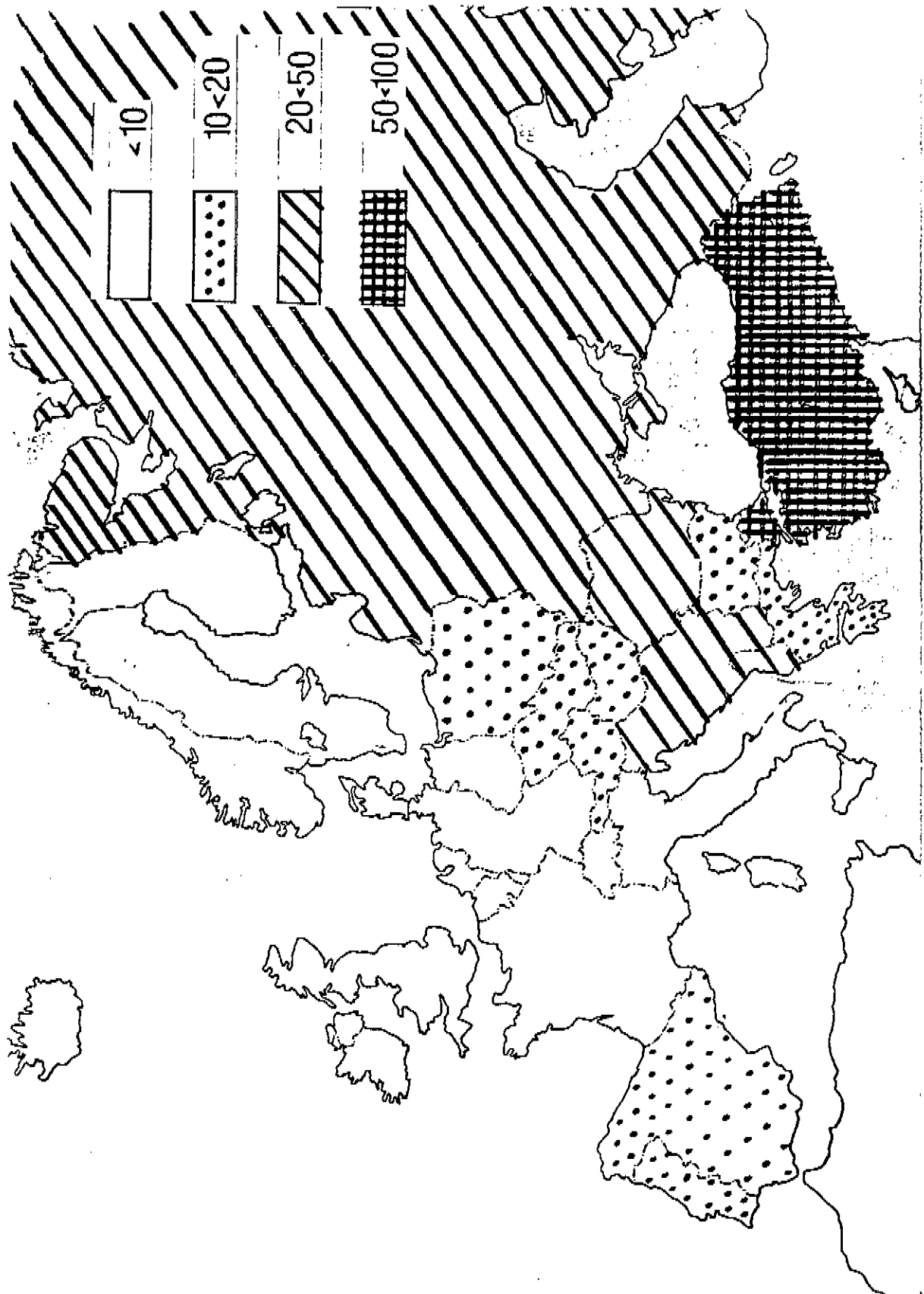


Fig. 2. Infant mortality rates per 100 000 live births, around 1980,
respiratory diseases

