

Mapping



A picture is worth a thousand words! Remember this when you are deciding how to gather information on work-related health problems.

Mapping, in various forms, has been used for many years in developing countries, mainly as an educational and community-organising tool.

Photo: courtesy of the Union of Shop, Distributive and Allied Workers, UK.

What is mapping?

By drawing simple maps of their body or their workplace, workers can record, in a visual form, their health problems, work hazards and overall work environment. Mapping can also be used to produce maps of working conditions which existed years before, even when the workplaces no longer exist today. Workers share their knowledge of problems and solutions using mapping to help.

Why use mapping?

There are a number of reasons to use mapping in Barefoot Research about work security. Mapping:

- involves workers and shows them that they are not alone
- is participatory and develops a collective approach
- encourages discussion and analysis
- allows participants to see that their health problems, and issues related to basic security, workplaces and lives are connected
- is simple to use
- uses workers' subjective experience and knowledge to paint detailed pictures of their working conditions
- is more easily and widely understood than most other forms of information
- helps to overcome problems of literacy and language differences
- is fun!

Who can organise mapping?

A trained worker facilitator, or worker educator or trade union representative can carry out mapping using:

- small group discussions
- larger groups to record and display large amounts of information

The role of the worker facilitator

In each of the mapping activities that are explained in detail below, the worker facilitator leads the workers through the mapping exercise(s), keeping detailed notes of what is being recorded on the maps along with any verbal comments or descriptions that are made. It can help if a volunteer helps the facilitator to keep a record of comments.

It is possible to carry out mapping exercises without a facilitator or recorder present, such as in a trade union office over several shifts, but this is not recommended. If however you do mapping this way, it is essential that instructions are posted up and the place is secure.

Confidentiality and security

Mapping works best when workers feel safe and comfortable that the information they are about to reveal cannot be used against them in any way. Workers will be more open in discussing issues when they are in groups consisting only of other workers, with a facilitator that they can trust, such as a trade union representative.

Before conducting any mapping exercises, the facilitator should inform the workers that:

- participation is completely voluntary
- it is up to them how much they want to reveal to each other, since some of the information in the mapping exercises may be personal in nature
- the issue of confidentiality is a top priority when information is gathered through mapping
- no names or any other means of identification are to be used on the maps in order to protect workers' privacy
- everybody agrees that they will not reveal to anyone outside of the group any personal information

It is also important to agree to whom the maps will be shown. During mapping activities, workers can decide collectively who will see the maps. They may wish to show the maps to:

- the workers and the facilitator only
- other worker groups or a worker health and safety committee
- other trade union representatives

But they may be less willing to show the maps outside the group if individuals can be identified or if the maps might be shown to:

- the employer or a government inspector
- the media, or be published in any way

In these cases workers may feel safer if a summary from the maps is used instead of the actual maps.

Preparation

There are some basic materials that you will need to carry out mapping:

- large pieces of paper, such as craft, flip chart or butcher paper
- a roll of tape to stick the paper on the wall and
- marker pens (coloured if possible, but not essential)

Before the mapping activity, try to create the basic map forms, so that you avoid delays during the mapping process.

The types of maps to be created will depend on the type of information to be collected. Three types of mapping exercises are explained below.

Body Mapping



Hazard Mapping



“Your World” Mapping



Images: courtesy of Hazards Publications, UK.

Body Mapping



Photo: courtesy of the Union of Shop, Distributive and Allied Workers, UK.

You can use body mapping to collect information about workers' health, such as:

- diseases
- illnesses
- injuries
- aches and pains
- stress symptoms
- reproductive problems
- other related problems

Body mapping:

- provides an easy and effective way to encourage workers to speak out and report symptoms of ill health that they suffer
- identifies common patterns of health problems amongst workers in a particular workplace or doing the same job. Keep in mind that identifying common health complaints does not mean with certainty that the causes are all work-related
- highlights areas for further investigation and action

How many participants should be in a body mapping group?

Body mapping can be done in small group discussions, or with large groups of workers. It is better if workers interact with each other, so groups of six to ten are best. It is also better to organise groups by department, by job, or by some other common characteristic.

Using body mapping you can collect information about:

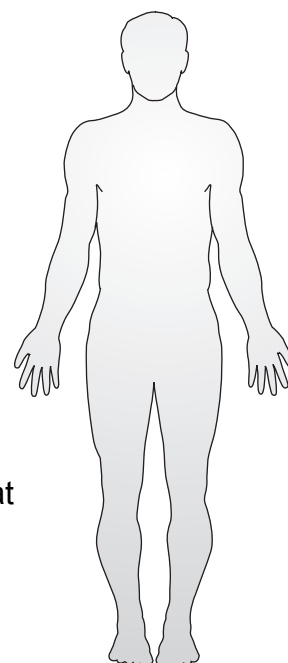
- workers' current personal health problems or
- the health problems workers have experienced since they began working at their current workplace, or in their current job

Preparing for a body mapping session

- Draw two large outlines of the human body on flip chart or craft paper
- Label the separate images "Front" and "Back" and title the overall map, "BODY MAP"
- Use some tape to stick the images to the wall
- Provide marker pens (different colours if you can, but not essential), so participants can mark any symptoms they have on to the body map

Conducting a body mapping session

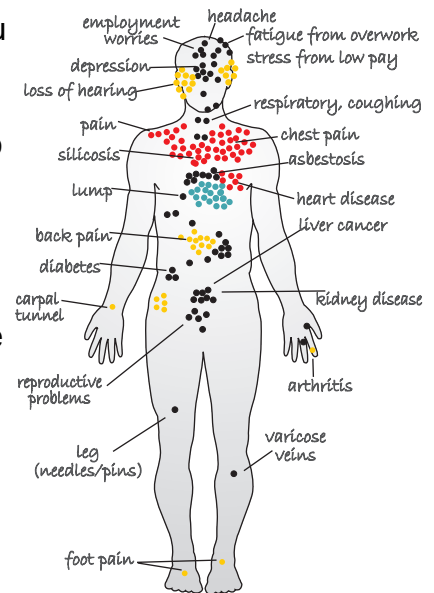
- Explain what you are proposing to do, and make it very clear to everyone that information from individuals is confidential
- Ask the workers to make a mark (X) on the body map to show any areas of the body which they believe are affected by their work. Different coloured marker pens will help to identify different symptoms, but this is not essential



