EPI Newsletter

Expanded Program on Immunization in the Americas

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EPI Global Status Report

The goal of the Expanded Program on Immunization (EPI) is to reduce morbidity and mortality by providing immunization against the target diseases of diphtheria, pertussis, tetanus, measles, poliomyelitis and tuberculosis for every child in the world by 1990. A prime focus for the EPI has been developing countries, which face the greatest challenges in meeting this goal. But the concern of the program is with all children and thus with all countries. This status report summarizes information available to WHO as of 30 April 1980 from 196 countries/areas.

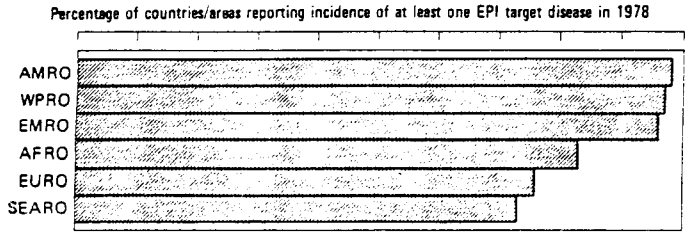
Four indices of program activity are shown by Region in Figure 1. Regional similarities are more striking than Regional differences: most countries/areas had reported on at least one of the target diseases in 1978, while fewer than half had reported on all six diseases.

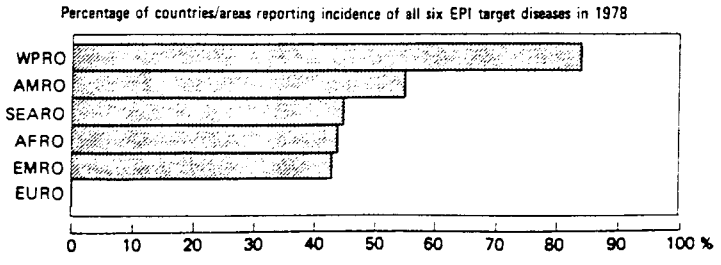
Figure 1

Regional Status of EPI Activities

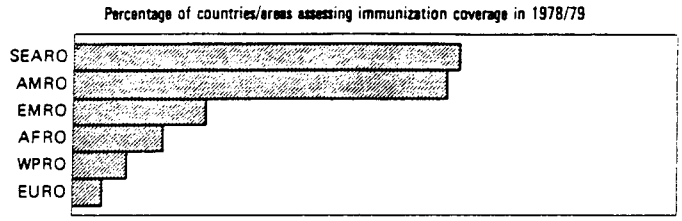
Percentage of countries/areas within each Region[1] for which data are available concerning:

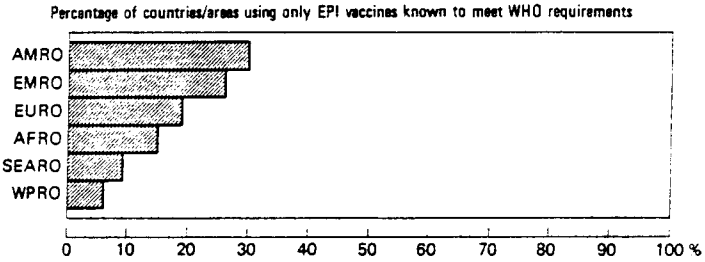
- Reported incidence of EPI diseases
- Vaccination coverage
- Quality of EPI vaccines





[1] WHO Regions:
AFRO - Africa
AMRO - Americas
EMRO - Eastern Mediterranean
EURO - Europe
SEARO - South-East Asia
WPRO - Western Pacific





REGION	AFRO	AMRO	EMRO	EURO	SEARO	WPRO
No. OF COUNTRIES/AREAS	46	47	23	37	11	32

Vaccination coverage is being assessed in a minority of countries, with the exception of those in the South-East Asia and American Regions. Countries/areas were counted as assessing immunization coverage if they collected immunization data by dose and by age and compared the number of children immunized with the number estimated to be in the target population, or if they performed sample surveys to estimate coverage. Complete information concerning the quality of all of the four "EPI

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vaccines" (DPT, measles, poliomyelitis and BCG) being used is not available to WHO for approximately 75% of the countries/areas. Some 20% are known to be using vaccines which conform to WHO requirements, and 5% are known to be using some vaccines which do not conform.

If one analyzes all reports received by WHO between 1974 and 1979, completeness of reporting ranges between Regions from 78% (AMRO) to 46% (EURO) and ranges between diseases from 74% (poliomyelitis) to 52% (tetanus). These data are summarized in Tables 1 and 2. A special WHO surveillance system exists for poliomyelitis and probably accounts for its being the most regularly reported of the target diseases.

