
4

Training area supervisors, data collectors and data entry personnel

This chapter provides practical guidance on conducting a training workshop for area supervisors, data collectors and data entry personnel. It does not cover training on price components, since this is generally a separate activity with different personnel. Chapter 9 provides guidance on training for the price components survey. Training is an important element of survey preparation because it helps ensure the accuracy and reliability of the data-gathering and data entry procedures. Consequently, this chapter also covers the issue of ensuring data quality.

When multiple surveys are being carried out in the same region, WHO and HAI sometimes hold regional training sessions for survey managers who, in turn, train their survey personnel during a national workshop. It is useful to check with WHO and HAI to see if any such regional training workshops are being planned or could be organized. **This chapter has been developed to assist survey managers in conducting training workshops for their survey personnel, regardless of whether they have attended any previous training.**

- Training of survey personnel is an essential part of survey planning
- Comprehensive training is required to ensure data quality
- Area supervisors and data collectors must be trained prior to initiating fieldwork
- Generally, training on price components is conducted as a separate activity from the broader training workshop (see Chapter 9)
- A trainer's guide (Annex 3) and sample training materials are provided on the CD-ROM that accompanies this manual

4.1 THE IMPORTANCE OF DATA QUALITY AND THE CONSEQUENCES OF POOR-QUALITY DATA

Why is data quality important?

- Solid data supports conclusions and recommendations
- Future policy decisions may rely on the evidence generated in the survey
- Critics and opponents will look for weaknesses in the survey methods and results

- Results will be publicly accessible and may be used by others, e.g. in conducting international comparisons
- To respect the values of integrity and transparency in the WHO/HAI Medicine Prices and Availability project

In previously conducted surveys a number of common data problems have been identified:

- Wrong prices collected in the field – wrong medicine, wrong strength (the most common mistake), or wrong dosage form
- Illegible or incomplete data collection forms or both
- Mistakes in entering the price (e.g. decimal in the wrong place, extra or missing zeroes)
- Medicine price entered without indication of whether medicine was available
- Originator brand prices collected and/or entered as lowest-priced generic prices or vice versa
- Ambiguous data, e.g. unclear pack size (e.g. ‘one bottle’ rather than the number of millilitres, leading to incorrect calculation of unit price); absent/unclear comments (e.g. medicine is available but no price data are recorded, with no comment to confirm medicine is provided for free)
- Prices noted on paper forms and entered in the workbook when medicine is out of stock
- A discount was applied to the recorded price, but was not applicable to all patients
- Recorded price was actually a flat dispensing fee rather than the true price
- Recorded price included additional fees, such as injection fees
- Errors in the calculation of unit prices
- Data entry errors



Data collection errors need to be verified and corrected or deleted from the results. In some surveys, large segments of incorrect or unreliable data have had to be excluded from the analysis or re-collected. This weakens the overall survey results and wastes resources, since time and effort have been spent on collecting data that cannot be used.

There are several reasons for the data problems commonly encountered as part of the survey:

- The survey manager did not read the manual thoroughly or misunderstood it
- Area supervisors, data collectors and data entry personnel received insufficient or poor-quality training
- The pilot survey was not conducted properly
- There was inappropriate selection of supplementary medicines
- Work in the field was of poor quality (insufficient supervision, no quality control for submission of completed forms, misunderstanding of instructions, etc.)
- Data were not checked at every stage of the survey process

- Data were entered only once (double entry not used)
- Data-checking function of workbook was not used or questionable values were not verified
- Human error

Data problems can therefore be avoided by:

- Studying the survey manual and accompanying materials carefully at every step and following instructions
- Selecting capable and reliable personnel and ensuring they are well trained in the survey methodology
- Encouraging personnel to communicate openly about uncertainties in survey procedures and questionable data
- Double-checking data collection forms for accuracy and completeness after each data collection visit, at the end of each day of fieldwork and prior to data entry
- Conducting double entry of the survey data into the workbook – data are entered twice by different people and then cross-checked
- Conducting a manual check of data entered into the workbook and running the automated data-checker programme (identifies unusual or outlying results that require verification)

Experience from previous surveys shows that data problems are a normal and expected part of data collection and data entry.

Data checking and cleaning can be a time-consuming process, but it is critical to ensuring reliable results. Do not move on to analysis and report writing until you are sure that data are accurate.