Examples of different symptoms

- X ————— Aches and pains
- X ————— Allergies
- X ————— Reproductive problems in men or women
- X ————— Stress-related disorders

- If there is enough space on the body images you have drawn, you can ask all the workers in the group to do the body mapping at the same time
- Let the workers know that they can stay after the session ends, to add any information they may not wish to share with the group
- After the workers have finished marking the front and back of the bodies, ask them to describe, one at a time, what health problems their marks represent
- You can make a note of the nature of the health problems, beside the relevant marks
- Ask the workers for any observations they have regarding common patterns of health problems and record these comments as well
- Encourage a discussion about these observations



Action

Collectively agree on some initial conclusions and action points from the Body Mapping activity. Be sure to make detailed notes of workers' comments and conclusions, and use these with the workers for action planning (see Section 3 of this manual for more details).



Case Study: Body Mapping Changes Job Process

A union health and safety representative at a bakery introduced body mapping following a TUC course. The body mapping exercise revealed back injuries and strains. Previously, workers had not liked doing the job in question, but in the union representative's opinion, it was not until the workers body mapped together, that they realised that other workers were getting the same sort of aches and strains.

In the period after the course had finished, the union representative presented the findings to management. As a result, the way that the job is done has now been changed with the introduction of:

- new, smaller baskets that do not hold as much of the product and weigh less
- job rotation and task variety

The union representative says that the members are much happier now as a result of the changes.

Adapted from: Training Safety Reps in the Use of Body Mapping, TUC UK 2001



Case Study: Behind the Glamour - Canada

The gaming industry (gambling) is one of the fastest growing new industries in Canada. But, almost no research has been done regarding gaming workers' health and safety problems. In response to numerous health and safety complaints from their members, and the frequency of reported injuries and health problems, the unions representing the gaming workers in Canada launched their own research study.

Working together with supportive professionals, a consultative process was carried out to identify the main concerns of gaming workers in the communities. Action research involving workers as researchers was used to drive the study. Small group sessions were held with trained worker-facilitators and five or six workers each. Body Mapping, Hazard Mapping, and "Your World" mapping exercises were used to collect information. A Priorities and Action Chart completed each session.

71 group participants from eighteen different gaming occupations took part. They reported a variety of health concerns including repetitive strain injuries, back injuries, respiratory problems, hearing loss, dermatitis and stress-related health problems. They identified a variety of causal factors as high priority concerns, including poor indoor air quality and second-hand smoke, poor ergonomic design, stressful and noisy conditions, and biological hazards. They revealed the impact of their work on their personal, social and family lives.

The research team concluded that a number of immediate steps should be taken to improve working conditions including further research in priority areas. The unions presented a full report of the findings to their joint-management health and safety committees and a six-page summary was distributed to every gaming worker in the communities. The study was published in a scientific journal. According to the gaming workers, the study achieved its goals - it identified problems and led to improvements.

Adapted from: The Joint Windsor-Winnipeg Gaming Workers' Health and Safety Project Priorities Report, February, 1998



Hazard Mapping

You can use hazard mapping to collect information regarding work security problems. Workers can identify workplace hazards, such as:

- noise and vibration
- sexual harassment
- poor scaffolding
- chemicals
- needlesticks
- working alone
- unguarded machinery



Photo: courtesy of Hazards Publications, UK.

In addition, workers will have the chance to think about hazards which may be “hidden” and relate to their basic security. For example:

- the impact of precarious contracts on working conditions
- lack of income security and how this may impact upon working conditions
- the way work is organised and scheduled
- lack of voice representation

Like body mapping, hazard mapping gives a visual picture and may follow-on from a body mapping session. Through the use of drawings, hazard mapping helps workers and their representatives to visualise their workplace and the hazards that exist. It also provides information that they can present to:

- an employer
- a government inspector
- a joint labour-management health and safety committee
- a supervisor
- a workers’ compensation representative

Hazard maps can even be drawn retrospectively, meaning a group of workers can draw from memory the workplace or a particular department as it existed years before. This can be particularly useful to establish the link between the workplace and health problems that have developed over a period of time, such as cancer.

How many participants should be in a hazard mapping group?

Hazard mapping can be done in small group discussions, or with large groups of workers. But it is better if:

- workers interact with each other, so groups of six to ten are best
- you organise groups by department, by job, or by some other common characteristic
- you create an overall workplace hazard map by joining together maps that are drawn by department or a particular section of a workplace



Case Study: Mexican Steel Workers Research

The Mexican Mine and Metal Workers Union responded to a growing concern among rank and file workers over health problems in a steel plant. The union developed a working relationship with university researchers. The union and researchers agreed upon a three-step process. Sixteen workplaces were chosen. A general assembly of workers was organised to explain the goals and plan. Collective questionnaires were used. Small groups of workers discussed specific questions attempting to reach agreement in each group. Hazard maps were collectively produced. Over 300 workers and 2 researchers were involved. The union produced a booklet with the results of the study which was used to help formulate specific proposals to improve the work environment.

