

Information for action

**Developing a computer-based information
system for the surveillance of EPI and other
diseases**



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Copies may be requested from:
World Health Organization
Global Programme for Vaccines and Immunization
CH-1211 Geneva 27, Switzerland
Fax: +22 791 4193/4192
E-mail: gpv@who.ch

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1. Information for action and IFA

1.1 Public health surveillance data provide information for action

Public health surveillance can be defined as the systematic collection, consolidation and analysis of data and the dissemination of information to those who need to know in order that action may be taken.

What kind of action? The data may be used to identify:

- outbreaks of disease so that these can be investigated and containment measures implemented
- high-risk populations and areas that need special attention
- areas with poor programme performance so that corrective measures can be taken.

The purpose of conducting public health surveillance is to control, possibly even to eliminate or to eradicate, the disease under surveillance.

1.2 The IFA system

In order to convert surveillance data into information that can be used to determine appropriate action, an information system is required to manage and analyse the data. The IFA (**I**nformation **F**or **A**ction) system is a software tool developed for the computerisation of surveillance data for the Expanded Programme for Immunization (EPI). In particular, the system includes modules for:

- data of individual cases of acute flaccid paralysis
- aggregated data of diphtheria, pertussis, tetanus and measles
- vaccination data for the childhood immunization schedule.

IFA has been developed using Epi Info and Epi Map, both public domain software.

1.3 History of IFA

In the early 1990s, countries in the Western Pacific Region requested assistance with the computerisation of disease surveillance data. The Centers for Disease Control and Prevention (CDC) of the USA responded to these requests by sending epidemiologists to the countries concerned to develop a computer system.

It soon became obvious that these country-specific systems had many common features, and work began on a single system that could be implemented in any country. This endeavour became a joint venture between WHO and CDC.

In anticipation of the many requests for assistance in customising and implementing IFA, which could overwhelm available resources, WHO embarked on a series of workshops for regional and country EPI managers, teaching them how to modify the IFA system according to their own needs.

1.4 Adaptability of IFA

It is unlikely that IFA completely meets the needs for an EPI information system in any one setting. Chapter 6 gives guidelines on how to modify the program to meet local requirements.

IFA was developed as an information tool for EPI surveillance, but can easily be modified to include other diseases. Again, chapter 6 provides the necessary guidelines.

IFA was developed using Epi Info and Epi Map software. It could equally well have been developed using other available software, e.g. DBASE and Map Info. If you are contemplating developing a surveillance information system using other software, you may find it useful to examine the features of IFA and translate these into another programming language.

1.5 For whom is this manual intended?

This manual is primarily for you if you wish to implement IFA but need to make changes in accordance with your requirements. It is assumed that you already have some knowledge of DOS, Epi Info and Epi Map.

If, however, you want to develop a surveillance information system using software other than Epi Info and Epi Map, you may find this manual useful in providing a framework for developing such a system.

1.6 So what does this manual describe?

Chapter 2 focuses on the elements of a computer-based surveillance information system, illustrated with examples from IFA. These are generally applicable concepts, not specific to Epi Info and Epi Map, and might therefore be of interest to all developers of surveillance systems.

Chapter 3 discusses issues to consider when developing and implementing a computer system for the management of surveillance data. Again, these are not specific to Epi Info and Epi Map.

Chapter 4 includes some discussion of key aspects of IFA, one of which is the hypothetical setting for which IFA was developed.

Chapter 5 describes the installation of IFA and how to set it up for your particular setting. All users of IFA are advised to read this chapter irrespective of whether the system needs modification or not.

Chapter 6 gives guidance on how to customise IFA according to your requirements, using Epi Info and Epi Map.

The appendices provide details of the IFA menu options – examples of output as well as the files and variables used in each program. Examples on how to modify programs are also included.

1.7 What does this manual *not* describe?

This is not a manual on Epi Info and Epi Map – you are referred to the manuals supplied with the software for full details of these programs.

This manual is also not intended to be a resource manual on all aspects of public health surveillance, e.g. case definitions. Such materials can be obtained from WHO.

2. Elements of a computer-based information system for public health surveillance

2.1 Public health surveillance functions

As already mentioned in chapter 1, public health surveillance can be defined as the systematic collection, consolidation and analysis of data and the dissemination of information to those who need to know in order that action may be taken.

Conducting public health surveillance involves a number of functions, including:

- case detection and notification
- collection and consolidation of pertinent data
- investigation and confirmation (i.e. clinical, epidemiologic and/or laboratory)
- analyses and report dissemination
- feedback
- “feedforward” (i.e. sending data to more central levels of the system).

The data arising from these functions need to be managed correctly in order to produce the information required for action. A functional computer system supporting surveillance activities consists of the following elements:

- basic data management
- consolidation and analysis of the data
- dissemination of results.

2.2 Examples from IFA

This chapter describes each of these elements in greater detail, illustrating the principles with examples from the IFA system. In order to follow all the examples clearly, you can either install IFA, which contains fictitious data (see chapter 5), or look at examples of the output in the appendices.

Testing all the capabilities of IFA has the following advantages:

- You will become familiar with what IFA has to offer and will therefore be in a better position to decide what modifications are needed to be able to implement it in your setting.
- If you are developing a computer system for the surveillance of other diseases, or planning to use different software, then you may pick up a number of ideas to include in your system.

2.3 Basic data management: Data entry and update

Because of the dynamic nature of public health surveillance data, the system must provide basic data entry / retrieval / modification / deletion capabilities. Whilst the primary purpose of entering surveillance data in the computer is to facilitate analysis and not, as in patient management systems, data storage for reference purposes, the system must nevertheless allow records to be retrieved easily for correction or deletion.

IFA examples:

- entry of AFP case data (appendix 4)
- data entry of vaccination doses in aggregate format (appendix 7)

2.4 Basic data management: Data cleaning

A well-designed validation process may facilitate the detection and reduction of various types of errors in the data. A computer system can use three methods:

- Entry validation, i.e. ensuring that the data entered conform to pre-set specifications.
- Error reports can be generated to identify a number of problems. Such reports should identify the record for easy retrieval as well as indicate the variable and value in error.
- Double data entry, i.e. entering each record twice (preferably by different people) and comparing them for discrepancies. This option has not been incorporated in IFA, although Epi Info does have this capability.

IFA examples:

- check that district name entered in AFP case data set corresponds to one on the master list in GEO.REC (appendix 4)
- produce a list of illogical dates in the clinical AFP data (appendix 8)
- obtain a list of districts for which either no reports or more than one report have been received for a particular month (appendix 12)

2.5 Basic data management: Maintaining data integrity

One should, at all times, be able to read the data entered on computer and these data should reflect exactly all entries and modifications. Although this seems a very obvious statement, several factors may prevent the maintenance of such data integrity.

- Hardware failure, such as a crashed disk, can occur at any time without warning.
- Some computer viruses can affect the contents of data files.
- An unauthorized person may gain access to the data and, deliberately or not, make modifications.
- The user may make unplanned changes, such as inadvertently deleting files or records.

To counteract the effects of computer viruses, an anti-virus package should be used. Inappropriate access to the system may be minimized by including security features in the software and/or in the physical environment.

Making a copy of the data on a different disk represents the best way to avoid a major catastrophe should any of the above problems occur. This is known as backing-up the data. Data should be backed up on a routine basis as well as before and after exceptional events, such as when transferring the complete system to another machine. Multiple copies of the data should be made, dated and stored in different locations. Off-site storage should be considered in case of fire or theft.

Whilst good data preservation procedures cannot guarantee data integrity, they decrease the possibility of serious loss of data.

IFA example:

- make a copy of the AFP data sets on diskette (appendix 44)

2.6 Consolidation and analysis of the data

Public health surveillance data typically come from many reporting sites over a long period of time. The system must be able to consolidate these data and provide information on the number of cases of disease by time, place and person.

In general, the process of analysis consists of making comparisons and drawing conclusions. For example, a comparison of the number of non-polio AFP cases reported each month may lead to the observation that this number is increasing and thus one might conclude that AFP surveillance is improving.

Surveillance data provide a basis for identifying new or unexpected events. The identification of such events, however, can often only be achieved by ad hoc analyses of the data. A good information system will therefore provide easy access to statistical software. Epi Info has its own analytic software as well as having the facility to export data for more sophisticated analyses by other software.

IFA examples:

- report giving the final classification of AFP reports (appendix 14)
- comparison of the target number of DTP3 doses and the number actually administered (appendix 30)
- merge the case and laboratory AFP data for ad hoc analysis (appendix 45)
-

2.7 Dissemination of results: Feedback

The word *feedback* is used here very specifically to refer to reports sent to those who supplied the data. In addition to being a courtesy, feedback is critical for two reasons:

-
- It motivates people to continue sending data since they can see that their data are used.
 - The quality of the data is likely to be better because the reports may show errors that are obvious to those who supplied the data, and can therefore be corrected.

Two types of feedback reports should be used – audit and analytic reports.

The purpose of the audit feedback is to ensure that the data have been correctly received and entered. It is of particular relevance in those situations where the data are received on paper and need to be entered on computer at the next level. Essentially the report consists of a line listing of cases with all or selected (the most important) variables which must then be checked for completeness and accuracy by those who supplied the data. The audit report should be structured to facilitate this process and should be scheduled to allow timely correction.

The analytic feedback report should incorporate two important analyses not possible at the reporting level – comparison of the reporting site with other reporting sites and comparison with the total. An additional analysis concerning district of residence may be useful in those situations where patients are likely to present at, and be reported by, a hospital outside the district of residence. In such a situation, the central level may be the only level able to provide a complete picture of illness by district of residence.

Ideally, each reporting site should be capable of analysing its own data. In some instances, this may not be possible and the more central level may produce site-specific analyses as a service to the reporting site.

Audit and analytic feedback reports may be produced at different times covering different time periods. For example, audit reports may be sent weekly whilst analytic reports could be sent quarterly.

IFA examples:

- line list of AFP cases to be sent to reporting districts for audit (appendix 35)
- report with incidence rates of other EPI diseases per district compared with those for the corresponding province and the country (appendix 37)
- report giving an analysis of the AFP specimen data to be sent to the laboratory providing the data (appendix 36)

2.8 Dissemination of results: Reports to decision-makers

It should be obvious that results must be made available to those who implement or influence public health action *at all levels*. The analyses should be clearly presented in a manner appropriate to the audience, should support the recommendations being made, and should be as timely as possible. Limitations of the data should also be clearly described.

2.9 Dissemination of results: Other reports

Periodic reports may be required on a routine basis by other administrative bodies or partner agencies. Standard report formats can be designed and produced as part of the information system.

In order to keep the public informed about the condition under surveillance, reports can be sent to the press. These could range from a single article to regular updates, from mainly words to just a graph.

2.10 Dissemination of results: Format of presentation

In general, graphic presentation of data communicates more effectively than tables. Maps should be used to describe results by place, line charts for describing results by time, bar charts when comparing groups and pie charts to represent percent contribution of a total. All graphic presentations should be clearly annotated with titles (indicating person, time and place information), axes labels and footnotes showing the source of the data. The importance of graphic presentation suggests that the surveillance computer system should incorporate graphics software and that the raw data can easily be converted to a format accessible to this software. Epi Info has built-in graphics capabilities whilst Epi Map can read Epi Info data files.

Tables do, however, have their place and should not be forgotten. They can contain more information and give exact numbers. When compiling a report, the target audience and aim of the presentation should help determine the appropriate mix of tables and graphs.

IFA examples:

- Graph showing age at onset of confirmed polio cases (appendix 16)
- Map showing under-15 measles incidence per district (appendix 26)
- Tables with AFP surveillance performance indicators (appendix 21)

2.11 Dissemination of results: Feedforward

The term *feedforward* refers to the process by which data are supplied by one level to the next, more central, level. It is the responsibility of each level to ensure that the more central level is kept informed about the condition under surveillance.

Each level in the health service, from facility level to district, province and national levels, and to WHO regional and central levels, needs to know what surveillance data are required by the more central level. Agreement must be reached between the two levels concerned on how often and when the data should be sent as well as the format in which the data should be sent. The data might be forwarded on standard forms, or they may be submitted electronically on diskette or by e-mail.

IFA examples:

- Create copy of AFP case data for WHO (appendix 40)

3. Issues to consider when developing and implementing a computer system for the management of public health surveillance data

3.1 Introduction

This chapter touches on a number of aspects that need to be considered when planning a computer system for the management of surveillance data. A surveillance system, in its widest sense, involves the activities and inputs of many people. Effective management of the resulting data is critical to the success of all these activities. The data management system must therefore be stable and reliable, continuing to function despite the many problems that will inevitably occur.

The topics included in this chapter are not discussed in great detail. Some recommendations are given, even more questions are raised. The intention of this chapter is merely to remind the system designer of these features.

3.2 Information requirements

Integral to the decision to place a disease or public health event under surveillance is the objective of the surveillance activities. For example, as part of the polio eradication drive, acute flaccid paralysis (AFP) has been placed under surveillance in order to identify and investigate every possible case of polio so that the necessary action can be taken.

The purpose of the surveillance activity determines what information is required. Thus, for example, stool specimens must be obtained from AFP cases within 2 weeks after onset of the paralysis in order to have the best chance of isolating the poliovirus if, indeed, the AFP was due to polio.

The information that is required determines what data should be collected. Continuing with the above example, date of onset of paralysis and dates of stool collection are needed in order to document whether the stool specimens were obtained within the time constraints.

3.3 Data collection system

Forms are generally used to record surveillance data and must be designed as part of the surveillance system. A well-designed form contains all the information that is required, is easy to use, has enough space for recording the information, has no ambiguous text, contains all the crucial instructions, etc. This is not easy to achieve and therefore it is highly recommended that a proposed form be tested in the field before implementation.

3.4 Case-based versus aggregated data

Should cases be reported individually or summarized over a time period? This depends, to a large extent, on the information requirements. The more variables required per case, the more likely a case-based system will be the appropriate form of data reporting.

3.5 Data organization

A decision needs to be made on how to organize the data on computer. Should the data be organized into disease-specific files or not? Should they be further sub-divided, for example, according to year or district? Factors influencing this decision include the information and analyses required from the data, as well as the number of cases anticipated and therefore the space requirements.

3.6 Backup procedures

A reliable backup procedure must form part of the system. No surveillance system can be considered fully functional if the data that it generates are easily lost or corrupted. Several aspects need to be addressed:

- Should the backup procedure be invoked automatically after data entry, or should the user activate the procedure?
- On what medium should the data be backed up – diskette, tape, etc.?
- How many generations of the data should be available at any one time?
- Should the backup copy be an exact copy of the data, or should the data be compressed during the backup process?
- How many backup copies should be made?
- Should backup copies be stored off-site, in case of fire or theft?

3.7 System software and hardware

What software should be used to develop the computer system? Firstly, the software should contain the features described in chapter 2. Factors such as availability, cost and local expertise to manipulate/program the software obviously play a role. It is worthwhile finding out about the availability of training and other support in your area before finalising your choice of software.

Hardware requirements are determined, to a large extent, by the software that is to be used. The choice of hardware depends very much on available finance. A colour printer is nice to have, although you may want to consider its practicality if you have access to a non-colour photocopier only.

3.8 Complexity of system

In terms of the development of the system itself, a compromise needs to be found between user-friendliness and adaptability. A very user-friendly system generally requires greater complexity behind the scenes. Surveillance systems, however, are seldom static – the circumstances and needs can change within a fairly short period of time – and need to be able to be modified quite easily.

3.9 Documentation

To assist with future modifications of the system and particularly if the original developer is no longer available, it is essential to have detailed technical documentation of the computer system. In addition, documentation within programs goes a long way towards facilitating making changes – even for the original developer!

A manual for the users of the system should also be available. This could include details on:

- installation of the program
- how to run the system
- avoiding problems and what to do if they arise
- interpreting the output.

This particular manual, the one you are holding right now, describes a version of IFA that is merely a “starter kit” – one that must be further developed by local experts according to local needs. It is the responsibility of the team who finalize the product for implementation to develop appropriate technical and user manuals.

The appendices of this manual could form the backbone of a technical manual, obviously modified according to the specific changes made to the system. To assist with this process, a copy of this manual is available on one of the disks distributed with the IFA system.

3.10 Data flow

The data flow from the most peripheral level (for example, clinic level) to the most central level (for example, the national level) should be clearly established, taking into account the following factors:

- Which forms are to be used at which level.
- Which data items are to be forwarded to the next level, how often and in what format.
- If the more peripheral level has the data available on computer, should they send the entire file each time, or only the new, modified and deleted (i.e. previously transmitted records that must now be deleted) records?
- If the data are to be sent in computer files, then the format in which they are to be sent should be standardized to one that can be generated by any software that might be in use at the more peripheral levels.
- Should the data be aggregated before sending to the next level?

It is imperative that each level knows exactly from which reporting sites they should be receiving reports. Each level should maintain a list of contact persons at the more peripheral level, at the more central level, as well as at the same level (all members of the team and additional support persons).

3.11 Level of computerization

At what level should computerization of the data occur? The belief that computerization at the more peripheral level will make life easier at the more central level is erroneous and should certainly not be the deciding factor. Factors which favour computerization at a particular level include the following:

- An increasing reported number of cases of the condition under surveillance.
- An increasing number of conditions under surveillance.
- The need to analyse disease surveillance data more easily at that level.
- A demand for computerization by personnel at that level.
- The existence of, or the very real possibility of creating, capacity at that level.
- A well-designed plan by the more central level for computerizing the peripheral levels, including a functioning computer-based information system, training timetable and support personnel.

Ideally, a functioning paper system should be established before attempting computerization. If a functioning paper system is already in place, run the paper and computer systems in parallel for an interim period so that the more central level does not need to depend on the computerized system at the more peripheral level until its functionality has been established.

3.12 Combining data at the more central level

If data are sent to the more central level in computer files, a system for managing these files must be developed. The following system is recommended:

- Data from each reporting unit (for example, district or province) should be kept in a separate sub-directory.
- Before replacing or adding to the existing data, make a copy of the previous version.
- If the more peripheral level sends in only new records, then the incoming file should be added to the existing data; if the complete file is sent, then it should replace the existing file.
- The data should be cleaned in each sub-directory.
- A procedure should be included on the system menu that will combine all the data in the sub-directories into one data set for analysis and feedforward to the next level.

3.13 Analysis, feedback and feedforward of the data

Ideally, each level should be responsible for the analysis of its own surveillance data as well as for providing feedback to the more peripheral level. If, for some reason, the national or provincial office is expected to produce the analyses and feedback for *all* levels, the system must provide for the necessary breakdown of population figures and boundary files for the different levels.

Feedback is an essential component of surveillance. Aspects of feedback that need to be addressed include the following:

- Which level is responsible for providing feedback to which level?
- To whom, or which section, should the feedback be sent?
- How often should feedback be sent?
- What should be the format of the feedback report?

Feedforward is no less an important part of surveillance. The more peripheral level has a responsibility to keep the more central level informed of the disease under surveillance. Each level has its role to play in the whole process of surveillance - whether it is to detect and investigate cases or to provide guidance and support – and should therefore know what is happening. The following aspects of feedforward need to be addressed:

- To whom, or which section, should the data be sent?
- How often should the data be sent?
- In what format should the data be sent?
- Should zero reports be forwarded?

3.14 Organization of paperwork

A computerized system certainly does not imply a paperless system. At the level of data entry, there will be many incoming reports on paper. Summary reports may be generated for forwarding to the more central level. It is crucial to organize all this paper, to avoid the possibility of losing data.

A system should be in place that can:

- identify forms that still need to be processed (i.e. registered and entered on computer)
- identify forms that have been processed and need to be filed
- identify forms with problems that need to be followed-up
- file forms for easy retrieval.

Other aspects to consider are the following:

- At what levels should the paperwork be stored – only at the level of data entry or should copies go to the more central levels?
- Do the more central levels want paperwork of selected cases or diseases in addition to the data?
- For how long should the paperwork be stored? The more peripheral levels should probably store the paperwork for at least as long as is required by the more central level.

3.15 Zero reporting versus no reporting

It may be advisable to institute a system whereby each reporting site must report to the next level, even if no cases of the disease under surveillance have been identified during the given time period. The next level will then know that zero cases were identified. Otherwise, if reporting sites are expected to report only when there are cases, the next level would not know whether the lack of a report means zero cases or that the reporting site has failed to report identified cases.

If the report consists of aggregate data, for example the number of diphtheria cases in a given month, then a zero report can be entered in the regular data set. On the other hand, with case-based data, it is somewhat difficult to enter data of a case that does not exist! For case-based data, therefore, an alternative method of recording zero reports must be used. A suggestion is included in a later section on **Recording completeness and timeliness of reporting**.

3.16 Completeness of reporting

Despite all the agreements and training, it is very likely that a number of reporting sites will not have submitted their reports to the next level at the pre-assigned time. Reminders may not be sufficient to ensure that all reports are received by the time the data have to be submitted to the next level or by the time an analytic report has to be produced.

Completeness of reporting refers to the number of reporting sites that have reported for a particular period at the time of an analysis. Since it changes over time, as more reports are received, it should be assessed whenever analyses are done and indicated on the resulting analytic reports.

Interpretation of the results should take into account the completeness of the data.

For example, if the data for only 10% of reporting sites have been received, giving a 90% immunization coverage, one might hypothesize that those areas that had already reported probably had the best coverage figures and therefore the coverage for the entire area might be expected to be lower. On the other hand, if the data for 95% of reporting sites have been received, giving a 90% immunization coverage, one might expect that the coverage for the entire area would be very similar.

3.17 Timeliness of reporting

Timeliness of reporting refers to the number of reporting sites that have submitted their report *by the deadline*. This needs to be assessed only once - at the time of the deadline. Reporting sites that have not submitted reports should be sent reminders. Timeliness of reporting should be used to monitor progress towards all reporting sites sending in their reports on time.

3.18 Recording completeness and timeliness of reporting

The following method to record completeness and timeliness can be used on paper or in a spreadsheet:

- For a particular surveillance system, list all reporting units, in alphabetical or some other order, down the left side of the page/screen.
- Across the top of the page/screen, indicate the time periods as well as the deadlines.
- As each form is received, enter a tick in the appropriate cell; add a second tick if the report came before the deadline.
- If a zero report is received, enter a zero instead of a tick.
- Calculate timeliness as soon as the deadline has passed, and write/enter it at the bottom of the column.

- Calculate completeness *each time an analysis is done* and distributed, writing/entering it in pencil at the bottom of the column and include the date it was calculated. Since completeness changes over time with the receipt of late reports, it must be updated.

The following table illustrates the method suggested above.

Completeness and timeliness for other EPI diseases								
District	Jan 98		Feb 98		Mar 98		Apr 98	
	Rec'd	By 15/2	Rec'd	By 15/3	Rec'd	By 15/4	Rec'd	By 15/5
A	✓	✓	✓	✓	✓	✓		
B	✓							
C	✓	✓	✓		✓		✓	✓
D	✓	✓	✓	✓	✓	✓		
E	✓		0		0	0		
Timeliness	60%		40%		60%			
Completeness (date analysis)	100% (28 Feb 98)		80% (18 Mar 98)		80% (20 Apr 98)			

3.19 Staffing requirements

Ideally, a team consisting of an epidemiologist (or public health official), a computer programmer and operational (or clerical) staff should develop the computer system for the management of surveillance data. In general, their respective roles are as follows:

- the epidemiologist determines the content and structure of the data set, the analyses and reports
- the computer programmer is responsible for programming and computer-related technical support
- the operational staff provides input regarding the mechanics of the routine operation of the system.

Essentially, the same team should be responsible for implementing and maintaining the system, with the following roles:

- the epidemiologist interprets the analyses and reports, and determines whether changes in the system are required
- the computer programmer continues to give support, solving computer-related problems, and does whatever further programming is needed
- the operational staff handles the incoming paperwork, enters the data and produces the reports.

It may not be possible to put together such a team at each level that has a computer-based information system, but all the above-mentioned responsibilities must be allocated to one or more people.

3.20 Training needs

Adequately trained people are critical for a functional information system. Training should therefore feature high on the list of priorities, even if the computer system itself *appears* to require no more than the push of a couple of keys.

Who need to be trained? Obviously, the person(s) operating the system will require training. But training needs probably go further. Some thought should be given to the training needs of *all* personnel involved with the surveillance system, however peripherally.

What training should be given? Again, it is clear that at least one person will need to be shown how to operate the system, enter the data and produce the reports. Depending on their involvement with the surveillance system, personnel may want training on other aspects, such as:

- background information on the entire surveillance activity
- exposure to the types of reports generated by the system and how to interpret them
- how to perform ad hoc analyses of the data.

Training should be given prior and during implementation of the system, whenever modifications are made, and whenever there are staff replacements.

The system must be able to continue, even if the main operator is absent. Backup arrangements should therefore be planned in case of emergencies.

Fundamental to all training activities is the question of *who* gives what training and *who* gives support when problems arise.

3.21 Supervision and support

Once the information system is up and running, some form of supervision is required to ensure that the correct procedures are followed. For the inevitable problems that occur, easily accessible support must be available to prevent a breakdown in the flow of information.

Various forms of supervision and support could develop:

- Site visits by somebody from a more central level.
- Meetings to review the system.
- Refresher training courses.
- Personnel from one district, for example, visiting their colleagues in a neighbouring district to see how they handled common problems.
- Eventually a network of information people at, say, district level could develop to the extent that they can provide support to each other, rather than relying solely on somebody from a more central level.

4. Aspects of IFA

4.1 Introductory remarks

The purpose of this chapter is to give some critical background information about the IFA system, as well as to highlight several aspects of the system.

4.2 The IFA scenario

In order to understand the IFA system, you should be aware of the specific circumstances for which the system was developed. The extent to which these circumstances differ from those in your area will determine many of the changes you will need to make to IFA to make it functional.

- IFA is used at the central level (the national EPI unit) of a country.
- The country consists of a number of provinces, each of which is divided into districts.
- All surveillance data (except those from the laboratory) are sent on standard forms to the national level for data entry on computer.
- District surveillance officers are responsible for the collection of the forms and forwarding copies of these to the national EPI unit.
- District surveillance officers are also responsible for ensuring that stool specimens of AFP cases are sent to the laboratory for analysis.
- There is only one laboratory in the country with the facilities to isolate poliovirus.
- The laboratory has its own computer system; from this system, selected data are forwarded monthly to the national EPI unit in a format that can be imported into Epi Info.
- The IFA system includes modules for AFP surveillance (case-based reporting), for the surveillance of other EPI diseases (number of cases reported monthly in each district), and for monitoring immunization coverage (monthly number of doses of each vaccine administered in each district).

Appendix 1 illustrates this IFA scenario for AFP surveillance.

4.3 IFA is 2000 compliant

IFA version 1d, on which this manual is based, is ready for the year 2000. This was made possible with the release of an update to Epi Info version 6.04b in October 1997.

All dates in IFA are now stored with the full 4-digit year. This means that dates in the year 2000 will be recognized as coming after 1999, rather than the 2-digit '00' being assumed to represent the year 1900.

During data entry, however, dates can be entered with just the last 2 digits of the year. Epi Info will then take the first 2 digits from the system date on the computer and store the complete 4-digit year in the data set.

4.4 Separate data sets for AFP case and specimen data

IFA stores the AFP case and specimen data in different data sets. This is *primarily* the consequence of the conditions as described in the IFA scenario above, namely that the laboratory enters the specimen data and sends them through to the national EPI unit for incorporation in the IFA system.

This organization of the data into two (or more) data sets, which can be linked subsequently for the purpose of analysis, is known as a relational database. Although a relational database may represent a more efficient way of organizing and analyzing the data, it also presents greater editing challenges and should therefore be adopted only with careful consideration of all the consequences. The alternative organization of the AFP data is to have one file, with each record containing the clinical information of a case as well as the information for the two laboratory specimens.

The critical link between the AFP case and specimen data sets is the ID code. If an incorrect ID code is written down or incorrectly entered on computer, it will not be possible to link the specimen data with the corresponding case data. This is reason enough to consider combining the case and specimen data in one data set *if* both components are to be entered on computer by the same person at any one level.