Thorough training of survey personnel is one of the most important ways of ensuring accurate data collection and good-quality data. Experience from previous surveys has shown that poor survey preparation, including inadequate training of survey personnel, results in onerous and time-consuming data checking that can significantly delay the survey's completion. It is therefore more effective and efficient to apply rigorous data collection methods than to try to clean or correct data once they are already collected.

Thorough training of survey personnel and consequent rigorous application of the survey methodology will save much time and effort during the data checking and data entry stages.

4.2 OVERVIEW OF TRAINING

All personnel involved in data collection, supervision and data entry require training to ensure reliable and accurate data collection, completion of the data collection form and transfer of data to the workbook. Training should also foster an appreciation among survey personnel of the importance of generating high-quality data. The training ensures a common understanding of the terms and definitions used in the survey manual.

A training workshop for survey personnel should be held as part of survey preparation. The training workshop's overall objective is to provide area supervisors, data collectors and data entry personnel with the knowledge and skills required to carry out the medicine prices and availability survey in an accurate and reliable manner. Upon completion of the training, participants should:

- be familiar with the key aspects of the survey and how it is conducted;
- understand their roles and responsibilities in the survey, including specific tasks, timelines and reporting requirements;
- understand the critical content required to do their job effectively and possess the skills required to undertake each of their activities;
- be aware of common issues that may arise during survey activities, and troubleshooting/problem-solving strategies to address these issues; and
- recognize the intrinsic value of good-quality data and be motivated to ensure data quality as part of their activities.

Training should therefore focus on teaching the participants:

- the survey's overall purpose;
- the consequences of poor-quality data;
- how to conduct medicine outlet visits and collect price and availability data;
- how to complete the Medicine Price Data Collection form;
- problem-solving in the field;
- how to enter data into the electronic workbook and use the double-entry feature; and
- common data collection and data entry mistakes.

It is recommended that a training workshop that covers both data collection and data entry last at least three days (a two-day workshop may be sufficient for data collection only). It should include a data collection pilot test in which survey personnel visit public and private sector medicine outlets and collect data in the same way they would during actual fieldwork. This will not only provide survey personnel with practical experience in collecting data, but will also serve as a check of the appropriateness of the draft list of survey medicines.

The trainer is usually the survey manager or could be a resource person from the WHO/HAI project. The participants should include all area supervisors, data collectors and data entry personnel. Training on data entry can be held as a separate workshop/session for data entry personnel, if this is more convenient (e.g. if the survey is being conducted in a region or state but data entry will be undertaken at the central level). However, there may be some advantage in holding a combined training session on data collection and data entry, since it will sensitize area supervisors and data collectors to the difficulties in entering poor-quality data. Note that a basic understanding of Microsoft Excel is required for data entry using the electronic workbook; if data collectors lack such technical knowledge then data collection and data entry should be conducted as two separate training sessions. It is also recommended that the members of the Advisory Group be invited to the introductory session of the training workshop to meet survey personnel and discuss the survey methodology.

The training workshop should be held as close as possible to the initiation of data collection – immediate departure for data collection can be scheduled if the

BOX 4.1**Training recommendations from previous surveys**

- A training workshop is crucial for ensuring successful data collection. All survey personnel must be trained.
- Ideally all area supervisors and data collectors should be trained together at the same workshop to ensure consistency in the instructions received. Data entry personnel can be trained together with other personnel or separately.
- Only survey managers should be required to read the entire manual; simplified handouts and instructions should be available for other personnel (examples are available on the CD-ROM).
- The data collection pilot test is the most important part of training; sufficient time should be allocated to ensure that the test is conducted thoroughly, with adequate time for debriefing.
- A variety of training formats and tools (e.g. presentations and exercises) should be used to keep the training interesting and promote recall of training material.

survey manager has prepared well. Time lags between training and data collection should be avoided so that survey personnel have better recall of the data collection protocol.

4.3 PREPARING FOR THE TRAINING WORKSHOP

Planning the training workshop can require substantial time and preparation. Workshop preparations should begin early in the survey development process and should run in parallel to other survey planning and preparation activities. In preparing the training, it is essential to ensure that there is an adequate budget for the training venue, daily allowance and accommodation for participants, transport and materials.

BOX 4.2**What the trainer should do before the workshop**

- *Above all, become thoroughly familiar with all aspects of the survey methodology.* This requires careful study of the survey manual and tools on the accompanying CD-ROM. Contact HAI¹ or WHO² to clarify any uncertainties.
- Organize the training workshop's logistics, including the data collection pilot test.
- Follow the guidance on training given in the Trainer's Guide and plan how to conduct each session.