Adapted from: Loewenson, R, Laurell, C, Hogstedt, C. 1993. Participatory approaches in occupational health research. (Stockholm, Sweden: Arbets Milio)

Using hazard mapping you can collect information about:

- hazards in the workplace now
- hazards that were in the workplace years ago

Preparing for a hazard mapping session

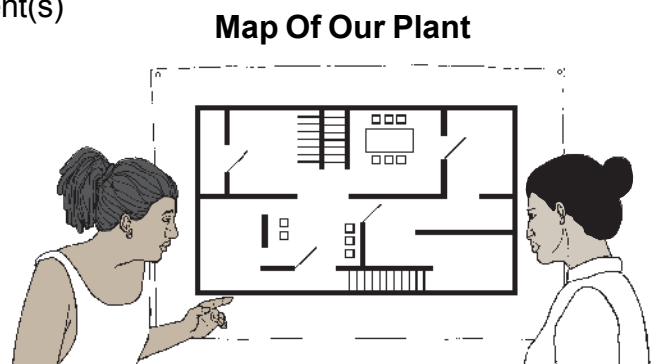
- Write “HAZARD MAP” on large blank sheets of paper
- Have sticky tape and marker pens available (different colours if you can, but not essential)
- You may want to have a blank sheet of paper available for each different occupational group or for each department

Conducting a hazard mapping session

- Explain what you are proposing to do
- Ask the group of workers who have a common work area or similar work environment to sketch out their hazard map together
- Some workers do not have clearly defined work areas. For example, they may have delivery routes, or work at several work sites. Explain that they can draw whatever they feel will best communicate the hazards that exist within their work environment(s)

Encourage workers to be creative and not to worry about their drawing abilities. The drawings can be very rough, and should include:

- a sketch or outline of the physical layout of the work area(s) and any equipment, machinery or other characteristics, such as doors, loading bays, and windows
- figures representing workers (these can be simple stick figures)



- any hazards which exist and labels or descriptions for each of the hazards, such as chemicals, dusts, extreme temperatures, unguarded machinery, repetitive work, violence from clients, and any other hazards
- a title for the map identifying the area(s) being represented, such as “Construction Site”

Examples of hazards

- Physical hazards – such as noise, radiation, vibration, temperature
- Chemical hazards - such as cleaning agents, solvents, diesel exhaust fumes
- Biological hazards - such as infectious diseases, bacteria, needlesticks, body fluids
- Work design hazards - such as ergonomic hazards, working alone, no procedures for dealing with potential violence
- Stress hazards - such as workload, harassment, discrimination, shiftwork, long working hours

Ask the workers to:

- describe their maps to the whole group
- add any further details to their maps that they think of as they are describing what they have drawn
- make observations about what they see in each of the maps
- make comments regarding patterns, or common hazards
- comment on the causes and effects of the hazards they described

Action

Collectively draw some initial conclusions and action points from the Hazard Mapping activity. Be sure to make detailed notes of workers’ comments and conclusions, and to use these with the workers for action planning (see *Section 3 of this manual for more details*).

“Your World” Mapping

Often we fail to recognise the impact that work has on our families, our ability to participate in social activities, and on our relationships. Work is central to our lives because it takes up so much of our time, our thoughts and our energy. Injuries, illnesses and stresses caused by poor working conditions and the lack of basic security can have a profound effect on our quality of life. The “Your World” map is a collective visual representation of that impact.

How many participants should be in a “Your World” mapping group?

“Your World” mapping can be done in small group discussions, or with large groups of workers.

Using “Your World” mapping you can collect information about the effects of working conditions on workers:

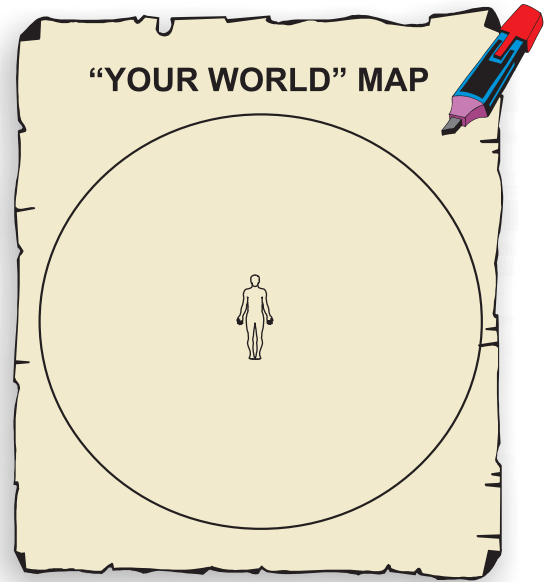
- family lives
- social lives
- communities
- neighbourhoods, and
- mental and emotional health

Preparing for a “Your World” mapping session

- Draw a small figure of a worker (a stick figure will do) in the centre of a large sheet of paper and label it, “YOUR WORLD” MAP
- Have sticky tape and marker pens available (different colours if you can, but not essential)

Conducting a “Your World” mapping session

- Explain to the group of workers that this exercise is designed to gather information that is often overlooked in traditional research
- You can say something like *“Usually we do not leave our aches, pains and stress at the workplace when we go home after a shift. Our fatigue, injuries and health problems often stay with us and can have an impact on our personal lives. In this next exercise we are going to map that impact.”*
- Encourage workers to be creative and not to worry about their drawing abilities
- Ask the group of workers to map the effects their work has on their personal lives, using drawings or words to represent the particular areas of their lives that are affected
- The drawings or words should be added to the area surrounding the central figure. For example, a participant might report child-care problems by drawing stick figures of children. Words can be added next to the drawing, such as *“Difficult to arrange child care because of shiftwork;”* or a worker might draw a bed to indicate that she/he never gets a good night’s sleep because of worry about her/his job
- Ask the workers to explain to the other workers what they have drawn
- After everyone in the group has finished their mapping and reporting, you can ask the group for observations about any patterns which start to appear
- Ask the group to try to draw some initial conclusions about causes and effects from the “Your World” mapping activity



Action

Collectively draw some initial conclusions and action points from the “Your World” mapping activity. Be sure to make detailed notes of workers’ comments and conclusions, and to use these with the workers for action planning (see Section 3 of this manual for more details).