4.5 Creating a temporary data set of AFP case and specimen data for ad hoc analysis

In the IFA system, the AFP clinical information is stored in AFP.REC – each record containing the information for a case. The specimen data are stored in AFPLAB.REC – each record containing the information of one stool specimen. Data of two specimens for the same case will therefore occupy *two* records. One may want to do ad hoc analyses of the data, relating specimen information to clinical information. How should these data sets be linked?

IFA has catered for this need by providing a utility that creates an AFP case/specimen database. This database is *not* updated automatically whenever new data are entered or data are modified. The procedure to create the database must therefore be repeated after modification of the AFP case data set and/or specimen data set.

4.6 The ID code

The *essential* feature of the ID code in the AFP data sets is that it must be unique for each case. Achieving this uniqueness is not necessarily straightforward. Much depends on the level at which the ID code is assigned. For example, if all ID codes are assigned at the national level, one could consider a simple system with consecutive cases being numbered 1, 2, 3, etc. However, this would not work if ID codes are allocated at the district level – there could then be as many cases with ID code 1, as there are districts.

For this reason, some countries have adopted the system of incorporating the district name (or a district code) as part of the ID code. Thus, a case with code XXX-1 is identifiable from a case with code YYY-1. Consecutive cases within a district can then be allocated consecutive numbers.

Another factor has become part of the ID code in many countries, namely the year of reporting. This comes from the desire to start with number 1 at the beginning of each year. Thus the data for case XXX-97-1 can be distinguished from the data for case XXX-98-1.

Two related points regarding these codes need to be stressed. Firstly, once a unique code has been allocated to a case, it should not be changed, even if the number is subsequently found to be out of sequence. The components of the code should relate to the place and time of *reporting*, rather than the place and time of onset since the latter information is more likely to change with further investigation.

The second point is that no reliance should be placed on the content of the ID code, other than as a case identifier. There should be separate variables in the data set for the place and time of onset, variables that can be modified if subsequent investigation shows different values than originally recorded.

4.7 Numeric values in IFA data sets

IFA makes use of numeric values for many variables. For example, the variable CLASS in the AFP case data set has the values 1, 2 and 3 (see appendix 4). On the negative side, numeric values tend to be unfriendly, since they are not self-explanatory. One reason for their use in IFA is that it is easier to standardize on numeric values in the international arena than on alphabetic values. On the positive side, most output in IFA involving such variables give a full description of the values (see appendix 14 for example).

If you are considering making fairly extensive modifications to the IFA system, it may be worthwhile changing the numeric values of variables to short self-explanatory alphanumeric codes. One advantage of this is that you will then not necessarily need to program for alternative descriptions of each value in listings and tables. However, you should make sure of the format requirements by the more central level – if numeric values are required and you are using alphanumeric codes, then you will have to recode the values in the feedforward program.

4.8 IFA organization of data

IFA organizes data for a particular disease into one file, irrespective of the time period covered by the surveillance data for this disease. For example, all AFP case data are stored in the file AFP.REC, from the time data entry starts. If the number of AFP cases detected in your area is relatively few, then this should pose no problem. However, if your area has a large population and you expect more than about 2000 AFP cases in any given year, you may need to re-consider the organization of the data. Reasons for doing this include:

- a very large file will slow down the analysis of the data
- you may experience space problems on the PC
- you may need something other than a diskette for backing up purposes.

If you do expect a large number of cases, then one way around the problem (which requires the least modification of the IFA system) is to archive old data periodically. In other words, continue entering all data in one file. When the file is larger than is optimal, extract the earlier data (which possibly is no longer used for routine analysis) and save it on a disk (make at least two copies). These data can then be deleted from the active file. This can all be done using ANALYSIS.

4.9 Backups in IFA

IFA does not backup all data automatically. To make a backup copy of a file, you must select *Utilities – Backup databases* followed by the specific data to be backed up. The file is then copied to a diskette.

If your files are likely to become larger than can fit on one diskette (1.44 megabytes), then you need to consider one of two options:

- archive old data, as described in the previous section
- compress the data, using PKZIP, WINZIP, ARJ or some such utility.
-

4.10 The analysis of aggregate data

The term ‘aggregate data’ refers to the situation in which each record represents a number of cases rather than a single case. For example, each record in the data set INC.REC summarizes the number of diphtheria, pertussis, tetanus and measles cases per month per district (see appendix 6).

To analyse these data appropriately in ANALYSIS, the /sum= option should be used. This is illustrated by the following examples analysing the data in INC.REC.

ANALYSIS command	Interpretation of output
freq year	number of records (=returns) per year
freq year /sum=dip	number of diphtheria cases per year

This approach is fine when the output required involves only one disease. But how does one produce a single table showing the number of cases of each disease per year (without manual intervention)? The following modified excerpt from INC-DB.PGM illustrates the procedure.

Define
variables

```
READ INC.REC
* DEFINE VARIABLE FOR DISEASE (DIS) AND A COUNT VARIABLE (INC)
* -----
DEFINE DIS  STRING WIDTH=10
DEFINE INC  #####
```

This procedure is
repeated for each disease
in INC.REC

```
ERASE INC-DB.REC
* DIPHtheria DATA
* -----
DIS = "DIPHtheria"
INC = DIP
ROUTE INC-DB.REC
WRITE RECFILE PROVINCE DISTRICT YEAR MONTH DIS INC
* PERTUSSIS DATA
* -----
DIS = "PERTUSSIS"
INC = PER
ROUTE INC-DB.REC
WRITE RECFILE PROVINCE DISTRICT YEAR MONTH DIS INC
```

The resultant INC-DB.REC file contains a variable DIS (disease name) and INC (number of cases). To produce a single table showing the number of cases of each disease per year, the following command is given in ANALYSIS:
tables dis year /sum=inc.

5. Installing and using IFA

5.1 Introduction

This chapter provides all the details necessary to install IFA, to set it up for your country and to run the system. If you are interested only in having a look at the system, you should install IFA, and try the different menu options – fictitious data are included.

5.2 System requirements

The minimum requirements to run IFA are:

- MS-DOS 3.1 or higher
- 640 Kbytes RAM
- About 5 Mbytes hard disk space
- 80286 (or better) IBM-compatible computer with EGA/VGA screen
- Epi Info 6.04b plus update
- Epi Map 2

In addition, a printer is highly recommended.

5.3 If you do not have the required versions of Epi Info and Epi Map

Should you have older versions of Epi Info and Epi Map or if you don't have them at all, don't panic! The IFA installation package comes with the required core modules of both these programs. Installing these core modules on your PC will not interfere with any existing versions of Epi Info and Epi Map, nor will it affect systems you may have developed using these programs.

5.4 The installation package

The IFA package consists of the following files:

- IFA-DEMO.EXE The IFA system
Essential to install
- EPI-CORE.EXE The core Epi Info modules
Install only if you do not already have Epi Info
6.04b plus update
- MAP-CORE.EXE The core Epi Map modules
Install only if you do not already have Epi Map
2
- MANUAL.EXE This manual in MS-Word 97 format
- INSTALL.EXE A menu system for installing IFA
-

5.5 Check disks for viruses

We recommend that you check the installation disks and files for viruses before starting the installation process.

5.6 Installing IFA using the menu system

Place the disk labelled *Install* in drive A. At the DOS prompt, type
a:install ↵

Follow the instructions that appear on the screen. The default directory for the IFA system is C:\IFA. Should you want to install the system in a different directory, you can change the default directory on the screen.

5.7 Installing IFA without the menu system

You may prefer to install the IFA system without using the menu system.

- Create a directory C:\IFA.
- Copy IFA-DEMO.EXE from the distribution disk into this directory.
- If you do not already have the appropriate versions of Epi Info and Epi Map on your PC, you will also need to copy EPI-CORE.EXE and MAP-CORE.EXE.
- If you plan to modify the manual according to your own requirements, you may want to copy MANUAL.EXE.
- Execute each of these files in turn by typing its name (without the .EXE).
- After all files have been installed, you may want to delete the original files (IFA-DEMO.EXE, EPI-CORE.EXE, MAP-CORE.EXE and MANUAL-EXE) in order to conserve disk space.
-

5.8 Check path statement

If you are using the full versions of Epi Info and Epi Map, you will need to make sure that their respective directories (C:\EPI6 and C:\EPIMAP2) are on the path statement. This allows the IFA system to find the files it needs.

At the DOS prompt, type
path ↵

The path statement will then appear on the screen. Check that it contains C:\EPI6 and C:\EPIMAP2. If these two directories do not appear on the path, you will have to add them. To do this, edit the AUTOEXEC.BAT file in the root directory by typing

```
edit c:\autoexec.bat ↵
```

Find the *path=* statement in the file and add

```
c:\epi6;c:\epimap2;
```

Save the file and exit. You will need to re-boot your PC to put these changes into effect.

5.9 Starting IFA

To start IFA, change to the IFA directory (or whichever directory into which you installed the IFA system) by typing

```
cd \ifa ↵
```

and

```
ifa ↵
```

at the DOS prompt. The IFA menu should appear.

5.10 The IFA menu

At the top of the IFA menu are the main options available. Each of these options contains a red letter – this is the hot key. To select your choice, either press the appropriate hot key or use the arrow keys to highlight the options and press *Enter*. A pull-down menu appears with further options. Some of these have an arrow pointing to the right – this indicates that there is a further set of possible choices.

Whenever a particular option is highlighted, a brief description of the option appears at the bottom of the screen. This description includes the name(s) of the main file(s) associated with that option.

An overview of the menu organization is shown in appendix 2. Greater detail can be found in appendix 3.

5.11 Entering list of districts and provinces

IFA assumes two levels of geographic sub-division within a country, namely province and district. In your country or area, you may use different terminology. Equating the geographic sub-division upon which you want to concentrate the most with district will lead to a minimum of required changes since most of the geographic analyses in IFA focus on the district level.

IFA requires the creation of a master list of district names, each associated with the corresponding province name. This list is used to check that district names entered in the disease-specific files are valid and to insert the province names automatically during data entry. Setting up the master list must therefore be completed before any other data entry can occur.

To type the names in the master list, select the menu options *Utilities – System setup/maintenance – Geographic names*. Each district name can be entered once only and must be unique. If there are two districts in your country with the same name but in different provinces, you will have to allocate them different names – possibly the district name with the first part of the province name in brackets.

The order in which the names are entered determines the order in which they appear on the pop-up list when entering disease data. There are two options to change the order after all names have been entered – alphabetical order by district (*Utilities – System setup/maintenance – District order*) or alphabetical order of district within province (*Utilities – System setup/maintenance – Province/district order*).

5.12 Checking and correcting province names

During the creation of the master list of districts and provinces, province names have to be keyed in as many times as there are districts in that province. IFA does not have a facility to ensure that a particular province name is spelt the same way each time it is entered.

To check the province entries after you have completed the list, select *Utilities – System setup/maintenance – Test provinces*. Examine the resulting table (an example is shown in appendix 51) and make sure that the spelling has been consistent. If there are any errors, choose *Utilities – System setup/maintenance – Geographic names* to correct the spelling.

5.13 Checking and correcting district names

IFA prevents the duplicate entry of district names when creating the master list. It is thus not necessary to check for consistencies in spelling, since there is only one version of each district name. Nevertheless, it is advisable to check the correctness of the spelling before starting entry of disease data. To do so, select *Utilities – System setup/maintenance – geographic names* and move from record to record (using the F7 and F8 function keys).

5.14 Problems with district names when entering data

You may have edited the master list of districts, but find that the list that pops up during the entry of disease data does not seem to reflect the modifications. The problem may lie with an incomplete indexing of the file. To re-index the file, choose *Utilities – Epi Info + Epi Map – Enter*, type in GEO.REC on the ENTER screen and select option 5.

5.15 Entering population estimates

Several IFA options report on incidence rates (for example, appendix 26) and coverage rates (for example, appendix 33) which require population estimates. If you wish to produce such reports, you will have to enter population estimates for each district and year (see appendix 48). Select *Utilities – System setup/maintenance – Population data* from the menu.

Use the best estimates available if accurate figures are not available. The infant mortality rate is not used in any of the IFA reports and can therefore be omitted; all other population figures are required for at least one report.

You may have imported the population data from another system. If so, make sure that the district and province names correspond with those in the IFA master list.

5.16 Creating a boundary file showing districts

Many IFA reports can be displayed as a map. This requires a boundary file that defines the district boundaries. Such a file can easily be created if you have a paper version map of the districts in your country – consult the Epi Map manual for details.

The file must be named DISTRICT.BND to fit in with the IFA programs. IFA comes with a file DISTRICT.BND that contains fictitious data – this file should be renamed or erased before you develop your own boundary file. If you already have such an Epi Map boundary file in another system, copy it to the IFA directory.

5.17 Checking district names in boundary file

It is essential that the district names in the master list and the boundary file are spelt in exactly the same way, including any spaces. Otherwise the data will not be displayed on the map.

IFA has an option to test that the district names correspond in the two files – select *Utilities – System setup/maintenance – Test district names*. The resulting map will display the names of those districts in the boundary file that do not have a matching district name in the master list (see appendix 50 for an example).

If there are any district names that do not match, you will have to decide whether to change the name in the master list or that in the boundary file. To change the master list version, choose from the IFA menu *Utilities – System setup/maintenance – Geographic names*.

To change the boundary file version of the district name, return to Epi Map and load DISTRICT.BND. From the Epi Map menu, select *Boundary – Create/edit boundary – Utilities – Edit boundary names* and make the necessary changes. Remember to save the changes (*Boundary – Save boundary*).

5.18 Putting country name in feedforward programs

The feedforward programs, which prepare your data for sending to WHO, need a minor modification so that the data are labelled with your country code (see appendix 60). Open each of the program files in EPED (AFP-FF.PGM, AFPL-FF.PGM, INC-FF.PGM and COV-FF.PGM) and take the cursor down to the line that reads ‘Let country = “XXX”’. Replace the XXX with the 3-character code of your country. Remember to save each file after making the change (F9).

5.19 Printer settings for text and graph output

The IFA programs themselves do not specify the type of printer to be used for text output and graphics. Whatever printer is regarded as the default printer by Epi Info will also be the IFA default printer. Unless otherwise specified, Epi Info assumes a dot matrix printer.

If you use another type of printer, you can specify it as the default printer as follows. Open a file CONFIG.EPI using EPED and type in:

(for laser printers) **set printer = \$LJ**
(for deskjet printers) **set printer = \$DJ**

You may also want to specify the number of lines per page printed by your printer. For example, if your printer is set to print 60 lines per page, then type on a new line in CONFIG.EPI:

set plines = 60

5.20 Other default settings in Epi Info

There are many settings, beside those for printing, which can be specified in the CONFIG.EPI file. They will take effect each time the ANALYSIS module is used, whether from an IFA menu option or during ad hoc analysis of the data. It is strongly recommended that you type the following settings in CONFIG.EPI:

set ignore = off (missing values will be displayed in tables)
set statistics = off (if you tend not to used chi-squared, etc.)
set european = on (since IFA dates are dd/mm/yyyy).

The CONFIG.EPI file can be in the IFA directory, in which case the settings will only apply whilst working in this directory, or it can be stored in the EPI6 directory, in which case the settings will apply to all analyses done with Epi Info.

5.21 Printing text output using other software

You may wish to print the text output produced by IFA using a wordprocessor with which you are more familiar. Possible reasons for doing this include having greater control over the final printout (for example, putting in page breaks, making selected text bold) and wanting to incorporate the output as part of another document. It should be mentioned that these can also be done with EPED.

Choose the *View* option for the output. Whilst in EPED, rename the file (select *File – Save file to...*) giving it any file name of your choice (avoid using names that resemble those of IFA files – a suggestion would be to use a file name with the extension .OUT). This file can then be read by any other wordprocessor since it is in ASCII format. You may need to change the font to Courier New to ensure that all the numbers line up correctly (some wordprocessors do this automatically).

5.22 Printer setting for maps

The default printer settings for maps need to be specified in Epi Map. From the Epi Map menu, select *Setup*, take the cursor down to *Printer 1 setup* and choose the printer you will be using. Leave the port as LPT1 if you are unsure what it should be. For *default mode*, remember that the higher the quality, the

longer the printing will take. Make sure that you save the settings by pressing the F2 function key.

5.23 Saving maps to file – the settings

You may want to save maps so that they can be incorporated into documents, rather than printing them directly to the printer. To enable you to do so, you will need to change the setting for printer 2 to Computer Graphics Metafile format (or whichever format will best suit your software). Follow the instructions in the previous section on **Printer setting for maps**, this time taking the cursor down to *Printer 2 setup*. Choose CGM (Computer Graphics Metafile) as your printer and the port should be FILE. Save the settings by pressing F2.

5.24 Printing and saving maps

IFA produces maps in slide show mode. This means that when the map (eventually) appears on the screen, pressing any key other than <ESC> will show the next map or, if there are none, will return to the IFA menu.

To print the map that appears on the screen, you must first press the <ESC> key. The Epi Map menu will then appear. Select *Output* and choose one of the available printers. If you select the CGM format, you will be prompted for the name of a file – make sure that the file name does not correspond to that of IFA files, possibly use the notation MAPxx.CGM. You should then be able to insert this file into your document.

5.25 Saving graphs to file

As with maps, you may want to save graphs in files so that they can be incorporated in documents at a later stage. Unfortunately, IFA does not permit you to save a graph that appears on screen (although it is possible to save a graph in a file with Epi Info and therefore IFA could be modified to give this option).

Since the quality of graphs produced by Epi Info is not that good, we would recommend a different strategy for producing graphs to include in reports for distribution. From the IFA menu, select the option to print the data. Enter these data in alternative graphics software such as Harvard Graphics, Excel, Presentations. Software such as these will enable you to produce far more visually appealing graphs. Remember to include all the features that you would find on the same graph produced by IFA – full titles indicating person, time and place, date of analysis, and axes labels.

5.26 Printing on a network

The IFA programs send all output for printing to the LPT1 port. Therefore, if you are sharing a printer with other people using a network, make sure that all output to the LPT1 port is captured and sent to the default printer on your system. Under Windows 95, this is done on the properties menu of your default printer. You will have to start a new DOS session after making the change. Ask your network controller or I.T. section for assistance.

5.27 Default time period to analyse

Many IFA reports ask for the time period for which the data must be analysed – the starting and ending dates are then entered. This can become somewhat tedious if you need to prepare many reports for the same time period. In addition, one needs to take great care when entering these dates – there is no check for the validity of the entries. Consequently, if an invalid date is entered, no records will be selected for analysis.

To overcome these problems, there is a menu option (*Reports – Default dates*) which allows one to enter default starting and ending dates (these are checked for validity). These default dates are automatically inserted whenever an IFA option asks for the time period of analysis. By pressing ENTER, the default date is accepted; to change it, merely type in a different date.

5.28 Problems with IFA

IFA can run on a stand-alone PC as well as on a network. Should you experience any problems, check the following factors:

- EPI6 must be on the path (if you did not install the core Epi Info modules)
- EPIMAP2 must be on the path (if you did not install the core Epi Map programs)
- if the EPI6 directory comes off any directory other than the root directory on the C: drive, make sure that the EIDIR parameter is set (see the Epi Info manual or readme files in the epi6 directory for details)
- the command.com file referred to in the config.sys and ansi.sys files must be a version dated 11 July 95 or later.

Our experience with IFA under Windows 95 has been fairly trouble-free. On occasion, however, particularly when many reports have been created in one session, one of several error messages appears. For example, it may be a runtime error message or a message indicating that the system cannot find a file. Before going into a state of panic, close the DOS window and start a new DOS session. This may solve the problem.

6. Modifying IFA according to your surveillance needs

6.1 Deciding on your requirements

The most difficult part of the whole modification process is probably deciding what it is that you want and therefore what it is that needs to be changed. Or you may be developing a system for a different disease, and wondering whether it would be easier to modify IFA or to start a system from the beginning.

The more specific you are about your requirements, the easier it will be to do the modifications. So the best advice we can give is to resist the temptation to immediately start making changes to IFA on an ad hoc basis. Rather, use pen and paper to design your system – what variables need to be entered, the format of the output, etc.

6.2 IFA as a starting point

A close examination of the IFA system may help you in making some of these decisions. You could try out the various menu options using the fictitious data. Alternatively, you may want to have a look at the appendices. Appendix 3 shows the overall organization of IFA, appendices 4 to 7 provide details of the variables entered, and appendices 8 to 39 illustrate the various types of output produced.

6.3 Modular construction of IFA

IFA has a very modular construction. This was deliberately done to facilitate the process of changing the system according to different needs. Each program is an independent unit, which can be modified or even deleted without affecting other parts of the system.

Different types of files represent the basic units of the system and are reviewed in the next section.

These files are organized into a system using the menu system of Epi Info, namely Epi Glue. The components of this menu system are described a bit later in this chapter.

6.4 Epi Info and Epi Map file types

You should consult the Epi Info and Epi Map manuals for complete details on the various file types. However, it will probably be useful to review the purpose of the different types of files as identified by their extension.

File extension	File purpose
.QES	Defines the structure of a data set – names of variables, type and length of each variable
.REC	Data set into which data are entered and stored
.CHK	Stores criteria for ensuring that valid data are entered
.PGM	Manipulates data to produce output
.RPT	Defines customized structure of output
.BND	Stores outlines of polygons (e.g. districts)
.MAP	Stores the .BND and .REC files, together with annotations (e.g. titles, legends, colours), for creating maps
.TXT	NOT A STANDARD EPI INFO FILE TYPE Used in IFA to store output from .PGM files

6.5 Viewing and editing files

These files can all be viewed and modified using EPED (or some other word processor that allows the file to be saved in ASCII format). However, we recommend that you do *not* try this with .REC and .BND files – you can easily end up with changes you would rather not have made.

6.6 File names in IFA

A system such as IFA consists of many files. It is therefore useful to adopt a file-naming convention at the beginning of the development process. This can speed up the process and reduce frustrations.

The file names used in IFA can be seen on the list of appendices. Most of the .PGM files follow the convention outlined in the following table. Any files associated with a particular .PGM file, such as .RPT, .MAP, .TXT files, have the same primary file name.

File names in IFA : XXX-YYY.ZZZ
(where ZZZ is the extension)

XXX	data subject	YYY	type of output
AFP	AFP cases	CLN	list of errors
AFPL	AFP specimens	L#	line list
INC	other EPI diseases	G#	graph
COV	immunization coverage	T#	table
NT	neonatal tetanus	M#	map
DIP	diphtheria	FB	feedback
MEA	measles	FF	feedforward
		DB	creates new database

For example, **AFP-CLN.PGM** is a **program** file which **lists possible errors** in the **AFP case** data set.

6.7 Epi Glue – the menu system

It is not essential to create a menu-driven system. Individual commands could be typed at the DOS prompt to run each program and obtain the desired output. However, this requires that the user know each program name. A menu just makes the whole process of entering data and obtaining output much easier and less prone to errors.

Epi Glue requires three files (as identified by their extensions):

- **.EXE** An exact copy of EPI6.EXE which cannot be changed by the user
- **.SCR** Determines what appears on the menu screen
- **.MNU** Strings the individual files together to create the system

In any given system, these files must have the same primary name. For example, in the IFA system, these files are named IFA.EXE, IFA.SCR and IFA.MNU.

6.8 Modifying the IFA screen (IFA.SCR)

You will probably want to modify the IFA screen so that it is more specific about your surveillance system. Less essential changes that you may want to make include the colours on the screen and the design of the screen.

It is advisable to indicate the version (and date) of your surveillance system on the menu. This allows any user to identify very quickly which version is being used, and may help to solve problems. Therefore, each time you make changes to your system, modify the menu screen accordingly.

The IFA.SCR file can be changed using EPED. The colours of the screen are controlled by the column of numbers on the left side of the screen. The design of the screen consists of ASCII characters (which can be found in most DOS manuals and also on the Epi Glue menu under the System option).

6.9 Modifying the IFA menu (IFA.MNU)

If you have made changes to some of the program files, for example, but do not require any further additions or deletions, then you may not need to modify the IFA.MNU file at all.

If, however, you wish to re-organize the IFA menu structure, or if you want to add options to the menu or take options off the menu, then you will need to modify the IFA.MNU file.

IFA.MNU can be viewed and edited using EPED.

6.10 Structure of the .MNU file

The .MNU file consists of three parts:

- menu section Specifies the options and their placement on the menu.
- string table section Specifies the help messages that appear at the bottom of the menu screen whenever each option is highlighted.
- command section Specifies the DOS commands that are executed when that option is chosen. You will need to know DOS commands in order to make changes to this section.

The three parts for any one option are linked by means of a label. This is illustrated for the entry of AFP case data – this option having the label AFP, which is highlighted in the following excerpts from IFA.MNU.

Excerpt from menu section

```
IFA MENU
BEGIN
  POPUP " &Enter "
  BEGIN
    MENUITEM "AFP &case " , AFP
    MENUITEM "AFP &specimen " , AFPLAB
    MENUITEM SEPARATOR
    MENUITEM "&Other EPI diseases " , INC
    MENUITEM SEPARATOR
    MENUITEM "&Immunization coverage" , COV
  END
  POPUP " &Clean "
  BEGIN
    MENUITEM "AFP &case " , AFP-CLN
    MENUITEM "AFP &specimen " , AFPL-CLN
    MENUITEM "Check ID co&des " , AFPC-CLN
    MENUITEM SEPARATOR
    MENUITEM "&Other EPI diseases " , INC-CLN
    MENUITEM SEPARATOR
    MENUITEM "&Immunization coverage" , COV-CLN
  END
END
```

Excerpt from string table section

```
STRINGTABLE
BEGIN
  AFP "AFP case data entry: AFP.QES/REC"
  AFP-ANAL "Epi Info analysis of AFP files ANALYSIS /AFP*.REC"
  AFP-BACK "Creates copy of AFP files on diskette AFP+AFPLAB.REC"
  AFP-CLN "AFP case data clean: AFP-CLN.PGM"
  AFP-DB "Create AFP case/specimen database: AFP-DB.REC"
  AFP-FB "Line list of all AFP cases for audit AFP-FB.PGM"
END
```

Excerpt from command section

```
AFP
BEGIN
  ENTER AFP.REC
END

AFP-ANAL
BEGIN
  ANALYSIS /AFP*.rec
END
```

Labels for each option in the IFA.MNU file are shown in appendix 3. To locate a specific label when editing the file, use the find option in EPED.

6.11 Which files to modify

Ready to start but not quite sure where to start? A suggestion would be to closely review each disease in the IFA system and decide whether you want the disease as part of IFA or not.

6.12 Removing a module from the IFA system

IFA includes modules for:

- data of individual cases of acute flaccid paralysis
- aggregated data of diphtheria, pertussis, tetanus and measles
- vaccination data for the childhood immunization schedule.

You may already have a different computer system for the immunization coverage data, for example, and may therefore want to remove immunization coverage from IFA. Refer to appendix 3 to identify the corresponding labels in IFA.MNU. By deleting the lines and command sections with these labels in IFA.MNU, you will remove all reference to immunization coverage from the menu.

It is not necessary to delete the files that deal with immunization coverage data. Should you want to do so, though, appendix 3 refers to the detailed appendices that give the name(s) of the file(s), which can then be erased.

6.13 Making changes to a module

What steps might you follow for a disease module that you want to keep as part of IFA, for example AFP?

First you should look at the data entry screen(s) (appendix 4 for AFP case data, appendix 5 for AFP specimen data) and decide whether these correspond to your requirements. If not, you should amend the structure of the data sets by modifying the corresponding .QES file(s) and then creating the .REC file(s). This process is illustrated in appendix 54.

You may, for instance, need to translate the data entry screen and variable names into another language. Remember to use curly brackets, {}, in the .QES file to indicate variable names. For example, **{D}ate {o}f {b}irth** leads to the variable name **dob** whilst the full text **Date of birth** appears on the data entry screen.

The next step would be to look at all the different types of output involving AFP and to decide whether you want to keep each as it is, modify it according to your needs or remove it from the menu. Appendix 3 will be of use in identifying the detailed appendices, which give examples of the output. Should you decide to modify the output, then the detailed appendix gives the name of the file(s) that would have to be changed.