Select a training venue

Select a training venue based on the following criteria:

- availability of a room of appropriate size to hold the workshop;
- availability of essential technical resources, namely an accessible printer and photocopier;
- proximity to medicine outlets that can be surveyed during the data collection pilot test;

¹ info@haiweb.org

² medicineprices@who.int

- accessibility by routine modes of transport;
- on-site or nearby refreshments and accommodation for out-of-town participants; and
- reasonable cost.

It is useful to check with Advisory Committee members to see if a meeting room can be made available for the training workshop at low or no cost.

Schedule dates of the training workshop

The training workshop should be scheduled close to the anticipated start of data collection. Do not plan the workshop during a time when weather or other conditions may delay the initiation of data collection. All survey personnel must attend the workshop and should be advised of the dates as early as possible. Invitations to attend the introductory session of the workshop should also be sent to Advisory Committee members.



Training should be held close to the initiation of data collection. Time lapses between training and data collection increase the chances that important details about the survey protocol will be forgotten.

Plan data collection pilot test

During the data collection pilot test, each data collection team (area supervisor and his or her data collectors) will visit one public medicine outlet and one private medicine outlet and collect data by following the survey procedures. Thus, one public medicine outlet and one private medicine outlet is required for each data collection team to serve as pilot sites. The participation of pilot sites should be secured well in advance of the training workshops. The appointments should be made in advance and reconfirmed before the training session, avoiding peak periods when outlets may be busy with patients.



Do not send more than five survey personnel (e.g. one area supervisor and four data collectors) to a pilot site. In small retail drug stores, it may only be possible to send three people. If survey teams consist of larger numbers of personnel, they will need to be split into smaller groups for the pilot test.

Prior to the training workshop a written schedule should be prepared for each data collection team, indicating the time and location of each medicine outlet visit, including the name and contact details of the person in charge at the facility. The schedule should also contain the survey manager's telephone number so that survey personnel can call if there is a query/problem.

Secure equipment needed

- Ideally, one computer per data collection team, plus one for data entry personnel, with Microsoft Excel installed. If training on data entry is being conducted separately, two computers (one per data entry personnel) are required;
- Access to printer and photocopier for reproducing Medicine Price Data Collection forms;

- Calculators for participants to determine the unit prices of medicines;
- Pens, notepad, clipboards;
- Mobile phones for data collection teams to carry during the pilot test.

Prepare documentation materials

- One copy of handouts, exercises and tests for each participant (samples are provided on the CD-ROM);
- Two copies of the Medicine Price Data Collection form for each participant for use during the pilot test (see below).

Prepare sufficient copies of the Medicine Price Data Collection form for use in pilot test

You should generate a draft Medicine Price Data Collection form from the workbook,¹ where all relevant information on the survey medicines is stored, and photocopy it for use during the data collection pilot test. However, before generating the data collection form for use in the pilot test, in the workbook you need to:

- delete any medicines from the global and regional core lists that are not registered in your country;
- add the supplementary medicines that you are surveying;
- check whether the MSH prices already entered in the workbook are current, and enter the reference price for each supplementary medicine;
- identify which medicines are on the national essential medicines list, where one exists;
- for the public sector, identify the level(s) of care where each medicine is expected to be available; and
- identify and enter the name of the originator brand product for each supplementary medicine to be surveyed, and check the name of each originator brand on the global and regional core list (the identification of the lowest-priced generic product is done at each individual medicine outlet).

Chapter 3 provides detailed instructions on preparing the workbook for your specific survey.

To access and print the Medicine Price Data Collection form, press on the Data Collection tab at the bottom of the workbook. From the *Data Collection* page you will be able to view and print the form. Note that the form is not complete until it contains the complete list of survey medicines, with the corresponding international reference prices and the originator brand names used in your country.

Each workshop participant will need two copies of the Medicine Price Data Collection form – one for each medicine outlet to be visited as part of the data collection pilot test.

¹ See Chapter 3, page 47.

Load Excel workbook onto each computer

A copy of the survey workbook Part I, *prepared for your specific survey* (e.g. survey medicines entered and sectors identified), should be loaded onto each computer for use during the training workshop. During the workshop participants will enter the data they collected during the pilot test into the workbooks.