Table 1

Comparison of Reports Expected with Reports Received by WHO from 196 Countries/Areas on the Incidence of the EPI Target Diseases, 1974-1979, by Region

Region	Number of Countries/ Areas	Number of Reports Expected	Number of Reports Received	Completeness in %
AFRO	46	1,656	1,009	61
AMRO	47	1,692	1,322	78
EMRO	23	828	493	60
EURO	37	1,332	616	46
SEARO	11	396	213	54
WPRO	32	1,152	856	74
Global	196	7,056*	4,509	64

* 7,056 = 196 countries/areas x 6 years x 6 target diseases.

Table 2

Comparison of Reports Expected with Reports Received by WHO from 196 Countries/Areas on the Incidence of the EPI Target Diseases, 1974-1979, by Disease

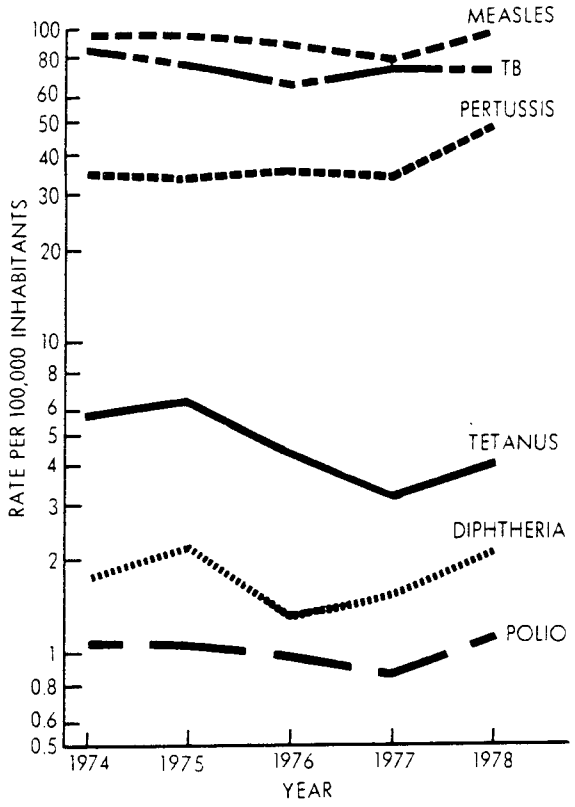
Disease	Number of Reports Expected	Number of Reports Received	Completeness in %
Poliomyelitis	1,176*	874	74
Measles	1,176	795	68
Diphtheria	1,176	760	65
Tuberculosis	1,176	739	63
Petussis	1,176	733	62
Tetanus	1,176	608	52

* 1,176 = 196 countries/areas x 6 years.

The reported global incidence rates for the EPI target diseases have remained relatively constant during the period 1974-1978 (Figure 2). This is not unexpected, given the slow growth of national immunization programs during this period, although it is also recognized that the reports may not be giving an accurate picture of actual disease incidence.

Figure 2

World: Reported Incidence Rates per 100,000 Populati for the Six EPI Target Diseases: 1974-1978



Countries in all Regions utilized sampling techniques to assess immunization coverage in 1978 and 1979 (Table 3). Results from 51 surveys were reported from the 26 countries listed. Surveyed children were for the most part between the ages of 12 and 35 months.

Table 3

Surveys of Immunization Coverage Performed in 1978 and 1979, by Region

Region	No. of Countries/ Areas Performing Surveys	Names of Countries/ Areas Performing Surveys
AFRO	8	Benin, Congo, Ivory Coast, Nigeria, Sierra Leone, U/R Cameroon, U/R Tanzania, Zaire
AMRO	5	Brazil, Costa Rica, Ecuador, Peru, USA
EMRO	3	Somalia, Sudan, Syrian Arab Republic
EURO	2	Algeria, Turkey
SEARO	5	India, Indonesia, Nepal, Sri Lanka, Thailand
WPRO	3	Fiji, Papua New Guinea, Philippines
Total	26	

Over one third of the surveys showed immunization coverage rates of 75% or more for BCG and the first dose f poliomyelitis, and 26% showed this level of coverage or the first DPT. No survey showed this level of coverage for measles immunization. This may reflect an increased difficulty in reaching children of approximately nine months of age who are "too small to walk and too big to carry." Most surveys showed a drop-off between the first and third DPT and poliomyelitis immunizations of approximately 30%. The figure was similar whether DPT was given alone, or whether DPT and poliomyelitis were given together.