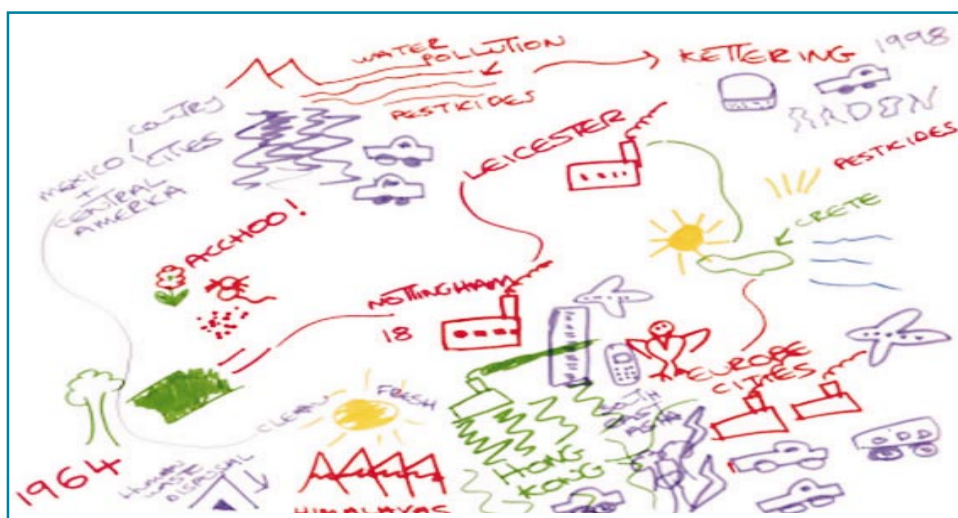
Case Study: Putting Breast Cancer on the Map - United Kingdom

The Women's Environment Network (WEN) in the United Kingdom (UK) used Barefoot Research to launch an investigation into breast cancer in the UK. WEN's project began after it was discovered that the eastern part of England had some of the highest breast cancer death rates in the country, especially for women in younger age groups. There was very little official reaction to these findings.

WEN organised their own investigation, with women themselves beginning to examine possible causes. WEN held community meetings, used questionnaires and mapping techniques to facilitate discussions. They asked what role environmental factors might be playing in the disease and why so little information was available about environmental risks. The total number of respondents at the close of the project was over 1000, ranging in ages from early 20s to late 80s.

The findings were published in a booklet that contained copies of the maps and summarised the main issues identified. WEN's "Putting Breast Cancer on the Map" project succeeded in shedding light on the causes of breast cancer, gave voice to the women at risk and put pressure on the public health system to take the issue more seriously.

Adapted from: Watterson AE. 1995. Breast Cancer and the Links with Environmental and Occupational Carcinogens: Public health dilemmas and policies. Centre for Occupational and Environmental Health, De Montfort University, Leicester and: Women's Environmental Network .1999 Putting Breast Cancer on the Map. 87 Worship, St. London EC2A 2BE, UK <http://www.wen.org.uk>





Case Study: Cambodian Farmers Research Pesticides

Farmers in Cambodia are addressing a wide range of issues: work security associated with pesticide use, poverty, domestic violence, and diseases such as malaria and HIV/AIDS. They have established a pilot project called Farmer Life Schools (FLS) to assist them in taking charge of their futures. It involves groups of farmers investigating various aspects of their lives in order to develop strategies to improve their living and working conditions. Farmers use locally adapted mapping techniques to identify and prioritise basic security problems needing action.

Adapted from: Toxic Trail. (BBC World documentary, April, 2001. The programme tracked the flow of pesticides from Thailand to Cambodia). <http://www.toxictrail.org/>

Photo source: Toxic Trail (BBC World Documentary, April, 2001)



Interviews

Barefoot Research uses various methods to gather information about workers' opinions, fears, ideas, and individual experiences. Interviews are a useful tool for collecting information that may be difficult to obtain by other means. Interviews can be used:

- as the sole method of information gathering or
- to supplement other Barefoot Research methods, such as questionnaires or mapping

As a worker-researcher you may have to interview workers:

- who are victims or witnesses of accidents or ill health
- who have complained about a work security problem
- as part of gathering information in a larger survey
- who need assistance filling in questionnaires

Interviews are a means for workers:

- to discuss their opinions
- to know that what they have to say is valued
- to have an opportunity to talk about their own concerns to someone whom they can trust and who will listen
- to contribute to action planning

As a worker-researcher you can interview workers in person on a "one-to-one" basis or in small group discussions. Interviews can take place by telephone if "face to face" is not possible.

To ensure objectivity, you can use prepared interview questions. The questions should be:

- agreed on with others involved in the Barefoot Research
- tested before starting the interviews of workers so you are sure the questions get the information you are seeking

It is important to keep written notes of the key points from the interview for future action planning. Try to record the answers as accurately as possible. Tape recording the interviews can be helpful if you have the equipment.

Interview tips

Good interview skills are important and training can help. Here are a few tips:

- find a quiet and private place to meet
- greet workers warmly to make them feel comfortable
- use a friendly tone of voice
- explain what you are doing and reassure the worker that anything that they say will be treated confidentially
- explain how long you expect the interview to take
- ask the worker if she/he accepts that you take notes
- be respectful and sensitive
- listen actively – commit yourself to receiving accurately the worker's ideas, facts and opinions
- listen without interrupting or offering your own opinions – even if you disagree strongly with something that is said
- use positive body language
- do not allow disapproval or impatience to show
- if necessary, keep a very talkative worker on track by saying "thank you for the very complete answer" then move on to the next question
- if the worker strays from a question, try asking the question in another way
- ask the worker to clarify any points that are not clear to you to avoid any misunderstandings
- check the main points with the worker at the end of the interview
- explain what you are going to do with the information after the interview
- thank the worker warmly at the end of the interview

You could use an interview to help workers fill in a lengthy questionnaire, like the sample below.

