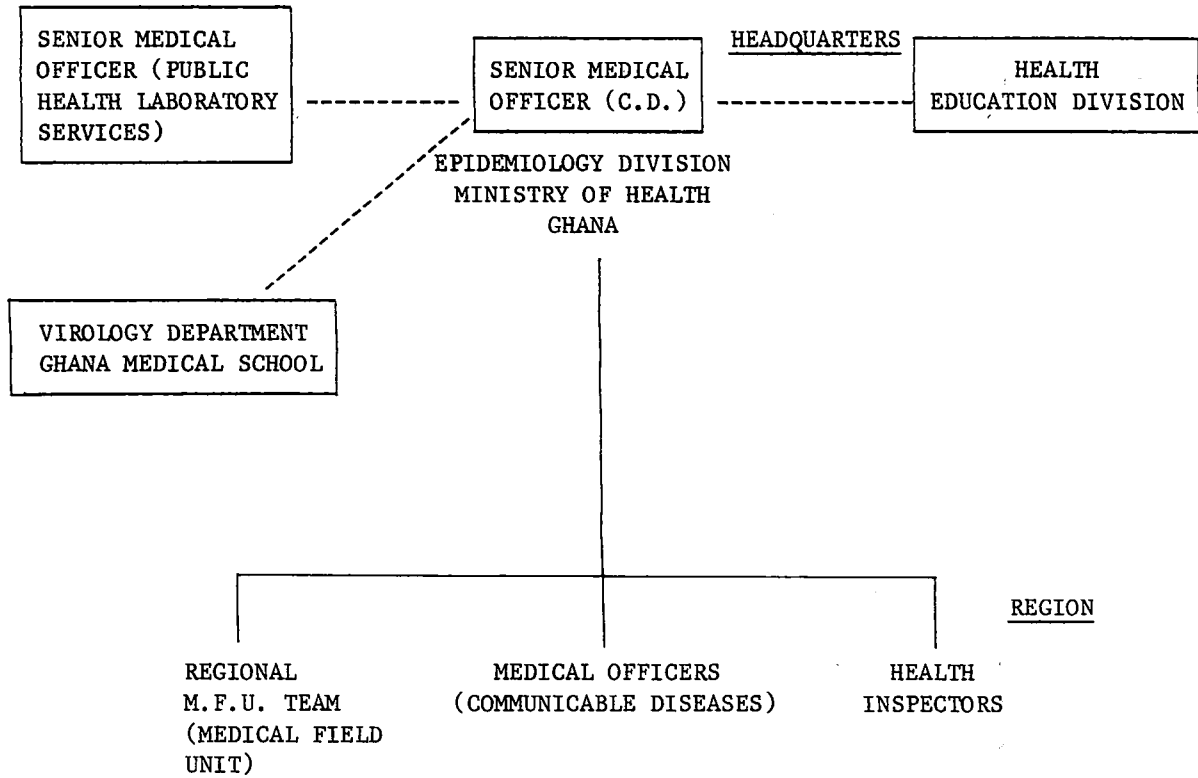


1.1 ORGANIZATION

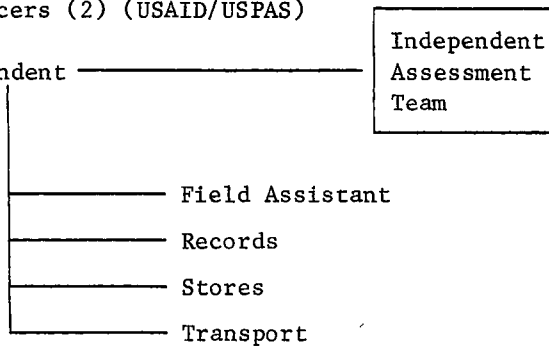
1.1.1



STAFF OF EPIDEMIOLOGY DIVISION, HEADQUARTERS

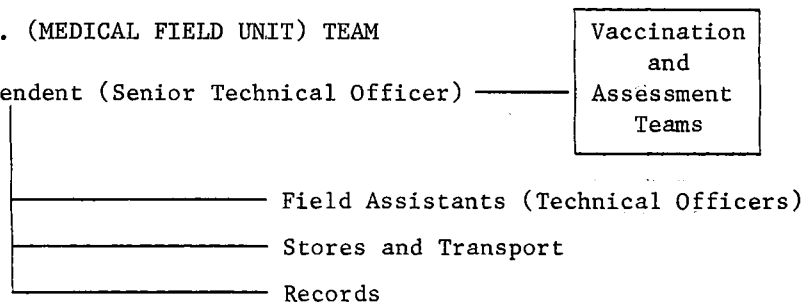
1. Senior Medical Officer
2. Medical Epidemiologist (USAID/USPAS)
3. Operations Officers (2) (USAID/USPAS)

4. Field Superintendent



STAFF OF REGIONAL M.F.U. (MEDICAL FIELD UNIT) TEAM

Regional Field Superintendent (Senior Technical Officer)



1.1.2

MEDICAL FIELD UNITS - (RURAL HEALTH SERVICES)
(MOBILE FIELD TEAMS)

Region	No. of teams
Western	5
Central	7
Greater Accra	3
Eastern	6
Volta	5
Ashanti	10
Brong Ahafo	8
Northern	6
Upper	7
Total	57

HEALTH INSTITUTIONS

Region	Hospitals	Urban health centre	Health post	Total
Western	17	5	5	27
Central	11	4	15	30
Greater Accra	17	5	1	23
Eastern	15	8	3	26
Ashanti	15	8	3	26
Volta	13	6	13	32
Brong Ahafo	10	8	9	27
Upper	7	3	11	21
Northern	5	7	8	20
Country	110	54	68	232

1.2 VACCINATION PROGRAMME

1.2.1 The smallpox situation

The smallpox eradication programme was initiated as a part of a programme of communicable diseases control under the supervision of the Epidemiology Division of the Ministry of Health. Each region has its epidemiological unit consisting of a medical officer and about 30 auxiliaries. Each regional unit is responsible for the investigation and control of suspected outbreaks of smallpox. The Epidemiology Division of the Ministry of Health provides support and coordinates the national programme.

The procurement, storage and distribution of the vaccines and other supplies is the responsibility of the national centre, which also provides teams for the independent assessment of the regional vaccination activities.

Each regional epidemiological unit organizes vaccination in its region and carries out concurrent assessment of coverage.