These surveys for the most part reflect the situation in limited geographical areas where immunization efforts have recently been expanded, and over-estimate the coverages being achieved in the world at large.

This is the first time that information on the EPI has been summarized for all countries/areas. The available data leave much to be desired in both their quality and their quantity, but they accurately reflect the challenge for the future: surveillance of the target diseases needs to be improved to permit morbidity and mortality to be used as indices of program impact; data need to be acquired on the immunization status of children in susceptible age groups to assure that adequate coverage is being achieved; and all vaccines used should be known to conform to WHO requirements. These basic data are required for the management of national programs and, as such management improves, so the information available at national, Regional and global levels will improve.

Source: WHO Wkly. Epidem. Rec. 55(21):153-157, 23 May 1980.

Surveillance

Graphic Monitoring of Immunization Coverage

An essential component of any immunization program is a built-in system for continuous evaluation. Such a system should serve as an early warning of insufficient progress and lead to the identification of problems and the early implementation of corrective action.

Having established annual goals for immunization coverage, the person responsible for immunizations is often handicapped because insufficient progress is not identified soon enough to achieve the annual coverage target. A simple, practical system of charting progress, which is applicable at all levels, would thus be a useful tool in program evaluation.

Such a management tool is now being used in some English-speaking Caribbean countries. It consists of a graph which provides the manager with an indication by month of the progress made towards the annual coverage target. It is simple to update and is recommended for use as a wall chart in the manager's office.

This graph can be adapted and used for any target age group and type of immunization. The example in Figure 1 charts the monthly progress in country X towards providing each child under one year of age with three doses of DPT vaccine. The vertical axis represents the cumulative total of fully immunized children, while the horizontal axis represents the months of the year.

At the beginning of each calendar year, the immunization manager should obtain from the appropriate office of the Ministry of Health, estimates of the number of live births (2470 in the example shown in Figure 1) and

Figure 1

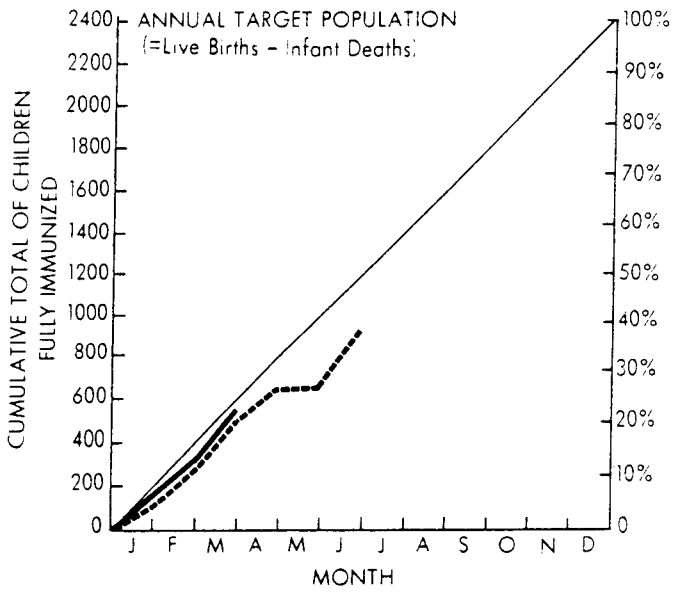
FULL IMMUNIZATION OF CHILDREN UNDER ONE YEAR OF AGE

COUNTRY X YEAR 1979

Type of Immunization DPT (DPT, Polio, Measles or BCG)

Full Immunization = 3 doses

Estimated Live Births (a)	2470
Estimated Infant Deaths (b)	70
Estimated Target Population (a) - (b)	2400



		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A-1	No. fully immunized during month (preliminary data)	130	170	200	120	0	310						
A-2	Cumulative total	130	300	500	620	620	930						
B-1	No. fully immunized during month (all reports received)	160	175	210									
B-2	Cumulative total	160	335	545									

1. Enter in row A-1 the preliminary data for the number of children who were fully immunized during the corresponding month. Enter in row A-2 the cumulative total for the year.
2. Chart monthly progress on the graph by plotting an "x" for the cumulative total at the end of each month and joining the x's with a dotted line.
3. Once all reports have been received, enter in row B-1 the final data for the number of children who were fully immunized during the corresponding month. Enter in row A-2 the final cumulative total for the year.
4. Chart monthly progress on the graph by plotting an "o" for the final cumulative total at the end of each month and joining the o's with a solid line.

the number of infant deaths (70) from the previous year. The difference between these two figures (2400) is the estimated number of children below one year of age who must be immunized if full coverage is to be achieved. This is the target number, which is inserted at the top of the vertical axis of the chart aligned with the "100%."

