



## 2.15 Disease prevention: coverage and quality

	Access to safe water		Access to sanitation		Tetanus vaccinations	Child immunization		Access to essential drugs	Tuberculosis treatment success rate	DOTS detection rate
	% of population		% of population		% of pregnant women	% of children under 12 months		% of population	% of cases	% of cases
	1982-85 <sup>a</sup>	1990-96 <sup>a</sup>	1982-85 <sup>a</sup>	1990-96 <sup>a</sup>	1996-97	Measles 1995-98 <sup>a</sup>	DPT 1995-98 <sup>a</sup>	1997	1990-97 <sup>a</sup>	1995-97 <sup>a</sup>
Albania	92	76	..	58	65	95	99	60	..	..
Algeria	..	..	..	..	52	74	79	95	86	97
Angola	28	32	18	16	24	78	41	20	..	70
Argentina	55	65	69	75	..	98	85	70	..	4
Armenia	..	..	..	..	..	92	87	40	77	49
Australia	99	99	99	86	..	87	86	100	..	..
Austria	99	..	..	100	..	90	90	100	..	..
Azerbaijan	..	..	..	36	..	99	95	86	7	..
Bangladesh	40	84	4	35	86	97	98	65	72	19
Belarus	..	..	..	..	..	98	97	70	..	..
Belgium	98	..	..	100	..	64	62	..	..	..
Benin	14	50	10	20	66	82	78	..	72	35
Bolivia	53	55	36	41	27	98	82	70	62	80
Bosnia and Herzegovina	..	..	..	41	..	85	79	..	..	..
Botswana	..	70	36	55	54	79	76	90	70	80
Brazil	75	72	24	67	30	99	79	40	..	..
Bulgaria	85	..	..	99	..	93	94	..	..	..
Burkina Faso	35	..	9	18	54	68	70	60	29	16
Burundi	23	52	..	51	9	50	63	20	45	25
Cambodia	..	13	..	..	31	68	70	30	94	50
Cameroon	36	41	36	40	49	43	44	..	..	..
Canada	100	99	85	95	..	..	..	100	..	..
Central African Republic	..	19	19	46	37	46	53	50	37	65
Chad	..	24	14	21	27	30	24	46	47	15
Chile	86	85	67	..	..	92	91	..	80	80
China	..	90	..	21	13	96	96	85	96	23
Hong Kong, China	..	..	..	..	..	82	88	..	..	..
Colombia	..	78	68	83	..	89	81	..	..	..
Congo, Dem. Rep.	..	27	..	9	..	20	18	..	80	46
Congo, Rep.	..	47	..	9	30	18	23	61	69	70
Costa Rica	..	92	95	97	..	99	91	100	..	..
Côte d'Ivoire	20	72	17	54	44	68	70	80	56	55
Croatia	..	63	67	61	..	93	92	100	..	..
Cuba	82	93	..	88	70	99	99	100	92	87
Czech Republic	100	..	..	..	..	96	98	..	66	53
Denmark	100	..	..	100	..	84	90	..	..	..
Dominican Republic	49	71	66	78	77	80	80	77	..	..
Ecuador	58	70	57	64	3	75	76	40	40	1
Egypt, Arab Rep.	90	64	..	11	61	92	94	..	81	10
El Salvador	51	55	62	68	..	97	97	80	..	45
Eritrea	..	7	..	..	34	53	60	57	..	3
Estonia	..	..	..	..	..	88	85	100	..	..
Ethiopia	..	27	..	8	30	52	63	..	72	24
Finland	95	98	100	100	..	98	100	98	..	..
France	98	100	..	96	83	83	97	..	..	..
Gabon	..	67	50	76	4	57	41	30	..	..
Gambia, The	45	76	..	37	96	91	96	90	80	75
Georgia	..	..	..	..	..	95	92	30	58	29
Germany	..	..	..	..	80	75	45	100	..	..
Ghana	..	56	26	42	..	59	60	..	51	33
Greece	85	..	..	96	..	90	85	100	..	..
Guatemala	58	67	54	67	38	74	78	50	81	52
Guinea	20	62	12	14	..	56	53	93	75	52
Guinea-Bissau	31	53	..	20	46	51	63	..	..	..
Haiti	..	28	19	24	38	32	34	30	..	2
Honduras	50	65	32	65	..	89	94	40	..	..