Most output changes will require modifications to the .PGM files, which consist of ANALYSIS commands. This manual does not give guidelines on programming in ANALYSIS – you should consult the Epi Info manual for details. However, a simple example on how to write a program is shown in appendix 56.

Make copies of the files you have changed or added – at least every time you have successfully completed a step. This will enable you to recover easily from the inevitable messes. Should you wish to include documentation (and of course you do), then remember to start each documentation line in the program with an asterisk (*) – these lines will be ignored by Epi Info.

6.14 Changed variable names in files

You may have changed some of the variable names, or decided to drop some variables. In both these situations, you will need to ensure that all files making use of these variables are modified accordingly. Appendix 53 will be of use in identifying such files.

Use the find option in EPED to locate these variable names within files.

6.15 Testing all modifications

A crucial step in the modification of existing programs or the creation of new ones is to test whether they work. For this you need data. IFA comes with fictitious data in all its data sets – these can be used for testing purposes. Alternatively, you may prefer to test your programs using your own data, in which case you will first have to create empty data sets (see later section on **Creating empty data sets**).

The test data should resemble the real data as closely as possible. Only then can you be reasonably certain that your programs will work with the real data. It is wise to assume that your surveillance data will *not* be perfect – therefore, make sure that your test data are also not perfect and deliberately include errors. For example, put in a date of birth that comes *after* the date of stool collection, or put in non-matching ID codes for an AFP case and the supposedly corresponding specimen record.

6.16 Printing of programs

It may be useful to have a copy on paper of the program that you wish to change. You can use any wordprocessor, including EPED, to print .PGM files.

6.17 Examples of IFA system modifications

Several examples of modifying the IFA system are in appendices 54 to 59, illustrating:

- adding a variable to an existing data set
- restricting the values of this new variable
- writing a program to produce a table
- adding the new table program to the menu
- writing a program to produce a map
- adding the new map as an option on the menu.

These examples show the bare minimum – no attempt is made to select time periods and no documentation is included within the programs. The objective is merely to illustrate the process.

Once you feel satisfied that your system is working the way you want it to, you will want to start ‘live’ entry of the data. But during the modification and testing phase, you probably entered some dummy data. How do you get rid of these data?

The quickest way is to delete the files with dummy data and create new files from the corresponding .QES file. In order to perform the following commands, you need to be at the DOS prompt in the IFA directory (*Utilities – DOS*). Make sure that you go through this procedure only for those files that contain data you do not want to keep!

Data	DOS commands
AFP case data	erase afp.rec ↵ enter afp.rec afp.qes ↵ <F10>
AFP specimen data	erase afplab.rec ↵ enter afplab.rec afplab.qes ↵ <f10>
Data for other EPI diseases	erase inc.rec ↵ enter inc.rec inc.qes ↵ <F10>
Immunization coverage data	erase cov.rec ↵ enter cov.rec cov.qes ↵ <F10>
Population data	Erase pop.rec ↵ Enter pop.rec pop.qes ↵ <F10>
Province and district names	erase geo.rec ↵ enter geo.rec geo.qes ↵ <F10>

6.18 Creating your own boundary file

If you have tested your modifications using the fictitious data supplied with IFA, you may not yet have a boundary file showing the outlines of districts in your country or area. Refer to the section **Create a boundary file showing districts** in chapter 5 on the procedure to follow.

6.19 System in the IFA directory

It does not matter in what directory your IFA surveillance system resides as long as the instructions for going into the system correspond with the directory name. However, if you have been working on your modified system in a directory other than IFA and wish to have the finished product in the IFA directory, then you should rename the directory or move/copy the files into the IFA directory.

Good luck!

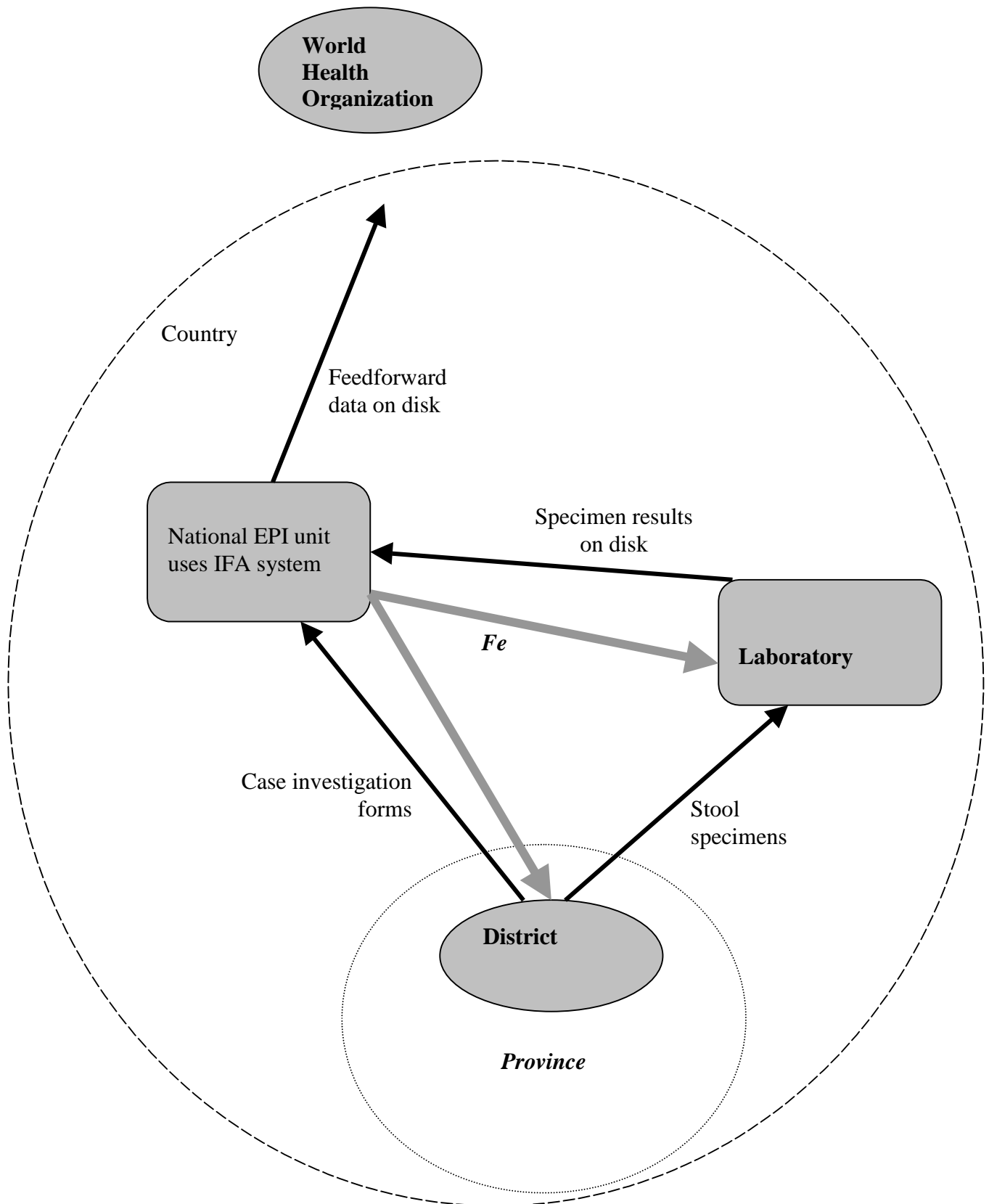
List of appendices

Appendix	Description	Main file
1	IFA scenario for AFP surveillance	
2	Overview of IFA organization	
3	Organization of IFA system	IFA.MNU
4	AFP case data entry	AFP.REC
5	AFP specimen data entry	AFPLAB.REC
6	Data entry for other EPI diseases	INC.REC
7	Immunization coverage data entry	COV.REC
8	AFP case data clean	AFP-CLN.PGM
9	AFP lab data clean	AFPL-CLN.PGM
10	ID codes only for clinical or only for lab	AFPC-CLN.PGM
11	Missing and duplicate records – other EPI diseases	INC-CLN.PGM
12	Missing and duplicate records – immunization coverage	COV-CLN.PGM
13	Line list of reported AFP cases	AFP-L1.PGM
14	AFP reports final classification	AFP-G1.PGM
15	Line list of confirmed polio cases	AFP-L2.PGM
16	Age at onset of confirmed polio cases	AFP-G2.PGM
17	Month of onset of confirmed polio cases	AFP-G3.PGM
18	Immunization status of confirmed polio cases	AFP-G4.PGM
19	Confirmed polio totals by district	AFP-T1.PGM
20	Wild poliovirus isolated pattern map	AFP-M2.PGM
21	AFP surveillance performance indicators	AFP-T2.PGM
22	Line list of AFP investigation failures	AFP-L4.PGM
23	Compatible polio spot map	AFP-M3.PGM
24	AFP reports with no specimens collected	AFP-M4.PGM
25	Monthly number of cases reported – other EPI diseases	INC-G1.PGM
26	Measles under-15 incidence per district	INC-M1.PGM
27	OPV3 doses administered versus target doses	AFP-G6.PGM
28	OPV3 coverage pattern map	AFP-M5.PGM
29	PAB – protected at birth pattern map	NT-M2.PGM
30	DTP3 administered versus target doses	DIP-G6.PGM
31	DTP3 coverage pattern map	DIP-M3.PGM

List of appendices (continued)

Appendix	Description	Main file
32	Measles doses administered versus target doses	MEA-G5.PGM
33	Measles vaccine coverage pattern map	MEA-M2.PGM
34	Set default begin and end dates for analyses	DEFDATE.PGM
35	Line list of all AFP cases for audit	AFP-FB.PGM
36	AFP specimen feedback report to labs	AFPL-FB.PGM
37	Feedback reports for other EPI diseases	INC-FB.PGM
38	Immunization coverage data feedback	COV-FB.PGM
39	District feedback – incidence + coverage	INCOV-FB.PGM
40	Create copy of AFP case data for WHO	AFP-FF.PGM
41	Create copy of AFP lab data for WHO	AFPL-FF.PGM
42	Create copy of other EPI disease data for WHO	INC-FF.PGM
43	Create copy of coverage data for WHO	COV-FF.PGM
44	Backup databases	IFA.MNU
45	Create AFP case/specimen database	AFP-DB.PGM
46	Create normalised dataset for analysis of other EPI data	INC-DB.PGM
47	Create normalised dataset for analysis of coverage data	COV-DB.PGM
48	Population data entry for rates	POP.REC
49	Data entry of province and district names	GEO.REC
50	Test matching of GEO.REC and DISTRICT.BND	GEO-TD.PGM
51	Check spelling consistency of province names	GEO-TP.PGM
52	Sort GEO.REC by district / by province and district	GEO-SD.PGM / GEO-SPD.PGM
53	List of variables and the files in which they are named	
54	Example 1: Add variable AGE to AFP case data set	
55	Example 2: Restrict values for AGE	
56	Example 3: Write a program to produce a table	
57	Example 4: Add the table program to the IFA menu	
58	Example 5: Write a program to produce a map	
59	Example 6: Add the map program to the IFA menu	
60	WHO country codes	

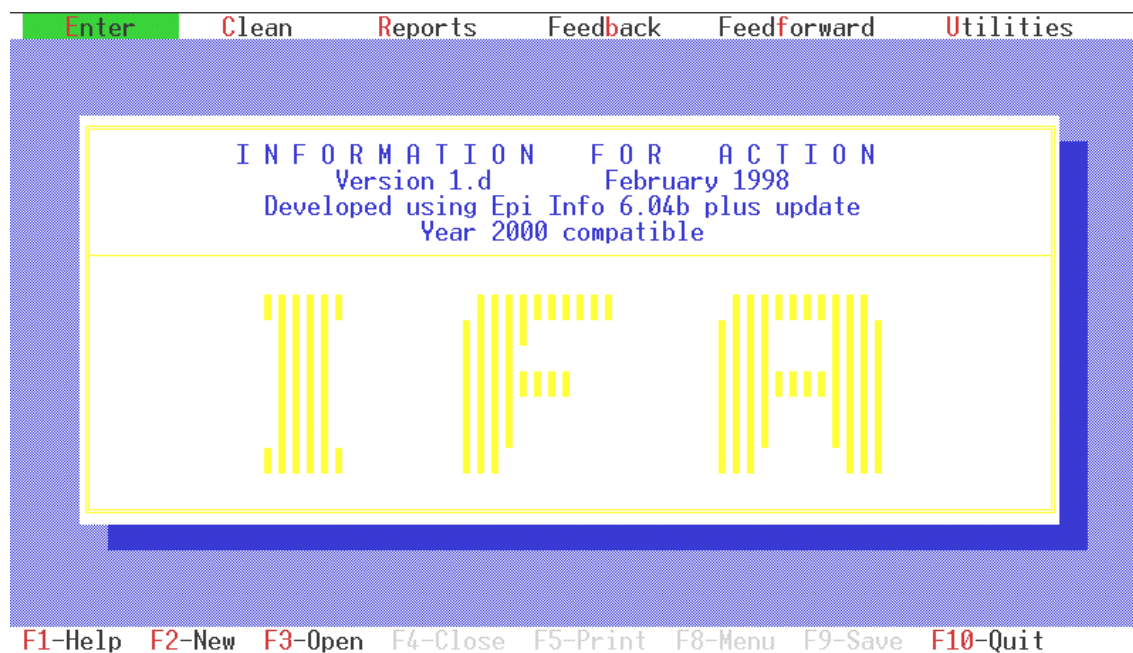
Appendix 1: IFA scenario for AFP surveillance



Appendix 2: Overview of IFA organization

Enter	Clean	Reports	Feedback	Feedforward	Utilities
AFP case	AFP case	Acute flaccid paralysis . . .	List AFP case	AFP case data	Backup databases . . .
AFP specimen	AFP specimen	Other EPI diseases . . .	AFP specimen	AFP specimen data	Laboratory data
Other EPI diseases	Check ID codes	Immunization coverage . . .	Other EPI diseases	Other EPI diseases	Ad hoc analyses . . .
Immunization coverage	Other EPI diseases	Default dates	Immunization coverage	Immunization coverage data	Epi Info + Epi Map software . . .
	Immunization coverage		EPI diseases & coverage		DOS
					System setup / maintenance . . .

Appendix 3: Organization of IFA system



Menu selection	Brief description	Label in IFA.MNU	Details in appendix
Enter			
AFP case	AFP case data entry	AFP	4
AFP specimen	AFP specimen data entry	AFPLAB	5
Other EPI diseases	Data entry for other EPI diseases	INC	6
Immunization coverage	Immunization coverage data entry	COV	7
Clean			
AFP case	AFP case data clean	AFP-CLN	8
AFP specimen	AFP lab data clean	AFPL-CLN	9
Check ID codes	ID codes only for clinical or only for lab	AFPC-CLN	10
Other EPI diseases	Missing and duplicate records	INC-CLN	11
Immunization coverage	Missing and duplicate records	COV-CLN	12

Appendix 3 (continued)

Organization of IFA system

Menu selection	Brief description	Label in IFA.MNU	Details in appendix
Reports			
<i>Acute flaccid paralysis</i>			
List – AFP cases	Line list of reported AFP cases	AFP-L1	13
Pie – AFP classification	AFP reports final classification	AFP-G1	14
List – polio cases	Line list of confirmed polio cases	AFP-L2	15
Bar – polio onset age	Age at onset of confirmed polio cases	AFP-G2	16
Bar – polio onset month	Month of onset of confirmed polio cases	AFP-G3	17
Pie – polio imm. status	Immunization status of confirmed polio cases	AFP-G4	18
Table – polio district totals	Confirmed polio totals by district	AFP-T1	19
Map – wild virus	Wild poliovirus isolated pattern map	AFP-M2	20
Table – indicators	AFP surveillance performance indicators	AFP-T2	21
List – investigation failure	Line list of AFP investigation failures	AFP-L4	22
Map – compatibles	Compatible polio spot map	AFP-M3	23
Map – AFP with no specimen	AFP reports with no specimens collected	AFP-M4	24
<i>Other EPI diseases</i>			
Line – cases per month	Monthly number of cases reported	INC-G1	25
Map – measles incidence	Measles under-15 incidence per district	INC-M1	26
<i>Immunization coverage</i>			
Graph – OPV3 adm. vs. target	OPV3 doses administered versus target doses	AFP-G6	27
Map – OPV3 coverage	OPV3 coverage pattern map	AFP-M5	28
Map – PAB coverage	PAB – protected at birth pattern map	NT-M2	29
Graph – DTP3 adm. vs. target	DTP3 administered versus target doses	DIP-G6	30
Map – DTP3 coverage	DTP3 coverage pattern map	DIP-M3	31
Graph – MEA adm. vs. target	Measles doses administered versus target doses	MEA-G5	32
Map – MEA coverage	Measles vaccine coverage pattern map	MEA-M2	33
Default dates	Set default begin and end dates for analyses	DEFDATE	34
Feedback			
List AFP case	Line list of all AFP cases for audit	AFP-FB	35
AFP specimen	AFP specimen feedback report to labs	AFPL-FB	36
Other EPI diseases	Feedback reports for other EPI diseases	INC-FB	37
Immunization coverage	Immunization coverage data feedback	COV-FB	38
EPI diseases & coverage	District feedback – incidence + coverage	INCOV-FB	39

Appendix 3 (continued)

Organization of IFA system

Menu selection	Brief description	Label in IFA.MNU	Details in appendix
Feedforward			
AFP case data	Create copy of AFP case data for WHO	AFP-FF	40
AFP specimen data	Create copy of AFP lab data for WHO	AFPL-FF	41
Other EPI diseases	Create copy of other EPI disease data for WHO	INC-FF	42
Immunization coverage data	Create copy of coverage data for WHO	COV-FF	43
Utilities			
<i>Backup databases</i>			
AFP case & specimen	Creates copy of AFP files on diskette	AFP-BACK	44
Other EPI diseases	Creates copy of other EPI diseases on diskette	INC-BACK	44
Immunization coverage data	Creates copy of coverage data on diskette	COV-BACK	44
Population & geo data	Creates copy of pop/geo data on diskette	POP-BACK	44
Laboratory data	Copy lab data from diskette	AFPL-CD	44
<i>Ad hoc analyses</i>			
Create AFP case/specimen database	Create AFP case/specimen database	AFP-DB	45
AFP data	Epi Info analysis of AFP files	AFP-ANAL	-
Normalise other EPI data	Create normalized dataset for analysis	INC-DB	46
Other EPI diseases	Epi Info analysis of other EPI data	INC-ANAL	-
Normalise coverage data	Create normalized dataset for analysis	COV-DB	47
Immunization coverage data	Epi Info analysis of coverage data	COV-ANAL	-
<i>Epi Info + Epi Map software</i>			
EPED	Begins Epi Info EPED	EPI-EPED	-
ENTER	Begins Epi Info ENTER	EPI-ENT	-
ANALYSIS	Begins Epi Info ANALYSIS	EPI-ANAL	-
Epi Map	Begins Epi Map software	EPI-MAP	-
DOS	Temporary exit to DOS	GOTO-DOS	-
<i>System setup / maintenance</i>			
Population data	Population data entry for rates	POP	48
Geographic names	Data entry of province and district names	GEO	49
Test district names	Test matching of GEO.REC and DISTRICT.BND	GEO-TD	50
Test province names	Check spelling consistency of province names	GEO-TP	51
District order	Sort GEO.REC alphabetically by district	GEO-SD	52
Province/district order	Sort GEO.REC by province and district	GEO-SPD	52

Appendix 4: AFP case data entry (AFP.REC / AFP.QES / AFP.CHK)

```

                                AFP - DATA ENTRY

ID code      500

District  SHAREANDSHARE      Province  MARINE

Date of birth      27/11/1994
Date of paralysis onset  03/07/1995
Date of notification  26/11/1994

Date of investigation  13/07/1995
  Total polio vaccine doses  4
  Fever at onset of paralysis  1
  Asymmetric paralysis      1
  Progression from onset to maximum paralysis within 4 days  1

Date of follow-up  03/08/1995      Findings at follow-up  1

Final classification  3

IDCODE: (You must enter data) All entries allowed      Mode: Multiuser
<Ctrl-N>-New <Ctrl-F>-Find F5-Print F6-Delete F9-Choices F10-Done Rec= 500

```

Variable	Type	Length	Description	Codes	Other
IDCODE	UPPERCASE text	12	ID code	-	Indexed Unique MustEnter
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC	-
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC	NoEnter
DOB	Date (dd/mm/yyyy)	10	Date of birth	-	-
DONSET	Date (dd/mm/yyyy)	10	Date of paralysis onset	-	-
DNOT	Date (dd/mm/yyyy)	10	Date of notification	-	-
DOI	Date (dd/mm/yyyy)	10	Date of investigation	-	-
DOSES	Numeric	2	Total polio vaccine doses	99=unknown	-
FEVER	Numeric	1	Fever at onset of paralysis	1=yes 2=no 9=unknown	-
ASYM	Numeric	1	Asymmetric paralysis	1=yes 2=no 9=unknown	-
PROGRESS	Numeric	1	Progression to maximum paralysis within 4 days	1=yes 2=no 9=unknown	-
DFUP	Date (dd/mm/yyyy)	10	Date of follow-up	-	-
FUP	Numeric	1	Findings at follow- up	1=res weakness 2=no res weakness 3=lost to f-up 4=died before f-up	-
CLASS	Numeric	1	Final classification	1=confirmed 2=compatible 3=discarded	-

Appendix 5: AFP specimen data entry (AFPLAB.REC / AFPLAB.QES / AFPLAB.CHK)

```

AFP LAB - DATA ENTRY

ID code 450
Specimen number (specno) 2
Date of onset (donsetl) 27/04/1995
Date of last OPV 28/03/1995
Date of stool collection 02/05/1995
Date stool sent to lab 05/05/1995
Date stool received in lab 13/05/1995
Stool condition 1
Date final culture results sent from lab to EPI 12/06/1995
Date intratypic diff results sent from lab to EPI 11/08/1995

Type 1 3
Type 2 1
Type 3 1
Non-polio enterovirus 2

Laboratory doing culture LABORATORY A
Laboratory doing intratypic diff LABORATORY B

IDCODE: (You must enter data) All entries allowed Mode: Multiuser
<Ctrl-N>-New <Ctrl-F>-Find F5-Print F6-Delete F9-Choices F10-Done Rec= 878

```

Variable	Type	Length	Description	Codes	Other
IDCODE	UPPERCASE text	12	ID code	-	Indexed MustEnter
SPECNO	Numeric	1	Specimen number	1=first specimen 2=second specimen 9=unknown	-
DONSETL	Date (dd/mm/yyyy)	10	Date of paralysis onset	-	-
DLOPV	Date (dd/mm/yyyy)	10	Date last received a dose of OPV	-	-
DSTCOLL	Date (dd/mm/yyyy)	10	Date of stool collection	-	-
DSTSSENT	Date (dd/mm/yyyy)	10	Date stool sent to the lab	-	-
DSTLAB	Date (dd/mm/yyyy)	10	Date stool received at the lab	-	-
STCOND	Numeric	1	Stool condition	1=good 2=poor 9=unknown	-
DCRES	Date (dd/mm/yyyy)	10	Date culture results sent to EPI	-	-
DIRES	Date (dd/mm/yyyy)	10	Date intratypic diff results sent to EPI	-	-
P1	Numeric	1	Was poliovirus type 1 isolated	1=yes, wild 2=yes, vaccine 3=yes, pending intratypic diff 4=no P1 isolated 5=spec not processed	-
P2	Numeric	1	Was poliovirus type 2 isolated	As for P1 4=no P2 isolated	-
P3	Numeric	1	Was poliovirus type 3 isolated	As for P1 4=no P3 isolated	-
ENTERO	Numeric	1	Was a non-polio enterovirus isolated	1=yes 2=no 9=spec not processed	-
LABCULT	UPPERCASE text	20	Name of lab doing culture	-	-
LABDIFF	UPPERCASE text	20	Name of lab doing intratypic diff	-	-

Appendix 6: Data entry for other EPI diseases (INC.REC / INC.QES / INC.CHK)

Routine surveillance - data entry

Year Month
 District Province

Diphtheria Pertussis
 Neonatal tetanus Total tetanus

Measles cases by age group and immunization status

Agegroup (yr)	immunized	non-immunized	unknown
under 1	<input type="text" value="64"/>	<input type="text" value="30"/>	<input type="text" value="5"/>
1 to 4	<input type="text" value="0"/>	<input type="text" value="3"/>	<input type="text" value="6"/>
5 to 14	<input type="text" value="8"/>	<input type="text" value="43"/>	<input type="text" value="0"/>
15+	<input type="text" value="0"/>	<input type="text" value="10"/>	<input type="text" value="5"/>
Unknown	<input type="text" value="4"/>	<input type="text" value="6"/>	<input type="text" value="0"/>

YEAR: Integers allowed Mode: Multiuser
 <Ctrl-N>-New <Ctrl-F>-Find F5-Print F6-Delete F9-Choices F10-Done Rec= 1260

Variable	Type	Length	Description	Codes	Other
YEAR	Numeric	4	Reporting year	-	-
MONTH	Numeric	2	Reporting month	1 - 12	-
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC	-
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC	NoEnter
DIP	Numeric	4	Diphtheria cases	-	-
PER	Numeric	4	Pertussis cases	-	-
NT	Numeric	4	Neonatal tetanus cases	-	-
TT	Numeric	4	Total tetanus cases	-	-
UNDER1	Numeric	4	Measles under-1 immunized	-	-
UNDER2	Numeric	4	Measles under-1 not immunized	-	-
UNDER3	Numeric	4	Measles under-1 unknown imm status	-	-
N14	Numeric	4	Measles 1-4 immunized	-	-
N15	Numeric	4	Measles 1-4 Not immunized	-	-
N16	Numeric	4	Measles 1-4 unknown imm status	-	-
N514	Numeric	4	Measles 5-14 immunized	-	-
N515	Numeric	4	Measles 5-14 not immunized	-	-
N516	Numeric	4	Measles 5-14 unknown imm status	-	-
N1501	Numeric	4	Measles 15+ immunized	-	-
N1502	Numeric	4	Measles 15+ not immunized	-	-
N1503	Numeric	4	Measles 15+ unknown imm status	-	-
UNKNOWN	Numeric	4	Measles unkn age immunized	-	-
UNKNOWN1	Numeric	4	Measles unkn age not immunized	-	-
UNKNOWN2	Numeric	4	Measles unkn age unknown imm status	-	-

Appendix 7: Immunization coverage data entry (COV.REC / COV.QES / COV.CHK)

```

IMMUNIZATION COVERAGE - DATA ENTRY

Reporting: year 1996 month 6
District  THANKKON
Province  BLUE

BCG  1867
DTP1 1954      DTP2 1758      DTP3 1705
OPV1  █        OPV2 1776      OPV3 1704
HB1   1324      HB2  1204      HB3   1107
MEA   1672
YF    825
TT2+  █        Number of infants protected at birth - "PAB" 1237

YEAR: Integers allowed
<Ctrl-N>-New <Ctrl-F>-Find F5-Print F6-Delete F9-Choices F10-Done Rec= 1246
Mode: Multiuser
    
```

Variable	Type	Length	Description	Codes	Other
YEAR	Numeric	4	Reporting year	-	-
MONTH	Numeric	2	Reporting month	1 - 12	-
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC	-
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC	NoEnter
BCG	Numeric	4	Doses of BCG	-	-
DTP1	Numeric	4	Doses of DTP1	-	-
DTP2	Numeric	4	Doses of DTP2	-	-
DTP3	Numeric	4	Doses of DTP3	-	-
OPV1	Numeric	4	Doses of OPV1	-	-
OPV2	Numeric	4	Doses of OPV2	-	-
OPV3	Numeric	4	Doses of OPV3	-	-
HB1	Numeric	4	Doses of HB1	-	-
HB2	Numeric	4	Doses of HB2	-	-
HB3	Numeric	4	Doses of HB3	-	-
MEA	Numeric	4	Measles doses	-	-
YF	Numeric	4	Yellow fever doses	-	-
TT2	Numeric	4	Pregnant women receiving 2 doses of tetanus toxoid	-	-
PAB	Numeric	4	Infants protected against tetanus at birth	-	-