The annual target population is then divided by 12 in order to obtain the number of children who must be immunized each month in order to achieve complete coverage (2400/12 = 200). Starting with zero at the botton of the vertical axis, each position is incremented by the monthly target figure to give cumulative totals of the number of children who should have been fully immunized by the end of each month. In the example, the number of children to have received the third dose of DPT vaccine by the end of January, February and March is 200, 400, and 600, respectively.

The preliminary total for children fully immunized each month is entered below the graph, in row A-1. The cumulative totals are entered in row A-2 and are plotted on the chart (x----x), allowing easy comparison with the printed ideal curve.

After all reports have been received, the figure for the final adjusted monthly total is entered in row B-1. The cumulative totals, entered in row B-2, are then plotted on the chart (●——●), giving a more precise picture of progress achieved.

Although monthly reporting from the field units providing immunizations is highly desirable, the same chart could be used for less frequent reporting.

The estimation of the target group may be further improved by a health statistician, but concern about refinement of the target estimation should not preclude interim employment of this management tool.

Each type of immunization being administered in the EPI program will require a separate graph to chart progress being made in reaching the targeted goal.

Source: CAREC Surveillance Report 6(9), September 1980.

Editorial Note

The immunization-coverage graph can be used not only to monitor progress, but also as an indicator of when remedial action needs to be taken in order to achieve the targeted coverage. It will be noted that, for each period the graph is updated, one can easily determine the number of children who should have been immunized during that period but were not. Based on this information, immunization managers can then program the vaccination of this group, which might be targeted for the subsequent month or evenly distributed throughout the remaining months of the year.

For example, using the data given in Figure 1, if in January only 100 children were vaccinated, it might be decided to increase the target group in February to 300 instead of 200 children, or to divide the extra 100 children over the remaining 11 months of the year. The same process could be applied to the number of children not vaccinated in subsequent months, always aiming to complete the year as close as possible to the 100% target.

Vaccines

Improved Stability of EPI Vaccines

A recent literature survey made by the WHO/EPI Program has shown that the vaccine industry is making progress in producing vaccines with a longer useful life which are more resistant to deterioration when accidentally exposed to ambient temperature.

The findings suggest that diphtheria and tetanus vaccines--simple and adsorbed, alone or in combination--are highly stable preparations, followed in order of decreasing stability by DPT, inactivated poliomyelitis vaccine, freeze-dried BCG, the improved freeze-dried measles vaccine, and oral poliomyelitis vaccine, which is the most vulnerable of all.

At temperatures of +2°C to +8°C, freeze-dried bacterial and viral vaccines will keep for over a year, and most brands of oral poliomyelitis vaccine maintain their initial titre for at least three months without inactivation. At +20°C to +25°C, DPT retains its protective potency for several months; some brands may even retain their potency for up to one year though this is the exception. Freeze-dried BCG and freeze-dried measles vaccine remain potent for at least four months at +20°C to +25°C, whereas oral poliomyelitis vaccine is inactivated in less than two weeks.

At temperatures of +37°C and above, the potency of all vaccines except diphtheria, tetanus and DT is seriously endangered after a relatively short exposure three days in the case of polio vaccine and a few week in the case of BCG and freeze-dried measles vaccine.

Editorial Note

Because temperature-induced inactivation is cumulative, vaccines which have been exposed to adverse conditions within the above-mentioned time limits should be used immediately; they should never be used to build a buffer stock for contingencies. Even though the stability of certain vaccines has improved, an efficient cold chain is still necessary to maintain vaccine potency at all times. Only by assuring that the vaccines are kept at the proper temperature can it be guaranteed that they will be of good quality at the time of administration.

Source: WHO Wkly. Epidem. Rec. 55(33):252-254, 15 August 1980.

Measles Vaccine Efficacy: United States

From July 1978 through October 1979, 24 of 63 Immunization Project Areas[1] voluntarily supplied the Center for Disease Control (CDC) in Atlanta, Georgia with detailed information on their reported measles cases. This included such data as vaccination status

[1]State or local health jurisdictions which have been awarded federal funding for immunization programs.