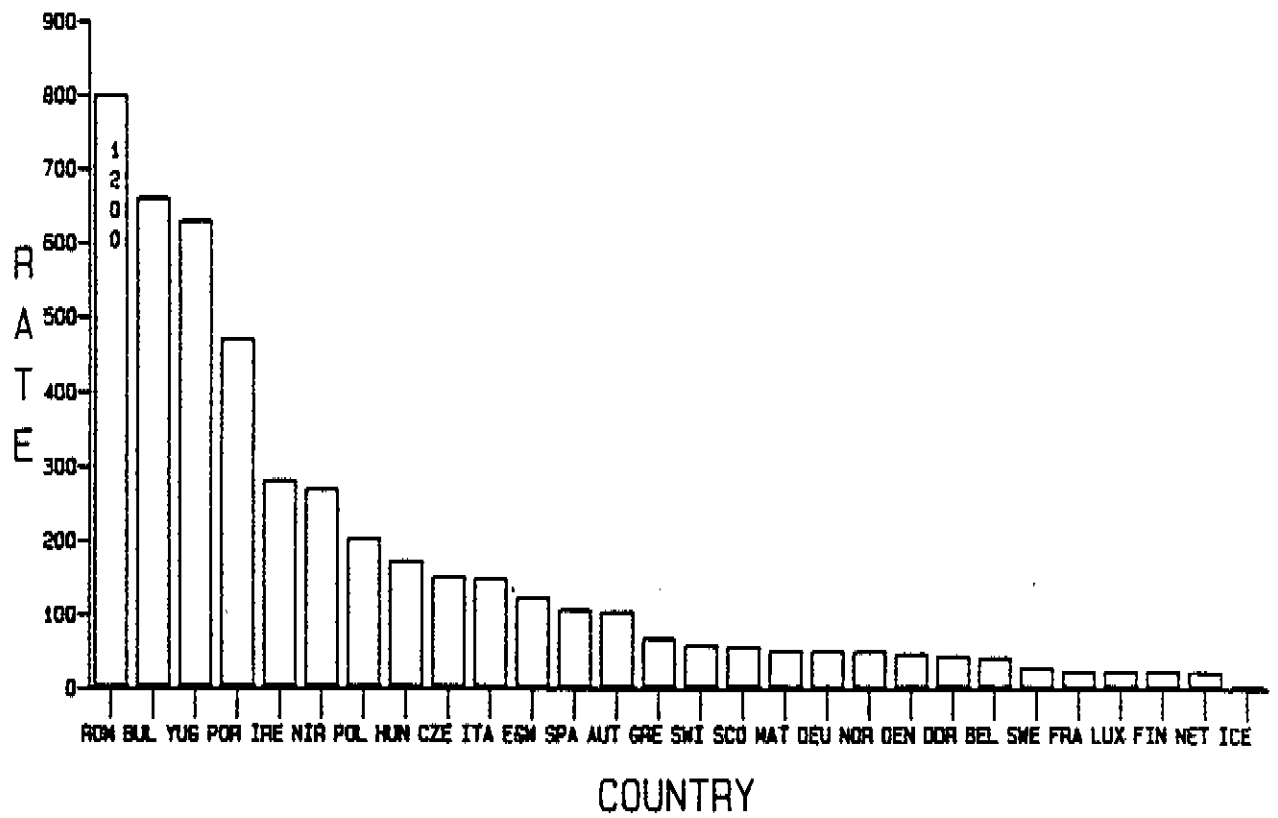


Table 2. Acute respiratory infections (ARI) in the USSR

Year	ARI and influenza per 100 000 inhabitants	Influenza only per 100 000 inhabitants	ARI of different etiologies per 100 000 inhabitants
1970	23 002	10 383	12 619
1971	17 222	4 558	12 663
1972	16 848	3 828	13 017
1973	22 169	7 974	14 189
1974	18 545	2 772	15 767
1975	21 597	6 220	15 370
1976	23 721	5 779	17 880
1977	22 687	4 797	17 880
1978	20 298	1 793	18 505
1979	22 164	3 339	18 825
1980	22 730	3 894	18 836
1981	25 390	4 634	20 755
1982	20 908	1 360	19 547
1983	22 278	1 553	20 725
1984	27 512	5 820	21 692
1985	25 928	4 983	20 945
1986	27 383	3 638	23 744
1987	21 024	3 511	20 673
1988	27 998	5 468	22 530

Fig. 3. Number of reports of influenza A virus, RS virus, *M. Pneumoniae* and parainfluenza virus, by month of collection/receipt of specimen, in Europe (1967-1978)