In addition to the mobile vaccination teams operated by the regional epidemiological units, the static health units within each region carry out vaccination as part of the Maternal and Child Health (MCH) services.

The vaccination status of the country as estimated by scar surveys at the end of the initial phase of mass vaccination in 1970 is shown in Table I.

TABLE I. TERMINAL ASSESSMENT OF VACCINATION COVERAGE IN 1970

Region	Percentage coverage by age-groups			
	0-4	5-14	15+	All ages
Western	89.4	96.7	81.8	89.3
Central	79.8	81.6	73.5	78.3
Accra	53.5	57.0	43.2	51.2
Eastern	67.3	86.0	53.5	68.9
Volta	83.3	87.7	69.9	80.3
Ashanti	82.1	93.2	65.8	80.3
Brong Ahafo	80.6	89.8	80.2	83.5
Northern	87.8	85.0	77.8	83.5
Upper	82.8	82.5	76.5	80.6
All	78.5	84.4	69.1	77.3

"Take rates" in children of 0-4 years age-group were consistently above 98% throughout the mass vaccination campaign.

TABLE II. GHANA SMALLPOX VACCINATIONS PERFORMED: 1967-1971

Region	1967	1968	1969	1970	1971
Western	-	-	-	348 232	57 878
Central	-	-	-	370 906	144 122
Accra	-	-	-	45 116	255 936
Eastern	-	-	-	175 189	229 464
Volta	-	-	-	114 758	104 297
Ashanti	-	-	-	128 266	98 451
Brong Ahafo	-	-	-	207 661	89 726
Northern	-	-	-	33 881	184 673
Upper	-	-	-	492 333	52 810
Total	1 282 550	1 984 308	2 033 128	1 916 342	1 217 357

1.3 SURVEILLANCE - CONTAINMENT PROGRAMME

1.3.1 Units providing weekly and monthly reports:

Hospitals and polyclinics	-	110
Urban health centres	-	54
Health posts	-	68

1.3.2 Since the beginning of the smallpox eradication programme in 1967 efforts have been continued to improve the disease surveillance system of the country. In addition to the health workers a large number of other persons such as community leaders, policemen, teachers and traditional healers are encouraged to report suspected cases of smallpox to the nearest health institutions or health workers by the quickest possible way.