Status of Immunization Programs in the Americas

Country	Year of Participation in EPI training (a)		All vaccines used in EPI considered to meet WHO requirements 1980 (b)	Purchase of one or more vaccines thru EPI Revolving Fund - 1980	Prog. Mgr. named (c)	Estimated pop under 1 year (d) 1979	Vaccination Coverage in Children under 1 yr of age - 1979 (e)									Reported Cases per 100,000 Population - 1979 (e)				
							BCG	DPT			MEASLES	POLIO			TET TOX (f)					
	Reg'l Course	Nat'l Course					%	1 dose %	II dose %	III dose %	%	1 dose %	II dose %	III dose %	%	MEASLES	POLIO	WHOOPING COUGH	DIPHTHERIA	TETANUS
Argentina	1979	1980		yes	yes	577,000	...	...	...	...	...	...	...	...	...	36.7	0.1	69.3	0.5	0.9
Bahamas	1980	1980	yes	yes	yes	4,250	90	68	48	37	1	66	47	35	44	715.1	-	-	-	1.3
Barbados	1980		yes	yes	yes	4,400	...	73	68	60	...	73	66	58	40	6.0	-	0.7	4.9	2.6
Bolivia	1979	1979	yes	yes	yes	176,600	27	34	18	10	13	48	26	12	...	82.7	7.1	33.1	0.7	2.2
Brazil	1979	1980			yes	3,619,620	54	...	50	...	48	51	...	49	12	51.2	1.9	28.7	3.8	2.3
Canada (g)			yes		yes	356,760										94.8	0.0	8.9	0.3	...
Chile	1979	1980		yes	yes	261,340	85	89	87	82	84	88	83	81	...	310.7	-	4.0	3.1	0.2
Colombia	1979	1979		yes	yes	826,900	41	46	25	16	11	43	25	16	...	68.9	1.8	42.5	0.6	2.6
Costa Rica	1978		yes	yes	yes	62,000	65	91	74	60	71	87	68	54	...	318.4	-	14.4	-	1.1
Cuba					yes	196,400	...	62	54	53	39	72	74	...	...	76.2	0.0	1.5	0.0	0.3
Dominica	1980		yes	yes	yes	1,650	-	85	56	45	...	110	69	45	...	214.5	-	1.2	-	2.4
Dominican Republic	1978		yes	yes	yes	181,000	...	...	...	...	...	...	...	...	...	145.4	0.2	13.3	3.8	4.8
Ecuador	1979	1979		yes	yes	124,400(h)	28	32	23	15	17	33	23	13	-	52.0	0.1	24.6	0.3	1.1
El Salvador	1978			yes	yes	174,000	72	78	61	40	63	77	60	40	34	231.4	0.1	18.1	-	2.5
Grenada	1980		yes	yes	yes	2,500	...	...	...	5	...	...	...	6	...	3.1	-	6.2	-	2.1
Guatemala	1978	1979		yes	yes	284,200	...	...	...	...	...	...	...	...	...	49.2	0.4	21.3	0.1	1.0
Guyana	1980	1980		yes	yes	23,000	59	57	46	33	...	61	54	37	...	108.5	-	...	0.6	3.2
Haiti	1978			yes	yes	162,300	15	10	4	8	1	5	30	4	...	5.3	0.0	4.4	0.1	1.5
Honduras	1978	1980		yes	yes	156,600	15	64	39	21	22	74	48	27	...	137.3	6.3	68.8	0.1	1.3
Jamaica	1980	1980			yes	58,000	...	...	...	...	...	...	...	...	...	3.8	-	1.7	0.4	0.6
Mexico	1978				yes	2,733,300	...	...	...	...	...	...	...	...	...	48.8	1.1	7.1	...	...
Nicaragua	1978	1980		yes	yes	92,500	...	...	...	...	...	...	...	...	...	51.2	4.7	10.8	0.4	0.0
Panama	1978		yes	yes	yes	61,230	...	...	...	...	...	...	...	...	...	231.1	-	38.6	-	2.1
Paraguay	1979	1980	yes	yes	yes	115,600	19	27	18	10	1	28	17	5	22	96.5	1.0	61.0	0.4	11.1
Peru	1979	1979	yes	yes	yes	666,000	49	40	23	15	21	39	22	17	...	121.3	0.9	115.6	1.1	4.4
Suriname	1980		yes	yes	yes	14,510	...	...	...	...	...	...	...	...	...	...	0.3	...	0.3	...
Trinidad & Tobago	1980				yes	28,500	...	52	41	28	-	55	42	28	...	34.2	-	4.1	0.1	2.8
United States of America			yes		yes	3,281,000										6.1	0.0	0.6	0.0	0.0
Uruguay	1979		yes	yes	yes	55,400	54	89	65	53	3	84	60	...	33	45.1	-	8.0	-	0.6
Venezuela	1979			yes	yes	484,200	41	67	52	56	36	114	89	22	...	192.0	0.5	16.1	0.0	...

