Surveillance for tuberculosis in the Eastern Mediterranean Region

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الترصّد في مجال التدرن في إقليم شرق المتوسط

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خلاصـة يمثل التدرن مشكلة كبيرة من مشكلات الصحة العمومية بإقليم شرق المتوسط . ومن الأهمية بمكان أن يقيم كل بلد نظاما وطنيا للترصد في مجال التدرن . ولقد أعدت منظمة الصحة العالمية نظاما قياسيا لترصّد التـدرن ، يمكن عن طريقه جمع معلومات عن مؤشرين مهمين لمكافحة هذا المرض ، ألا وهما : معدل الشفاء ومعدل اكتشاف الحالات . ويتزايد عدد بلدان الإقليم التي اعتمدت نظام سنظمة الصحة العالمية لترصّد التدرن ، حيث وصل عدد البلدان التي تبلغ الآن عن معدل الشفاء إلى ثلاثة عشر بلداً ، وهذا هو أهم المؤشرات بالنسبة للبرامج الوطنية لمكافحة التدرن . والمأمول أن يتزايد عدد البلدان التي تطبق هذا النظــام .

ABSTRACT Tuberculosis is an important public health problem in the Eastern Mediterranean Region. It is crucial for each country to develop a national tuberculosis surveillance system. WHO has developed a standardized tuberculosis surveillance system through which two important indicators for tuberculosis control, a cure rate and a case detection rate, can be collected. The number of countries that have adopted the WHO tuberculosis surveillance system has been increasing in the Region. At the moment, 13 countries have reported a cure rate, which is the most important indicator for national tuberculosis control programmes. It is hoped that more countries will adopt this system.

Surveillance de la tuberculose dans la Région de la Méditerranée orientale

La tuberculose constitue un problème important de santé publique dans la Région de la Méditerranée orientale. Il est donc d'une importance capitale que chaque pays mette en place un système national de surveillance de la tuberculose. L'OMS a mis au point un système normalisé de surveillance de la tuberculose grâce auquel on peut recueillir deux indicateurs importants pour la lutte contre la tuberculose: un taux de guérison et un taux de dépistage des cas. Le nombre de pays qui ont adopté le système de surveillance de la tuberculose de l'OMS a augmenté dans la Région. A l'heure actuelle, 13 pays ont notifié un taux de guérison, lequel est l'indicateur le plus important pour les programmes nationaux de lutte contre la tuberculose. On espère que d'autres pays encore adopteront ce système.

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Introduction

Tuberculosis is an important public health problem in the Eastern Mediterranean Region. It is estimated that 30% of the Region's total population is already infected with tuberculosis bacilli [1]. The estimated incidence of tuberculosis in 1995 was 745 000, corresponding to an incidence rate of 166 per 100 000 population [2]. It is anticipated that the incidence of tuberculosis will increase year by year if tuberculosis control activities are not strengthened. The possible causes of the increase are insufficient tuberculosis control programmes, population growth, increasing rate of HIV infection, the spread of incurable multidrug resistance tuberculosis and social upheavals resulting from man-made and/or natural disasters. If this pattern continues the next decade (1996–2005) may witness the occurrence of approximately 8 or 9 million cases of tuberculosis in the Region.

It is thus critical for each country to develop an effective tuberculosis surveillance system in order to understand the country's situation in the fight against tuberculosis[2] and make necessary action to control the disease.

WHO recommended strategy for tuberculosis control and surveillance

The tuberculosis control strategy recommended by WHO is to provide standardized short-course chemotherapy to all sputum smear-positive tuberculosis cases under proper case management conditions [3]. Proper case management includes what is known as directly-observed treatment, short-course (DOTS). DOTS is a system where health workers or health volunteers watch as each patient takes the correct medications [4]. Using DOTS gives the best chance for cure of tuberculosis cases and prevention of transmission of tuberculosis bacilli. The targets for global tuberculosis control are to cure 85% of the detected new smear-positive tuberculosis cases and to detect 70% of existing cases by the year 2000. Achieving a high cure rate is the top priority.

The activities of a national tuberculosis control programme are monitored and evaluated primarily by two indicators: the cure rate of the detected smear-positive cases, which reflects the effectiveness of the national tuberculosis programme, and the number of notified tuberculosis cases, which together with their age and sex distribution, reflects the effectiveness of the national tuberculosis programme in assessing the epidemiological situation of tuberculosis in a country.