The smallpox surveillance system includes epidemic notification and investigation, routine weekly reports, monthly reports, periodic scar surveys and port health inspection.

Epidemic notification and investigation

Suspected cases of smallpox must be notified to the district health officer who should investigate immediately and collect specimens of smallpox fluid or scabs for dispatch to the Virus Laboratory. He should notify the Epidemiology Division of the Ministry of Health by telephone, telegram or wireless message. Fatal chickenpox cases must be investigated and reported. The epidemiological centre should report to the other regions and WHO.

The laboratory investigations include, virus isolation by egg inoculation, gel diffusion test and electron microscopy.

Routine weekly reports

All health institutions are required to send routine weekly reports on 24 notifiable diseases, which include smallpox, to the regional and national epidemiological centres.

Weekly reports on the quarantinable diseases are prepared by the national epidemiological centre and are distributed to the regional centres and WHO.

Monthly reports

The regional epidemiological centres are required to compile monthly reports on the notifiable diseases for dissemination to the peripheral health institutions in the region as well as to the national epidemiological centre.

The national epidemiological centre prepares a monthly report of all reported cases for dissemination to all interested bodies including the regional health authorities, neighbouring countries and WHO.

Supplementary surveillance methods such as visits to schools and markets with smallpox identification cards are made to enquire about evidence of the presence of smallpox cases.

1.3.3 Number of reported cases of smallpox 1967-1974

Region	1967	1968	1969	1970	1971	1972	1973	1974	Total
Western	0	2	0	0	0	0	0	0	2
Central	0	0	0	0	0	0	0	0	0
Accra	0	6	0	0	0	0	0	0	6
Eastern	0	16	0	0	0	0	0	0	16
Volta	0	2	0	0	0	0	0	0	2
Ashanti	0	0	0	0	0	0	0	0	0
Brong Ahafo	0	0	0	0	0	0	0	0	0
Northern	0	0	0	0	0	0	0	0	0
Upper	144	0	0	0	0	0	0	0	144
Total	144	26	0	0	0	0	0	0	170

1.3.4 Epidemiological information on last outbreak in 1968 is not immediately available.

C.D.I. RETURNS SUBMITTED DURING 11TH-14TH WEEK
OF 1974 BY REPORTING UNITS

Region	Week				No. of reporting units	Returns submitted	% returns submitted
	11th	12th	13th	14th			
Western	28	26	24	28	112	106	94.64
Central	33	32	20	32	140	117	83.57
Great Accra	25	22	20	Nil	120	67	55.83
Eastern	49	46	43	49	208	187	89.90
Volta	9	8	4	13	96	34	35.42
Ashanti	30	30	26	30	124	116	93.55
Brong Ahafo	24	24	22	24	112	94	83.93
Northern	28	28	23	29	124	108	87.10
Upper	19	20	20	20	92	79	85.87
Total					1 128	908	80.50

C.D.I. RETURNS SUBMITTED DURING 11TH-14TH WEEK
OF 1975 BY REPORTING UNITS

Region	Week				No. of reporting units	Returns submitted	% returns submitted
	11th	12th	13th	14th			
Central	42	42	42	42	168	168	100.00
Western	31	31	31	29	148	122	82.43
Eastern	45	45	42	43	188	175	93.09
Ashanti	38	37	37	36	156	148	94.87
Brong Ahafo	27	27	27	27	108	108	100.00
Volta	18	18	17	17	80	70	87.50
Northern	34	33	34	34	136	135	99.26
Upper	14	14	14	14	56	56	100.00
Great Accra	29	29	29	29	116	116	100.00
Total					1 156	1 098	94.98