(a) Course on Planning, Management and Evaluation, including the Cold Chain.
(b) In countries not listed as "yes," the status of one or more vaccines is either unknown, or known not to meet WHO requirements. All vaccines purchased through the EPI Revolving Fund meet WHO requirements.
(c) Part or full time.
(d) Provisional PAHO estimates based on country population distributions and UN population estimates.
(e) 1979 data are provisional; 1980 data are not yet available.
(f) Coverage of pregnant women with two or more doses of tetanus toxoid.
(g) Canada does not collect vaccination data nationwide.
(h) Includes only population where EPI Program has been implemented (40% of total population).

... Data not available

- No cases

(where known), complications of the disease, and means of diagnosis. During this 16-month period, the following nine project areas submitted such information on more than 80% of the cases that they had reported to the MMWR[2]: Colorado, Kentucky, Louisiana, New Jersey, New Mexico, Massachusetts, North Dakota, Ohio, and Utah. Five other project areas maintained this level of reporting for shorter periods ranging from 3 to 10 months: Arizona, Iowa, Missouri, Virginia, and Washington. During this interval, 18,755 cases of measles were reported from all sources to the MMWR; the more detailed information was obtained on 2,480 (13.2%) cases from the project areas. Of these 2,480 cases, 1,901 (77.0%) originated from the above-named states. The remainder of this report will focus exclusively on these 1,901 cases.

A history of vaccination status was available for 1,669 (88.0%) cases, and 869 of these (52.0%) gave a history of measles vaccination. Documented proof from personal, school, or clinic records of adequate[3] vaccination was obtained from 434 (26.0%) of the 1,669 patients. An undocumented history of adequate vaccination was elicited from an additional 163 (10.0%) cases. Another 197 (12.0%) were judged to be inadequately vaccinated and 75 (4.0%) were not classifiable. Of the 1,669 cases, 800 (48.0%) indicated no prior receipt of measles vaccine.

Reported by Surveillance and Assessment Br., Immunization Div., Bur. of State Services, and Field Services Div., Bur. of Epidemiology, CDC.

Editorial Note

Because a substantial percentage of measles cases have adequate vaccination histories, concern has been raised about vaccine efficacy--both initial and long-term. Vaccine efficacy cannot be evaluated by simply determining the percentage of reported cases with vaccine histories; underlying vaccination levels must be considered. Vaccine efficacy is calculated in the following manner:

$$\text{Vaccine Efficacy (VE)} = \frac{(\text{Attack Rate in Unvaccinated} - \text{Attack Rate in Vaccinated})}{\text{Attack Rate in Unvaccinated}} \times 100\%$$

This equation can be rewritten to express the percentage of cases vaccinated (PCV) in terms of the percentage of the population vaccinated (PPV) and vaccine efficacy (VE); thus,

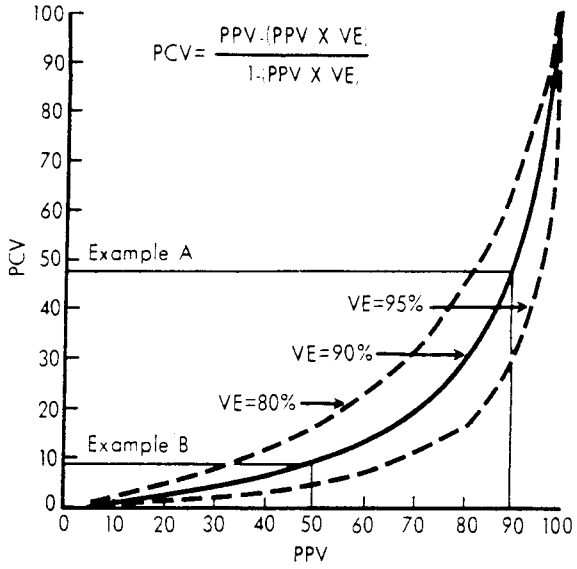
$$PCV = \frac{PPV - (PPV \times VE)}{1 - (PPV \times VE)}$$

By knowing two of these variables, the third can be calculated.