Appendix 8: AFP case data clean (AFP-CLN.PGM)

Example of output in AFP-CLN.TXT

Problem = 1 - Date of onset (DONSET) is before date of birth (DOB)
 Problem = 2 - Date of notification (DNOT) is before date of onset (DONSET)
 Problem = 3 - Date of investigation (DOI) is before date of notification (DNOT)
 Problem = 4 - Date of followup (DFUP) is before date of investigation (DOI)

AFP cases reported with date of onset 01/01/1995 - 31/03/1995
 (as on 27/02/1998)

REC	PROBLEM	DOB	DONSET	DNOT	DOI	DFUP	IDCODE
286	1	4 02/03/1995	01/03/1995	.	03/06/1996	28/02/1995	286
16	1	27/01/1995	19/01/1995	02/02/1996	05/02/1996	13/03/1996	16
130	2	4 24/09/1990	31/01/1995	21/01/1995	07/02/1995	14/01/1995	130
215	2	25/04/1994	01/03/1995	20/02/1995	12/03/1995	18/04/1995	215
490	2	01/04/1991	09/01/1995	03/01/1995	24/01/1995	21/02/1995	490
42	3	4 03/03/1993	18/02/1995	03/03/1995	08/02/1995	26/02/1993	42
139	3	19/01/1985	21/03/1995	31/03/1995	28/03/1995	23/04/1995	139
331	3	07/12/1992	07/02/1995	13/02/1995	27/11/1992	02/04/1995	331
30	4	27/06/1991	13/01/1995	26/01/1995	29/01/1995	26/06/1991	30
47	4	25/01/1994	01/03/1995	02/03/1995	05/03/1995	24/02/1995	47
61	4	10/10/1993	10/01/1995	22/01/1995	25/01/1995	14/01/1995	61
118	4	02/07/1993	08/02/1995	11/02/1995	14/02/1995	04/02/1995	118
285	4	04/07/1990	25/01/1995	01/02/1995	04/02/1995	02/07/1990	285
318	4	21/09/1989	24/01/1995	28/01/1995	31/01/1995	23/04/1991	318
347	4	26/02/1992	16/03/1995	21/03/1995	24/03/1995	25/02/1992	347
427	4	19/10/1992	27/03/1995	02/04/1995	05/04/1995	26/03/1995	427
455	4	13/09/1993	01/03/1995	14/03/1995	17/03/1995	23/02/1995	455

Files and variables explicitly named in AFP-CLN.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	DFUP DNOT DOB DOI DONSET IDCODE
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 9: AFP lab data clean (AFPL-CLN.PGM)

Example of output in AFPL-CLN.TXT

Problem = 1 - Date of stool collection is before date of onset
 Problem = 2 - Date stool sent to lab is before date of stool collection
 Problem = 3 - Date stool received at lab is before date stool sent to lab

AFP specimens reported with date of onset 01/01/1995 - 31/03/1995
 (as on 27/02/1998)

REC	PROBLEM	DONSETL	DSTCOLL	DSTSENT	DSTLAB	IDCODE	SPECNO
459	2 3	27/02/1995	13/03/1995	04/03/1995	25/02/1995		24
73	2	01/03/1995	19/03/1995	09/03/1995	10/03/1995		79
382	2	18/03/1995	30/03/1995	25/03/1995	27/03/1995		396
418	2	05/01/1995	13/01/1995	04/01/1995	16/01/1995		432
81	3	26/03/1995	28/03/1995	29/03/1995	22/03/1995		87
92	3	25/02/1995	26/02/1995	27/02/1995	25/02/1995		99
150	3	22/02/1995	02/03/1995	04/03/1995	25/02/1995		158
167	3	02/01/1995	04/01/1995	07/01/1995	29/12/1994		175
363	3	18/01/1995	26/01/1995	28/01/1995	18/01/1995		376
562	3	14/02/1995	25/02/1995	26/02/1995	24/02/1995		128
563	3	22/02/1995	23/02/1995	25/02/1995	20/02/1995		129
611	3	25/01/1995	01/02/1995	03/02/1995	24/01/1995		178
666	3	30/01/1995	14/02/1995	16/02/1995	08/02/1995		234
782	3	01/01/1995	11/01/1995	12/01/1995	02/01/1995		352
852	3	14/01/1995	29/01/1995	01/02/1995	23/01/1995		423

Files and variables explicitly named in AFPL-CLN.PGM (other than those generated by the program)

File names

Variable names

AFPLAB.REC

DONSETL

DSTCOLL

DSTLAB

DSTSENT

IDCODE

SPECNO

DEFDATE.REC

BEGINDATE

ENDDATE

Appendix 10: ID codes only for clinical or only for lab (AFPC-CLN.PGM)

Example of output in AFPC-CLN.TXT

List of ID codes which appear only in the clinical dataset (AFP.REC)
or only in the laboratory dataset (AFPLAB.REC) (as on 27/02/1998)

IDCODE	ONSET	Record numbers in:	
		AFP_REC	AFPLAB_REC
451	11/05/1996	451	.
452	19/04/1994	452	.
453	25/03/1996	453	.
454	27/03/1996	454	.
455	01/03/1995	455	.
456	05/01/1994	456	.
457	20/12/1994	457	.
458	22/02/1994	458	.
459	16/03/1994	459	.
460	18/06/1994	460	.
461	02/09/1995	461	.
462	25/06/1996	462	.
463	26/10/1995	463	.
464	25/07/1993	464	.
465	03/06/1993	465	.
466	01/04/1996	466	.
473	22/03/1994	473	.
474	14/10/1995	474	.
475	17/04/1994	475	.
476	14/06/1994	476	.
477	.	477	.
478	03/12/1995	478	.
479	25/10/1994	479	.
480	23/06/1995	480	.
481	11/05/1996	481	.
482	.	482	.
483	30/03/1995	483	.
484	19/06/1994	484	.
497	20/01/1996	497	.
498	09/12/1994	498	.
499	24/08/1994	499	.
500	03/07/1995	500	.
502	02/10/1995	.	348
565	08/05/1994	.	602
676	01/06/1994	.	375
5656	22/02/1994	.	616
1423434	09/03/1995	.	877
177272727	09/08/1994	.	18
342334	03/08/1994	.	854
ADFDEERER	05/03/1995	.	23
AGTHAKDKD	13/10/1995	.	859
HGTT12312	20/04/1996	.	858

Files and variables explicitly named in AFPC-CLN.PGM
(other than those generated by the program)

File names	Variable names
AFP.REC	DONSET IDCODE
AFPLAB.REC	DONSETL IDCODE

Appendix 11: Missing and duplicate records – other EPI diseases (INC-CLN.PGM)

Example of output in INC-CLN.TXT

```
OTHER EPI DISEASES
1995 (as on 27/02/1998)
```

Possible duplicate records

```
DIS_MONTH          COUNT
-----          -
```

Missing records

```
DIS_MONTH
-----
CHEERON          : 1
CHEERON          : 2
CHEERON          : 3
CHEERON          : 4
CHEERON          : 5
CHEERON          : 6
CHEERON          : 7
CHEERON          : 8
CHEERON          : 9
CHEERON          :10
CHEERON          :11
CHEERON          :12
```

Files and variables explicitly named in INC-CLN.PGM (other than those generated by the program)

File names	Variable names
GEO.REC	DISTRICT
INC.REC	DISTRICT
	MONTH
	YEAR

Appendix 12: Missing and duplicate records – immunization coverage (COV-CLN.PGM)

Example of output in COV-CLN.TXT

IMMUNIZATION COVERAGE DATA
1995 (as on 27/02/1998)

Possible duplicate records

DIS_MONTH	COUNT
-----	-----

Missing records

DIS_MONTH	

BAND	: 1
BRAVELINES	: 5
BRAVELINES	: 6
BRAVELINES	: 7
FARAWAY	: 2
JANFEBMARCH	: 8
PANCLEAN	: 5
REARVIEW	: 2

Files and variables explicitly named in COV-CLN.PGM
(other than those generated by the program)

File names	Variable names
COV.REC	DISTRICT
	MONTH
	YEAR
GEO.REC	DISTRICT

Appendix 13: Line list of reported AFP cases (AFP-L1.PGM)

Example of output in AFP-L1.TXT

Line list of reported AFP cases : LABORATORY RESULTS + CLASSIFICATION
01/01/1995 - 31/01/1995 (as on 27/02/1998)
Note: All AFP cases in dataset with unknown date of onset are included

IDCODE	DONSET	TYPE_1	TYPE_2	TYPE_3	CLASSIFY
130	31/01/1995	WILD	WILD	WILD	COMPATIBLE
244	31/01/1995	NO	WILD	NO SPEC	COMPATIBLE
147	29/01/1995	WILD	WILD	NO SPEC	CONFIRMED
9	.	NO SPEC	.	.	DISCARDED

Line list of reported AFP cases : STOOL COLLECTION DETAILS
01/01/1995 - 31/01/1995 (as on 27/02/1998)
Note: All AFP cases in dataset with unknown date of onset are included

IDCODE	DONSET	DSTCOLL1	DSTSENT1	DSTCOLL2	DSTSENT2
130	31/01/1995	14/04/1996	16/04/1996	25/12/1995	27/12/1995
244	31/01/1995	20/10/1995	22/10/1995	10/01/1996	11/01/1996
147	29/01/1995	25/07/1994	27/07/1994	20/06/1995	21/06/1995
9	.	.	.	10/02/1994	08/02/1994

Line list of reported AFP cases : DETAILS OF STOOL IN LABORATORY
01/01/1995 - 31/01/1995 (as on 27/02/1998)
Note: All AFP cases in dataset with unknown date of onset are included

IDCODE	DONSET	DSTLAB1	DSTLAB2	ST1C	ST2C
130	31/01/1995	08/04/1996	04/01/1996	GOOD	GOOD
244	31/01/1995	15/10/1995	08/01/1996	GOOD	GOOD
147	29/01/1995	30/07/1994	27/06/1995	UNK	GOOD
9	.	.	15/02/1994	UNK	GOOD

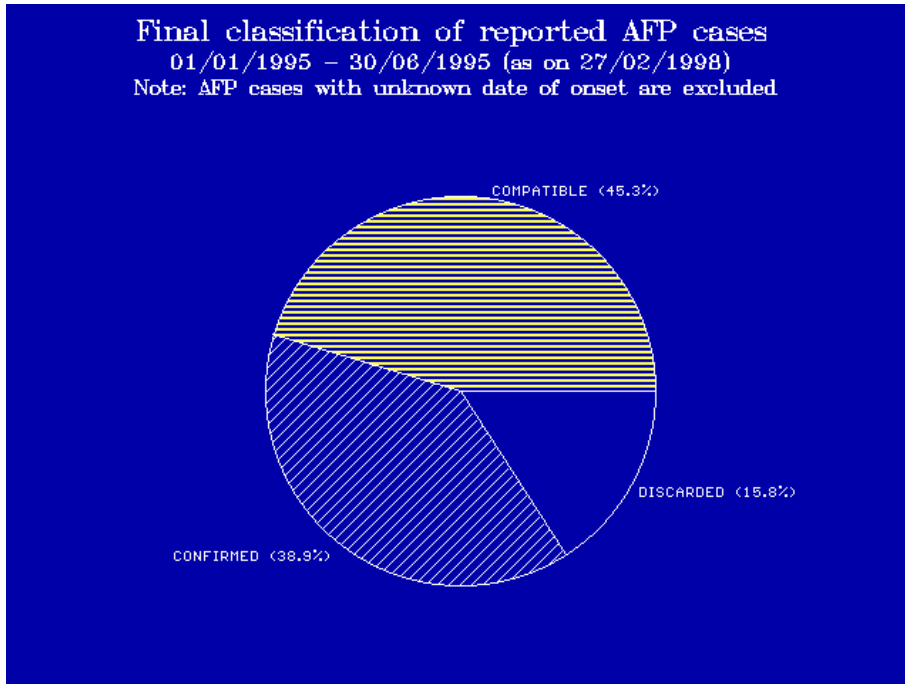
Line list of reported AFP cases : DETAILS OF FOLLOW-UP
01/01/1995 - 31/01/1995 (as on 27/02/1998)
Note: All AFP cases in dataset with unknown date of onset are included

IDCODE	DONSET	DFUP	FUP_FINDINGS
130	31/01/1995	14/01/1995	NO RESIDUAL WEAKNESS
244	31/01/1995	10/03/1995	RESIDUAL WEAKNESS
147	29/01/1995	.	NO RESIDUAL WEAKNESS
9	.	24/11/1994	RESIDUAL WEAKNESS

Files and variables explicitly named in AFP-L1.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DONSET FUP IDCODE
AFPLAB.REC	DCRES DIRES DSTCOLL DSTLAB DSTSENT ENTERO P1 P2 P3 SPECNO STCOND
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 14: AFP reports final classification (AFP-G1.PGM)



Example of output in AFP-G1.TXT

Final classification of reported AFP cases
01/01/1995 - 30/06/1995 (as on 27/02/1998)
Note: AFP cases with unknown date of onset are excluded

CLASSIFY	Freq	Percent	Cum.
1. CONFIRMED	37	38.9%	38.9%
2. COMPATIBLE	43	45.3%	84.2%
3. DISCARDED	15	15.8%	100.0%
Total	95	100.0%	

Files and variables explicitly named in AFP-G1.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DONSET
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 15: Line list of confirmed polio cases (AFP-L2.PGM)

Example of output in AFP-L2.TXT

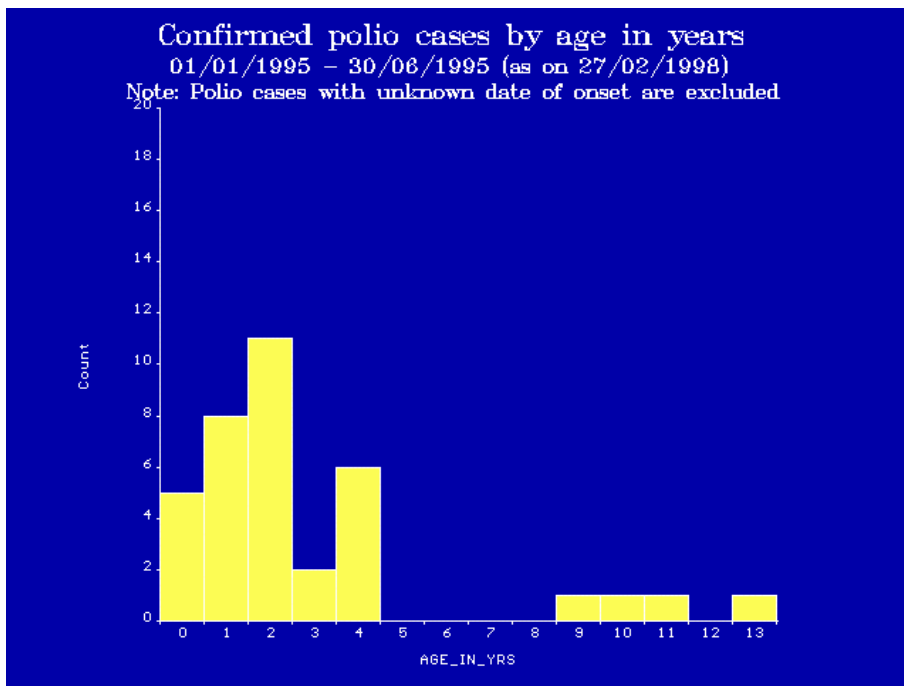
Line list of confirmed polio cases
01/01/1995 - 31/01/1995 (as on 27/02/1998)
Note: All polio cases in dataset with unknown date of onset are included

IDCODE	DONSET	TYPE_1	TYPE_2	TYPE_3	CLASSIFY
147	29/01/1995	WILD	WILD	NO SPEC	CONFIRMED
169	26/01/1995	YES,UNK	WILD	WILD	CONFIRMED
323	16/01/1995	WILD	NO SPEC	WILD	CONFIRMED
408	14/01/1995	YES,UNK	YES,UNK	NO	CONFIRMED
30	13/01/1995	WILD	WILD	NO SPEC	CONFIRMED
289	13/01/1995	WILD	WILD	YES,UNK	CONFIRMED
61	10/01/1995	NO SPEC	WILD	YES,UNK	CONFIRMED
117	09/01/1995	YES,UNK	NO SPEC	WILD	CONFIRMED
322	03/01/1995	WILD	WILD	YES,UNK	CONFIRMED
51	.	WILD	NO	NO SPEC	CONFIRMED
64	.	WILD	WILD	NO SPEC	CONFIRMED
105	.	WILD	NO	WILD	CONFIRMED
133	.	WILD	NO SPEC	NO	CONFIRMED
135	.	NO SPEC	NO SPEC	NO SPEC	CONFIRMED
150	.	NO SPEC	NO SPEC	NO SPEC	CONFIRMED
175	.	NO SPEC	NO SPEC	WILD	CONFIRMED
181	.	WILD	NO	NO SPEC	CONFIRMED
269	.	NO	NO	WILD	CONFIRMED
329	.	NO	WILD	WILD	CONFIRMED
482	.	.	.	.	CONFIRMED

Files and variables explicitly named in AFP-L2.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DONSET IDCODE
AFPLAB.REC	DCRES DIRES DSTCOLL DSTLAB DSTSENT ENTERO P1 P2 P3 SPECNO STCOND
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 16: Age at onset of confirmed polio cases (AFP-G2.PGM)



Example of output in AFP-G2.TXT

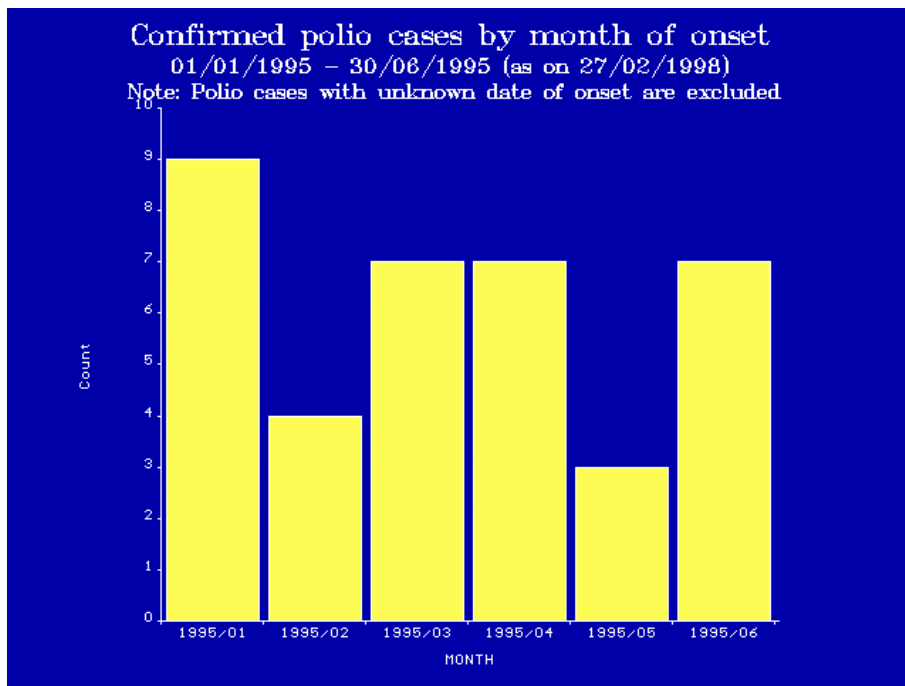
Confirmed polio cases by age in years
01/01/1995 - 30/06/1995 (as on 27/02/1998)
Note: Polio cases with unknown date of onset are excluded

AGE_IN_YRS	Freq	Percent	Cum.
0	5	13.9%	13.9%
1	8	22.2%	36.1%
2	11	30.6%	66.7%
3	2	5.6%	72.2%
4	6	16.7%	88.9%
5	0	0.0%	88.9%
6	0	0.0%	88.9%
7	0	0.0%	88.9%
8	0	0.0%	88.9%
9	1	2.8%	91.7%
10	1	2.8%	94.4%
11	1	2.8%	97.2%
12	0	0.0%	97.2%
13	1	2.8%	100.0%
Total	36	100.0%	

Files and variables explicitly named in AFP-G2.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DOB DONSET
DEFDATE.REC	BEGINDATE ENDDATE
XAXIS.REC	DUMMY

Appendix 17: Month of onset of confirmed polio cases (AFP-G3.PGM)



Example of output in AFP-G3.TXT

Confirmed polio cases by month of onset
01/01/1995 - 30/06/1995 (as on 27/02/1998)
Note: Polio cases with unknown date of onset are excluded

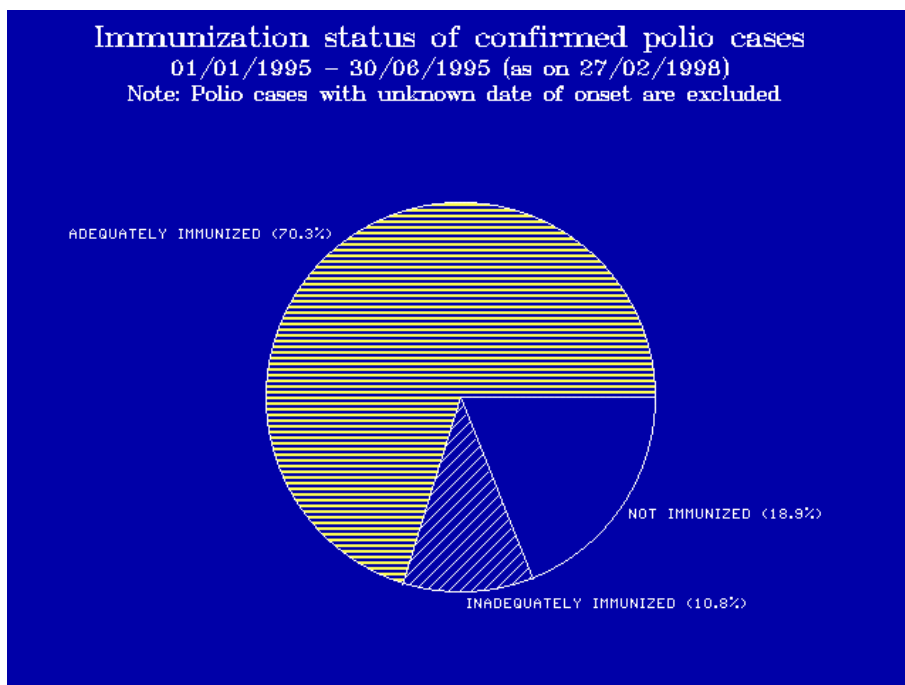
MONTH	Freq	Percent	Cum.
1995/01	9	24.3%	24.3%
1995/02	4	10.8%	35.1%
1995/03	7	18.9%	54.1%
1995/04	7	18.9%	73.0%
1995/05	3	8.1%	81.1%
1995/06	7	18.9%	100.0%
Total	37	100.0%	

Mean per MONTH group = 6.17
StdDev = 2.23

Files and variables explicitly named in AFP-G3.PGM
(other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DONSET
DEFDATE.REC	BEGINDATE ENDDATE
PERIODS.REC	PERIOD

Appendix 18: Immunization status of confirmed polio cases (AFP-G4.PGM)



Example of output in AFP-G4.TXT

Immunization status of confirmed polio cases
01/01/1995 - 30/06/1995 (as on 27/02/1998)
Note: Polio cases with unknown date of onset are excluded

STATUS	Freq	Percent	Cum.
ADEQUATELY IMMUNIZED	26	70.3%	70.3%
INADEQUATELY IMMUNIZED	4	10.8%	81.1%
NOT IMMUNIZED	7	18.9%	100.0%
Total	37	100.0%	

Files and variables explicitly named in AFP-G4.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DONSET DOSES
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 19: Confirmed polio totals by district (AFP-T1.PGM)

Example of output in AFP-T1.TXT

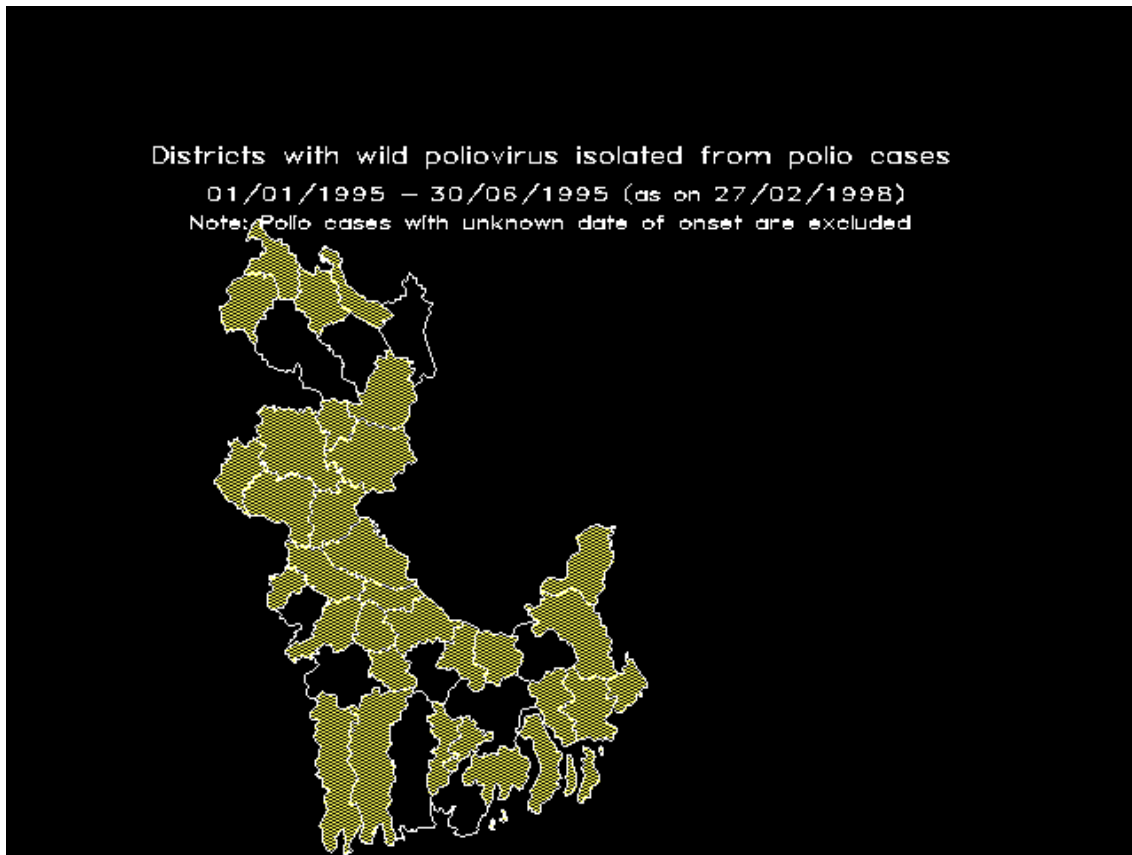
Total confirmed polio cases by district
01/01/1995 - 30/06/1995 (as on 27/02/1998)
Note: Polio cases with unknown date of onset are excluded

DISTRICT	Freq	Percent	Cum.
.	5	13.5%	13.5%
BAND	1	2.7%	16.2%
BOGIT	1	2.7%	18.9%
COMPANY	1	2.7%	21.6%
FARAWAY	1	2.7%	24.3%
FERRIT	1	2.7%	27.0%
JAMSUGAR	2	5.4%	32.4%
JANFEBMARCH	1	2.7%	35.1%
JESTFUN	1	2.7%	37.8%
KILOJOULE	1	2.7%	40.5%
LAKEMEER	1	2.7%	43.2%
MAPIT	2	5.4%	48.6%
MENNEMOW	1	2.7%	51.4%
NAMEDYET	1	2.7%	54.1%
NAMEWHAT	1	2.7%	56.8%
NEARENOUGH	3	8.1%	64.9%
NEVERAGAIN	1	2.7%	67.6%
NONONO	1	2.7%	70.3%
PARENWHIT	1	2.7%	73.0%
PILOTIT	2	5.4%	78.4%
RAILWHEN	1	2.7%	81.1%
RAINEDOUT	1	2.7%	83.8%
SALTED	3	8.1%	91.9%
SHAREANDSHARE	1	2.7%	94.6%
THANKKON	2	5.4%	100.0%
Total	37	100.0%	