SMALLPOX SUSPECT CASE REPORTING AND INVESTIGATION (GHANA) 1971-1975

No.	Case	Age	Sex	Locality (town)	Region	Date of investigation	Specimen	Destination	Laboratory diagnosis	Outcome
1	KB	?	M	Tudu, Accra	Greater Accra	29-7-71	Scab	Virology Dept. K'Bu	(See following table for details)	Recovered
2	JK	27	M	Adabraka-Accra	Greater Accra	3-6-71	Scab	Virology Dept. K'Bu		Recovered
3	S	56	M	Labadi-Accra	Greater Accra	6-10-71	Blood serum, fluid	Virology Dept. K'Bu		Died
4	AP	8	M	Essam	Brong Ahafo	5-1-72	Blood serum	C.D.C. Atlanta		Recovered
5	FB	17	M	Essam	Brong Ahafo	5-1-72	Blood serum	C.D.C. Atlanta		Recovered
6	KB	10	M	Nkran Nkwanta	Brong Ahafo	5-1-72	Blood serum	C.D.C. Atlanta		Recovered
7	AMAL	31	M	Tudu, Accra	Greater Accra	5-1-72	Fluid, scab	C.D.C. Atlanta		Recovered
8	AF	32	M	Town Coun. Line	Greater Accra	7-2-72	Scab	Virology Dept. K'Bu		Died
9	GZ	45	M	Ussher Town Accra	Greater Accra	24-1-72	Fluid, scab	Virology Dept. K'Bu		Recovered
10	JY	12	M	Kwahu	Eastern Region	24-1-72	Fluid, scab	Virology Dept. K'Bu		Recovered
11	AA	22	F	Dabeso	Western Region	16-4-72	Blood serum	C.D.C. Atlanta		Recovered
12	JW	26	M	Ghana Med. Sch.	Greater Accra	31-8-72	Blood serum, scab	C.D.C. Atlanta		Recovered
13	LT	28	M	Nima-Accra	Greater Accra	27-2-72	Fluid, scab	Virology Dept. K'Bu		Recovered
14	FA	32	M	Burma Camp Acc.	Greater Accra	27-10-72	Fluid, scab	Virology Dept. K'Bu		Recovered
15	MN	22	M	Kwahu	Eastern Region	16-10-72	Fluid, scab	Virology Dept. K'Bu		Recovered
16	GA	32	M	Army Barracks Sunyani	Brong Ahafo	13-10-72	Serum, scab	Virology Dept. K'Bu		Died
17	KG	40	M	Nkoranza	Brong Ahafo	25-10-72	Fluid, scab	Virology Dept. K'Bu		Recovered
18	JB	11	M	Essam	Western Region	5-1-72	Blood serum	C.D.C. Atlanta		Recovered
19	AK	36	F	Adidome	Volta Region	24-1-73	Fluid, crusts	Virology Dept. K'Bu		Recovered
20	NM	29	M	Abokobi	Greater Accra	27-2-73	Fluid, crusts	Virology Dept. K'Bu		Recovered
21	KA	22	M	Akwatia	Eastern Region	23-7-73	Fluid, crusts	Virology Dept. K'Bu		?
22	AD	28	F	Jiniijini	Brong Ahafo	1-2-73	Blood serum, crusts	Virology Dept. K'Bu		?
23	KD	4-1/2	M	Jiniijini	Brong Ahafo	1-2-73	Fluid scab	Virology Dept. K'Bu		?
24	AT	11	F	Jiniijini	Brong Ahafo	1-2-73	Blood serum, crusts	Virology Dept. K'Bu		Recovered
25	AA	45	M	Tamale	Northern Region	25-1-73	Blood serum, scab	Virology Dept. K'Bu		Recovered
26	O	36	M	Tamale Barracks	Northern Region	15-3-73	Blood serum	Virology Dept. K'Bu		Recovered
27	LA	55	F	Tudu, Accra	Greater Accra	16-10-73	Crusts	Virology Dept. K'Bu		Recovered
28	YG	34	M	Accra Newtown	Greater Accra	4-10-74	Fluid, scab	Virology Dept. K'Bu		Recovered
29	FA	30	M	Bubuashie	Greater Accra	4-2-74	Crusts	Virology Dept. K'Bu		Recovered
30	KB	20	M	North Kaneshie	Greater Accra	3-10-74	Crusts, fluid	Virology Dept. K'Bu		Recovered
31	SAK	?	M	Adabraka	Greater Accra	30-9-74	Crusts	Virology Dept. K'Bu		Recovered
32	RM	5	M	Adabraka	Greater Accra	23-1-75	Fluid, scab	Virology Dept. K'Bu		Recovered
33	PD	21	M	Accra High School	Greater Accra	25-2-75	Fluid, scab	Virology Dept. K'Bu		Recovered
34	AO	46	F	Adabraka	Greater Accra	12-2-75	Crusts	Virology Dept. K'Bu		Recovered
35	AM	22	M	Russia Abosey Okai	Greater Accra	18-2-75	Fluid, crusts	Virology Dept. K'Bu		Died
36	GD	26	M	Jirapa	Upper Region	15-5-75	Blood serum	Virology Dept. K'Bu		?