Survey about workers' health complaints

1. Name (optional) _____
2. Place of work/department _____
3. Job description _____
4. Years at this job _____
5. How is your health, in general? _____
- 6a. Do you have any problem with your skin (redness, infections, rashes, painful itching, other)?

6b. Did you have these problems before you began the job? Yes No

6c. Do these problems disappear on weekends or during vacations? Yes No

7a. Do you have any problems with coughing, running nose, coughing up mucous or blood, dry or sore throat, frequent colds, chest pain?

7b. Did you have these problems before you began the job? Yes No

7c. When do these complaints occur?

- | | | | |
|--|------------------------------------|--|-----------------------------------|
| <input type="checkbox"/> Morning | <input type="checkbox"/> Afternoon | <input type="checkbox"/> All day | <input type="checkbox"/> Everyday |
| <input type="checkbox"/> Only certain days of the week | <input type="checkbox"/> Other | <input type="checkbox"/> No noticeable pattern | |

7d. Do they disappear on weekends or during vacations? Yes No

8a. Do you have trouble with your eyes (itching, watering, swelling, pain, vision changes)?

8b. Did you have these problems before you began the job? Yes No

8c. When do these complaints occur?

- | | | | |
|--|------------------------------------|--|-----------------------------------|
| <input type="checkbox"/> Morning | <input type="checkbox"/> Afternoon | <input type="checkbox"/> All day | <input type="checkbox"/> Everyday |
| <input type="checkbox"/> Only certain days of the week | <input type="checkbox"/> Other | <input type="checkbox"/> No noticeable pattern | |

8d. Do the complaints disappear on weekends or during vacations? Yes No

9a. Do you have trouble with your hearing (ringing in the ears, ear infections, can't hear after leaving the workplace)?

9b. Did you have these problems before you began the job? Yes No

9c. When do these complaints occur?

- | | | | |
|--|------------------------------------|--|-----------------------------------|
| <input type="checkbox"/> Morning | <input type="checkbox"/> Afternoon | <input type="checkbox"/> All day | <input type="checkbox"/> Everyday |
| <input type="checkbox"/> Only certain days of the week | <input type="checkbox"/> Other | <input type="checkbox"/> No noticeable pattern | |

9d. Do they disappear on weekends or during vacations? Yes No

10a. Do you have allergies? Yes No

10b. Did you have them before you began the job? Yes No

11a. Do you often feel ill at work? Yes No

11b. Do you have headaches, dizziness, drowsiness, stomach aches, loss of appetite, nausea, vomiting, weakness, irritability, nervousness, rapid heartbeat, muscle cramps, back aches, pain or stiffness in arms, legs, joints, swelling of arms, legs, joints, other? (Please explain)

12. Describe any problem or complaints from other people in your work area that you may consider important.

13a. Does your employer give any regular health tests or examinations to any special group of workers in your area?

Yes No

13b. If yes, what tests?

13c. Do you see the results?

14a. Do you go for physical examinations regularly (*either to your own physician or the company's*)?

Yes No

14b. If so, what tests are done?

15. Do you have any children? _____

16. **Women:** Have you had trouble getting pregnant? Yes No

Men: Has your wife had trouble getting pregnant? Yes No

17. **Women:** Have you had any miscarriages? Yes No

Men: Has your wife had any miscarriages? Yes No

18. Do you know of any similar problems with any other workers in your area?

19. Do you know of any medical problems that you now have? Have these been confirmed by a doctor?

20. Have you ever been hospitalised? If yes, please record when and for what reason.

21. Is there anything else you think is important to say about health on your job?

Source: A Union Representatives Manual on Occupational Disease, AFL-CIO, Ohio, USA.



Case Study: HIV/AIDS Investigation in Zimbabwe

In 1997, the Zimbabwe Congress of Trade Unions (ZCTU) launched a research project about workers' knowledge, attitudes and practices on HIV/AIDS as part of its Health, Safety and Environment Programme. The project involved four of the ZTUC's affiliates, representing workers in the railways, hotels and catering services, leather and chemical manufacturing. The project included management and workers in seven companies.

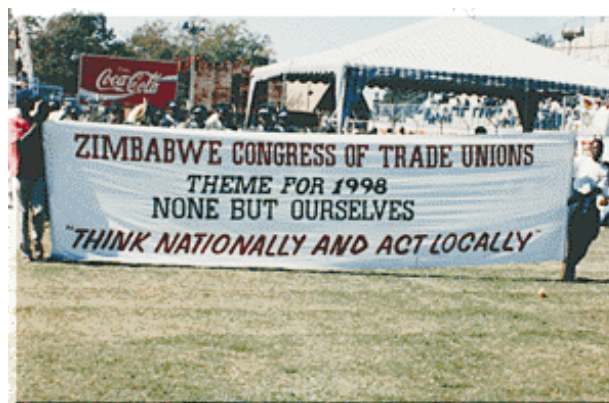
Step 1: Interviews: conducted with management and worker representatives regarding company activities on HIV/AIDS. Union health and safety officers carried out the interviews.

Step 2: Group discussions: facilitated by union health and safety representatives, held with workers to learn about their views and perceptions on HIV/AIDS and related issues. The group discussions also acted as an awareness-raising exercise aimed at encouraging future worker-based approaches in HIV/AIDS activities.

Step 3: Questionnaire: tested and revised before being distributed. Over 300 workers completed the questionnaire. Researchers from the University of Zimbabwe analysed the results of the survey.

Step 4: Action: after reviewing the findings, the union proposed that bipartite meetings be held with the companies to implement an HIV/AIDS awareness and prevention programme.

*Adapted from: Zimbabwe Congress of Trade Unions (ZCTU). <http://www.samara.co.zw/zctu>
Photo source: Website*





Observation

Why observation?

Observation can be used by worker-researchers to gather information about work processes and activities.

Barefoot Research recognises that workers are the most knowledgeable individuals regarding their working conditions and level of basic security. The information that workers provide will be the best reflection of their own experience. But, sometimes it is useful to have another “pair of eyes”, a so-called observer, to find information that the worker may have overlooked or may have been unable to provide.