Files and variables explicitly named in AFP-T1.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS
	DISTRICT
	DONSET
DEFDATE.REC	BEGINDATE
	ENDDATE

Appendix 20: Wild poliovirus isolated pattern map (AFP-M2.PGM)



Files and variables explicitly named in AFP-M2.PGM
(other than those generated by the program)

File names	Variable names
AFP-DB.REC	DISTRICT DONSET P1_1 P1_2 P2_1 P2_2 P3_1 P3_2
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 21: AFP surveillance performance indicators (AFP-T2.PGM)

Example of output in AFP-T2.TXT

AFP PERFORMANCE INDICATORS
AFP cases with date of onset between 01/01/1995 and 30/06/1995
(as on 27/02/1998)

Note: AFP cases with unknown date of onset are excluded

PERFORMANCE INDICATOR #1:

Percent of AFP cases with period between date of notification and date of investigation <= 2 days
TARGET = 80%

INDICATOR	Freq	Percent	Cum.
1. TARGET: 0-2 DAYS	1	1.1%	1.1%
2. 3+ DAYS	77	81.1%	82.1%
3. UNKNOWN	17	17.9%	100.0%
Total	95	100.0%	

PERFORMANCE INDICATOR #2:

Percent of AFP cases with 2 stool specimens collected within 14 days of onset
TARGET = 80%

INDICATOR	Freq	Percent	Cum.
1. TARGET: 2 TIMELY SPEC	4	4.3%	4.3%
2. NOT 2 TIMELY SPECIMENS	16	17.2%	21.5%
3. UNKNOWN	73	78.5%	100.0%
Total	93	100.0%	

PERFORMANCE INDICATOR #3:

Percent of specimens from AFP cases arriving at the lab in 'good condition'
TARGET = 90%

INDICATOR	Freq	Percent	Cum.
1. TARGET: GOOD CONDITION	146	83.0%	83.0%
2. POOR CONDITION	19	10.8%	93.8%
3. UNKNOWN	11	6.3%	100.0%
Total	176	100.0%	

PERFORMANCE INDICATOR #4:

Percent of specimens from AFP cases arriving in lab within 3 days of being sent
TARGET = 80%

INDICATOR	Freq	Percent	Cum.
1. TARGET: <= 3 DAYS	38	21.6%	21.6%
2. > 3 DAYS	121	68.8%	90.3%
3. UNKNOWN	17	9.7%	100.0%
Total	176	100.0%	

Appendix 21 (continued)

AFP surveillance performance indicators (AFP-T2.PGM)

Example of output in AFP-T2.TXT (continued)

PERFORMANCE INDICATOR #5:

Percent of specimens from AFP cases from
which non-polio enterovirus was isolated
TARGET = 10%

INDICATOR	Freq	Percent	Cum.
1. TARGET: NON-POLIO ENT	9	5.1%	5.1%
2. NO NON-POLIO ENT	126	71.6%	76.7%
3. SPEC NOT PROCESSED	41	23.3%	100.0%
Total	176	100.0%	

PERFORMANCE INDICATOR #6:

Percent of specimens from AFP cases for which final culture
results were sent within 28 days of specimen receipt at the lab
TARGET = 80%

INDICATOR	Freq	Percent	Cum.
2. > 28 DAYS	167	94.9%	94.9%
3. UNKNOWN	9	5.1%	100.0%
Total	176	100.0%	

PERFORMANCE INDICATOR #7:

Non-polio AFP in children less than 15 years of age
per 100,000 population less than 15 years of age

National/ Province	Rate
NATIONAL RATE:	0.1217
BLUE	0.1208
GREEN	2.0436
MARINE	0.0782
ORANGE RED	0.0918
YELLOW	0.0000

Files and variables explicitly named in AFP-T2.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DOB DONSET DNOT DOI PROVINCE
AFPLAB.REC	DCRES DSTLAB IDCODE DONSETL DSTSENT SPECNO DSTCOLL ENTERO STCOND
DEFDATE.REC	BEGINDATE ENDDATE
PERIODS.REC	PERIOD YEAR
POP.REC	DISTRICT PROVINCE POPL15 YEAR

Appendix 22: Line list of AFP investigation failures (AFP-L4.PGM)

Example of output in AFP-L4.TXT

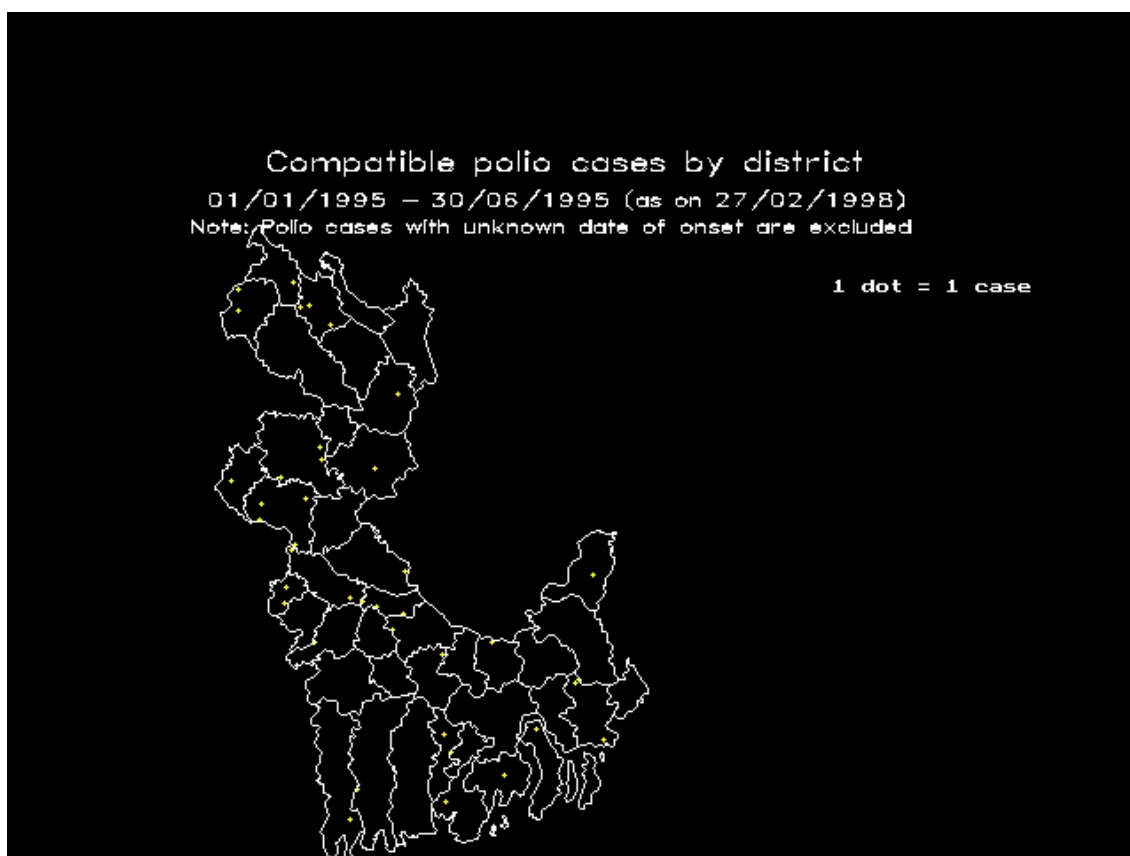
Line list of AFP investigation failures
01/01/1995 - 31/01/1995 (as on 27/02/1998)
Note: All AFP cases in dataset with unknown date of onset are included

IDCODE	DONSET	FAIL_1	FAIL_2	FAIL_3	FAIL_4	FAIL_5
244	31/01/1995	.	.	PREM F-UP	.	.
147	29/01/1995	.	INAD SP	.	.	.
169	26/01/1995	.	INAD SP	PREM F-UP	LOST F-UP	.
287	26/01/1995	.	INAD SP	PREM F-UP	LOST F-UP	.
285	25/01/1995	.	INAD SP	.	.	.
290	21/01/1995	NOT INV	.	.	.	.
16	19/01/1995	.	INAD SP	.	.	DEL F-UP
323	16/01/1995	NOT INV	INAD SP	PREM F-UP	.	.
408	14/01/1995	.	INAD SP	PREM F-UP	.	.
30	13/01/1995	.	INAD SP	.	.	.
289	13/01/1995	.	.	PREM F-UP	.	.
61	10/01/1995	.	.	PREM F-UP	.	.
117	09/01/1995	.	INAD SP	.	.	.
490	09/01/1995	.	INAD SP	PREM F-UP	.	.
322	03/01/1995	.	.	PREM F-UP	.	.
9	.	.	INAD SP	.	.	.
25	.	.	INAD SP	.	.	.
37	.	.	.	.	LOST F-UP	.
51	.	.	INAD SP	.	.	.
64	.	.	INAD SP	.	.	.
76	.	NOT INV	.	.	.	.
78	.	.	INAD SP	.	.	.
91	.	.	INAD SP	.	.	.
135	.	.	INAD SP	.	.	.
157	.	.	INAD SP	.	.	.
170	.	.	INAD SP	.	.	.
175	.	.	INAD SP	.	LOST F-UP	.
181	.	.	INAD SP	.	.	.
205	.	.	INAD SP	.	LOST F-UP	.
236	.	.	INAD SP	.	.	.
269	.	.	INAD SP	.	.	.
329	.	.	INAD SP	.	.	.
352	.	.	INAD SP	.	.	.
421	.	NOT INV	.	.	.	.
477	.	.	INAD SP	.	.	.
482	.	.	INAD SP	.	.	.

Files and variables explicitly named in AFP-L4.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	DFUP DONSET DOI FUP IDCODE
AFPLAB.REC	DCRES DSTSENT P2 DIRES ENTERO P3 DSTCOLL IDCODE SPECNO DSTLAB P1 STCOND
DEFDATE.REC	BEGINDATE ENDDATE

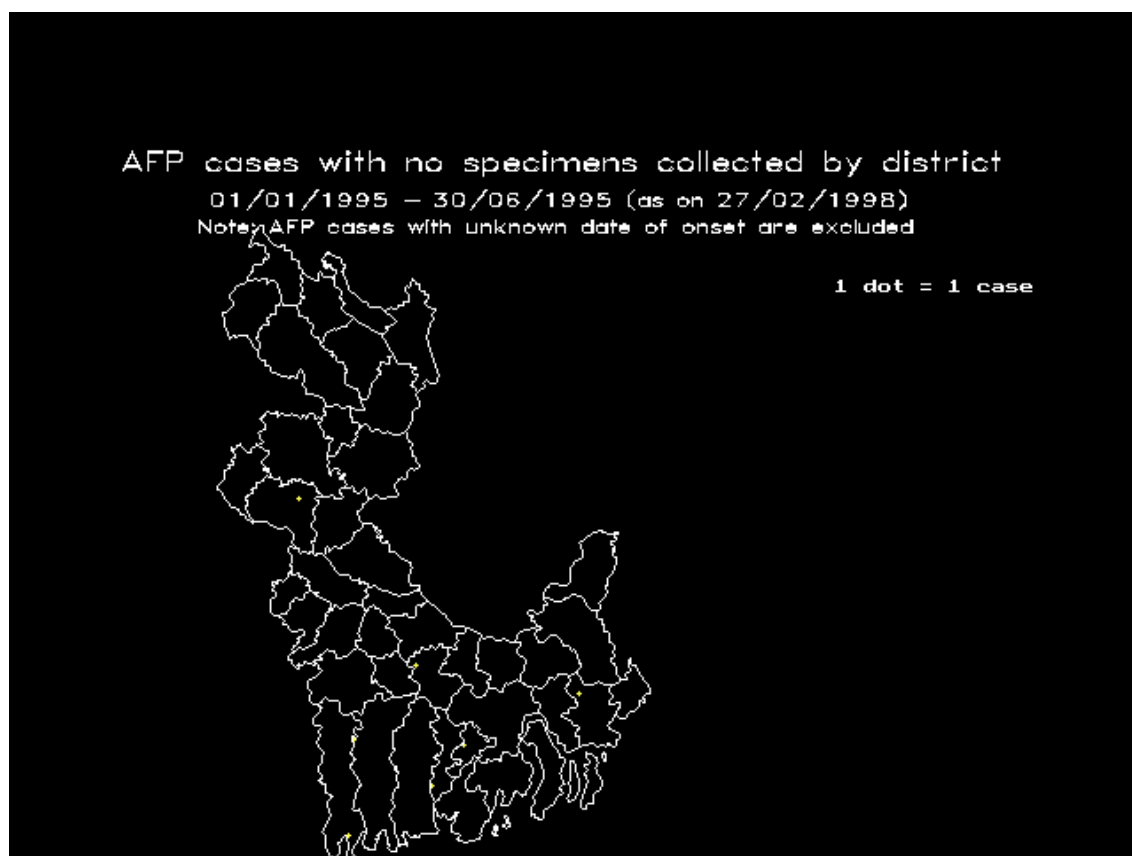
Appendix 23: Compatible polio spot map (AFP-M3.PGM)



Files and variables explicitly named in AFP-M3.PGM
(other than those generated by the program)

File names	Variable names
AFP.REC	CLASS DISTRICT DONSET
DEFDATE.REC	BEGINDATE ENDDATE

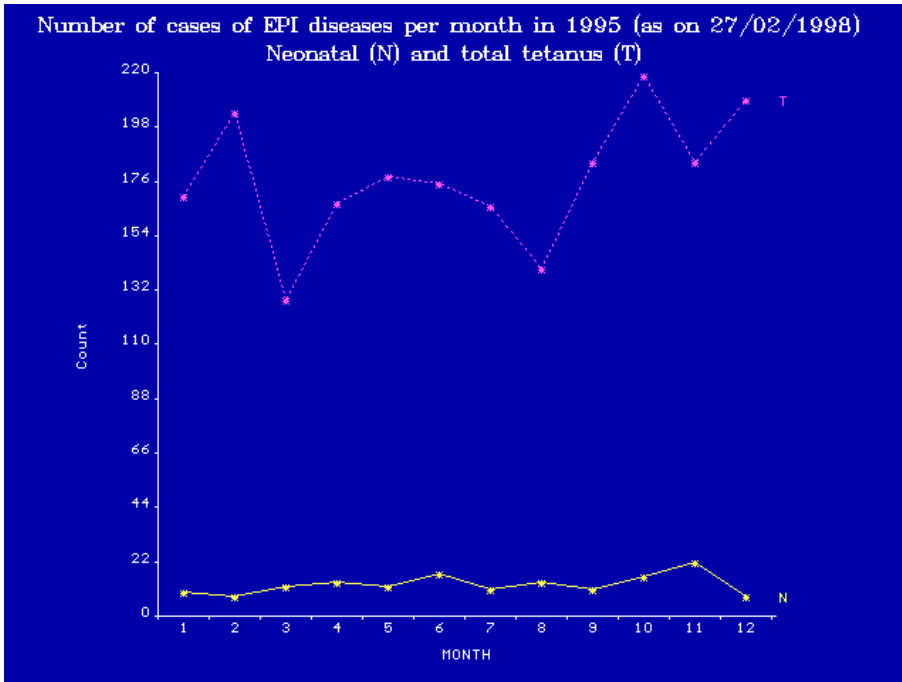
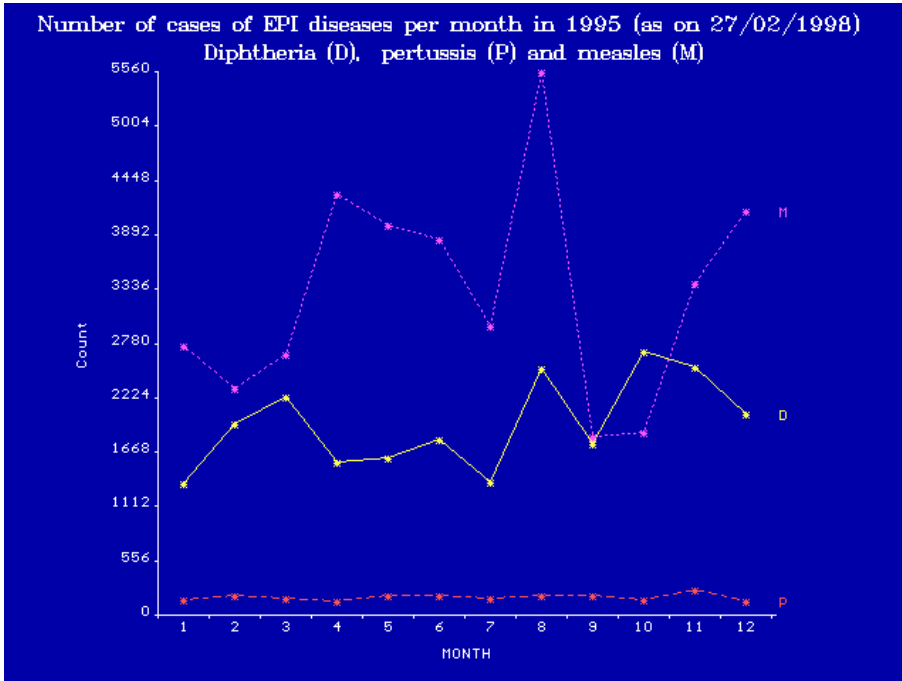
Appendix 24: AFP reports with no specimens collected (AFP-M4.PGM)



Files and variables explicitly named in AFP-M4.PGM
(other than those generated by the program)

File names	Variable names
AFP-DB.REC	DISTRICT
	DONSET
	DSTCOLL1
	DSTCOLL2
DEFDATE.REC	BEGINDATE
	ENDDATE

Appendix 25: Monthly number of cases reported – other EPI diseases (INC-G1.PGM)



Appendix 25 (continued)**Monthly number of cases reported – other EPI diseases (INC-G1.PGM)****Example of output in INC-G1.TXT**

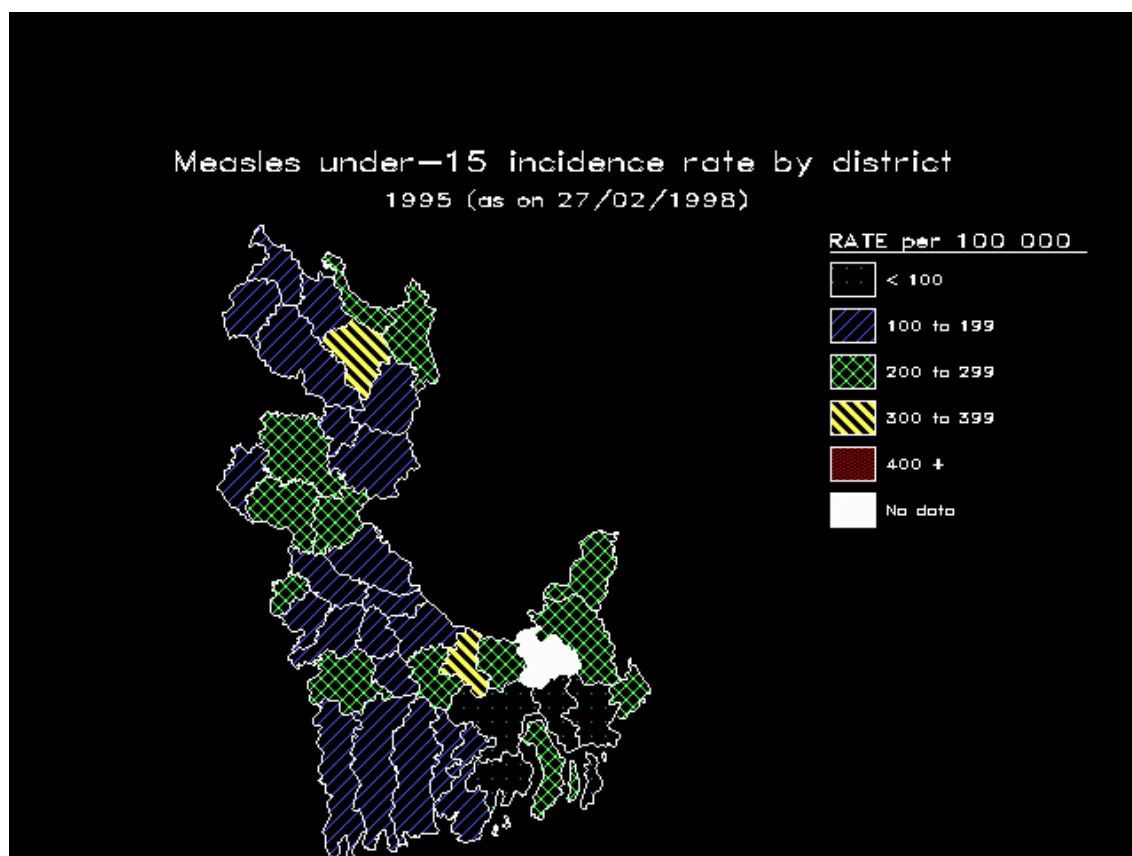
Number of cases of EPI diseases per month in 1995 (as on 27/02/1998)

Month	Diphtheria	Measles	Pertussis	Tetanus	
				Neonatal	Total
1	1354	2753	161	10	170
2	1959	2319	197	8	204
3	2242	2671	180	12	128
4	1566	4310	147	14	167
5	1610	3986	200	12	178
6	1805	3840	209	17	175
7	1363	2955	167	11	166
8	2523	5559	203	14	141
9	1756	1830	205	11	184
10	2705	1871	159	16	219
11	2537	3403	260	22	184
12	2068	4143	140	8	209
Total	23488	39640	2228	155	2125

Files and variables explicitly named in INC-G1.PGM
(other than those generated by the program)

File names	Variable names	
INC.REC	DIP	N516
	DISTRICT	NT
	MONTH	PER
	N14	TT
	N15	UNDER1
	N1501	UNDER2
	N1502	UNDER3
	N1503	UNKNOWN
	N16	UNKNOWN1
	N514	UNKNOWN2
	N515	YEAR
	INC-G1.RPT	

Appendix 26: Measles under-15 incidence per district (INC-M1.PGM)



Example of output in INC-M1.TXT

Measles under-15 rates by district
(rate per 100 000) 1995
(as on 27/02/1998)

Note: No adjustments are made for an incomplete year

DISTRICT	RATE
BAND	220.6
BOGIT	197.0
BOREDYET	130.1
BRACETT	66.3
BRAVELINES	203.5
BROKENTHING	107.7
CHANGECHANGE	158.0
CHEERON	.
COMPANY	209.9
DINAROUND	177.5
FARAWAY	148.1
FERRIT	277.2
GARAPLAIN	176.1
GREENHILLS	211.6
JAMSUGAR	197.0
JANFEBMARCH	142.3
JESTFUN	147.4
JUMPOVER	240.0
KILOJOULE	177.8

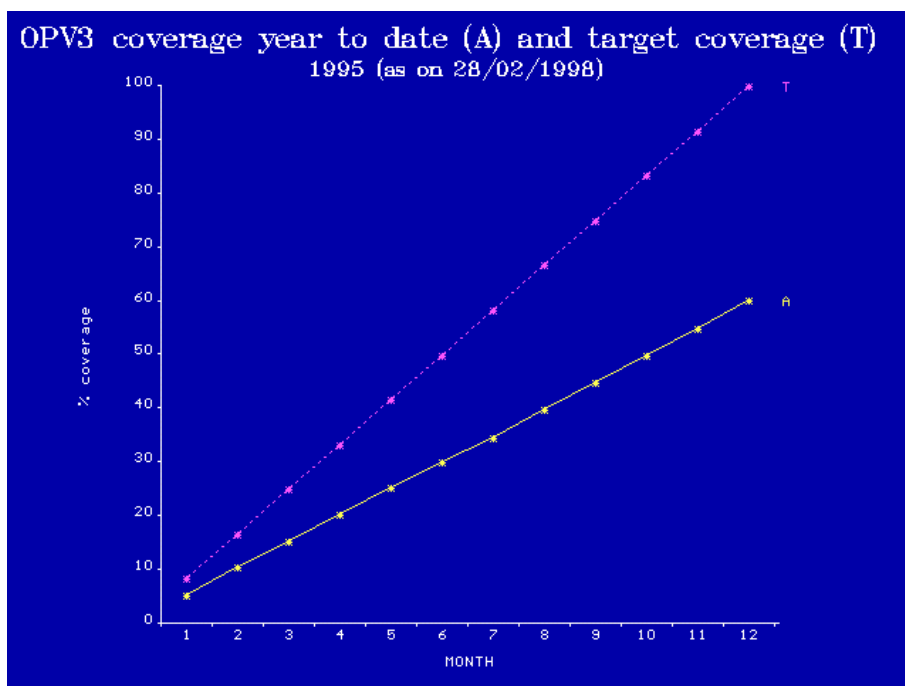
Appendix 26 (continued)**Measles under-15 incidence per district (INC-M1.PGM)****Example of output in INC-M1.TXT (continued)**

KURTSMART	258.2
LAKEMEER	266.6
LASTSPUR	26.2
MADENEW	302.1
MAPIT	151.1
MENNEMOW	270.8
NAKNACK	200.4
NAMEDYET	202.8
NAMEWHAT	153.3
NEARENOUGH	161.1
NEVERAGAIN	87.1
NONONO	130.2
PANCLEAN	152.9
PARENWHIT	173.2
PATENTIT	26.7
PILOTIT	117.0
RAILWHEN	191.4
RAINEDOUT	243.4
REARVIEW	301.5
SALTED	183.5
SHAREANDSHARE	231.2
THANKKON	195.2

**Files and variables explicitly named in INC-M1.PGM
(other than those generated by the program)**

File names	Variable names
INC.REC	DISTRICT
	N14
	N15
	N16
	N514
	N515
	N516
	UNDER1
	UNDER2
	UNDER3
	YEAR
POP.REC	DISTRICT
	POPL15
	YEAR

Appendix 27: OPV3 doses administered versus target doses (AFP-G6.PGM)



Example of output in AFP-G6.TXT

OPV3 coverage - cumulative per month
Target coverage versus administered coverage

1995 (as on 27/02/1998)

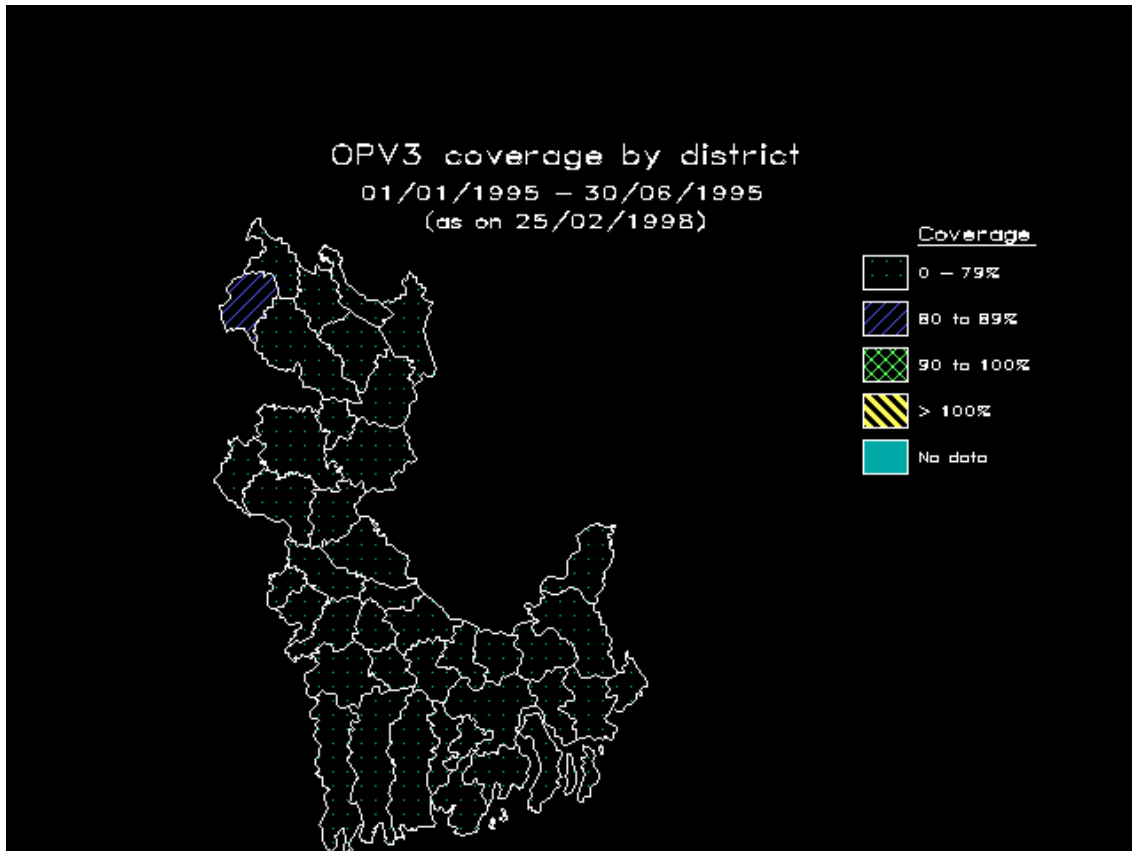
Month	Target coverage (%)	Administered coverage (%)
1	8.3	5.3
2	16.7	10.6
3	25.0	15.3
4	33.3	20.4
5	41.6	25.4
6	50.0	30.1
7	58.3	34.6
8	66.6	39.8
9	75.0	44.9
10	83.3	50.0
11	91.6	54.9
12	100.0	60.1