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	1982-85 <sup>a</sup>	1990-96 <sup>a</sup>	1982-85 <sup>a</sup>	1990-96 <sup>a</sup>	1996-97	Measles 1995-98 <sup>a</sup>	DPT 1995-98 <sup>a</sup>	1997	1990-97 <sup>a</sup>	1995-97 <sup>a</sup>
Hungary	87	..	..	94	..	100	100	100	..	..
India	54	81	8	16	80	81	90	35	79	1
Indonesia	39	62	30	51	53	92	91	80	81	7
Iran, Islamic Rep.	71	83	65	67	75	96	100	85	87	7
Iraq	74	44	..	36	45	98	92	85	..	..
Ireland	97	..	..	100	..	..	..	..	..	..
Israel	100	99	..	100	..	94	92	..	..	100
Italy	99	..	..	100	..	75	60	..	82	9
Jamaica	96	70	91	74	52	88	90	95	72	81
Japan	99	96	99	100	..	94	100	100	..	..
Jordan	89	89	91	95	22	95	93	100	..	..
Kazakhstan	..	..	..	..	..	97	96	..	..	..
Kenya	27	53	44	77	51	32	36	35	77	55
Korea, Dem. Rep.	..	..	100	..	5	100	100	..	..	..
Korea, Rep.	83	83	100	100	..	85	80	..	71	56
Kuwait	100	100	100	100	8	95	96	..	..	..
Kyrgyz Republic	..	81	..	..	..	98	98	..	88	4
Lao PDR	..	39	..	24	32	67	60	..	55	32
Latvia	..	..	..	..	..	97	75	90	64	69
Lebanon	92	100	75	100	..	89	92	..	89	56
Lesotho	18	52	12	6	..	53	57	80	71	65
Libya	90	90	70	86	..	92	96	100	..	..
Lithuania	..	..	..	..	..	96	90	..	..	..
Macedonia, FYR	..	..	..	..	91	98	97	..	..	..
Madagascar	31	29	..	15	30	68	73	65	55	60
Malawi	32	45	60	53	81	87	95	..	68	50
Malaysia	71	89	75	94	71	83	91	70	69	70
Mali	..	37	21	31	62	56	52	60	65	17
Mauritania	37	64	..	32	63	20	28	100	96	40
Mauritius	99	98	97	100	78	85	89	..	..	..
Mexico	82	83	57	66	70	97	83	92	75	15
Moldova	..	56	..	50	..	99	97	25	..	..
Mongolia	..	..	..	..	..	98	92	60	78	30
Morocco	32	52	50	40	33	92	95	..	88	94
Mozambique	9	32	10	21	41	70	61	50	54	57
Myanmar	27	38	24	41	78	88	90	60	79	25
Namibia	..	57	..	34	70	57	63	80	54	74
Nepal	24	44	1	6	65	85	78	20	85	11
Netherlands	100	100	..	100	..	96	95	100	81	45
New Zealand	100	..	88	..	..	114	86	100	..	..
Nicaragua	50	81	27	31	42	94	94	46	79	90
Niger	37	53	9	15	19	42	28	..	57	21
Nigeria	36	39	..	36	29	69	45	10	32	10
Norway	99	100	..	100	..	..	..	100	80	90
Oman	58	68	39	85	96	98	99	90	87	83
Pakistan	38	60	16	30	58	74	74	65	70	2
Panama	82	84	81	90	..	92	95	80	..	..
Papua New Guinea	..	28	..	22	11	40	45	90	60	4
Paraguay	23	39	49	32	32	61	82	..	51	55
Peru	53	80	48	44	57	94	98	60	89	95
Philippines	65	83	57	77	38	83	83	95	82	3
Poland	82	..	..	100	..	..	..	..	..	..
Portugal	66	82	..	100	..	99	95	100	74	67
Puerto Rico	..	97	..	..	..	..	..	..	68	81
Romania	71	62	..	44	..	97	97	85	..	..
Russian Federation	..	..	..	..	..	95	87	..	62	1