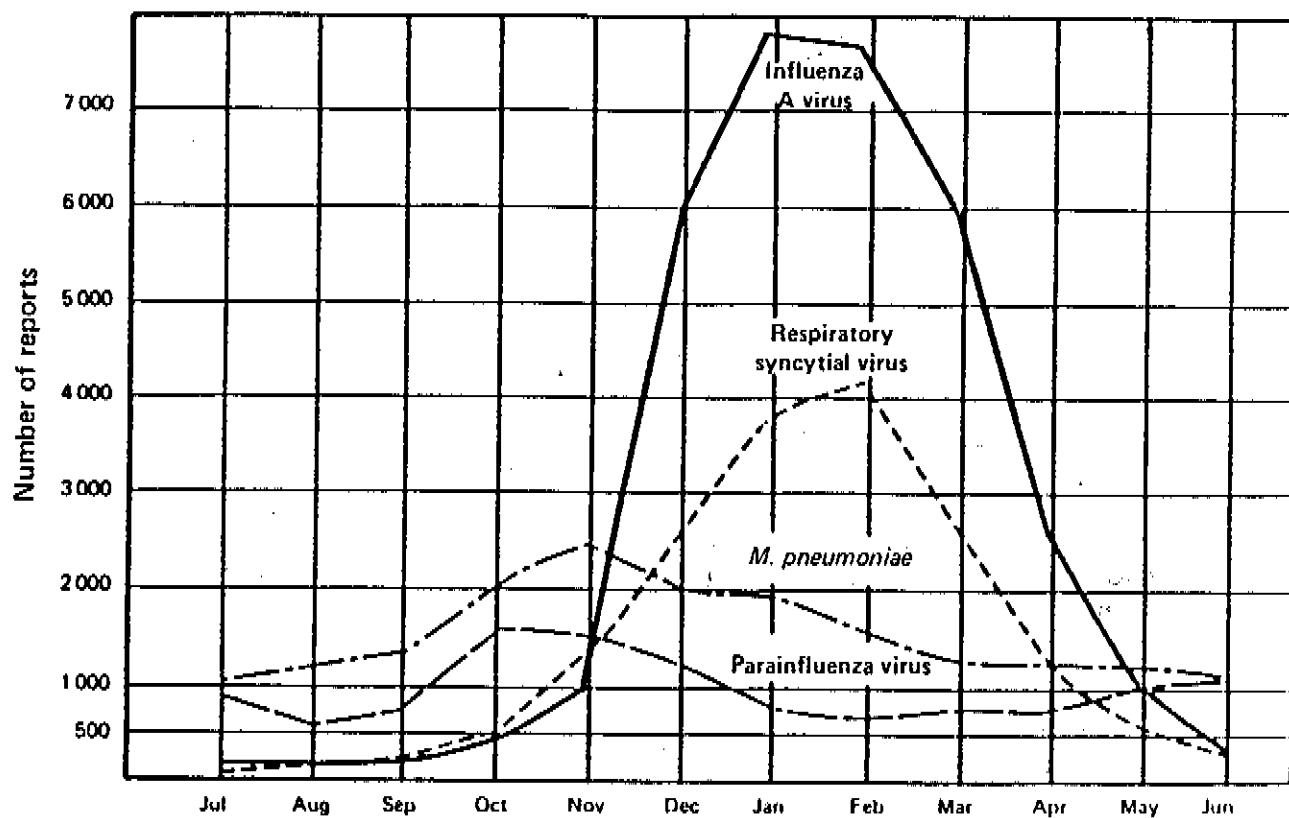
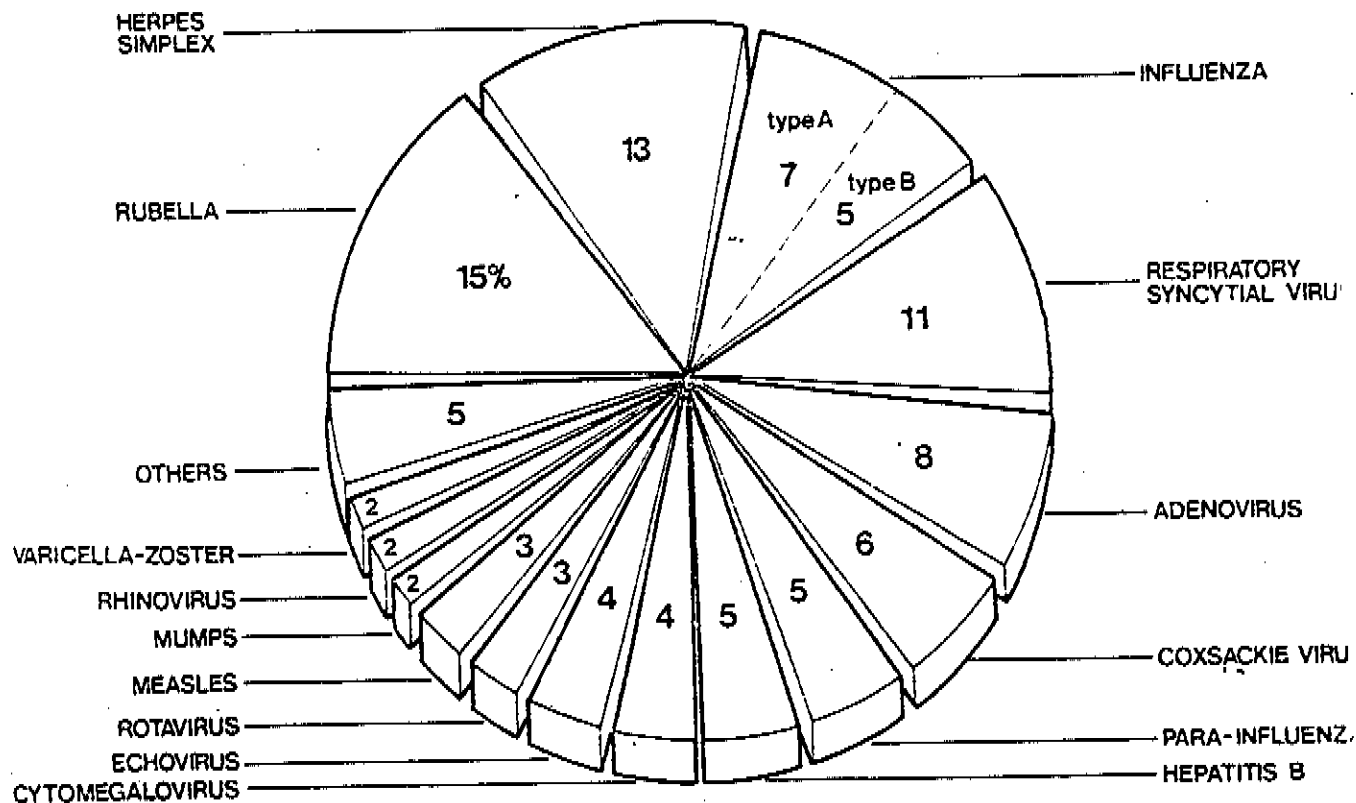