For example, it may be useful to have an observer watch the way a particular work task or process is done to evaluate possible sources of injury. An observer can do this:

- by studying the work and recording what she or he observes, or
- as a “participant observer” who actually participates in the work being studied in order to observe it first hand

Example of the benefits of observation

A group of workers in a hospital laundry is investigating the high rates of back injury. A laundry worker, in describing her work, estimates that she bends one hundred times in one shift to lift bags of soiled laundry onto a sorting table and stacks of folded linens onto a cart. An observer, whose only function is to observe the worker throughout her shift, may be able to provide a more detailed assessment. The observer can:

- actually count how many times the worker bends and lifts
- observe other elements as well, such as the angles and distances of the lifts and any awkward postures
- look for any other movements or activities that might add to the worker’s back strain, such as reaching up to retrieve bags of laundry coming into the area on an overhead pulley system, or pushing stacks of laundry across a sorting table

As with most methods of information collection, there is the potential for bias in observation and recording. To help ensure objectivity, agree on guidelines for observation with others involved in the Barefoot Research.

The observer and the “observed”

Workers who are being observed must feel fully involved in the research process and have a deep sense of trust that they will not be put at risk by the observer’s reports. The very thought of having someone watching and recording your every move can seem intrusive and threatening. A worker-observer should ensure that:

- the workers are involved in setting up the observation
- the workers understand that the observation process is being done in the interests of their work security
- the workers have agreed that notes can be taken
- the information gathered is kept confidential unless agreed otherwise
- the workers agree on how the information is going to be used and who will have access to it

A time-limited and task-limited observation, such as watching how a worker performs a particular motion, is less threatening than being watched for an extended period of time. An element of interaction between the observer and the worker being observed will mean that the worker feels less like an object and more involved in the process.

For observation to be meaningful, you may need some additional information from those being observed. For example, imagine an observer who is gathering data for a Barefoot Research study of stress and workload. When recording how many times a worker is interrupted to answer a question or perform some other task, it is important to know the nature of the interruptions as well as the number. The type of demands on a worker can contribute directly to the workers' overall stress level. Who is interrupting? What is the tone of the interruptions? What is being requested? How demanding are the requests? Do workers have control over their workload and the speed of their work?

Analysis and action

Workers should agree that key points arising from the observations can be recorded in notes. These notes will help in tackling the problems that have been identified.

The results of the observations should be reported back to the workers who have participated. Methods of reporting back include:

- a verbal report at a meeting or by going around the workplace
- a newsletter
- a written report

Once the report back has been given, discussions should take place to decide what action needs to be taken as a result. Collectively draw some initial conclusions and action points from the observations and record these (*see Section 3 of this manual for more details*).



Case Study: Bank Workers Study - Canada

The union representing bank tellers in Quebec, Canada carried out a study together with researchers from the University of Montreal, to identify priority work security problems. The union was directly involved in selecting a representative team of bank tellers who would work with the researchers as well as determine the research priorities. The union identified their most important concerns as prolonged standing, bank robberies and pressure to sell bank services.

Once the research plan was in place, the union negotiated with the employers to give the researchers access to the workplace for their observation and interviews. The researchers observed workers on the job and conducted interviews with workers and supervisors regarding their problems and opinions. This information provided the basis for a questionnaire for 305 bank tellers.

The researchers prepared a detailed report based on the data. The report was shortened for wider distribution and the research findings were reported to a general assembly of the bank tellers. The report's recommendations were incorporated into the union's negotiating strategy, which was successful in improving the bank tellers' working conditions.

Adapted from: Messing, K. 1998. One-Eyed Science: Occupational Health and Women Workers. (Philadelphia: Temple University Press)



Using and Interpreting Information

Workers' own experience is the best guide to determining whether or not work-related health problems exist. But helpful information may also be available from other sources both inside and outside the workplace. Here are some ideas of where to find useful information:

- Information you can get from employers including:
 - information about hazards and methods of prevention and protection can be found in handbooks, on labels, or data sheets
 - risk assessments
 - management safety policy, rules, working procedures and training materials
 - information about management's future plans and proposed changes, and the likely impact upon work security
 - injury reports
 - injury statistics
 - sickness statistics
 - near-miss and incident reports
 - consultants' reports and survey and test results
 - labour inspectors' letters and reports
 - copies of official health and safety guidance and advisory literature
 - guidance from trade associations, and employers' associations
 - reference books, journals and other health and safety publications
 - financial information such as health and safety budgets
- Trade Union information such as:
 - union publications
 - information about health and safety problems and related to basic security
 - other trade union representatives in the same industry
 - union web sites
- Manufacturers and suppliers safety data sheets for materials, chemical products and machinery
- Engineering texts and technical specifications. These can show where work processes may fail and put workers at risk. They can also explain how to make processes and equipment safer
- Labour inspectors, consultants and occupational health specialists
- Legal standards and Government publications. In case you cannot get access to a government office or the text of a law in your country, first ask your employer for copies of relevant laws, and contact either your local union or the confederation your union is affiliated to, if you have a union. If you do not have a union, then start by visiting a local university library to search the laws of your country, and at the same time see if there is an ILO CIS national centre in your country. They can provide a great deal of specific information off existing databases. Contact ILO CIS by phone, mail, fax or email. Details on how to contact them are provided in the Resources section at the back of this manual.