Figure 1 shows three of a family of curves which can be generated from the above equation, each for a different assumed vaccine efficacy. These curves predic the theoretical proportion of cases that will have

Figure 1

Percentage of cases vaccinated (PCV) per percentage of population vaccinated (PPV), for three values of vaccine efficacy (VE)



vaccine history in the event of an outbreak. The curves do not predict the occurrence of an outbreak in any given set of circumstances, but rather the expected proportional distribution of cases should an outbreak occur. For example, if a measles epidemic is observed in a population with homogeneous measles exposure where 90% of the individuals are vaccinated (PPV = 90%) with a 90% effective vaccine (VE = 90%), the expected percentage of vaccinated cases would be 47% (PCV = 47%; Example A, Figure 1). If only 50% were vaccinated, then 9% of the cases would be expected to have a history of vaccination (Example B). For a given vaccine efficacy, the percentage of cases vaccinated should increase as the percentage of the population that is vaccinated increases.

Most recent clinical trials have shown a measles vaccine efficacy of 90% or better[4]. In the above article, the 12% of cases with histories of vaccination which, under inspection, proved to be inadequate underlines the need to evaluate vaccination histories thoroughly.

Source: Morbidity and Mortality Weekly Report 29(39): 470-472, 1980. Center For Disease Control, Public Health Service, Atlanta, Georgia.

[2]"Morbidity and Mortality Weekly Report," published by the Center for Disease Control.

[3]Histories of vaccination were considered adequate if the vaccination occurred after 12 months of age and was with live, further-attenuated vaccine alone, with Edmonston B vaccine with gamma globulin, or with any measles vaccine after 1968.

[4]References:

1. Marks, J.S., Halpin, T.J., Orenstein, W.A., Measles vaccine efficacy in children previously vaccinated at 12 months of age. Pediatrics 62:955-60, 1978.
2. McCormick, J.B., Halsey N., Rosenberg, R. Measles vaccine efficacy determined from secondary attack rates during a severe epidemic. J. Pediatrics 90:13-6, 1977.

Reported Cases of EPI Diseases in the Americas

NUMBER OF REPORTED CASES OF MEASLES, POLIOMYELITIS, TETANUS, DIPHTHERIA AND WHOOPING COUGH
FROM 1 JANUARY THROUGH THE LAST PERIOD REPORTED IN 1980
AND FOR THE COMPARABLE PERIOD IN 1979, BY COUNTRY

COUNTRY	DATE OF LAST REPORT	MEASLES		POLIOMYELITIS		TETANUS		DIPHTHERIA		WHOOPING COUGH	
		1980	1979	1980	1979	1980	1979	1980	1979	1980	1979
ARGENTINA	19 APR.	1,096	1,287	23	1	64	75	31	43	7,466	5,325
BAHAMAS	27 DEC.	483	1,659	-	-	3	2	-	-	15	-
BARBADOS	13 DEC.	27	16	-	-	11 [a]	6	10	12	- [a]	2
BOLIVIA	23 FEB.	258	360	1	138	18	23	10	4	233	131
BRAZIL	26 JUL.	30,875	22,890	1,091	1,293	1,377	1,422	2,436	2,605	19,472	13,656
CANADA	29 NOV.	13,064	22,252	-	3	...	...	60	78	2,455	1,998
CHILE	15 NOV.	3,048	30,570	-	-	22	...	218	338	1,936	346
COLOMBIA	10 AUG.	4,798	12,887	53	352	288 [b]	...	184	105	4,978	7,692
COSTA RICA	6 DEC.	985	6,386	-	-	9	21	-	-	903	250
CUBA	27 SEPT.	3,217	6,664	-	1	20	22	-	-	89	128
DOMINICA	22 NOV.	-	178	-	-	2	2	-	-	1	-
DOMINICAN REP.	31 MAR.	3,132	1,411	93 [c]	9	31	33	82	50	88	27
ECUADOR	2 AUG.	1,251	3,192	5	5	59	40	4	7	599	1,316
EL SALVADOR	15 NOV.	1,726	10,125	14	1	80	101	- [a]	-	818	767
GRENADA	27 DEC.	338	3	-	-	3	2	1	-	6	6
GUATEMALA	15 NOV.	2,407	3,193	63	23	58	59	6	4	1,471	1,340
GUYANA	22 NOV.	460	668	...	...	13	20	1	5	...	...
HAITI	8 NOV.	164	257	4	-	105	59	9	5	35 [d]	14
HONDURAS	6 DEC.	3,537	4,719	3	226	28	36	2	2	2,108	2,363
JAMAICA	8 NOV.	27	82	-	-	10	11	11	8	11	37
MEXICO	29 NOV.	28,032	23,519	594	675	517	517	11	10	4,710	4,222
NICARAGUA	... [e]	...	1,270	...	86	...	1	...	11	...	267
PANAMA	1 NOV.	1,648	4,062	-	-	26	30	-	-	581	573
PARAGUAY	15 NOV.	897	1,241	7	14	164	159	7	4	834	731
PERU	27 SEPT.	4,971	2,528	106	42	197	125	151	81	3,212	7,007
SAINT LUCIA	22 NOV.	35	6	-	-	1	8	-	1	9	1
SURINAME	1 NOV.	28	...	-	1	- [f]	-	-	1	- [f]	-
TRINIDAD & TOBAGO	13 DEC.	345	390	-	-	23	30	-	1	10	42
U.S.A.	29 DEC.	13,430	13,600	9 [g]	26 [h]	74	76	5	59	1,651	1,570
URUGUAY	30 SEP	104	1,050	-	-	11	10	-	-	149	169
VENEZUELA	29 NOV.	8,043	19,853	1	52	...	89	12	3	2,615	1,644