WHO has developed a standardized system for the collection of the information needed to estimate these indicators. In this system, cases are categorized into: New, Relapse, Transferred in, Treatment after default, Failure, or Others. Classification of the disease is made into pulmonary tuberculosis—smear positive; pulmonary tuberculosis—smear negative; and extrapulmonary tuberculosis. Treatment outcomes are divided into: Cured, Treatment completed, Died, Failure, Defaulted, or Transferred out. Several recording and reporting forms are to be used in the system:

• For detection and treatment of individual tuberculosis cases (at health facility level):

    – tuberculosis treatment card

    – tuberculosis smear examination form

    – tuberculosis laboratory register.

• For management of detected tuberculosis cases (at district level):

    – district tuberculosis register.

- For reporting of tuberculosis control activities (at district level and above):
  - quarterly report on case-finding
  - quarterly report on sputum conversion at the end of the third month
  - quarterly report on treatment results.

The recommended system is that when a tuberculosis suspect, namely a person who has had a cough for three weeks or more, visits a health facility, the medical officer refers the case to a laboratory for sputum smear examination with a tuberculosis smear examination form. At the laboratory, the tuberculosis suspect will have his or her sputum examined three times. The laboratory technician records the results in a tuberculosis laboratory register and in the tuberculosis smear examination form, which is then returned to the medical officer.

Once the diagnosis of tuberculosis is made, the health personnel concerned, usually medical officers or nurses, open a treatment card for the patient and provide the treatment under DOTS.

A coordinator who is responsible for tuberculosis control in the district visits the health facilities in the district, supervises the case-finding and treatment activities and completes a district tuberculosis register. The register contains essential data on tuberculosis patients such as name, age, sex, address, name of treatment unit, date treatment started, treatment regimens, patient category, sputum smear results at the beginning and at the end of the second month (for new cases), third month (for return cases), then at the end of the fifth and sixth months, and the treatment results.

Based on the data in the district tuberculosis register, quarterly reports are completed on case-finding, on sputum smear conversion at the end of the second or third month and on treatment results. These data will illustrate the effectiveness of the national tuberculosis programme.

Through this national tuberculosis surveillance system and the use of standardized recording and reporting forms, essential information on the tuberculosis situation and tuberculosis control activities can be collected. Based on the results, a country can take any action required in the fight against tuberculosis.

Ten countries in the Eastern Mediterranean Region have already adopted the standardized WHO tuberculosis surveillance system and are implementing it either on a national scale or on a limited scale in demonstration sites. These are Djibouti, Egypt, the Islamic Republic of Iran, Morocco, Oman, Pakistan, Somalia, Saudi Arabia, Sudan and the Republic of Yemen. More countries are expected to adopt the WHO tuberculosis surveillance system.

Tuberculosis surveillance in the Eastern Mediterranean Region

In order to monitor and evaluate national tuberculosis control activities in the Region, in 1994 the WHO Regional Office for the Eastern Mediterranean started a national tuberculosis programme database surveillance system using standardized forms for data collection. The number of countries that have adopted the WHO recommended strategy for tuberculosis control and surveillance is increasing. It is expected that more countries will adopt this policy package and the surveillance system.

Tuberculosis notification in the Eastern Mediterranean Region

In 1993–94, a total of 212 702 cases of tuberculosis were notified from the countries of the Eastern Mediterranean Region (except Afghanistan and Somalia). Of these, 58 830 cases were new smear-positive pulmonary tuberculosis. Table 1 shows that

Table 1 **Tuberculosis by country in the Eastern Mediterranean Region**

Country	Year of notification	All tuberculosis cases		Smear-positive cases	
		No.	%	No.	%
Bahrain	1993	114	(20.8)	82	(14.9)
Cyprus	1994	37	(5.0)	10	(1.4)
Djibouti	1994	3311	(563.1)	1743	(296.4)
Egypt	1994	3911		1811	
Iran, Islamic Republic of	1993	20 569	(34.3)	4420	(7.4)
Iraq	1993	18 558	(93.0)	5240	(26.2)
Jordan	1994	443	(10.5)	161	(3.8)
Kuwait	1994	237	(14.6)	155	(9.6)
Lebanon	1994	940	(30.5)	148	(4.8)
Libyan Arab Jamahiriya	1993	1164	(24.5)	582	(12.3)
Morocco	1994	30 316	(114.0)	14 650	(55.1)
Oman	1994	300	(14.3)	135	(6.4)
Pakistan	1993	73 175	(56.0)	11 020	(8.4)
Palestine	1994	—		65	(2.1)
Qatar	1993	200	(33.2)	53	(8.8)
Saudi Arabia	1994	2518	(14.3)	—	
Sudan	1993	37 516	(146.6)	13 046	(51.0)
Syrian Arab Republic	1994	5127	(37.1)	1175	(8.5)
Tunisia	1994	2376	(27.0)	983	(11.2)
United Arab Emirates	1994	426	(19.1)	—	
Republic of Yemen	1994	11 464	(72.5)	3351	(21.2)
Total		212 702	(52.8)	58 830	(14.6)

Notes: Data from Afghanistan and Somalia are not available
Data from Egypt are collected only from demonstration sites
Figures between ( ) refer to incidence rates per 100 000 population

there are almost 3.6 times more "All tuberculosis cases" notified than "Smear-positive cases". This indicates that there is overdiagnosis of smear-negative (over extrapulmonary tuberculosis cases: the ratio of smear-positive to others is expected to be 1:1).