Files and variables explicitly named in AFP-G6.PGM

(other than those generated by the program)

File names	Variable names
COV.REC	MONTH OPV3 YEAR
POP.REC	SURVI YEAR
AFP-G6.RPT	

Appendix 28: OPV3 coverage pattern map (AFP-M5.PGM)



Example of output in AFP-M5.TXT

OPV3 coverage (%) by district
01/01/1995 - 30/06/1995 (as on 27/02/1998)

DISTRICT	RATE
BAND	63.6
BOGIT	65.4
BOREDYET	76.8
BRACET	73.9
BRAVELINES	38.6
BROKENTHING	78.0
CHANGECHANGE	6.5
CHEERON	79.5
COMPANY	76.9
DINAROUND	74.8
FARAWAY	62.6
FERRIT	76.9
GARAPLAIN	78.0
GREENHILLS	76.8
JAMSUGAR	76.6
JANFEBMARCH	76.5
JESTFUN	76.5
JUMPOVER	79.0
KILOJOULE	74.1
KRUSHOLD	77.8
KURTSMART	60.5
LAKEMEER	78.5
LASTSPUR	72.7

Appendix 28 (continued)
OPV3 coverage pattern map (AFP-M5.PGM)

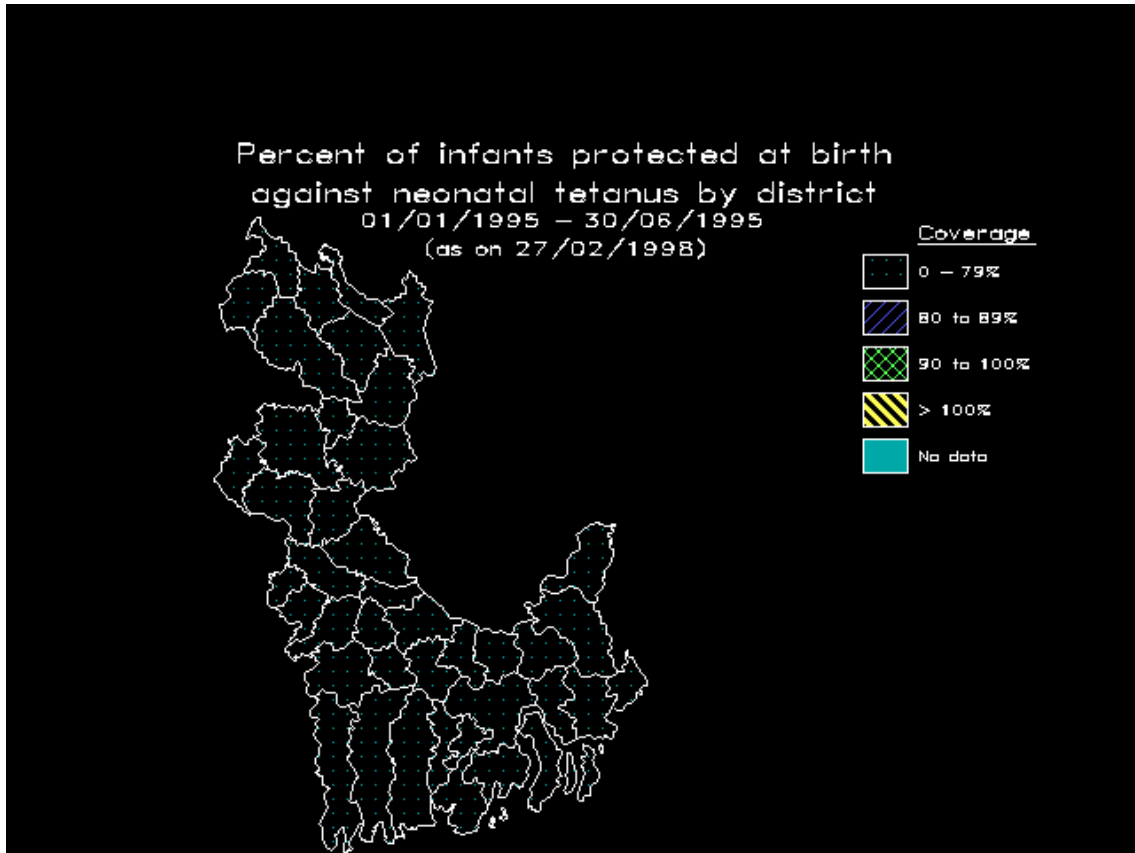
Example of output in AFP-M5.TXT (continued)

MADENEW	75.2
MAPIT	65.4
MENNEMOW	78.6
NAKNACK	75.6
NAMEDYET	74.8
NAMEWHAT	75.4
NEARENOUGH	62.8
NEVERAGAIN	72.5
NONONO	75.3
PANCLEAN	62.8
PARENWHIT	78.0
PATENTIT	77.0
PILOTIT	75.0
RAILWHEN	75.7
RAINEDOUT	63.2
REARVIEW	65.2
SALTED	76.9
SHAREANDSHARE	77.9
THANKKON	80.0

Files and variables explicitly named in AFP-M5.PGM
(other than those generated by the program)

File names	Variable names
COV.REC	DISTRICT MONTH OPV3 YEAR
DEFDATE.REC	BEGINDATE ENDDATE
GEO.REC	DISTRICT
PERIODS.REC	PERIOD YEAR
POP.REC	DISTRICT SURVI YEAR

Appendix 29: PAB – protected at birth pattern map (NT-M2.PGM)



Example of output in NT-M2.TXT

Percent of infants protected at birth
against neonatal tetanus by district
01/01/1995 – 30/06/1995 (as on 27/02/1998)

DISTRICT	RATE
BAND	46.6
BOGIT	36.8
BOREDYET	53.0
BRACEIT	53.0
BRAVELINES	39.5
BROKENTHING	53.3
CHANGECHANGE	13.5
CHEERON	54.2
COMPANY	55.7
DINAROUND	55.8
FARAWAY	35.6
FERRIT	56.3
GARAPLAIN	55.6
GREENHILLS	57.3
JAMSUGAR	54.9
JANFEBMARCH	55.3
JESTFUN	47.0
JUMPOVER	46.2
KILOJOULE	55.4
KRUSHOLD	54.3
KURTSMAST	53.8
LAKEMEER	55.1

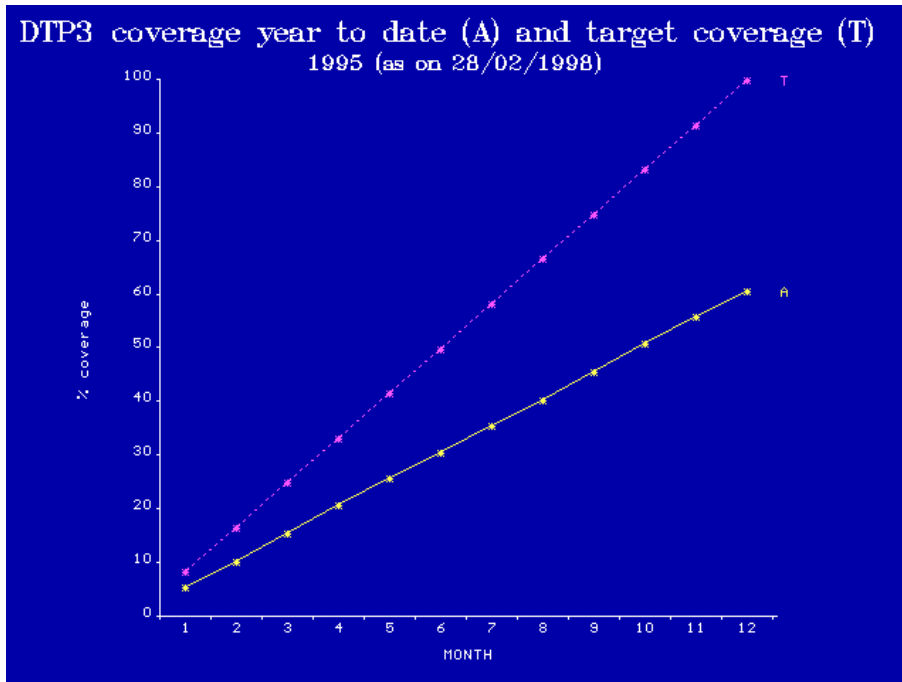
Appendix 29 (continued)**PAB – protected at birth pattern map (NT-M2.PGM)****Example of output in NT-M2.TXT (continued)**

LASTSPUR	55.0
MADENEW	55.5
MAPIT	58.0
MENNEMOW	37.0
NAKNACK	46.1
NAMEDYET	55.6
NAMEWHAT	55.3
NEARENOUGH	58.0
NEVERAGAIN	56.5
NONONO	45.4
PANCLEAN	48.0
PARENWHIT	46.6
PATENTIT	52.5
PILOTIT	53.8
RAILWHEN	55.6
RAINEDOUT	46.6
REARVIEW	46.1
SALTED	55.9
SHAREANDSHARE	38.6
THANKKON	57.6

**Files and variables explicitly named in NT-M2.PGM
(other than those generated by the program)**

File names	Variable names
COV.REC	DISTRICT MONTH PAB YEAR
DEFDATE.REC	BEGINDATE ENDDATE
GEO.REC	DISTRICT
PERIODS.REC	PERIOD YEAR
POP.REC	BIRTHS DISTRICT YEAR

Appendix 30: DTP3 administered versus target doses (DIP-G6.PGM)



Example of output in DIP-G6.TXT

DTP3 coverage - cumulative per month
Target coverage versus administered coverage

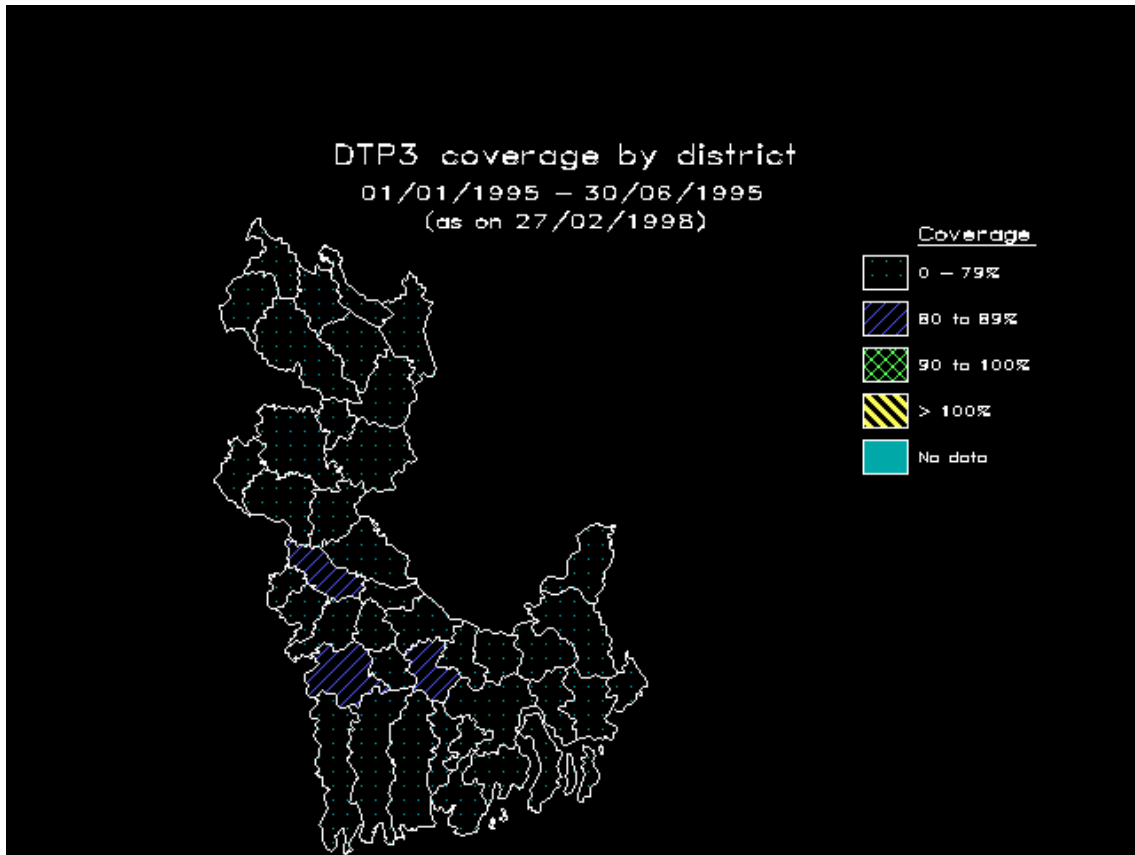
1995 (as on 27/02/1998)

Month	Target coverage (%)	Administered coverage (%)
1	8.3	5.5
2	16.7	10.4
3	25.0	15.6
4	33.3	21.0
5	41.6	25.8
6	50.0	30.6
7	58.3	35.6
8	66.6	40.3
9	75.0	45.6
10	83.3	50.8
11	91.6	56.0
12	100.0	60.7

Files and variables explicitly named in DIP-G6.PGM
(other than those generated by the program)

File names	Variable names	
COV.REC	DTP3	
	MONTH	YEAR
POP.REC	SURVI	YEAR
DIP-G6.RPT		

Appendix 31: DTP3 coverage pattern map (DIP-M3.PGM)



Example of output in DIP-M3.TXT

DTP3 coverage (%) by district
01/01/1995 - 30/06/1995 (as on 28/02/1998)

DISTRICT	RATE
BAND	64.2
BOGIT	76.2
BOREDYET	64.7
BRACEIT	73.9
BRAVELINES	52.7
BROKENTHING	73.6
CHANGECHANGE	7.7
CHEERON	76.5
COMPANY	76.7
DINAROUND	78.5
FARAWAY	65.4
FERRIT	78.6
GARAPLAIN	67.0
GREENHILLS	81.0
JAMSUGAR	74.9
JANFEBMARCH	79.4
JESTFUN	65.2
JUMPOVER	80.2
KILOJOULE	67.2
KRUSHOLD	81.2
KURTSMAST	64.2
LAKEMEER	77.8
LASTSPUR	63.5

Appendix 31 (continued)
DTP3 coverage pattern map (DIP-M3.PGM)

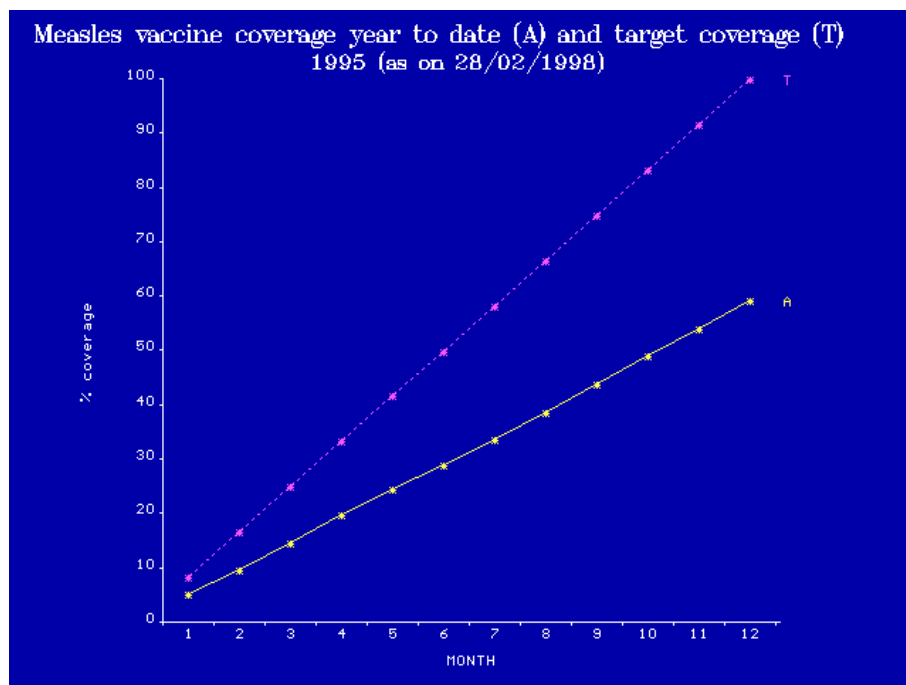
Example of output in DIP-M3.TXT (continued)

MADENEW	77.2
MAPIT	75.7
MENNEMOW	76.2
NAKNACK	53.9
NAMEDYET	49.2
NAMEWHAT	79.9
NEARENOUGH	52.4
NEVERAGAIN	73.6
NONONO	78.9
PANCLEAN	63.2
PARENWHIT	78.4
PATENTIT	62.4
PILOTIT	75.9
RAILWHEN	78.7
RAINEDOUT	76.7
REARVIEW	65.9
SALTED	79.4
SHAREANDSHARE	75.8
THANKKON	61.4

Files and variables explicitly named in DIP-M3.PGM
(other than those generated by the program)

File names	Variable names
COV.REC	DISTRICT DTP3 MONTH YEAR
DEFDATE.REC	BEGINDATE ENDDATE
GEO.REC	DISTRICT
PERIODS.REC	PERIOD YEAR
POP.REC	DISTRICT SURVI YEAR

Appendix 32: Measles doses administered versus target doses (MEA-G5.PGM)



Example of output in MEA-G5.TXT

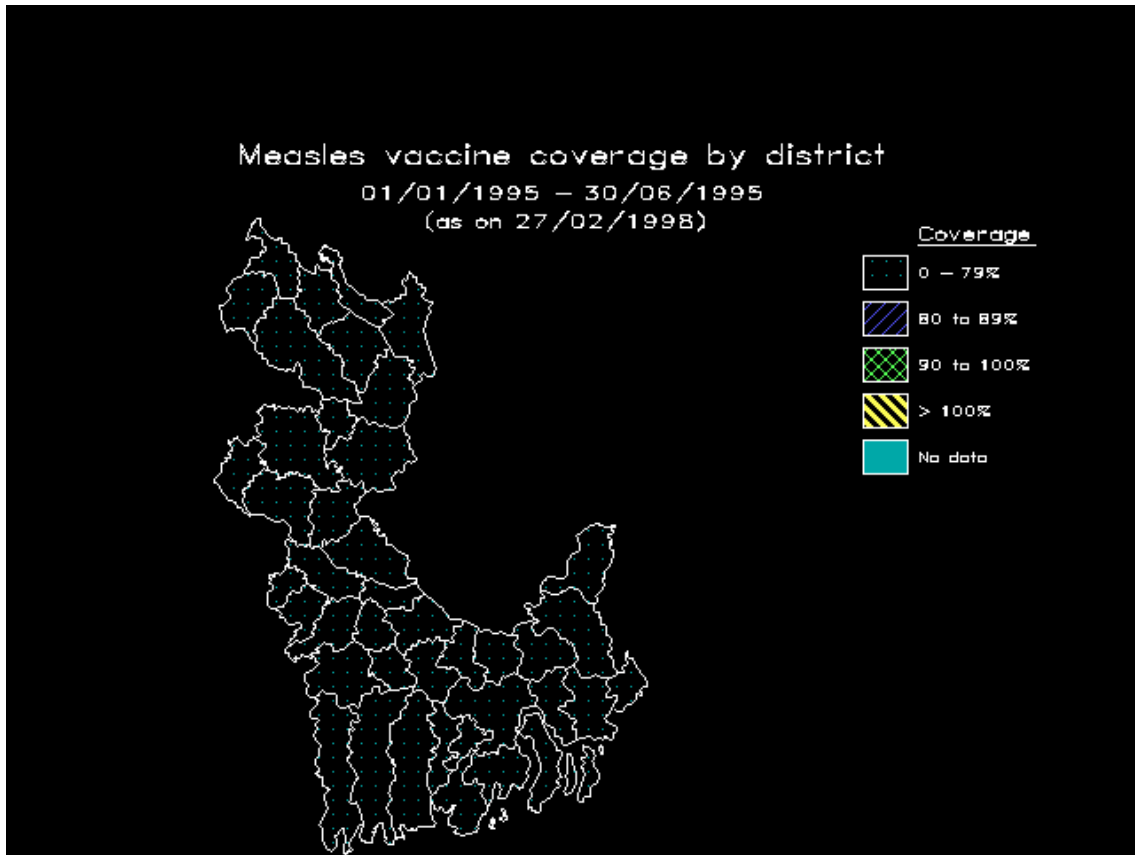
Measles coverage - cumulative per month
Target coverage versus administered coverage
1995 (as on 27/02/1998)

Month	Target coverage (%)	Administered coverage (%)
1	8.3	5.3
2	16.7	9.6
3	25.0	14.7
4	33.3	20.0
5	41.6	24.5
6	50.0	29.0
7	58.3	33.7
8	66.6	38.5
9	75.0	43.8
10	83.3	49.0
11	91.6	54.1
12	100.0	59.4

Files and variables explicitly named in MEA-G5.PGM
(other than those generated by the program)

File names	Variable names
COV.REC	MEA MONTH YEAR
POP.REC	SURVI YEAR
MEA-G5.RPT	

Appendix 33: Measles vaccine coverage pattern map (MEA-M2.PGM)



Example of output in MEA-M2.TXT

Measles coverage (%) by district
01/01/1995 – 30/06/1995 (as on 27/02/1998)

DISTRICT	RATE
BAND	62.3
BOGIT	74.5
BOREDYET	75.1
BRACEIT	75.5
BRAVELINES	50.0
BROKENTHING	76.0
CHANGECHANGE	6.3
CHEERON	74.8
COMPANY	63.3
DINAROUND	75.1
FARAWAY	63.0
FERRIT	62.0
GARAPLAIN	61.8
GREENHILLS	75.3
JAMSUGAR	63.5
JANFEBMARCH	75.5
JESTFUN	62.3
JUMPOVER	74.7
KILOJOULE	62.3
KRUSHOLD	77.1
KURTSMART	61.5
LAKEMEER	75.0
LASTSPUR	74.6

Appendix 33 (continued)

Measles vaccine coverage pattern map (MEA-M2.PGM)

Example of output in MEA-M2.TXT (continued)

MADENEW	74.1
MAPIT	74.5
MENNEMOW	74.3
NAKNACK	74.1
NAMEDYET	73.9
NAMEWHAT	75.5
NEARENOUGH	74.3
NEVERAGAIN	72.5
NONONO	75.0
PANCLEAN	61.6
PARENWHIT	74.0
PATENTIT	50.4
PILOTIT	74.5
RAILWHEN	64.0
RAINEDOUT	75.0
REARVIEW	63.1
SALTED	72.1
SHAREANDSHARE	78.3
THANKKON	75.3

Files and variables explicitly named in MEA-M2.PGM (other than those generated by the program)

File names	Variable names
COV.REC	DISTRICT MEA MONTH YEAR
DEFDATE.REC	BEGINDATE ENDDATE
GEO.REC	DISTRICT
PERIODS.REC	PERIOD YEAR
POP.REC	DISTRICT SURVI YEAR

Appendix 35: Line list of all AFP cases for audit (AFP-FB.PGM)

Example of output in AFP-FB.TXT

AFP feedback report
District: MISSING
01/01/1995 - 31/03/1995 (as on 27/02/1998)

IDCODE	DOB	DONSET	DNOT	DOI	P R O D F G O E A R S V S E E E Y S S R M S	DFUP	C L F A U S P S	
6	25/01/1994	22/03/1995	31/03/1995	03/04/1995	3 1 2	15/04/1995	1 2	
147	11/10/1993	29/01/1995		03/02/1995	4 1 1		2 1	
244	17/11/1993	31/01/1995		09/02/1995	4 9 1	10/03/1995	1 2	
322	28/11/1992	03/01/1995	17/01/1995	20/01/1995	4 1 2	17/02/1995	1 1	
490	01/04/1991	09/01/1995	03/01/1995	24/01/1995	3 1 1	21/02/1995	1 3	
		- DNOT before DONSET						

AFP feedback report
District: BOGIT
01/01/1995 - 31/03/1995 (as on 27/02/1998)

IDCODE	DOB	DONSET	DNOT	DOI	P R O D F G O E A R S V S E E E Y S S R M S	DFUP	C L F A U S P S
168	16/04/1990	11/03/1995		02/03/1995	4 2 1	15/05/1995	1 2
441	25/07/1994	09/02/1995	17/02/1995	20/02/1995	0 1 1	07/04/1995	1 1

Files and variables explicitly named in AFP-FB.PGM (other than those generated by the program)

File names	Variable names
AFP.REC	ASYM
	CLASS DOB FEVER
	DFUP DOI FUP
	DISTRICT DONSET IDCODE
	DNOT DOSES PROGRESS
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 36: AFP specimen feedback report to labs (AFPL-FB.PGM)

Example of output in AFPL-FB.TXT

FEEDBACK REPORT TO LABORATORY

AFP SPECIMENS RECEIVED IN LAB BETWEEN
01/01/1995 AND 30/06/1995 (AS ON 27/02/1998)

NUMBER OF SPECIMENS PER PROVINCE

PROVINCE	SPECNO			Total
	.	1	2	
BLUE	1	21	12	34
GREEN	0	14	14	28
MARINE	0	29	26	55
ORANGE RED	0	7	15	22
UNKNOWN	1	16	19	36
YELLOW	0	4	3	7
Total	2	91	89	182

P1 ISOLATION RESULT BY CONDITION OF STOOL

P1_RESULT	STOOL_COND			Total
	GOOD	POOR	UNKNOWN	
1. YES-WILD	41	6	4	51
3. YES-PENDING IT-DIFF	14	2	1	17
4. NO P1 ISOLATED	50	5	3	58
5. NO SPEC PROCESSED	47	7	2	56
Total	152	20	10	182

P2 ISOLATION RESULT BY CONDITION OF STOOL

P2_RESULT	STOOL_COND			Total
	GOOD	POOR	UNKNOWN	
1. YES-WILD	32	3	2	37
3. YES-PENDING IT-DIFF	17	0	1	18
4. NO P2 ISOLATED	61	12	5	78
5. NO SPEC PROCESSED	42	5	2	49
Total	152	20	10	182

P3 ISOLATION RESULT BY CONDITION OF STOOL

P3_RESULT	STOOL_COND			Total
	GOOD	POOR	UNKNOWN	
1. YES-WILD	36	7	2	45
3. YES-PENDING IT-DIFF	16	2	2	20
4. NO P3 ISOLATED	61	5	2	68
5. NO SPEC PROCESSED	39	6	4	49
Total	152	20	10	182

Appendix 36 (continued)
AFP specimen feedback report to labs (AFPL-FB.PGM)

Example of output in AFPL-FB.TXT (continued)