SMALLPOX INVESTIGATIONS - 1971-1975

No.	Name	Age	Sex	Date of specimen	Material	Region	Destination	Result
1	Kojo Beniot	-	M	29-7-71	Blood serum, scab	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff:-ve E.M.-ve
2	Jeromi Kofi	27	M	3-6-71	Scab	Greater Accra	Microbiology Dept. G.M.S.	No records
3	Mr Sackey	56	M	6-10-71	Vesicular fluid, crusts	Greater Accra	Microbiology Dept. G.M.S.	No records
4	Acquah Panin	8	M	5-1-72	Blood serum	Brong Ahafo	C.D.C. Atlanta	Gel-ve, Herpes CF 64 Herpes simplex
5	Francis Baah	17	M	5-1-72	Scab, blood serum	Brong Ahafo	C.D.C. Atlanta	Gel-ve, Herpes CF 8. Results not diagnostically significant
6	Kwame Boateng	10	M	5-1-72	Blood serum	Brong Ahafo	C.D.C. Atlanta	Gel-ve, Herpes CF 32 Herpes simplex
7	Alex M. A. Lamptey	31	M	5-1-72	Vesicular fluid, scab	Greater Accra	C.D.C. Atlanta	Herpes-varicella group virus identified by electron microscopy
8	Adongo Frafra	32	M	7-2-72	Scab	Greater Accra	C.D.C. Atlanta	
9	Gati Zabrama	45	M	17-1-72 24-1-72	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	E.M. Herpes like particles
10	Joseph Yeboah	12	M	24-1-72	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	
11	Amah Ampomah	22	F	16-4-72	Blood serum	Western Region	Microbiology Dept. G.M.S.	
12	Dr Jaswant Wadhvani	26	M	31-8-72	Blood serum, scab	Greater Accra	Microbiology Dept. G.M.S.	
13	Lamato Tongo	28	F	27-10-72	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	No records
14	Felix Adobor	32	M	27-10-72	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff:-ve E.M.-ve Egg Inoc: Herpes
15	Michael Nkansah	22	M	16-10-72	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	E.M. Herpes like particles
16	Gideon Agare	32	M	13-10-72	Vesicular fluid, scab	Northern Region	Microbiology Dept. G.M.S.	E.M. Herpes like particles
17	Kwesi Gyimah	40	M	25-10-72	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff-ve Egg-Inoc:-ve E.M.: Herpes like particles
18	John Biney	11	M	5-1-72	Blood serum	Western Region	C.D.C. Atlanta	Gel-ve Herpes CF 64 Herpes simplex
19	Awusi Kudiawu	36	F	24-1-73	Vesicular fluid, crust	Volta Region	Microbiology Dept. G.M.S.	Gel Diff.-ve
20	Nyanyo Mensah	29	M	27-2-73	Vesicular fluid, crust	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff.-ve
21	Kodjo Amporfo	22	M	23-7-73	Vesicular fluid, crust	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff.-ve E.M. - Herpes like particles
22	Abona Dakoa	28	F	1-2-73	Vesicular fluid, crust	Brong Ahafo	Microbiology Dept. G.M.S.	Gel Diff.-ve Egg-Inoc:-ve
23	Kwabena Donkor	4-1/2	M	1-2-73	Vesicular fluid, crust	Brong Ahafo	Microbiology Dept. G.M.S.	Gel Diff.-ve Egg-Inoc:-ve
24	Akosua Tawiah	11	F	1-2-73	Vesicular fluid, crust	Brong Ahafo	Microbiology Dept. G.M.S.	Gel Diff.-ve Egg-Inoc:-ve
25	Atia Atanga	45	M	25-1-73	Vesicular fluid, crust	Brong Ahafo	Microbiology Dept. G.M.S.	Gel Diff:-ve
26	Private Osei	36	M	15-3-73	Vesicular fluid, crust	Northern Region	Microbiology Dept. G.M.S.	Gel Diff:-ve
27	Lamby Adjebu	55	F	16-10-73	Crusts	Accra Region	Microbiology Dept. G.M.S.	No records
28	Yakie Giwah	24	M	4-10-74	Vesicular fluid, crust	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff:-ve
29	Francis Arthur	30	M	4-2-74	Vesicular, crusts	Greater Accra	Microbiology Dept. G.M.S.	No records
30	Kwaku Boateng	20	M	3-10-74	Crusts	Greater Accra	Microbiology Dept. G.M.S.	No records
31	Seth Acquah Kumi	-	M	30-9-74	Crusts	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff:-ve E.M. - Herpes like particles
32	Raabi Mohamadu	5	M	23-1-75	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	Gel Diff.-ve E.M. - Herpes like particles
33	Padmore Dwira	21	M	25-2-75	Vesicular fluid, scab	Greater Accra	Microbiology Dept. G.M.S.	No records
34	Adelaide Ofei	40	F	12-2-75	Crusts	Eastern Region	Microbiology Dept. G.M.S.	No records
35	Ahador Moses	22	M	18-2-75	Vesicular fluid, crusts	Greater Accra	Microbiology Dept. G.M.S.	No records
36	Godfried Dagarti	26	M	15-5-75	Blood serum	Upper Region	Microbiology Dept. G.M.S.	Not done