- National or industry statistics. These may include lists of work-related injuries and diseases
- Labour and trade union occupational health projects which have been established in some countries to provide advice to workers on health problems that could be related to their work activity
- Libraries where staff may be willing to help you to conduct searches of the literature and may order articles for you
- Internet sites with information that can be useful in your understanding of health and other problems associated with workplace exposures. Most of this information can be downloaded off the web sites or ordered (*See the section on Resources at the back of this manual*). There are also internet sites, such as the Hazards website in the United Kingdom (www.hazards.org), the ILO's Programme on Socio-Economic Security (www.ilo.org/ses) and the ILO's SafeWork Programme (www.ilo.org/safework) that provide support and contacts throughout the world
- Health and safety journals such as Workers' Health International Newsletter covering health and safety news and research from across the world. e-mail:sub@hazards.org
- Other publications ranging from leaflets and magazines to books and encyclopaedias
- Scientific and medical literature, which contains health studies about known or suspected causes of work-related ill health and death

See the section on Resources at the back of this manual for further guidance on who to contact for information.

Right to Know

- Has your employer ever brought in outside consultants to do sampling of workplace exposures?
- Are there inspection reports filed?
- Have government inspectors ever written reports or orders?

In some countries, there is legislation that gives workers access to employer and government reports. These reports, even though they have certain limitations, may provide evidence of exposures or poor levels of work security.

Health studies

Scientists may have already studied the health of workers who were exposed to the substances that you work with. There may be health studies about occupations and industries similar to yours. Even if individual workers have not been directly involved in a health study, they can use existing research to help evaluate their own risks. For example, if a group of workers had been exposed to silica for twenty years and a number of them developed lung cancer or silicosis, it is probably not necessary for them to participate in a study about themselves, since there are hundreds of studies already done on silica-exposed workers.

You do **not** have to accept the findings of health studies at face value without looking critically at the study design and conclusions. The results of scientific health studies should be viewed as just another piece of evidence which contributes to an overall understanding of health problems in the workplace.

All health studies have their strengths and weaknesses. Here are some of the weaknesses that workers should know about:

- if a scientific study does not demonstrate the association between disease and work-related exposure, it is often assumed that no association exists. *This assumption is wrong.* The disease and the exposure may well be associated, even if it does not appear so from a scientific study
- many occupations have never been studied
- researchers can make critical mistakes in interpreting their study results if they are unfamiliar with the work environment
- women workers are often absent from scientific investigations
- race and ethnicity can be sources of bias. In one study of foundry workers, for example, the authors concluded that elevated heart disease amongst Black workers was caused by genetic factors. However, it is likely the real cause of heart disease among those foundry workers was not genetic, but caused by the high levels of exposure to dusts and carbon monoxide
- workers often are not involved, or consulted about what needs to be examined. Workers' knowledge of the workplace is generally ignored in scientific health studies

Information about chemicals - *It is your right to know!*

One of the biggest problems for workers and trade union representatives is getting adequate information about chemicals used at work. Here are some sources of information that may help:

- your employer
- the chemical manufacturer or supplier
- hazard data sheets
- labels on containers
- training programmes
- your union
- the local factory or labour inspectorate
- local colleges or universities
- the local fire department
- your local library
- the Ministry of Labour or the Ministry of Health
- International Trade Secretariats (ITs)
- the International Labour Organisation (ILO)



Often a single source will not tell you everything you need to know, therefore it is best to try to get information from as many of these sources as you can. Health and safety information on chemical substances is public, so you have the right to ask for the facts! Let us look at some of these sources of information in more detail.

Management

Many countries now have some kind of hazard information or *right-to-know* legislation. These laws make it the employer's legal responsibility to provide workers with as much information and training as possible on all chemical substances used. Some unions have negotiated agreements which require that the union be given full information on all chemicals used in the workplace. Unfortunately, many employers do not have this information and may not know where to get it. If this describes your situation, you should insist that the employer obtains information from the chemical manufacturer or the supplier and makes it available to the workers.

Manufacturer/supplier

If your employer cannot obtain the necessary information for you, then you may want to write directly to the chemical manufacturer and request the information yourself. You can modify the sample letter below for your own situation to request information directly from the chemical manufacturer or supplier.

Sample letter requesting hazard data sheet and other technical information from chemical manufacturer

Date
The Technical Directors
Name and address of chemical manufacturer

Dear Sir or Madam:

I am writing to request information about the possible health hazards associated with one of your products:

Trade name: _____

Chemical name: (if known) _____

I use this substance during the routine course of my work at (name and address of the company you work for). Could you please supply me with the following information:

1. What are the ingredients of (name of the chemical), the chemical formula of each ingredient, and the rough proportion in which they are mixed? Are there any known hazardous contaminants or by-products?
2. What harmful effects is (name of chemical) known to cause or suspected to cause in humans? Please include any reports on the effects of short-term and long-term exposure.
3. What was the level of concentration and length of exposure where any negative health effects were observed?
4. What precautions are recommended when working with or near (name of chemical)?
5. What precautions are recommended for storage, handling and transport?
6. What first-aid measures are recommended for any workers exposed to (name of chemical)?

Thank you in advance for your assistance and co-operation in this matter and I look forward to receiving this information from you in the near future.

Yours sincerely,
Your name
Title (if any)
Your address

Many manufacturers are willing to co-operate, but if you do not get a response from them after a reasonable period of time and have sent reminders, then it may be necessary to recommend that your employer stops using the chemical. This should be made clear in one of the reminders to the manufacturer. At that point, it may be necessary to look for a safe alternative to the original chemical.

Hazard data sheets

Hazard data sheets (HDS) (sometimes called material safety data sheets (MSDS) or chemical safety data sheets (CSDS)) are detailed information sheets on chemicals. You can request a copy of the HDS for any chemical you are exposed to on your job. You can request HDSs from:

- your employer
- chemical manufacturers
- programmes such as the International Programme on Chemical Safety (IPCS, which is a joint programme of the World Health Organisation (WHO), the International Labour Organisation (ILO), and the United Nations Environment Programme (UNEP)). You can write to the IPCs for hazard data sheets on specific chemicals (and in various languages) at: International Programme on Chemical Safety, CH-1211, Geneva 27, Switzerland

HDSs are important sources of information on chemicals which you can get hold of easily, but their quality can vary. If you use or plan to use HDSs, be aware of their limitations. For example:

- they are often difficult to read and understand
- they often do not contain enough information about the hazards and the necessary precautions you need to take when working with certain chemicals

To overcome these limitations, whenever possible use other sources of information together with HDSs. It is a good idea to keep a hazard data sheet on each chemical used in the workplace.