Fig. 4. Laboratory evidence of viral infection in Scotland reported during weeks 1-52 1979



THE FIGURES IN THE CHART REPRESENT THE PERCENTAGE OF THE TOTAL NUMBER OF VIRUSES REPORTED

Fig. 5. Incidence of measles in the European Region 1989

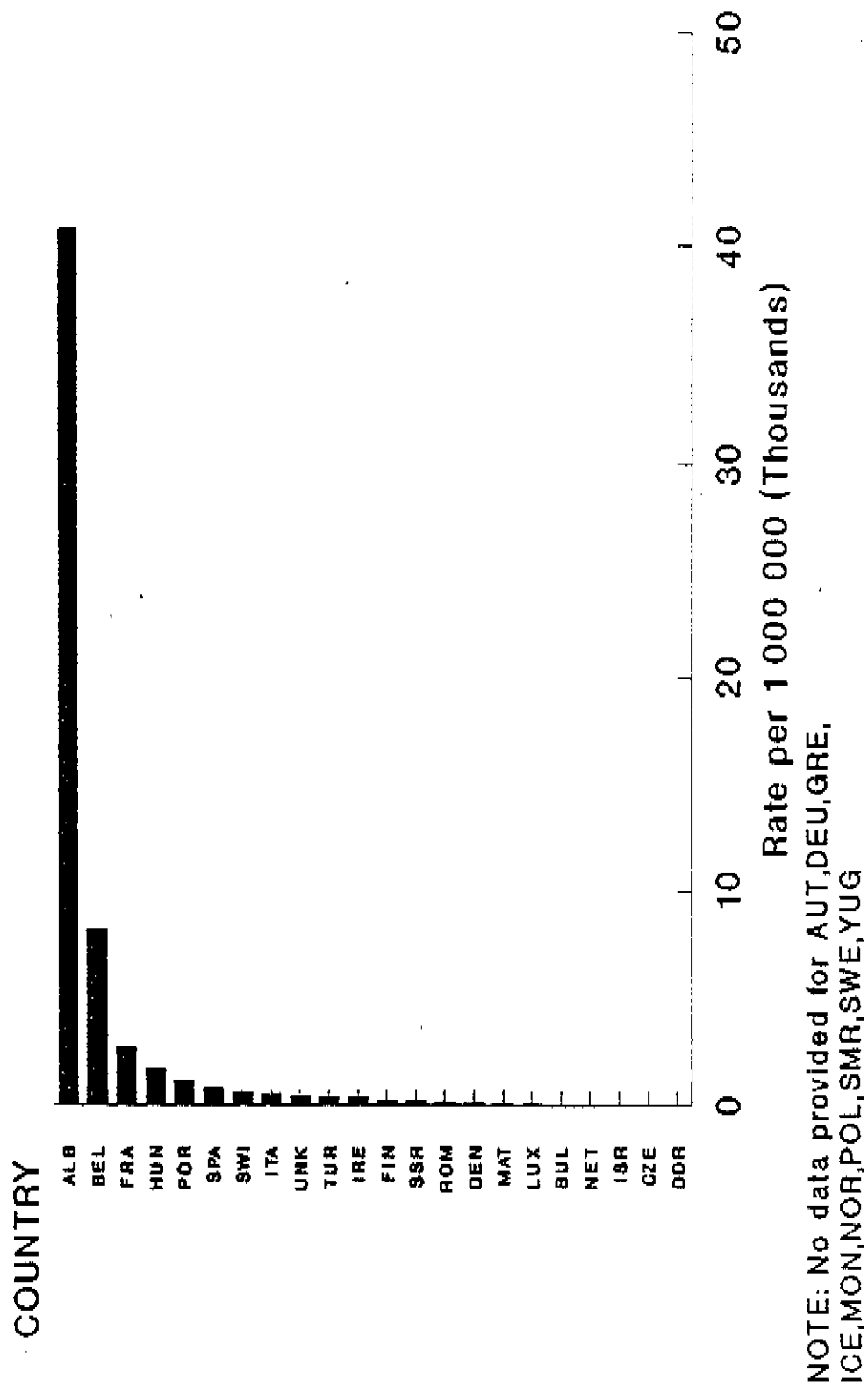


Fig. 6. Incidence of measles in the European Region 1974-1989

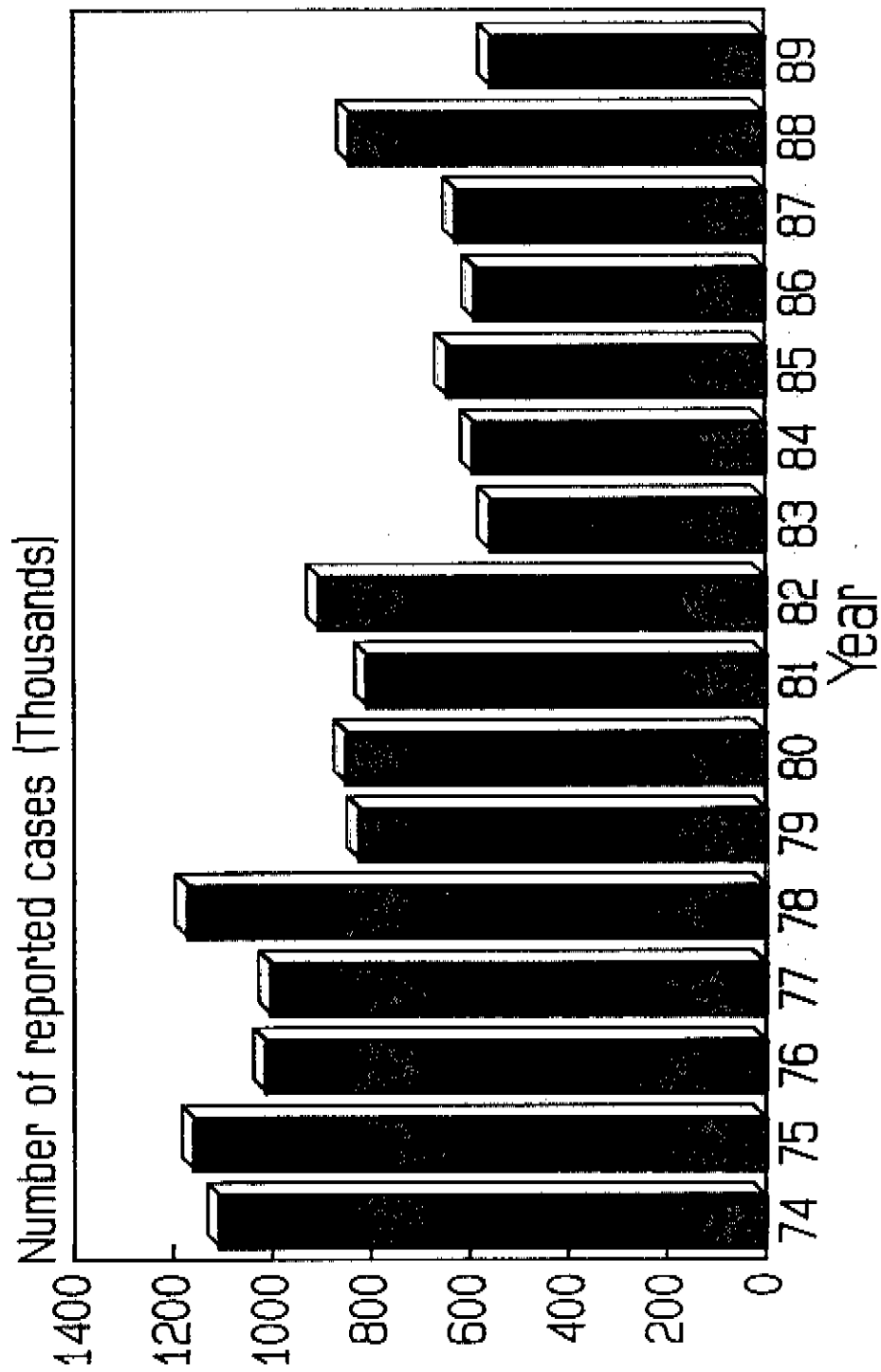


Fig. 7. Incidence of pertussis in the European Region in 1989