The case notifications do not reflect the real magnitude of the tuberculosis problem in the Region. The estimated tuberculosis incidence in the Region is 745 000. Member States can be classified into three groups (high, intermediate and low incidence) ac-

cording to the estimated tuberculosis incidence rate per 100 000 population (Table 2). It should be noted that more than 95% of the regional population belongs to countries with either high or intermediate tuberculosis incidence.

Comparing the tuberculosis notifications with the estimated tuberculosis incidence, it appears that the case detection rate of tuberculosis (notifications divided by estimated incidence) at the regional level is around 30%. It is far less than the global target for case detection rate, which is 70% by the

Table 2 **Classification of countries by estimated tuberculosis incidence (1994)**

Group	Tuberculosis incidence rate (per 100 000)	Estimated population at risk (x 1 000)
Group 1: High incidence (6)	> 100	197 431
Afghanistan, Djibouti, Morocco, Pakistan, Somalia, Sudan, Republic of Yemen		(46.1%)
Group 2: Intermediate incidence (9)	2–100	211 225
Egypt, Islamic Republic of Iran, Iraq, Kuwait, Oman, Saudi Arabia, Syrian Arab Republic, Tunisia		(49.4%)
Group 3: Low incidence (7)	< 20	17 035
Bahrain, Cyprus, Jordan, Lebanon, Libyan Arab Jamahiriya, Palestine, Qatar		(4.0%)
Regional total		425 691

Note: Information not available from United Arab Emirates. Figures between brackets in the first column refer to the number of countries in each group

Table 3 **Classification of countries by tuberculosis case detection rate (1994)**

Group	Case detection rate (%)	Estimated population at risk (x 1 000)
Group A: High detection rate (7)	> 60	40 396
Bahrain, Djibouti, Jordan, Libyan Arab Jamahiriya, Morocco, Palestine, Qatar		(9.4%)
Group B: Moderate detection rate (4)	40–60	70 149
Iraq, Sudan, Tunisia, Yemen,		(16.4%)
Group C: Low detection rate (8)	< 40	282 888
Cyprus, Egypt, Islamic Republic of Iran, Lebanon, Oman, Pakistan, Syrian Arab Republic		(67.0%)
Regional total		393 433

Note: Information not available from Afghanistan, Somalia, Saudi Arabia and United Arab Emirates. Figures between brackets in the first column refer to the number of countries in each group. Percentages given in this column are percentages of total region population

Table 4 **Cure rate of new smear-positive tuberculosis cases by country**

Country	Year	Cure rate (%)	Remarks
Bahrain	1992	...	Majority of cases were transferred out
Djibouti	1993	61.0	
Egypt	1993	38.1	Results among cases who received short-course chemotherapy
Iraq	1992	68.4	
Jordan	1993	97.1	
Kuwait	1993	93.6	
Lebanon	1993	...	98.3% of cases have completed treatment
Morocco	1993	75.6	Total number of cases was 12 869
Oman	1993	95.6	Cohort of 1st/2nd quarters of 1993
Qatar	1992	70.5	
Sudan	1992	48.0	
Syrian Arab Republic	1993	47.7	
Republic of Yemen	1992	36.3	
Total		66.5	

Note: Data are not available from Afghanistan, Cyprus, Islamic Republic of Iran, Libyan Arab Jamahiriya, Pakistan, Palestine, Saudi Arabia, Somalia, Tunisia, and United Arab Emirates

year 2000. At country level, case detection rate varies widely. Table 3 shows that seven countries have high case detection rates (>60%), four countries have moderate case detection rates (40–60%) and eight countries have low case detection rates (< 40%).

The age distribution of the notified smear-positive tuberculosis cases shows that around 80% of these cases occurred among the economically productive sector of society (15–54 years old). It indicates the serious impact of tuberculosis on the community.

Treatment outcomes in the Eastern Mediterranean Region

Treatment outcomes of the registered tuberculosis cases showed considerable variations between the 13 countries reporting them. The cure rates (percentage of cured cases out of all cases) in Jordan, Kuwait and Oman are higher than 85%, while less than 50% in some others (Table 4).

References

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