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Rwanda	..	..	..	..	43	66	77	60	61	45
Saudi Arabia	91	93	86	86	66	92	92	..	..	..
Senegal	44	50	..	58	34	65	65	..	41	62
Sierra Leone	24	34	13	11	42	28	26	..	74	37
Singapore	100	100	85	100	..	89	93	100	86	28
Slovak Republic	..	..	46	51	..	98	98	100	73	34
Slovenia	..	98	80	98	..	82	91	100	87	60
South Africa	..	70	..	46	26	76	73	80	69	6
Spain	99	..	..	100	..	..	..	100	..	..
Sri Lanka	37	46	..	52	78	94	97	95	80	71
Sudan	..	50	5	22	55	92	79	15	..	1
Sweden	100	..	..	100	..	96	99	..	..	..
Switzerland	100	100	..	100	..	..	..	100	..	..
Syrian Arab Republic	71	85	45	56	53	93	95	80	92	5
Tajikistan	..	69	..	62	..	95	95	..	..	..
Tanzania	52	49	..	86	27	69	74	..	76	55
Thailand	66	89	47	96	88	92	96	95	78	5
Togo	35	63	14	26	41	38	33	70	60	15
Trinidad and Tobago	98	82	..	96	..	88	90	..	..	..
Tunisia	89	99	52	96	80	92	96	51	..	..
Turkey	69	..	..	94	32	76	79	..	..	..
Turkmenistan	..	60	..	60	..	100	98	..	..	..
Uganda	16	34	13	57	38	60	58	70	33	65
Ukraine	..	55	..	49	..	97	96	..	..	..
United Arab Emirates	100	98	86	95	..	95	92	..	..	..
United Kingdom	100	100	..	100	..	95	95	..	..	..
United States	..	..	98	..	..	89	94	..	71	86
Uruguay	83	89	59	61	..	80	88	..	80	95
Uzbekistan	..	57	..	18	..	88	96	..	..	..
Venezuela, RB	84	79	45	58	..	68	60	90	80	75
Vietnam	..	36	..	21	92	96	95	85	90	77
West Bank and Gaza	..	..	..	..	..	96	96	..	..	..
Yemen, Rep.	..	39	..	19	26	51	57	50	76	30
Yugoslavia, FR (Serb./Mont.)	..	..	..	..	..	91	94	80	..	..
Zambia	48	43	47	23	..	69	70	..	..	..
Zimbabwe	52	77	26	66	58	73	78	70	..	..
<b>World</b>	<b>.. w</b>	<b>.. w</b>	<b>.. w</b>	<b>.. w</b>		<b>83 w</b>	<b>83 w</b>			
<b>Low income</b>	..	..	..	24		80	82			
Excl. China & India	..	..	..	..		71	68			
<b>Middle income</b>	..	..	..	..		90	86			
Lower middle income	..	..	..	..		89	89			
Upper middle income	77	..	51	..		92	82			
<b>Low &amp; middle income</b>	..	..	..	29		83	83			
East Asia & Pacific	..	84	..	29		93	93			
Europe & Central Asia	..	..	..	..		91	89			
Latin America & Carib.	72	..	46	..		93	82			
Middle East & N. Africa	68	..	..	..		88	90			
South Asia	52	77	7	16		81	87			
Sub-Saharan Africa	..	..	..	..		58	53			
<b>High income</b>	..	..	..	..		..	..			
Europe EMU	97	..	..	99		75	69			

a. Data are for the most recent year available.



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### About the data

The indicators in the table are based on data provided to the World Health Organization (WHO) by member states as part of their efforts to monitor and evaluate progress in implementing national health-for-all strategies. Because reliable, observation-based statistical data for these indicators do not exist in some developing countries, the data are estimated.

People's health is influenced by the environment in which they live. Lack of clean water and basic sanitation is the main reason diseases transmitted by feces are so common in developing countries. Drinking water contaminated by feces deposited near homes and an inadequate supply of water cause diseases accounting for 10 percent of the disease burden in developing countries (World Bank 1993c). The data on access to safe water measure the share of the population served by improved sources of water. An improved source can be any form of collection or piping used to make water regularly available. The reported data are based on surveys and estimates provided by governments. The underlying definitions vary from country to country and among locations within countries. They have also changed over time. Moreover, water quality generally is not tested during the surveys on which these data are based. Similar reservations apply to the data on access to sanitation.

Neonatal tetanus is an important cause of infant mortality in some developing countries and can be prevented through immunization of the mother during pregnancy. Recommended doses for full protection are generally two tetanus shots during the first pregnancy and one booster shot during each subsequent pregnancy, with five doses considered adequate for lifetime protection. Information on tetanus shots during pregnancy is collected through surveys in which pregnant respondents are asked to show antenatal cards on which tetanus shots have been recorded. Because not all women have antenatal cards, respondents are also asked about their receipt of these injections. Poor recall may result in a downward bias in estimates of the share of births protected. But in settings where receiving injections is common, respondents may erroneously report having received tetanus toxoid.