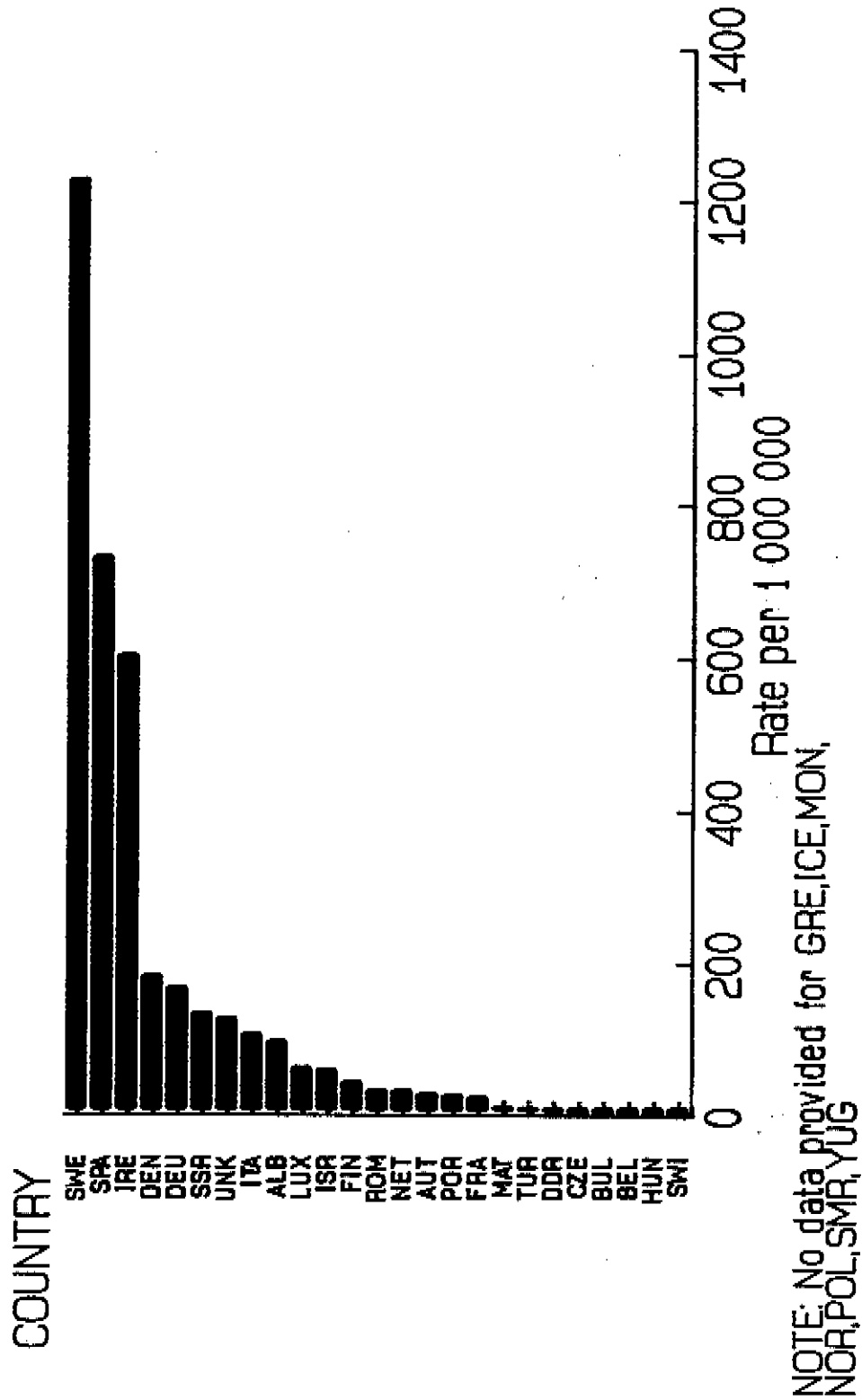


Fig. 8. Incidence of pertussis in the European Region 1974-1989

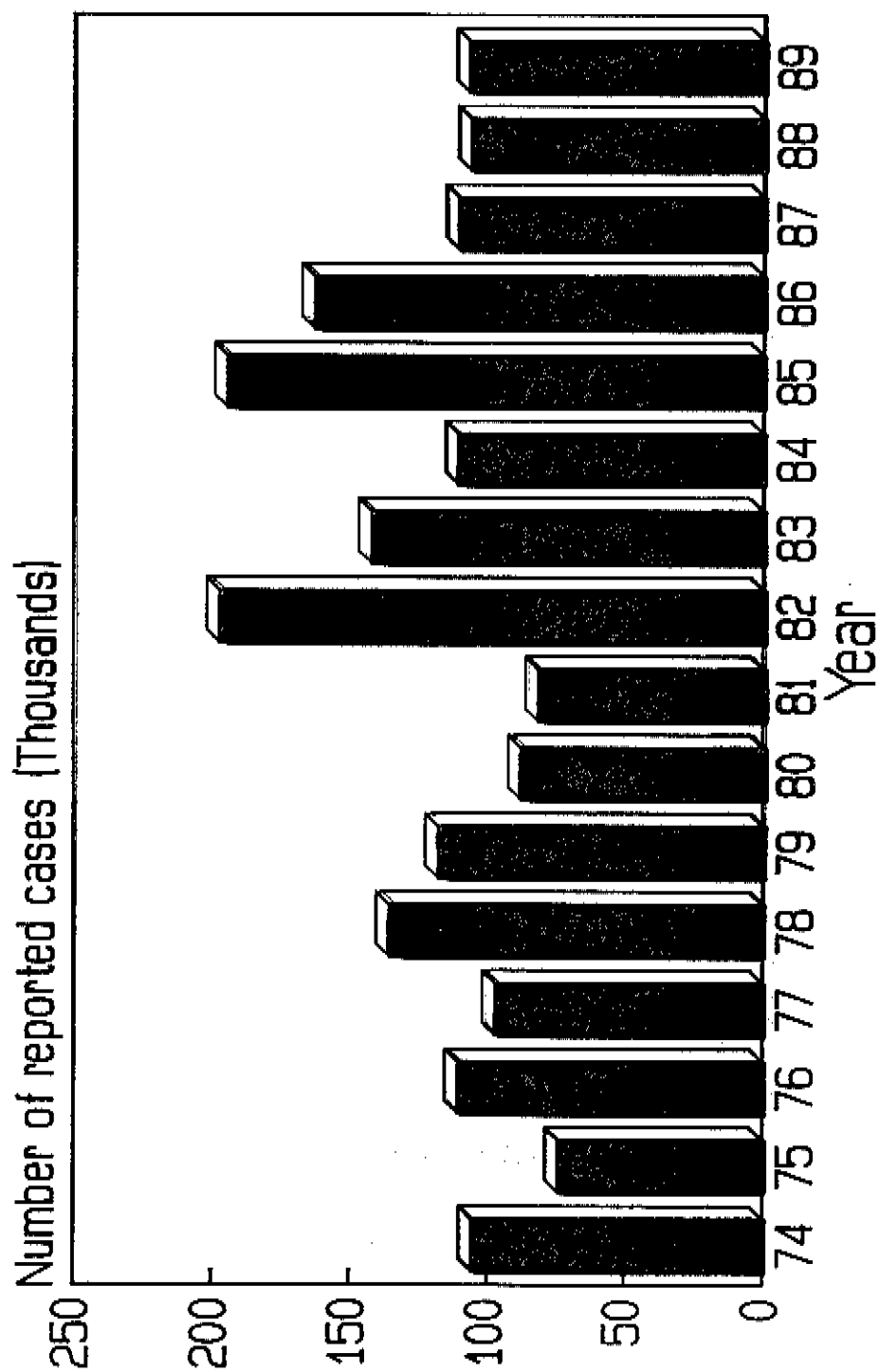


Fig. 9. Incidence of diphtheria in the European Region 1974-1989

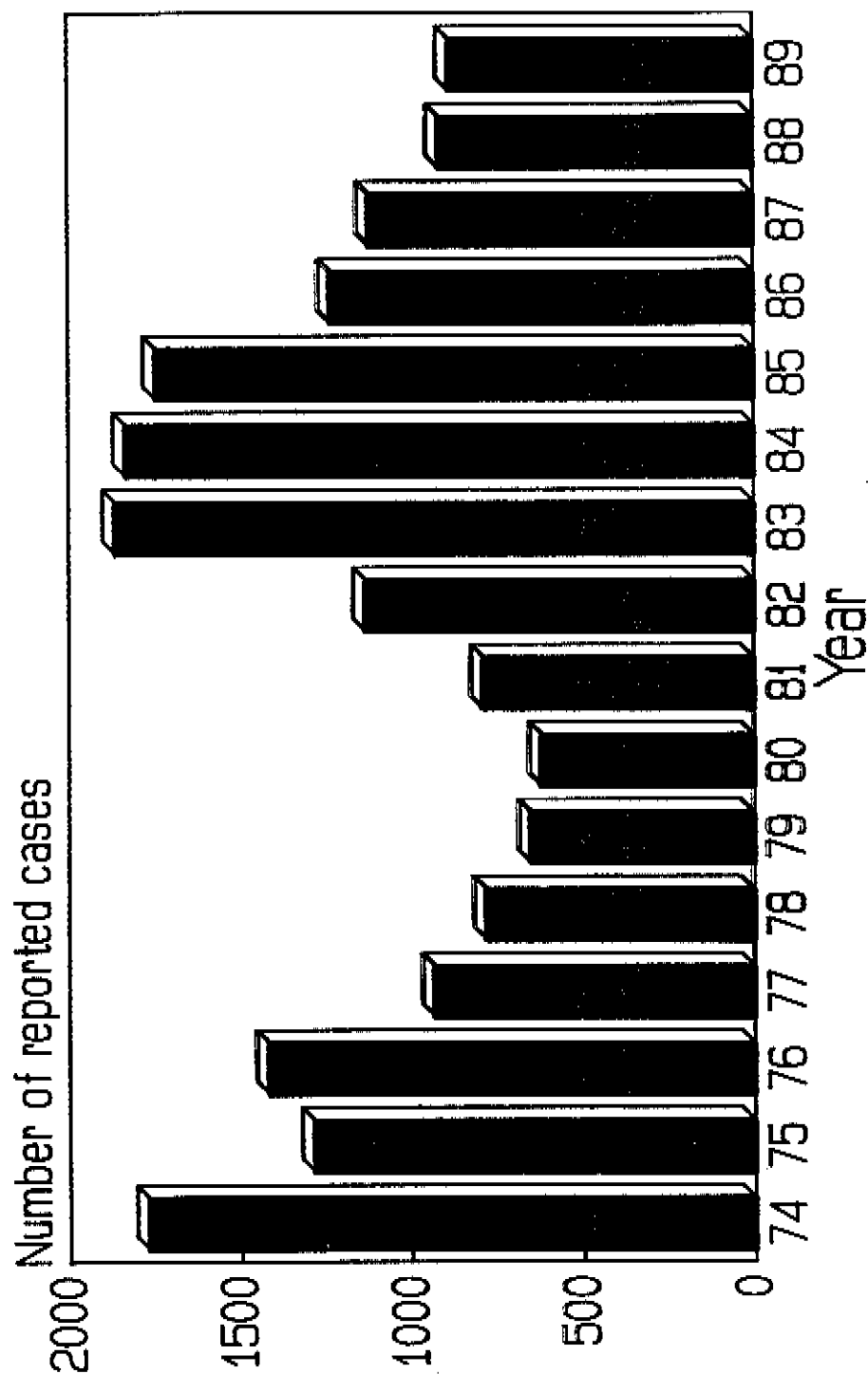