Important: To allow participants to view summary results of data generated from the pilot test, you will need to make the following adjustments *before loading the workbook onto the computers*:

1. Enter an exchange rate in cell J3 of the Reference Prices page. Enter a sample/average exchange rate of your local currency to US\$.
2. Set the minimum number of unit prices required for median price ratios to be computed to '1'. During the survey a minimum of 4 unit prices is needed for the median price ratio to be calculated, however since only one set of data per sector is being collected during the pilot test, setting this parameter to 1 will allow participants to view summary results. On the *Field Data Consolidation* pages for both the public and private sectors, select 'Ratios On' to display columns of summary data, and set cell H10 to '1'.
3. Enter the daily wage of the lowest-paid government worker in Cell J6 of the Standard Treatment Affordability page, if you want to show participants sample affordability results.

In addition, the workbook relies on a series of automated commands (called macros) to function. You will need to ensure that macros are enabled on each of the computers to be used. In the Excel toolbar, click on Tools → Macros → Security, and set the Security Level to 'Low' or 'Medium'. If 'Medium' is chosen, then the participants will have to be instructed to choose 'Yes' when asked whether they should allow macros to run upon opening the workbook.¹

As part of the training tools provided on the CD-ROM, a data-checking exercise using a workbook containing fictitious data has been developed to assist personnel in identifying common data errors ('Data Checker exercise.xls'). If you choose to use this exercise as part of the training workshop you will also need to load the Data Checker workbook onto each computer.

4.4 CONDUCTING THE TRAINING WORKSHOP, INCLUDING THE DATA COLLECTION PILOT TEST

A trainer's guide is provided in Annex 3 and on the CD-ROM that accompanies this manual. Survey managers are strongly encouraged to use this guide as a starting point for planning their training workshop. The guide provides guidance to survey managers in conducting a training workshop for their survey personnel, including:

- how a training programme can be conducted;
- what basic steps should be followed;
- what material should be covered; and
- training activities and aids that can be used.

Sample presentations, handouts and exercises are also available to accompany the guide. The Trainer's Guide and materials have been developed based on previ-

¹ See Chapter 3, page X

ous experience in conducting training workshops for the medicine prices and availability survey.

The Trainer's Guide is divided into modules according to the sample training agenda. Each module outlines the objectives of the training session, instructions for training activities to be conducted, materials required and the key messages that should be emphasized. Refer to the sample presentations for a more detailed outline of the content to be covered in each of the modules.

The Trainer's Guide should serve as an example only; the training plan and materials will need to be adapted to fit the specificities of each survey. For example, if medicines are provided for free in the public sector of a country, all training activities and materials will need to reflect this. Similarly, the specific 'other' sectors that will be included in the survey will need to be incorporated into the training materials.

Considerations in developing country-specific survey materials should include survey personnel's level of experience, the survey's specific objectives; any deviations from the standard methodology; and logistics issues (e.g. the data collection pilot test should preferably be conducted at the most convenient time for pharmacy staff). However, the following basic principles can be applied to all training workshops:

- Standardized training materials, including simple, ready-to-use handouts and tools, should be used. The survey manual should be used as a master resource, but shorter, simpler instructions are required for survey personnel.
- A range of activities (e.g. presentations, group discussions, exercises) should be used to cover different learning styles and preferences and promote recall of training material. Learning will be embedded more effectively if information is presented in multi-faceted ways.
- A data collection pilot test is essential to provide personnel with hands-on experience in conducting the survey.
- Practical exercises with the data collection forms and workbook, demonstrating the consequences of poor-quality data, should be conducted.
- Recall and memory of survey protocols by survey personnel should be verified before starting data collection.

BOX 4.3

Training skills/techniques

- Motivate participants by showing enthusiasm for the training activities being carried out.
- Promote a cooperative, non-threatening environment with a high degree of participant involvement.
- Keep discussions focused on the topics in question.
- Leave time for and encourage questions from participants.
- Assess participants' understanding of each topic and review material as necessary.
- Solve problems encountered on topics that are difficult to master.

Fig. 4.1 shows a sample agenda for a workshop involving area supervisors, data collectors and data entry personnel.