ANY POLIO VIRUS ISOLATED BY CONDITION OF STOOL

POLIO_ISOL	STOOL_COND			Total
	GOOD	POOR	UNKNOWN	
1. YES	105	16	7	128
2. NO	5	0	1	6
3. NO SPEC PROCESSED	42	4	2	48
Total	152	20	10	182

NON-POLIO ENTEROVIRUS ISOLATED BY CONDITION OF STOOL

ENTERO_RES	STOOL_COND			Total
	GOOD	POOR	UNKNOWN	
1. YES	5	2	1	8
2. NO	116	13	6	135
3. NO SPEC PROCESSED	31	5	3	39
Total	152	20	10	182

**Files and variables explicitly named in AFPL-FB.PGM
 (other than those generated by the program)**

File names	Variable names
AFP.REC	IDCODE PROVINCE
AFPLAB.REC	DSTLAB ENTERO IDCODE P1 P2 P3 SPECNO STCOND
DEFDATE.REC	BEGINDATE ENDDATE

Appendix 37: Feedback reports for other EPI diseases (INC-FB.PGM)

Example of output in INC-FB.TXT

Reported incidence rates of other EPI diseases (per 100 000 population)

1995 (as on 27/02/1998)

District: BAND

Note: No adjustments are made for an incomplete year
Denominator for neonatal tetanus is BIRTHS,
for other diseases TOTAL POPULATION

INCIDENCE RATE

DISEASE	District : BAND	Province : GREEN	Country
Diphtheria	39.3	40.1	45.2
Measles	37.8	51.4	76.4
Pertussis	0.0	0.0	4.3
Tetanus - total	0.0	0.0	4.1
Tetanus neonatorum	0.0	0.0	11.9

Reported incidence rates of other EPI diseases (per 100 000 population)

1995 (as on 27/02/1998)

District: BOGIT

Note: No adjustments are made for an incomplete year
Denominator for neonatal tetanus is BIRTHS,
for other diseases TOTAL POPULATION

INCIDENCE RATE

DISEASE	District : BOGIT	Province : ORANGE RED	Country
Diphtheria	39.8	44.8	45.2
Measles	70.9	73.3	76.4
Pertussis	4.4	3.7	4.3
Tetanus - total	5.5	4.7	4.1
Tetanus neonatorum	5.9	4.3	11.9

Files and variables explicitly named in INC-FB.PGM (other than those generated by the program)

File names	Variable names			
INC.REC	DIP	N1503		
	DISTRICT	N16	PER	UNDER3
	N14	N514	PROVINCE	UNKNOWN
	N15	N515	TT	UNKNOWN1
	N1501	N516	UNDER1	UNKNOWN2
	N1502	NT	UNDER2	YEAR
POP.REC	BIRTHS	POP		
	DISTRICT	PROVINCE	YEAR	

Appendix 38: Immunization coverage data feedback (COV-FB.PGM)

Example of output in COV-FB.TXT

Reported coverage rates (%) in 1995 (as on 27/02/1998)

District: BAND

Note: No adjustments are made for an incomplete year
Denominator for BCG is BIRTHS,
for other vaccines SURVIVING INFANTS

VACCINE	District : BAND	Province : GREEN	Country
BCG	77.2	78.6	62.0
DTP3	61.6	71.0	60.7
HB3	46.2	50.0	50.3
Measles	68.9	66.9	59.4
OPV3	68.7	72.6	60.1

Reported coverage rates (%) in 1995 (as on 27/02/1998)

District: BOGIT

Note: No adjustments are made for an incomplete year
Denominator for BCG is BIRTHS,
for other vaccines SURVIVING INFANTS

VACCINE	District : BOGIT	Province : ORANGE RED	Country
BCG	83.9	80.7	62.0
DTP3	77.2	71.7	60.7
HB3	51.6	50.4	50.3
Measles	74.9	73.5	59.4
OPV3	64.3	68.9	60.1

Files and variables explicitly named in COV-FB.PGM
(other than those generated by the program)

File names	Variable names		
COV.REC	BCG	HB3	
	DISTRICT	MEA	PROVINCE
	DTP3	OPV3	YEAR
POP.REC	BIRTHS	PROVINCE	
	DISTRICT	SURVI	YEAR

Appendix 39: District feedback – incidence + coverage (INCOV-FB.PGM)

Example of output in INCOV-FB.TXT

District: BAND in 1995 (as on 27/02/1998)

Reported coverage rates (%)

Note: No adjustments are made for an incomplete year
Denominator for BCG is BIRTHS,
for other vaccines SURVIVING INFANTS

VACCINE	COVERAGE RATE		
	District : BAND	Province : GREEN	Country
BCG	77.2	78.6	62.0
DTP3	61.6	71.0	60.7
HB3	46.2	50.0	50.3
Measles	68.9	66.9	59.4
OPV3	68.7	72.6	60.1

Reported incidence rates of other EPI diseases (per 100 000 population)

Note: No adjustments are made for an incomplete year
Denominator for neonatal tetanus is BIRTHS,
for other diseases TOTAL POPULATION

DISEASE	INCIDENCE RATE		
	District : BAND	Province : GREEN	Country
Diphtheria	39.3	40.1	45.2
Measles	37.8	51.4	76.4
Pertussis	0.0	0.0	4.3
Tetanus - total	0.0	0.0	4.1
Tetanus neonatorum	0.0	0.0	11.9

Files and variables explicitly named in INCOV-FB.PGM (other than those generated by the program)

File names	Variable names			
COV.REC	BCG	DTP3	MEA	PROVINCE
	DISTRICT	HB3	OPV3	YEAR
INC.REC	DIP	N1503		
	DISTRICT	N16	PER	UNDER3
	N14	N514	PROVINCE	UNKNOWN
	N15	N515	TT	UNKNOWN1
	N1501	N516	UNDER1	UNKNOWN2
	N1502	NT	UNDER2	YEAR
POP.REC	BIRTHS	POP		
	DISTRICT	PROVINCE	SURVI	YEAR

Appendix 40: Create copy of AFP case data for WHO (AFP-FF.PGM)

Example of output in AFP-FF.TXT

Records copied to A:AFP.CAR to send to WHO.

as of 27/02/1998

ONSET	CLASSIFY			Total
	1. CONF	2. COMP	3. DISC	
1995:07	6	6	4	16
1995:08	6	11	0	17
1995:09	6	4	5	15
1995:10	6	5	4	15
1995:11	4	4	0	8
1995:12	5	5	4	14
1996:01	7	2	2	11
1996:02	3	3	2	8
1996:03	2	9	1	12
1996:04	6	4	3	13
1996:05	6	10	1	17
1996:06	6	7	5	18
1996:07	1	0	0	1
:	11	13	9	33
Total	75	83	40	198

Files and variables explicitly named in AFP-FF.PGM
(other than those generated by the program)

File names	Variable names	
AFP.REC	ASYM	DONSET
	CLASS	DOSES
	DFUP	FEVER
	DISTRICT	FUP
	DNOT	IDCODE
	DOB	PROGRESS
	DOI	PROVINCE

Appendix 41: Create copy of AFP lab data for WHO (AFPL-FF.PGM)

Example of output in AFPL-FF.TXT

Records copied to A:AFPL.CAR to send to WHO.

as on 27/02/1998

ONSET	Freq	Percent	Cum.
1994:01	32	3.6%	3.6%
1994:02	28	3.2%	6.8%
1994:03	33	3.8%	10.6%
1994:04	32	3.6%	14.2%
1994:05	25	2.8%	17.1%
1994:06	24	2.7%	19.8%
1994:07	22	2.5%	22.3%
1994:08	23	2.6%	24.9%
1994:09	21	2.4%	27.3%
1994:10	33	3.8%	31.1%
1994:11	34	3.9%	35.0%
1994:12	38	4.3%	39.3%
1995:01	36	4.1%	43.4%
1995:02	26	3.0%	46.4%
1995:03	31	3.5%	49.9%
1995:04	21	2.4%	52.3%
1995:05	36	4.1%	56.4%
1995:06	29	3.3%	59.7%
1995:07	24	2.7%	62.4%
1995:08	34	3.9%	66.3%
1995:09	28	3.2%	69.5%
1995:10	36	4.1%	73.6%
1995:11	21	2.4%	76.0%
1995:12	31	3.5%	79.5%
1996:01	29	3.3%	82.8%
1996:02	30	3.4%	86.2%
1996:03	26	3.0%	89.2%
1996:04	28	3.2%	92.4%
1996:05	27	3.1%	95.4%
1996:06	29	3.3%	98.7%
1996:07	3	0.3%	99.1%
:	8	0.9%	100.0%
Total	878	100.0%	

Files and variables explicitly named in AFPL-FF.PGM
(other than those generated by the program)

File names	Variable names
AFPLAB.REC	DCRES
	DIREC
	DLOPV
	DONSETL
	DSTCOLL
	DSTLAB
	DSTSENT
	ENTERO
	IDCODE
	LABCULT
	LABDIFF
P1	
P2	
P3	
SPECNO	
STCOND	

Appendix 42: Create copy of other EPI disease data for WHO (INC-FF.PGM)

Example of output in INC-FF.TXT

Records copied to A:INC.CAR to send to WHO.

as of 27/02/1998

DIPHTHERIA

YEAR	Freq	Percent	Cum.
1994	20726	36.9%	36.9%
1995	23488	41.8%	78.6%
1996	12014	21.4%	100.0%
Total	56228	100.0%	

Mean per YEAR group = 18742.67
StdDev = 5988.60

PERTUSSIS

YEAR	Freq	Percent	Cum.
1994	2268	39.7%	39.7%
1995	2228	39.0%	78.7%
1996	1219	21.3%	100.0%
Total	5715	100.0%	

Mean per YEAR group = 1905.00
StdDev = 594.43

NEONATAL TETANUS

YEAR	Freq	Percent	Cum.
1994	157	39.3%	39.3%
1995	155	38.8%	78.2%
1996	87	21.8%	100.0%
Total	399	100.0%	

Mean per YEAR group = 133.00
StdDev = 39.85

TOTAL TETANUS

YEAR	Freq	Percent	Cum.
1994	2009	38.7%	38.7%
1995	2125	41.0%	79.7%
1996	1055	20.3%	100.0%
Total	5189	100.0%	

Mean per YEAR group = 1729.67
StdDev = 587.15

Appendix 42 (continued)

Create copy of other EPI disease data for WHO (INC-FF.PGM)

Example of output in INC-FF.TXT (continued)

MEASLES

YEAR	Freq	Percent	Cum.
1994	39332	39.7%	39.7%
1995	39640	40.0%	79.6%
1996	20197	20.4%	100.0%
Total	99169	100.0%	

Mean per YEAR group = 33056.33
StdDev = 11137.57

**Files and variables explicitly named in INC-FF.PGM
(other than those generated by the program)**

File names	Variable names
INC.REC	DIP
	DISTRICT
	MONTH
	N14
	N15
	N1501
	N1502
	N1503
	N16
	N514
	N515
	N516
	NT
	PER
	PROVINCE
	TT
	UNDER1
	UNDER2
	UNDER3
	UNKNOWN
	UNKNOWN1
	UNKNOWN2
	YEAR

Appendix 43: Create copy of coverage data for WHO (COV-FF.PGM)

Example of output in COV-FF.TXT

Records copied to A:COV.CAR to send to WHO.

as of 27/02/1998

BCG

YEAR	Freq	Percent	Cum.
1994	802842	40.1%	40.1%
1995	804969	40.2%	80.2%
1996	396117	19.8%	100.0%
Total	2003928	100.0%	

Mean per YEAR group = 667976.00
StdDev = 235439.20

DTP3

YEAR	Freq	Percent	Cum.
1994	727432	39.6%	39.6%
1995	732885	39.9%	79.5%
1996	376585	20.5%	100.0%
Total	1836902	100.0%	

Mean per YEAR group = 612300.67
StdDev = 204153.96

OPV3

YEAR	Freq	Percent	Cum.
1994	748871	40.5%	40.5%
1995	725870	39.3%	79.8%
1996	374002	20.2%	100.0%
Total	1848743	100.0%	

Mean per YEAR group = 616247.67
StdDev = 210105.89

HB3

YEAR	Freq	Percent	Cum.
1994	607699	40.1%	40.1%
1995	607257	40.1%	80.2%
1996	300844	19.8%	100.0%
Total	1515800	100.0%	

Mean per YEAR group = 505266.67
StdDev = 177035.36

MEASLES

YEAR	Freq	Percent	Cum.
1994	727981	40.3%	40.3%
1995	716788	39.7%	80.0%
1996	361068	20.0%	100.0%
Total	1805837	100.0%	

Mean per YEAR group = 601945.67
StdDev = 208681.24

Appendix 43 (continued)

Create copy of coverage data for WHO (COV-FF.PGM)

Example of output in COV-FF.TXT (continued)

YELLOW FEVER

YEAR	Freq	Percent	Cum.
1994	392687	39.5%	39.5%
1995	405596	40.8%	80.3%
1996	195865	19.7%	100.0%
Total	994148	100.0%	

Mean per YEAR group = 331382.67
StdDev = 117539.10

TT2

YEAR	Freq	Percent	Cum.
1994	0	0.0%	0.0%
1995	0	0.0%	0.0%
1996	0	0.0%	0.0%
Total	0	100.0%	

Mean per YEAR group = 0.00
StdDev = 0.00

PROTECTED AT BIRTH AGAINST TETANUS

YEAR	Freq	Percent	Cum.
1994	583704	40.2%	40.2%
1995	584367	40.2%	80.4%
1996	285474	19.6%	100.0%
Total	1453545	100.0%	

Mean per YEAR group = 484515.00
StdDev = 172374.88

Files and variables explicitly named in COV-FF.PGM
(other than those generated by the program)

File names	Variable names
COV.REC	BCG DISTRICT DTP3 HB3 MEA MONTH
	OPV3 PAB PROVINCE TT2 YEAR YF

Appendix 44: Backup databases

Files involved in backup process
(other than those generated by the program)

Copy from

Copy to

Creates copy of AFP files on diskette (AFP-BACK in IFA.MNU)

AFP.REC

a:AFP.REC

AFPLAB.REC

a:AFPLAB.REC

Creates copy of other EPI diseases on diskette (INC-BACK in IFA.MNU)

INC.REC

a:INC.REC

Creates copy of coverage data on diskette (COV-BACK in IFA.MNU)

COV.REC

a:COV.REC

Creates copy of pop/geo data on diskette (POP-BACK in IFA.MNU)

GEO.REC

a:GEO.REC

POP.REC

a:POP.REC

DISTRICT.BND

a:DISTRICT.BND

PROVINCE.BND

a:PROVINCE.BND

Copy lab data from diskette (APFL-CD in IFA.MNU)

a:AFPLAB.REC

AFPLAB.REC

Appendix 45: Create AFP case/specimen database (AFP-DB.REC created by AFP-DB.PGM)

Variable	Type	Length	Description	Codes
IDCODE	UPPERCASE text	12	ID code	-
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC
DOB	Date (dd/mm/yyyy)	10	Date of birth	-
DONSET	Date (dd/mm/yyyy)	10	Date of paralysis onset	-
DNOT	Date (dd/mm/yyyy)	10	Date of notification	-
DOI	Date (dd/mm/yyyy)	10	Date of investigation	-
DOSES	Numeric	2	Total polio vaccine doses	99=unknown
FEVER	Numeric	1	Fever at onset of paralysis	1=yes 2=no 9=unknown
ASYM	Numeric	1	Asymmetric paralysis	1=yes 2=no 9=unknown
PROGRESS	Numeric	1	Progression to maximum paralysis within 4 days	1=yes 2=no 9=unknown
DFUP	Date (dd/mm/yyyy)	10	Date of follow-up	-
FUP	Numeric	1	Findings at follow-up	1=res weakness 2=no res weakness 3=lost to f-up 4=died before f-up
CLASS	Numeric	1	Final classification	1=confirmed 2=compatible 3=discarded
DSTCOLL1	Date (dd/mm/yyyy)	10	Date of collection of first stool	-
DSTSENT1	Date (dd/mm/yyyy)	10	Date first stool sent to the lab	-
DSTLAB1	Date (dd/mm/yyyy)	10	Date first stool received at the lab	-
STCOND1	Numeric	1	Condition of first stool	1=good 2=poor 9=unknown
DCRES1	Date (dd/mm/yyyy)	10	Date culture results of first stool sent to EPI	-
DIRES1	Date (dd/mm/yyyy)	10	Date intratypic diff results of first stool sent to EPI	-
P1_1	Numeric	1	Was poliovirus type 1 isolated from first stool	1=yes, wild 2=yes, vaccine 3=yes, pending intratypic diff 4=no P1 isolated 5=spec no processed
P2_1	Numeric	1	Was poliovirus type 2 isolated from first stool	As for P1_1 4=no P2 isolated
P3_1	Numeric	1	Was poliovirus type 3 isolated from first stool	As for P1_1 4=no P3 isolated
ENTERO1	Numeric	1	Was a non-polio enterovirus isolated from first stool	1=yes 2=no 9=spec not processed
LABCULT1	UPPERCASE text	20	Name of lab doing culture of first stool	-
LABDIFF1	UPPERCASE text	20	Name of lab doing intratypic diff of first stool	-

Appendix 45 (continued)

Create AFP case/specimen database (AFP-DB.REC created by AFP-DB.PGM)

Variable	Type	Length	Description	Codes
DSTCOLL2	Date (dd/mm/yyyy)	10	Date of collection of second stool	-
DSTSENT2	Date (dd/mm/yyyy)	10	Date second stool sent to the lab	-
DSTLAB2	Date (dd/mm/yyyy)	10	Date second stool received at the lab	-
STCOND2	Numeric	1	Condition of second stool	1=good 2=poor 9=unknown
DCRES2	Date (dd/mm/yyyy)	10	Date culture results of second stool sent to EPI	-
DIRES2	Date (dd/mm/yyyy)	10	Date intratypic diff results of second stool sent to EPI	-
P1_2	Numeric	1	Was poliovirus type 1 isolated from second stool	1=yes, wild 2=yes, vaccine 3=yes, pending intratypic diff 4=no P1 isolated 5=spec no processed
P2_2	Numeric	1	Was poliovirus type 2 isolated from second stool	As for P1_2 4=no P2 isolated
P3_2	Numeric	1	Was poliovirus type 3 isolated from second stool	As for P1_2 4=no P3 isolated
ENTERO2	Numeric	1	Was a non-polio enterovirus isolated from second stool	1=yes 2=no 9=spec not processed
LABCULT2	UPPERCASE text	20	Name of lab doing culture of second stool	-
LABDIFF2	UPPERCASE text	20	Name of lab doing intratypic diff of second stool	-

Appendix 46: Create normalised dataset for analysis of other EPI data (INC-DB.REC created by INC-DB.PGM)

Variable	Type	Length	Description	Codes
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC
YEAR	Numeric	4	Reporting year	-
MONTH	Numeric	2	Reporting month	1 – 12
DIS	Text	10	Disease	MEASLES DIPHTHERIA PERTUSSIS TET NEO TET TOTAL
IMM	Text	15	Immunization status	IMMUNIZED NOT IMMUNIZED UNKNOWN
AGE	Text	5	Age group	<1 1-4 5-14 15+ UNK
INC	Numeric	6	Number of cases	-

Appendix 47: Create normalised dataset for analysis of coverage data (COV-DB.REC created by COV-DB.PGM)

Variable	Type	Length	Description	Codes
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC
YEAR	Numeric	4	Reporting year	-
MONTH	Numeric	2	Reporting month	1 – 12
VAC	Text	10	Vaccine	BCG DTP1 DTP2 DTP3 OPV1 OPV2 OPV3 HB1 HB2 HB3 MEA YF TT2 PAB
DOSES	Numeric	6		-

Appendix 48: Population data entry for rates (POP.REC / POP.QES / POP.CHK)

POPULATION - DATA ENTRY

Year

District Province

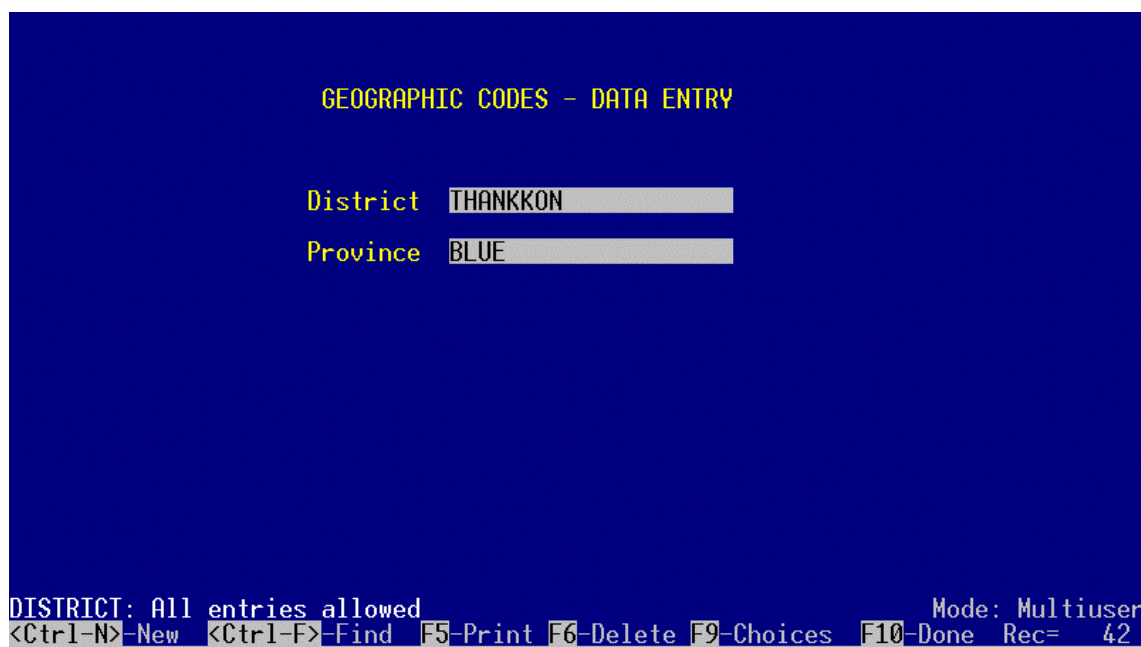
Total population
 Population less than 15

Number of births
 Infant mortality rate (per 1000)
 Number of surviving infants

YEAR: Integers allowed Mode: Multiuser
 <Ctrl-N>-New <Ctrl-F>-Find F5-Print F6-Delete F9-Choices F10-Done Rec= 420

Variable	Type	Length	Description	Codes	Other
YEAR	Numeric	4	Year	-	-
MONTH	Numeric	2	Month	1 - 12	-
DISTRICT	UPPERCASE text	20	District	Choices from GEO.REC	-
PROVINCE	UPPERCASE text	20	Province	Automatic from GEO.REC	NoEnter
POP	Numeric floating decimal	9	Total population	-	-
POPL15	Numeric floating decimal	9	Population less than 15 years	-	-
BIRTHS	Numeric floating decimal	8	Number of births	-	-
IMR	Numeric floating decimal	5	Infant mortality rate (per 1000 births)	-	-
SURVI	Numeric floating decimal	8	Number of surviving infants	-	-

Appendix 49: Data entry of province and district names (GEO.REC / GEO.QES / GEO.CHK)



Variable	Type	Length	Description	Codes	Other
DISTRICT	UPPERCASE text	20	District	-	Indexed Unique
PROVINCE	UPPERCASE text	20	Province	-	-

Appendix 50: Test matching of GEO.REC and DISTRICT.BND (GEO-TD.PGM)



Files and variables explicitly named in GEO-TD.PGM
(other than those generated by the program)

File names	Variable names
GEO.REC	DISTRICT

Appendix 51: Check spelling consistency of province names (GEO-TP.PGM)

Example of output in GEO-TP.TXT

Spelling of province names in GEO.REC
(as on 28/02/1998)

PROVINCE	Freq	Percent	Cum.
BLEU	1	2.4%	2.4%
BLUE	7	16.7%	19.0%
GREEN	11	26.2%	45.2%
MARINE	13	31.0%	76.2%
ORANGE RED	6	14.3%	90.5%
YELLOW	4	9.5%	100.0%
Total	42	100.0%	

Files and variables explicitly named in GEO-TP.PGM
(other than those generated by the program)

File names

GEO.REC

Variable names

PROVINCE

Appendix 52: Sort GEO.REC

Files and variables explicitly named in program
(other than those generated by the program)

File names

Variable names

Sort GEO.REC alphabetically by district (GEO-SD.PGM)

GEO.REC

DISTRICT

Sort GEO.REC alphabetically by province and district (GEO-SPD.PGM)

GEO.REC

DISTRICT

PROVINCE

Appendix 53: List of variables and the files in which they are explicitly named

Variable	.REC/.QES/.CHK	.PGM/.RPT file names		
ASYM	AFP.REC	AFP-FB.PGM		
	AFP.QES	AFP-FF.PGM		
	AFP.CHK			
BCG	COV.REC	COV-DB.PGM	INCOV-FB.PGM	
	COV.QES	COV-FB.PGM		
	COV.CHK	COV-FF.PGM		
BEGINDATE	DEFDATE.REC	AFP-CLN.PGM	AFP-L2.PGM	AFP-M5.PGM
	DEFDATE.QES	AFP-FB.PGM	AFP-L4.PGM	AFP-T1.PGM
		AFP-G1.PGM	AFPL-CLN.PGM	AFP-T2.PGM
		AFP-G2.PGM	AFPL-FB.PGM	DIP-M3.PGM
		AFP-G3.PGM	AFP-M2.PGM	MEA-M2.PGM
		AFP-G4.PGM	AFP-M3.PGM	NT-M2.PGM
		AFP-L1.PGM	AFP-M4.PGM	
BIRTHS	POP.REC	COV-FB.PGM	INCOV-FB.PGM	
	POP.QES	INC-FB.PGM	NT-M2.PGM	
C		AFP-G6.PGM	MEA-G5.PGM	DIP-G6.RPT
		DIP-G6.PGM	AFP-G6.RPT	MEA-G5.RPT
CLASS	AFP.REC	AFP-FB.PGM	AFP-G3.PGM	AFP-M3.PGM
	AFP.QES	AFP-FF.PGM	AFP-G4.PGM	AFP-T1.PGM
	AFP.CHK	AFP-G1.PGM	AFP-L1.PGM	AFP-T2.PGM
		AFP-G2.PGM	AFP-L2.PGM	
COVERAGE		AFP-G6.PGM	MEA-G5.PGM	DIP-G6.RPT
		DIP-G6.PGM	AFP-G6.RPT	MEA-G5.RPT
DCRES	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	
	AFPLAB.QES	AFP-L1.PGM	AFPL-FF.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFP-T2.PGM	
DFUP	AFP.REC	AFP-CLN.PGM	AFP-L4.PGM	
	AFP.QES	AFP-FB.PGM		
	AFP.CHK	AFP-FF.PGM		
DIP	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
DIRES	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	
	AFPLAB.QES	AFP-L1.PGM	AFPL-FF.PGM	
	AFPLAB.CHK	AFP-L2.PGM		
DIS		INC-G1.PGM	INC-G1.RPT	
DISTRICT	AFP.REC	AFP-FB.PGM	GEO-TD.PGM	
	COV.REC	AFP-FF.PGM	INC-CLN.PGM	
	GEO.REC	AFP-M2.PGM	INC-DB.PGM	
	INC.REC	AFP-M3.PGM	INC-FB.PGM	
	POP.REC	AFP-M4.PGM	INC-FF.PGM	
	AFP.QES	AFP-M5.PGM	INC-G1.PGM	
	COV.QES	AFP-T1.PGM	INC-M1.PGM	
	GEO.QES	AFP-T2.PGM	INCOV-FB.PGM	
	INC.QES	COV-CLN.PGM	MEA-M2.PGM	
	POP.QES	COV-DB.PGM	NT-M2.PGM	
	AFP.CHK	COV-FB.PGM		
	COV.CHK	COV-FF.PGM		
	GEO.CHK	DIP-M3.PGM		
	INC.CHK	GEO-SD.PGM		
POP.CHK	GEO-SPD.PGM			
DLOPV	AFPLAB.REC	AFPL-FF.PGM		
	AFPLAB.QES			
DNOT	AFP.REC	AFP-CLN.PGM	AFP-T2.PGM	
	AFP.QES	AFP-FB.PGM		
	AFP.CHK	AFP-FF.PGM		
DOB	AFP.REC	AFP-CLN.PGM	AFP-G2.PGM	
	AFP.QES	AFP-FB.PGM	AFP-T2.PGM	
	AFP.CHK	AFP-FF.PGM		
DOI	AFP.REC	AFP-CLN.PGM	AFP-L4.PGM	
	AFP.QES	AFP-FB.PGM	AFP-T2.PGM	
	AFP.CHK	AFP-FF.PGM		