GHANA

UPPER REGION

1. Wa District
2. Lawra District
3. Tumu District
4. Navrongo District
5. Bawku
6. Zuarungu

NORTHERN REGION

7. Tamale Town
8. Western Gonja District
9. Eastern Gonja District
10. Dagomba District
11. Mamprusi District

BRONG-AHAFO REGION

12. Atebubu District
13. Wenchi District
14. Sunyani District

ASHANTI REGION

15. Mampong District
16. Bekwai District
17. Kumasi District
18. Kumasi City Area

WESTERN REGION

19. Sefwi District
- 20.
21. Ahanta-Nzima District
22. Sekondi-Takoradi City Area
23. Takoradi Airport Port

CENTRAL REGION

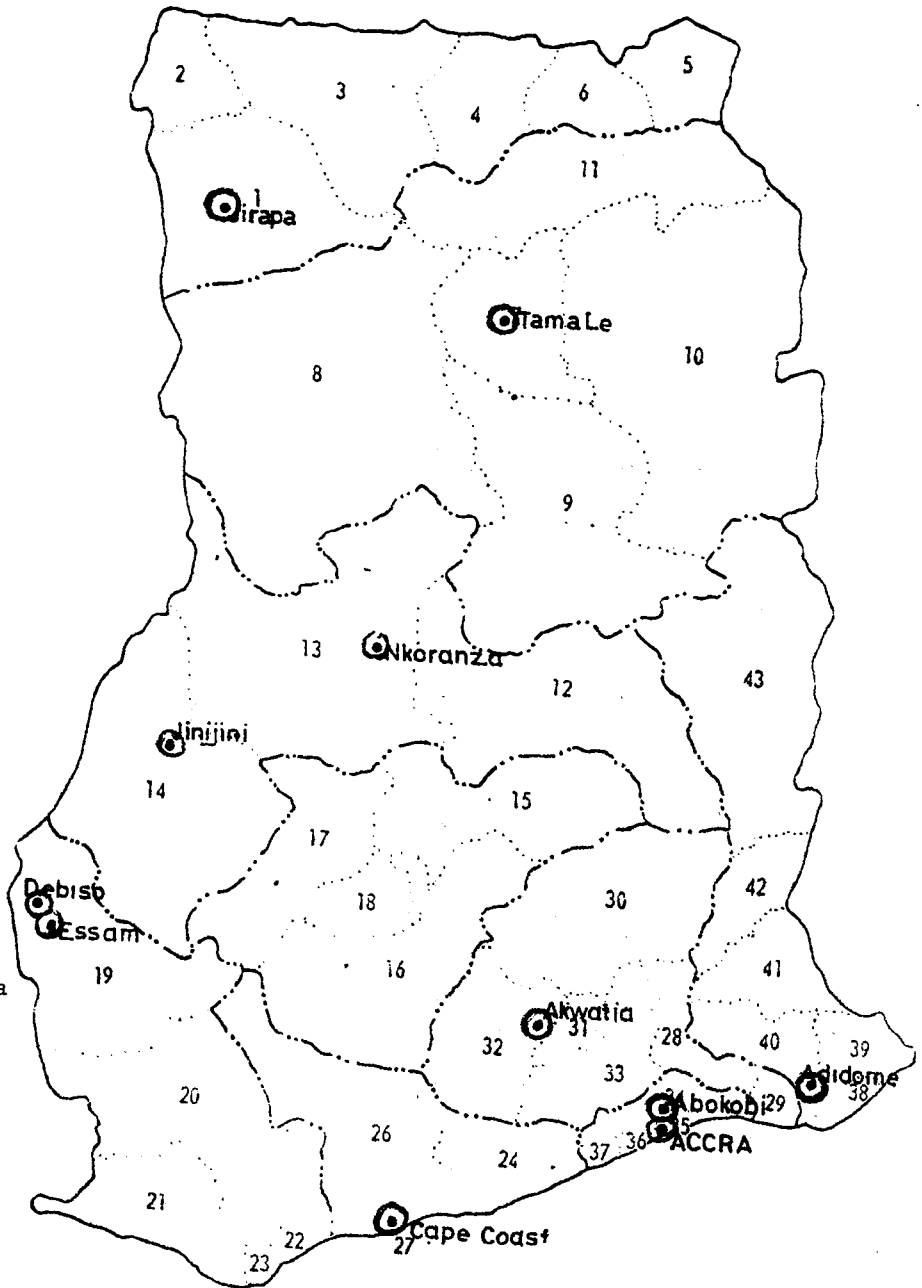
24. Winneba District
25. Winneba Town
26. Cape Coast District
27. Cape Coast Municipal

EASTERN REGION

28. Volta River District
29. Ada District
30. Kwahu District
31. Akim Abuakwa District
32. West Akim District
33. Akwapim New Juaben Dist.

ACCRA REGION

34. Accra District
35. Tema Area/Port
36. Accra City Area
37. Accra Airport



VOLTA REGION

38. Keta Town
39. Anla District
40. Tongu District
41. Ho District
42. Kpandu District
43. Buem-Krachi District

Area: 92 100 sq. miles

Population: 10 000 000

Density: 99/sq. mile

Estimated annual rate of increase: 3.0%

○ Essam. Towns/Villages which recorded suspect smallpox cases (1971-1975)

GHANA

Region	Number of vaccinations			
	1972	1973	1974	1975 (Apr.)
Western	40 783	28 799	51 168	42 114
Central	26 132	35 610	175 498	51 715
Accra	177 040	38 913	127 607	51 074
Eastern	129 960	79 845	399 134	89 401
Volta	36 622	8 219	21 071	26 607
Ashanti	105 456	55 023	168 083	13 518
Brong Ahafo	55 874	38 807	31 649	3 115
Northern	44 001	2 705	47 086	-
Upper	31 745	66 983	15 834	-
Total	647 613	354 904	1 037 130	277 544