Fig. 4.1 Sample training agenda

DAY 1	
8:30–10:00	Welcome, survey objectives and training overview
10:00–10:15 BREAK	
10:15–12:00	Overview of survey methodology <ul style="list-style-type: none"> • Key aspects of survey design • Roles and responsibilities of personnel
12:00–13:00 LUNCH	
13:00–14:30	Data collection procedures <ul style="list-style-type: none"> • Preparation for data collection • Procedures before, during and after medicine outlet visits • What to do at the end of data collection
14:30–14:45 BREAK	
14:45–17:15	Completing the Medicine Prices Data Collection form <ul style="list-style-type: none"> • Instructions for completing the form • Key rules to remember
DAY 2	
8:30–9:30	Review of Day 1
9:30–10:00	Instructions for data collection pilot test
10:00–15:00	Data collection pilot test (includes lunch break) <ul style="list-style-type: none"> • Data collection at one private and one public medicine outlet
15:00–15:15 BREAK	
15:15–16:00	Unit price calculation
16:00–17:30	Debrief of data collection pilot test
DAY 3	
8:30–9:30	Review of Day 2
9:30–10:30	Data entry <ul style="list-style-type: none"> • How to enter unit price data into the survey workbook • How to conduct double entry and check results
10:30–10:45 BREAK	
10:45–12:45	Data entry <ul style="list-style-type: none"> • Entry of data collected during pilot test
12:45–13:45 LUNCH	
13:45–15:45	Checking workbook data <ul style="list-style-type: none"> • Using the workbook's data-checker function • Manual checking of workbook data
15:45–16:00 BREAK	
16:00–17:00	Logistics for data collection <ul style="list-style-type: none"> • Next steps
17:00–17:30	Final comments, evaluation of workshop

Conducting the data collection pilot test

During the pilot test, data collection teams, consisting of area supervisors and their data collectors, will visit medicine outlets and collect data on the price and availability of medicines in the same way they would during the actual survey. Each area supervisor and data collector should complete their own Medicine Price Data Collection form to gain hands-on experience. Area supervisors should also supervise and watch out for common mistakes, such as information collected on the wrong strength or dosage form. It may be necessary to hold a preliminary pilot test with area supervisors to ensure that they are sufficiently knowledgeable about the survey protocol to supervise data collectors and identify mistakes. During the pilot test, any questions or uncertainties should be noted for clarification during the training workshop. The Trainer's Guide provides more detailed instructions for conducting the pilot test.

For the pilot test, each area supervisor and data collector will need two Medicine Price Data Collection forms, pen and clipboard, notepad, instructions for data collection and a calculator for identifying generic medicines with the lowest unit price when multiple generic products are available. The area supervisor should also have a schedule and contact list for the pilot test sites as well as the survey manager's contact details.

4.5 FINALIZING THE MEDICINE PRICE DATA COLLECTION FORM

The pilot test will demonstrate if the selected medicines with the corresponding dosage forms and strengths are the ones commonly used in both the public and private sectors. Based on the pilot test results, modifications to the medicines list may be indicated. After the pilot test, the survey manager should review the results and determine whether any changes need to be made to the survey medicines list. Any changes to this list should be made on the *Reference Price* page of the survey workbook (see Chapter 3). These changes will be reflected automatically in the Medicine Price Data Collection form, which is accessed from the Data Collection tab at the bottom of the workbook. Any changes to the survey medicines list as a result of the pilot test should be reviewed and discussed during the training workshop. If possible, the final Medicine Price Data Collection form should be printed and copied for distribution to area supervisors on the last day of the training workshop.

4.6 TRAINING TOOLS

A selection of sample/template tools is available on the CD-ROM that accompanies this manual. Before use, the tools should be carefully reviewed, and modified or adapted as appropriate to suit individual survey protocols.

Trainer's Guide

The Trainer's Guide provides guidance to survey managers in conducting a training workshop for their survey personnel.

Sample training agenda

The sample agenda, contained in the Trainer's Guide, corresponds to a three-day training workshop for area supervisors, data collectors and data entry personnel.

Sample presentation slides

Six sample PowerPoint presentations are available for adaptation and used in presenting key material to survey personnel during the training workshop:

1. Introduction to the survey
2. Survey overview
3. Preparing for data collection and visiting medicine outlets
4. Completing the data collection form
5. Data entry
6. Data quality and checking

Handouts

Four handouts have been prepared to provide survey personnel with a summary of essential points specific to their roles and responsibilities:

1. Instructions for area supervisors
2. Instructions for data collectors
3. How to complete the Medicine Price Data Collection form
4. Instructions for data entry personnel

Exercises

Exercises are mandatory for ensuring that the methodology is well understood and followed by the whole team. The following two exercises are provided on the CD-ROM; you may also wish to develop your own.

1. A 'Spot the mistakes' exercise (Spot Mistakes Exercise.doc and Spot Mistakes Answer Key.doc) provides a completed Medicine Price Data Collection form that contains common mistakes for training participants to identify. An answer key is also provided.
2. A data-checking exercise (Data Checker exercise.xls) consists of a workbook containing fictitious data developed to assist personnel in identifying common data errors.