Governments in developing countries usually finance immunization against measles and diphtheria, pertussis (whooping cough), and tetanus (DPT) as part of the basic public health package, though they often rely on personnel with limited training to provide the vaccines. According to the World Bank's *World Development Report 1993: Investing in Health*, these diseases accounted for about 10 percent of the disease burden among children under five in 1990, compared with an expected 23 percent at 1970 levels of vaccination. In many developing countries, however, data recording practices make

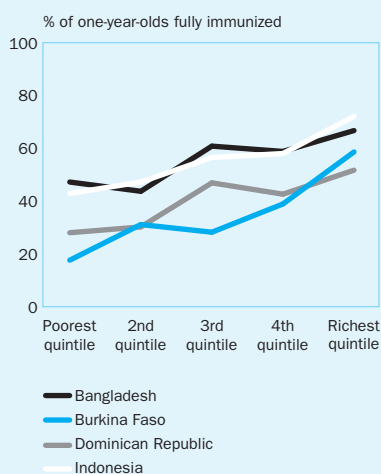
immunization coverage difficult to measure (WHO 1996).

Essential drugs are pharmaceutical products included by the WHO on a periodically updated list of safe and effective treatments for both communicable and noncommunicable diseases. They are cost-effective elements of a health system that can treat many common diseases and conditions, including, among many others, anemia, hypertension, tuberculosis, and malaria.

Data on the success rate of tuberculosis treatment are provided for countries that have implemented the recommended control strategy: directly observed treatment, short-course (DOTS). Countries that have not adopted DOTS or have only recently done so are omitted because of lack of data or poor comparability or reliability of reported results. The treatment success rate for tuberculosis provides a useful indicator of the quality of health services. A low rate or no success suggests that infectious patients may not be receiving adequate treatment. An essential complement to the tuberculosis treatment success rate is the DOTS detection rate, which indicates whether there is adequate coverage by the recommended case detection and treatment strategy. A country with a high treatment success rate may still face big challenges if its DOTS detection rate remains low.

Figure 2.15

### Poor children are much less likely to be fully immunized



Note: Households are grouped into quintiles by assets. Source: Analysis of demographic and health surveys conducted by the World Bank and Macro International.

**Children in poor households are significantly less likely to be immunized against such diseases as measles, polio, and diphtheria, pertussis (whooping cough), and tetanus (DPT) than those in wealthier households.**

### Definitions

- **Percentage of population with access to safe water** is the share of the population with reasonable access to an adequate amount of safe water (including treated surface water and untreated but uncontaminated water, such as from springs, sanitary wells, and protected boreholes). In urban areas the source may be a public fountain or stand-pipe located not more than 200 meters away from the dwelling. In rural areas the definition implies that members of the household do not have to spend a disproportionate part of the day fetching water. An adequate amount of safe water is that needed to satisfy metabolic, hygienic, and domestic requirements—usually about 20 liters a person a day. The definition of safe water has changed over time.
- **Percentage of population with access to sanitation** is the share of the population with at least adequate excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Suitable facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, all facilities must be correctly constructed and properly maintained.
- **Pregnant women receiving tetanus vaccinations** are the percentage of pregnant women who receive two tetanus toxoid injections during their first pregnancy and one booster shot during each subsequent pregnancy.
- **Child immunization** is the rate of vaccination coverage of children under one year of age for four diseases—measles and diphtheria, pertussis (or whooping cough), and tetanus (DPT). A child is considered adequately immunized against measles after receiving one dose of vaccine, and against DPT after receiving two or three doses of vaccine, depending on the immunization scheme.
- **Percentage of population with access to essential drugs** is the share of the population for which a minimum of 20 of the most essential drugs are continuously available and affordable at public or private health facilities or drug outlets within one hour's walk.
- **Tuberculosis treatment success rate** refers to the percentage of new, registered smear-positive (infectious) cases that were cured or in which a full-course treatment was completed.
- **DOTS detection rate** is the percentage of estimated new infectious tuberculosis cases detected under the directly observed treatment, short-course (DOTS) case detection and treatment strategy.

### Data sources

The table was produced using information provided to the WHO by countries, the WHO's *EPI Information System: Global Summary, September 1998*, its *Essential Drugs and Medicine Policy*, and its *Global Tuberculosis Control Report 1999* and the United Nations Children's Fund's (UNICEF) *State of the World's Children 2000*.