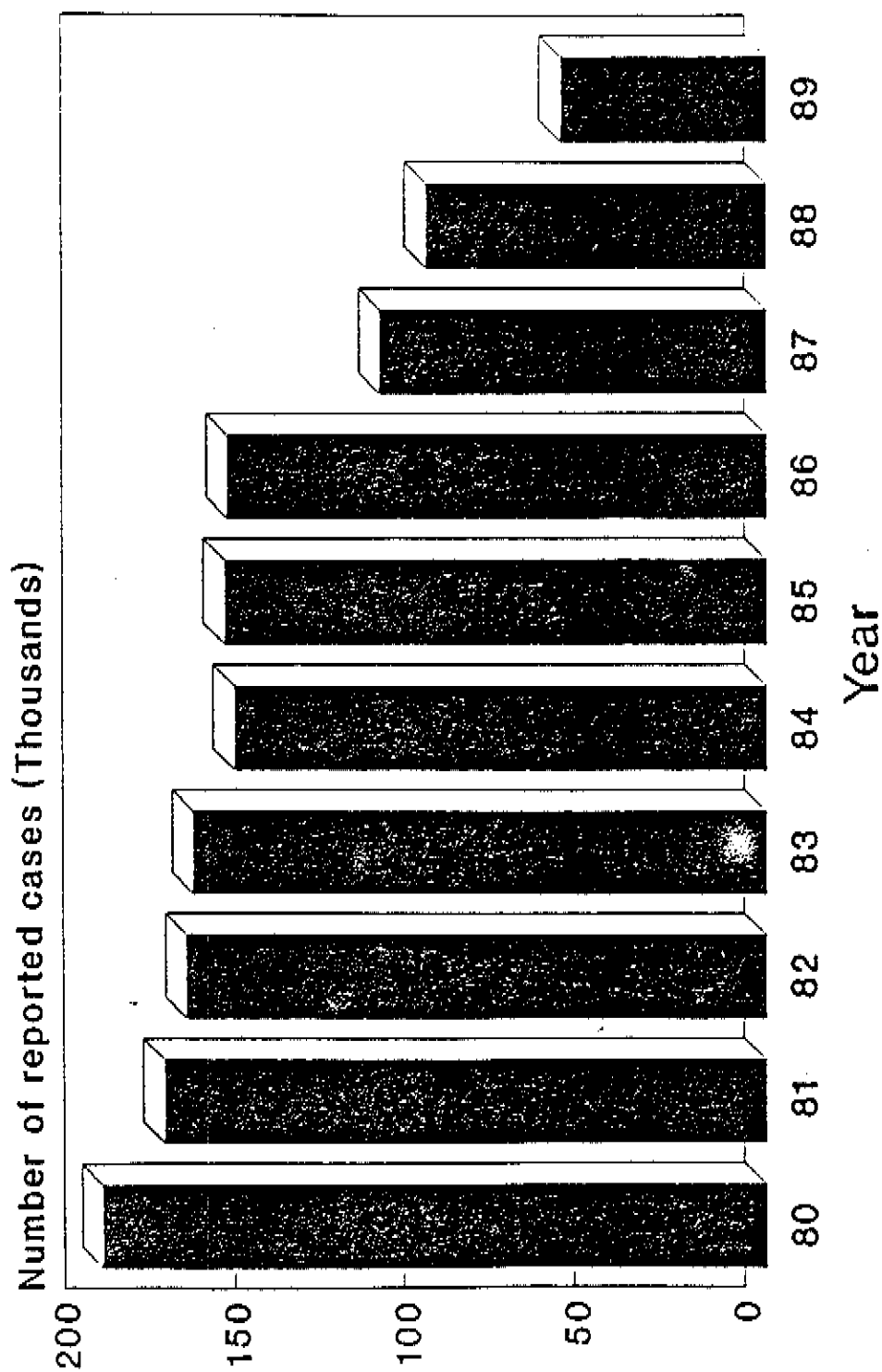


Fig. 10. Incidence of pulmonary tuberculosis in the European Region 1974-1989



Preliminary data for 1987, 1988 and 1989
Data for USSR not included

Fig. 11. Immunization currently recommended by the
European Advisory Group on EPI

Against:

- measles
- poliomyelitis
- neonatal tetanus
- congenital rubella
- diphtheria

TARGET 5

New antigens to be added:

- pertussis
- mumps
- hepatitis B
- Haemophilus influenzae B infection