Appendix 53 (continued)

List of variables and the files in which they are explicitly named

Variable	.REC/.QES/.CHK	.PGM/.RPT file names		
DONSET	AFP.REC	AFPC-CLN.PGM	AFP-G3.PGM	AFP-M3.PGM
	AFP.QES	AFP-CLN.PGM	AFP-G4.PGM	AFP-M4.PGM
	AFP.CHK	AFP-FB.PGM	AFP-L1.PGM	AFP-T1.PGM
		AFP-FF.PGM	AFP-L2.PGM	AFP-T2.PGM
		AFP-G1.PGM	AFP-L4.PGM	
		AFP-G2.PGM	AFP-M2.PGM	
DONSETL	AFPLAB.REC	AFPC-CLN.PGM	AFP-T2.PGM	
	AFPLAB.QES	AFPL-CLN.PGM		
	AFPLAB.CHK	AFPL-FF.PGM		
DOSES	AFP.REC	AFP-FB.PGM		
	AFP.QES	AFP-FF.PGM		
	AFP.CHK	AFP-G4.PGM		
DSTCOLL	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	AFP-T2.PGM
	AFPLAB.QES	AFP-L1.PGM	AFPL-CLN.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
DSTCOLL1		AFP-DB.PGM	AFP-M4.PGM	
DSTCOLL2		AFP-DB.PGM	AFP-M4.PGM	
DSTLAB	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	AFPL-FF.PGM
	AFPLAB.QES	AFP-L1.PGM	AFPL-CLN.PGM	AFP-T2.PGM
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FB.PGM	
DSTSSENT	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	AFP-T2.PGM
	AFPLAB.QES	AFP-L1.PGM	AFPL-CLN.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
DTP1	COV.REC	COV-DB.PGM		
	COV.QES			
DTP2	COV.REC	COV-DB.PGM		
	COV.QES			
DTP3	COV.REC	COV-DB.PGM	COV-FF.PGM	DIP-M3.PGM
	COV.QES	COV-FB.PGM	DIP-G6.PGM	INCOV-FB.PGM
DUMMY	XAXIS.REC	AFP-G2.PGM		
ENDDATE	DEFDATE.REC	AFP-CLN.PGM	AFP-L2.PGM	AFP-M5.PGM
	DEFDATE.QES	AFP-FB.PGM	AFP-L4.PGM	AFP-T1.PGM
		AFP-G1.PGM	AFPL-CLN.PGM	AFP-T2.PGM
		AFP-G2.PGM	AFPL-FB.PGM	DIP-M3.PGM
		AFP-G3.PGM	AFP-M2.PGM	MEA-M2.PGM
		AFP-G4.PGM	AFP-M3.PGM	NT-M2.PGM
		AFP-L1.PGM	AFP-M4.PGM	
		AFP-DB.PGM	AFP-L4.PGM	AFP-T2.PGM
ENTERO	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	AFP-T2.PGM
	AFPLAB.QES	AFP-L1.PGM	AFPL-FB.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
FEVER	AFP.REC	AFP-FB.PGM		
	AFP.QES	AFP-FF.PGM		
	AFP.CHK			
FUP	AFP.REC	AFP-FB.PGM	AFP-L4.PGM	
	AFP.QES	AFP-FF.PGM		
	AFP.CHK	AFP-L1.PGM		
HB1	COV.REC	COV-DB.PGM		
	COV.QES			
HB2	COV.REC	COV-DB.PGM		
	COV.QES			
HB3	COV.REC	COV-DB.PGM	COV-FF.PGM	
	COV.QES	COV-FB.PGM	INCOV-FB.PGM	
IDCODE	AFP.REC	AFPC-CLN.PGM	AFP-L2.PGM	
	AFPLAB.REC	AFP-CLN.PGM	AFP-L4.PGM	
	AFP.QES	AFP-DB.PGM	AFPL-CLN.PGM	
	AFPLAB.QES	AFP-FB.PGM	AFPL-FB.PGM	
	AFP.CHK	AFP-FF.PGM	AFPL-FF.PGM	
	AFPLAB.CHK	AFP-L1.PGM	AFP-T2.PGM	
IMR	POP.REC			
	POP.QES			
INC		INC-G1.PGM	INC-G1.RPT	

Appendix 53 (continued)

List of variables and the files in which they are explicitly named

Variable	.REC/.QES/.CHK	.PGM/.RPT file names		
LABCULT	AFPLAB.REC	AFP-DB.PGM		
	AFPLAB.QES	AFPL-FF.PGM		
LABDIFF	AFPLAB.REC	AFP-DB.PGM		
	AFPLAB.QES	AFPL-FF.PGM		
MEA	COV.REC	COV-DB.PGM	COV-FF.PGM	MEA-G5.PGM
	COV.QES	COV-FB.PGM	INCOV-FB.PGM	MEA-M2.PGM
MONTH	COV.REC	AFP-G6.PGM	INC-G1.PGM	
	INC.REC	AFP-M5.PGM	MEA-G5.PGM	
	PERIODS.REC	COV-CLN.PGM	MEA-M2.PGM	
	POP.REC	COV-DB.PGM	NT-M2.PGM	
	COV.QES	COV-FF.PGM	AFP-G6.RPT	
	INC.QES	DIP-G6.PGM	DIP-G6.RPT	
	PERIODS.QES	DIP-M3.PGM	INC-G1.RPT	
	POP.QES	INC-CLN.PGM	MEA-G5.RPT	
	COV.CHK	INC-DB.PGM		
	INC.CHK	INC-FF.PGM		
N14	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
N15	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
N1501	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
N1502	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
N1503	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
N16	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
N514	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
N515	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
N516	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
NT	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
OPV1	COV.REC	COV-DB.PGM		
	COV.QES			
OPV2	COV.REC	COV-DB.PGM		
	COV.QES			
OPV3	COV.REC	AFP-G6.PGM	COV-DB.PGM	COV-FF.PGM
	COV.QES	AFP-M5.PGM	COV-FB.PGM	INCOV-FB.PGM
P1	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	
	AFPLAB.QES	AFP-L1.PGM	AFPL-FB.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
P1_1		AFP-DB.PGM	AFP-M2.PGM	
P1_2		AFP-DB.PGM	AFP-M2.PGM	
P2	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	
	AFPLAB.QES	AFP-L1.PGM	AFPL-FB.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
P2_1		AFP-DB.PGM	AFP-M2.PGM	
P2_2		AFP-DB.PGM	AFP-M2.PGM	
P3	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	
	AFPLAB.QES	AFP-L1.PGM	AFPL-FB.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
P3_1		AFP-DB.PGM	AFP-M2.PGM	
P3_2		AFP-DB.PGM	AFP-M2.PGM	
PAB	COV.REC	COV-DB.PGM	NT-M2.PGM	
	COV.QES	COV-FF.PGM		
PER	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	

Appendix 53 (continued)

List of variables and the files in which they are explicitly named

Variable	.REC/.QES/.CHK	.PGM/.RPT file names		
PERIOD	PERIODS.REC	AFP-G3.PGM	AFP-T2.PGM	MEA-M2.PGM
	PERIODS.QES	AFP-M5.PGM	DIP-M3.PGM	NT-M2.PGM
POP	POP.REC	INC-FB.PGM		
	POP.QES	INCOV-FB.PGM		
POPL15	POP.REC	AFP-T2.PGM		
	POP.QES	INC-M1.PGM		
PROGRESS	AFP.REC	AFP-FB.PGM		
	AFP.QES	AFP-FF.PGM		
	AFP.CHK			
PROVINCE	AFP.REC	AFP-FF.PGM		
	COV.REC	AFPL-FB.PGM		
	GEO.REC	AFP-T2.PGM		
	INC.REC	COV-DB.PGM		
	POP.REC	COV-FB.PGM		
	AFP.QES	COV-FF.PGM		
	COV.QES	GEO-SPD.PGM		
	GEO.QES	GEO-TP.PGM		
	INC.QES	INC-DB.PGM		
	POP.QES	INC-FB.PGM		
	AFP.CHK	INC-FF.PGM		
	COV.CHK	INCOV-FB.PGM		
	GEO.CHK			
INC.CHK				
POP.CHK				
SPECNO	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	AFPL-FF.PGM
	AFPLAB.QES	AFP-L1.PGM	AFPL-CLN.PGM	AFP-T2.PGM
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FB.PGM	
STCOND	AFPLAB.REC	AFP-DB.PGM	AFP-L4.PGM	AFP-T2.PGM
	AFPLAB.QES	AFP-L1.PGM	AFPL-FB.PGM	
	AFPLAB.CHK	AFP-L2.PGM	AFPL-FF.PGM	
SURVI	POP.REC	AFP-G6.PGM	DIP-G6.PGM	MEA-G5.PGM
	POP.QES	AFP-M5.PGM	DIP-M3.PGM	MEA-M2.PGM
		COV-FB.PGM	INCOV-FB.PGM	
TT	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
TT2	COV.REC	COV-DB.PGM		
	COV.QES	COV-FF.PGM		
UNDER1	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
UNDER2	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
UNDER3	INC.REC	INC-DB.PGM	INC-FF.PGM	INC-M1.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	INCOV-FB.PGM
UNKNOWN	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
UNKNOWN1	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
UNKNOWN2	INC.REC	INC-DB.PGM	INC-FF.PGM	INCOV-FB.PGM
	INC.QES	INC-FB.PGM	INC-G1.PGM	
XAXIS	XAXIS.REC			
YEAR	COV.REC	AFP-G6.PGM	DIP-M3.PGM	MEA-G5.PGM
	INC.REC	AFP-M5.PGM	INC-CLN.PGM	MEA-M2.PGM
	PERIODS.REC	AFP-T2.PGM	INC-DB.PGM	NT-M2.PGM
	POP.REC	COV-CLN.PGM	INC-FB.PGM	
	COV.QES	COV-DB.PGM	INC-FF.PGM	
	INC.QES	COV-FB.PGM	INC-G1.PGM	
	PERIODS.QES	COV-FF.PGM	INC-M1.PGM	
	POP.QES	DIP-G6.PGM	INCOV-FB.PGM	
YF	COV.REC	COV-DB.PGM		
	COV.QES	COV-FF.PGM		

Appendix 54: Example 1: Add variable AGE to AFP case data set

<i>To do this</i>	<i>Type this</i>
Go into EPED. You can do this from the IFA menu by selecting <i>Utilities – Epi Info and Epi Map software – EPED</i> .	
Open the file AFP.QES	<F2> <open file this window> afp.qes ↵
Add age variable alongside date of birth	{Age} ##
Save file	<F9>
Quit EPED	<F10>
Re-structure AFP.REC file to include the new variable. Go into ENTER from the IFA menu: <i>Utilities – Epi Info and Epi Map software – ENTER</i> .	
Complete the ENTER screen	afp ↵ 3 ↵ afp ↵ Y ↵
This should take you into data entry mode, with the entry screen now including the variable age.	
If you have made this change to a file which already had data in it, check that you have not lost any data in the process by moving back through a couple of records.	<F7>
Of course, if AFP.REC did not have any records in it, there are no data to lose.	
If everything still seems to be there, then you have finished this task. Remember that the variable AGE will be blank for all records until data are entered.	
If you have lost some data in the process, it is very likely that the name of an existing variable in AFP.QES was inadvertently changed. Fortunately, your original AFP.REC file still exists – as AFP.OLD. You will have to go into DOS to retrieve the original file.	erase afp.rec ↵ ren afp.old afp.rec ↵
Now you will need to go back into EPED, open the file AFP.QES and correct whatever problems you have found, repeating the entire process outlined for this example.	

Appendix 55: Example 2: Restrict values for AGE

<i>To do this</i>	<i>Type this</i>
Go into EPED. You can do this from the IFA menu by selecting <i>Utilities – Epi Info and Epi Map software – EPED</i> .	
Open the file AFP.CHK	<F2> <open file this window> afp.chk ↵
Move to the end of the file	<ctrl-page down>
Type in the restrictions for AGE. In this example, age can range from 0 to 99, with the value 99 being reserved for unknown age. In addition, AGE should be skipped if date of birth (DOB) is known.	AGE ↵ Before entry ↵ If DOB <> “ ” ↵ then ↵ goto DONSET ↵ EndIf ↵ End ↵ Range 0 99 ↵ Comment legal ↵ 99 “Unknown” ↵ End ↵ Type comment +3 ↵ End ↵
Save file	<F9>
Quit EPED	<F10>
To check that the restrictions work as required, go into the AFP case data entry screen by selecting <i>Enter - AFP case</i> from the menu	select ENTER, then select AFP CASE
Enter different values for AGE, and check what happens if you enter a date for date of birth.	

Appendix 56: Example 3:

Write a program to produce a table of the number of confirmed polio cases by province by year

<i>To do this</i>	<i>Type this</i>
Go into EPED. You can do this from the IFA menu by selecting <i>Utilities – Epi Info and Epi Map software – EPED</i> .	
Open a new file called AFP-T3.PGM	<F2> <open file this window> afp-t3.pgm ↵
Type in various settings	set european=on ↵ set statistics=off ↵ set ignore=off ↵ set criteria=off ↵
Type in the command to read AFP.REC	read afp.rec ↵
Type in the commands to create a new variable YEAR	define year ##### ↵ let year=donset[7,4] ↵
Type in the command to select confirmed polio cases	select class=1 ↵
Type in the commands to produce titles for the output, including the date on which the table is produced	title 1 Number of confirmed polio cases ↵ title 2 by province by year (as on @systemdate) ↵
Type in the commands to send output to a file called AFP-T3.TXT. Erase it first in case it already exists.	erase afp-t3.txt ↵ route afp-t3.txt ↵
Type in the command to allow the table to be wider than 80 columns	set page=60,120 ↵
Type in the command to produce the table	tables province year ↵
Type in the commands to view the output	route screen ↵ dos eped afp-t3.txt ↵
Type in the commands to erase the output file and to quit ANALYSIS	erase afp-t3.txt ↵ quit
Save the file	<F9>
Quit EPED	<F10>
Test the program by going into ANALYSIS – select <i>Utilities – Epi Info and Epi Map software – ANALYSIS</i> from the IFA menu.	
Run the program	run afp-t3.pgm ↵

Appendix 57: Example 4:

Add the table program to the IFA menu as an option under REPORTS / ACUTE FLACCID PARALYSIS

<i>To do this</i>	<i>Type this</i>
Go into EPED. You can do this from the IFA menu by selecting <i>Utilities – Epi Info and Epi Map software – EPED</i> .	
Open the IFA.MNU file	<F2> <open file this window> ifa.mnu ↵
Use the arrow keys to take the cursor down to the beginning of line 48, which reads MENUITEM SEPARATOR “PERFORMANCE”	
Create a blank line	↵
Type in the command which adds this option to the menu, giving it the label AFP-T3	menuitem “Table – polio province totals”, AFP-T3 ↵
Now use the arrow keys to take the cursor to the beginning of line 175 in the stringtable section	
Create a blank line	↵
Type in the command which gives a short description of this option at the bottom of the menu screen	AFP-T3 “Confirmed polio by province and year AFP-T3.PGM” ↵
Now use the arrow keys to take the cursor to the beginning of line 357 in the command section	
Create a blank line	↵
Type in the commands which will activate the program when this option is selected from the menu	AFP-T3 ↵ begin ↵ analysis AFP-T3.PGM ↵ end ↵ ↵
Save the changes you have made to IFA.MNU	<F9>
Quit from EPED	<F10>
To check that it all works, select the new option from the menu: <i>Reports – Acute flaccid paralysis – Table – Polio province totals</i>	

Appendix 58: Example 5:

Write a program to produce a map showing the number of AFP cases lost to follow-up in each district

<i>To do this</i>	<i>Type this</i>
Go into EPED. You can do this from the IFA menu by selecting <i>Utilities – Epi Info and Epi Map software – EPED</i> .	
Open a new file called AFP-M6.PGM	<F2> <open file this window> afp-m6.pgm ↵
Type in various settings	set european=on ↵ set statistics=off ↵ set ignore=off ↵ set criteria=off ↵
Type in the command to read AFP.REC	read afp.rec ↵
Type in the command to select cases lost to follow-up	select fup=3 ↵
Type in the commands to send output to a data file called AFP-M6.REC. Erase it first in case it already exists.	erase afp-m6.rec ↵ route afp-m6.rec ↵
Type in the command to produce a data set summarizing the number of cases by district	output freq district ↵
Type in the commands to send the title for the map to a file called TITLE.TXT, erasing it first in case it already exists	erase title.txt ↵ route title.txt ↵
Type in the commands with the map title	type “Number of AFP cases lost to follow-up” ↵ type “(as on @systemdate)” ↵
Type the command to close the file TITLE.TXT	route screen ↵
Type the command to pass the contents of TITLE.TXT to the map file	dos maptitle afp-m6.map title.txt ↵
Type in the commands to erase TITLE.TXT and to quit ANALYSIS	erase title.txt ↵ quit
Save the file	<F9>
Quit EPED	<F10>

continued ...

Appendix 58 (continued)**Example 5: Write a program to produce a map showing the number of AFP cases lost to follow-up in each district**

<i>To do this</i>	<i>Type this</i>
Test the program, thereby also creating the file AFP-M6.REC which is necessary for setting up the map. Select from the menu <i>Utilities – Epi Info and Epi Map software – ANALYSIS</i> .	
In ANALYSIS, give the command to run the program.	run afp-m6.pgm ↵
Load the Epi Map program by selecting <i>Utilities – Epi Info and Epi Map software – Epi Map</i> from the IFA menu.	
Load the DISTRICT.BND file by selecting from the menu BOUNDARY, then LOAD COMPLETE, then give the name of the file	district.bnd ↵ ↵
Load the AFP-M6.REC file by selecting from the menu DATA, then LOAD DATA, then give the name of the file	AFP-M6.REC ↵
Save the resulting map as AFP-M6.MAP by selecting from the menu MAP, then SAVE MAP FILE, then give the name of the file	AFP-M6.MAP ↵
Quit Epi Map	<F10>

Appendix 59: Example 6:

Add the map program to the IFA menu as an option under REPORTS / ACUTE FLACCID PARALYSIS

<i>To do this</i>	<i>Type this</i>
Go into EPED. You can do this from the IFA menu by selecting <i>Utilities – Epi Info and Epi Map software – EPED</i> .	
Open the IFA.MNU file	<F2> <open file this window> ifa.mnu ↵
Use the arrow keys to take the cursor down to the beginning of line 53, at the end of the PERFORMANCE section	
Create a blank line	↵
Type in the command which adds this option to the menu, giving it the label AFP-M6	menuitem “Map – lost to follow-up”, AFP-M6 ↵
Now use the arrow keys to take the cursor to the beginning of line 173 in the stringtable section	
Create a blank line	↵
Type in the command which gives a short description of this option at the bottom of the menu screen	AFP-M6 “Lost to follow-up pattern map AFP-M6.PGM” ↵
Now use the arrow keys to take the cursor to the beginning of line 347 in the command section	
Create a blank line	↵
Type in the commands that will activate the program when this option is selected from the menu. The analysis program creating the data set for the map must first be run, then the map is created. The “/q” switch forces the slide show mode.	AFP-M6 ↵ begin ↵ analysis AFP-M6.PGM ↵ epimap afp-m6.map /q ↵ erase afp-m6.rec ↵ end ↵
Save the changes you have made to IFA.MNU	<F9>
Quit from EPED	<F10>
To check that it all works, select the new option from the menu: <i>Reports – Acute flaccid paralysis – Map – lost to follow-up</i>	

Appendix 60: WHO country codes

Country	WHO code	WHO Region	Country	WHO code	WHO Region
AFGHANISTAN	AFG	EM	ECUADOR	ECU	AM
ALBANIA	ALB	EU	EGYPT	EGY	EM
ALGERIA	ALG	AF	EL SALVADOR	ELS	AM
ANDORRA	AND	EU	EQUATORIAL GUINEA	EQG	AF
ANGOLA	ANG	AF	ERITREA	ERI	AF
ANTIGUA BARBUDA	ANI	AM	ESTONIA	EST	EU
ARGENTINA	ARG	AM	ETHIOPIA	ETH	AF
ARMENIA	ARM	EU	FIJI	FIJ	WP
AUSTRALIA	AUS	WP	FINLAND	FIN	EU
AUSTRIA	AUT	EU	FORM. YUG. REP. MAC.	MKD	EU
AZERBAIJAN	AZE	EU	FRANCE	FRA	EU
BAHAMAS	BAH	AM	GABON	GAB	AF
BAHRAIN	BAA	EM	GAMBIA	GAM	AF
BANGLADESH	BAN	SE	GEORGIA	GOR	EU
BARBADOS	BAR	AM	GEORGIA	GEO	EU
BELARUS	BYE	EU	GERMAN DEM. REPUBLIC	DDR	EU
BELARUS	BLR	EU	GERMANY	DEU	EU
BELGIUM	BEL	EU	GERMANY FED. REP.	DEU	EU
BELIZE	BLZ	AM	GHANA	GHA	AF
BENIN	BEN	AF	GREECE	GRE	EU
BHUTAN	BHU	SE	GRENADA	GRA	AM
BOLIVIA	BOL	AM	GUATEMALA	GUT	AM
BOSNIA-HERZEGOVINA	BIH	EU	GUINEA	GUI	AF
BOTSWANA	BOT	AF	GUINEA-BISSAU	GUB	AF
BRAZIL	BRA	AM	GUYANA	GUY	AM
BRUNEI	BRU	WP	HAITI	HAI	AM
BULGARIA	BUL	EU	HONDURAS	HON	AM
BURKINA FASO	BFA	AF	HUNGARY	HUN	EU
BURMA	BUR	SE	ICELAND	ICE	EU
BURUNDI	BUU	AF	INDIA	IND	SE
BYELORUSSIAN SSR	BYE	EU	INDONESIA	INO	SE
CAMBODIA	KAM	WP	IRAN (ISLAMIC REP.)	IRA	EM
CAMBODIA	CAM	WP	IRAQ	IRQ	EM
CAMEROON	CAE	AF	IRELAND	IRE	EU
CANADA	CAN	AM	ISRAEL	ISR	EU
CAPE VERDE	CAV	AF	ITALY	ITA	EU
CEN AFRICAN REP	CAF	AF	JAMAICA	JAM	AM
CHAD	CHA	AF	JAPAN	JPN	WP
CHILE	CHI	AM	JORDAN	JOR	EM
CHINA	CHN	WP	KAZAKSTAN	KAZ	EU
COLOMBIA	COL	AM	KENYA	KEN	AF
COMOROS	COM	AF	KIRIBATI	KIR	WP
CONGO	CNG	AF	KUWAIT	KUW	EM
COOK ISLANDS	COK	WP	KYRGYZSTAN	KGZ	EU
COSTA RICA	COR	AM	LAO PEOPLE'S DEM REP	LAO	WP
COTE D'IVOIRE	IVC	AF	LATVIA	LVA	EU
CROATIA	CRO	EU	LEBANON	LEB	EM
CUBA	CUB	AM	LESOTHO	LES	AF
CYPRUS	CYP	EM	LIBERIA	LIB	AF
CZECH REPUBLIC	CZH	EU	LIBYAN ARAB J.	LIY	EM
CZECHOSLOVAKIA	CZE	EU	LITHUANIA	LTV	EU
DEM. P. REP. OF KOREA	KRD	SE	LITHUANIA	LTU	EU
DEM. REP. OF CONGO	ZAI	AF	LUXEMBOURG	LUX	EU
DEMOCRATIC KAMPUCHEA	KAM	WP	MADAGASCAR	MAD	AF
DEMOCRATIC YEMEN	YEA	EM	MALAWI	MAL	AF
DENMARK	DEN	EU	MALAYSIA	MAA	WP
DJIBOUTI	DJI	EM	MALDIVES	MAV	SE
DOMINICA	DOM	AM	MALI	MAI	AF
DOMINICAN REPUBLIC	DOR	AM			

Country	WHO code	WHO Region	Country	WHO code	WHO Region
MALTA	MAT	EU	SEYCHELLES	SEY	AF
MARSHALL ISLANDS	MSI	WP	SIERRA LEONE	SIL	AF
MAURITANIA	MAU	AF	SINGAPORE	SIN	WP
MAURITIUS	MAS	AF	SLOVAK REPUBLIC	SVK	EU
MEXICO	MEX	AM	SLOVAKIA	SVK	EU
MICRONESIA	MIC	WP	SLOVENIA	SVN	EU
MOLDOVA	MLD	EU	SOLOMON ISLANDS	SOL	WP
MONACO	MON	EU	SOMALIA	SOM	EM
MONGOLIA	MOG	WP	SOUTH AFRICA	SOA	AF
MOROCCO	MOR	EM	SPAIN	SPA	EU
MOZAMBIQUE	MOZ	AF	SRI LANKA	SRL	SE
MYANMAR	MMR	SE	ST. KITTS AND NEVIS	SCN	AM
NAMIBIA	NAM	AF	SUDAN	SUD	EM
NAURU	NRU	WP	SURINAME	SUR	AM
NEPAL	NEP	SE	SWAZILAND	SWZ	AF
NETHERLANDS	NET	EU	SWEDEN	SWE	EU
NEW ZEALAND	NEZ	WP	SWITZERLAND	SWI	EU
NICARAGUA	NIC	AM	SYRIAN ARAB REPUBLIC	SYR	EM
NIGER	NIG	AF	TAJIKISTAN	TKJ	EU
NIGERIA	NIE	AF	TAJIKISTAN	TJK	EU
NIUE	NIU	WP	THAILAND	THA	SE
NORWAY	NOR	EU	TOGO	TOG	AF
OMAN	OMA	EM	TONGA	TON	WP
PAKISTAN	PAK	EM	TRINIDAD & TOBAGO	TRT	AM
PALAU	BLA	WP	TUNISIA	TUN	EM
PANAMA	PAN	AM	TURKEY	TUR	EU
PAPUA NEW GUINEA	PNG	WP	TURKMENISTAN	TKM	EU
PARAGUAY	PAR	AM	TUVALU	TUV	WP
PERU	PER	AM	UGANDA	UGA	AF
PHILIPPINES	PHL	WP	UK	UNK	EU
POLAND	POL	EU	UKRAINE	UKR	EU
PORTUGAL	POR	EU	UKRAINIAN SSR	UKR	EU
QATAR	QAT	EM	UNITED ARAB EMIRATES	UAE	EM
REPUBLIC OF KOREA	KOR	WP	UNITED REP. TANZANIA	TAN	AF
REPUBLIC OF MOLDOVA	MDA	EU	UPPER VOLTA	UPV	AF
ROMANIA	ROM	EU	URUGUAY	URU	AM
RUSSIAN FEDERATION	RUS	EU	USA	USA	AM
RWANDA	RWA	AF	USSR	SSR	EU
SAINT KITTS & NEVIS	SCN	AM	UZBEKISTAN	UZB	EU
SAINT LUCIA	SAL	AM	VANUATU	VAN	WP
SAINT VINCENT	SAV	AM	VENEZUELA	VEN	AM
SAMOA	SMA	WP	VIET NAM	VTN	WP
SAN MARINO	SMR	EU	YEMEN	YES	EM
SAO TOME & PRINCIPE	STP	AF	YEMEN	YEM	EM
SAUDI ARABIA	SAA	EM	YUGOSLAVIA	YUG	EU
SENEGAL	SEN	AF	ZAIRE	ZAI	AF
			ZAMBIA	ZAM	AF
			ZIMBABWE	ZIM	AF