a) 1 November
b) 15 June
c) Source: Secretariat of Public Health and Welfare, 30 September 1980
d) 2 February
e) Data not available for 1980; data for 1979 through last epidemiological period in December.
f) 22 March
g) 7 paralytic cases
h) 23 paralytic cases

- No cases
... Data not available

Epidemiology

Poliomyelitis: Honduras, 1979

Two hundred twenty cases of poliomyelitis, with seven deaths, were reported to the Division of Epidemiology of the Ministry of Health of Honduras during 1979. Cases occurred in all months of the year, with the highest incidence taking place in June (41 cases) and May (35 cases).

Children younger than three years of age accounted for 83.6% of the cases. Table 1 shows the occurrence of cases according to age group and vaccination history.

Table 1

Reported Cases of Poliomyelitis, by Age Group and Vaccination History. Honduras, 1979

Age Group	Vaccinated			Not Vaccinated	Unknown	Total
	1 dose	2 doses	3 doses			
Under 1 year	11	1	-	62	3	77
1 year	17	7	3	40	5	72
2 years	6	3	2	21	3	35
3 years	2	2	1	11	1	17
4 years	2	-	-	-	4	6
5 years or older	-	1	1	11	-	13
Total	38	14	7	145	16	220
Percent	17.3	6.3	3.2	65.9	7.3	100

Of the seven deaths, three occurred in the group of children under one year of age, while four occurred among the one-year olds.

As of 6 December 1980, Honduras had reported to WHO the occurrence of six cases of poliomyelitis for 1980.

Source: Boletín Mensual de Enfermedades Transmisibles, Vol. 7, April 1980, Division of Epidemiology, Directorate of Health, Honduras.

Poliomyelitis: Venezuela, 1979

The Department of Epidemiological Surveillance of the Division of Epidemiology of the Venezuelan Ministry of Health and Welfare received reports of 135 suspected cases of poliomyelitis in 1979 from 17 of the country's federal subdivisions. Fifty-six cases from 10 federal subdivisions were confirmed by laboratory; of these, there was one death. Table 1 shows the distribution of cases, rates per 100,000 inhabitants and the poliovirus serotypes of the confirmed cases.

Table 1

Poliomyelitis Cases, Rates and Poliovirus Serotypes, by Federal Subdivision. Venezuela, 1979

Federal Subdivision	Cases	Deaths	Rate (per 100,000)	Serotype			
				I	II	III	I-III
Distrito Federal*	19	-	0.6	14	2	3	-
Bolívar	12	-	2.3	3	-	9	-
Sucre	9	-	1.6	8	-	-	1
Trujillo	5	-	1.1	5	-	-	-
Zulia	5	-	0.3	4	-	1	-
Nueva Esparta	2	1	1.4	2	-	-	-
Anzoátegui	1	-	0.2	1	-	-	-
Apure	1	-	0.5	1	-	-	-
Lara	1	-	0.1	1	-	-	-
Táchira	1	-	0.2	1	-	-	-
Total	56	1	0.4	40 (71.4%)	2 (3.6%)	13 (23.2%)	1 (1.8%)

* Metropolitan Health Area

As can be observed, 71.4% of the cases were due type I poliovirus and 23.2% to type III.

With regard to the age of the patients, it was observed that 45 of the 56 cases (80.3%) occurred in children younger than three years of age.

Between January and June 1979 there were 49 cases and between July and December there were 7 cases. No data are available on the vaccination histories of the cases.

As of the end of November 1980, Venezuela had notified one confirmed case of poliomyelitis for 1980.

Source: Boletín Epidemiológico Semanal No. 40, 36 (1992):318, 28 September to 4 October 1980.

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