The categories of information in the following box below must appear on all hazard data sheets. However, the order of the information may vary among hazard data sheets.

Standard Sections on a Hazard Data Sheet

Section I: Identification of product and manufacturer

The name of the product is listed here by chemical name or by trade name. The name listed should be the same as the name that appears on the label. Hazard data sheets must also list synonyms for the product or substance. Synonyms are other names by which the substance is known. For example, methyl alcohol is also known as methanol or wood alcohol.

Manufacturer identification: Includes manufacturer's (or supplier's) name, address, telephone number, the date the HDS was prepared and an emergency telephone number to call after business hours. It is a good idea to call the manufacturer for information before an emergency occurs.

Section II: Hazardous ingredients

For products which are mixtures, only those ingredients that appear on specified lists of hazardous chemicals and which make up one per cent (1%) or more of the product need to be listed. Cancer causing substances are an exception and must be listed if they make up one-tenth of one per cent (0.1%) of the mixture. The hazardous ingredients must be listed by their chemical names.

For each listed ingredient, the concentration limit to which you may be exposed must be indicated. Both the enforceable permissible exposure limit (PEL) and the recommended threshold limit value (TLV) must be listed on the HDS.

- The PEL is the maximum amount of a substance allowed in workplace air. The PEL is legally enforceable.
- The TLV is a recommended limit and is not legally enforceable. TLVs are supposed to represent the concentration of a substance to which most workers can be exposed on a daily basis without harmful health effects.

Section III: Physical data

This section lists boiling point, vapour pressure, vapour density, melting point, appearance, odour, etc. The information in Section III helps you to understand how a chemical behaves and the kind of hazard it presents.

Section IV: Fire and explosion data

Section IV lists the flashpoint and flammable or explosive limits, and tells you how to extinguish a fire. The information in this section is needed to prevent, plan for and respond to chemical fires and explosions.

Section V: Reactivity data

Section V tells you whether or not the substance is stable and, if it is not, what hazards the instability presents. Section V lists incompatibles (substances which must not be placed or used together). This information is important for proper storage and handling of the product.

Section VI: Health hazard data

Routes of entry (inhalation, skin absorption or ingestion), acute and chronic health effects, signs and symptoms of exposure, whether the product causes cancer, medical problems made worse by exposure, and recommended first-aid/emergency procedures are all supposed to be listed under Section VI. *In reality, Section VI is often incomplete and inadequate.*

Section VII: Precautions for handling

Information needed to devise emergency response plans, clean-up procedures, safe disposal methods and necessary storage and handling precautions must be detailed in Section VII. Frequently, however, manufacturers sum up this information with simple (and inadequate) statement such as “Avoid breathing vapour” or “Avoid skin contact”.

Section VIII: Control measures

Recommended methods of hazard control including ventilation, work practices and personal protective equipment (PPE) are detailed in Section VIII. The type of respirator and the most resistant protective clothing and glove material for the product should be named. However, this information is often incomplete. Rather than recommend the most resistant protective material, the HDS may simply state that “impermeable” gloves and clothing should be used. Section VIII tends to stress personal protective equipment rather than engineering controls.

Labels

Labels on chemical containers or drums are another important source of information. Labels should always be **attached** to the container, and the chemical listed on the label should be what is found in the container.



All chemical containers should have adequate labels on them.

Like hazard data sheets, labels have limitations. For example, the label may:

- not give the actual ingredients of the substance
- not give the possible health effects from exposure
- not tell you how to use the chemical safely
- not give the telephone number of the manufacturer
- be written in a language you may not know, depending on the country where the chemical is produced



A label in German would not be suitable for English-speaking workers and vice versa.

To overcome these limitations, it is best to use labels together with other sources of information.

It is important to know that most industrial chemicals have two names:

- a trade name by which the chemical is commonly known, for example “Wunderglu” or “Supabat”, which does not tell you anything about the chemical — it is simply the brand name used to advertise the chemical
- the chemical name which tells you the exact ingredients (*the ingredients are often in small writing on the label*)

The chemical name does not change unless the ingredients are changed, but the trade name can change anytime. For example, if an advertising campaign for a new chemical pesticide is not going well, or if reports from another country suggest that the chemical causes harmful health effects in workers, then the manufacturer can change the trade name, but not the chemical name. Try to get both names, but the chemical name is more important.

In many workplaces, the chemicals used are often mixtures of different chemicals, or they may be contaminated with small traces of chemicals that may be toxic. Both cases make it more difficult to obtain precise information, since HDSs only give information for pure chemicals, not mixtures, and contaminants are rarely indicated on a label. Chemical mixtures can be particularly dangerous if the substances react together or if they produce synergistic effects. (*“Synergistic” means the combined effect of two or more substances whose total effect may be greater than the sum of the two together and different from the individual effects of either substance alone.*)

Where to get information on chemicals at work

Employer	Chemical Manufacturer or Supplier
International Labour Organisation	Hazards Data Sheets
International Trade Secretariats	Labels
Ministry of Labour	Training Programmes
Local Library	Union
Local Fire Department	Local Factory/ Labour Inspectorate
Local Colleges/ Universities	Reference Books

These are all good reasons to do Barefoot Research so you can find out if workers are experiencing ill health caused by chemicals used at work. As you can see, “official” sources of information are often not enough to protect us. You have to collect your own information as well and put together the pieces of the puzzle until you can see the whole picture.

Using information - analysis and action

Once you identify the hazards in your workplace, the next step is to reduce or eliminate them altogether. There are a number of ways to work towards this goal using the information you collect:

- discuss the information with your co-workers or the health and safety committee. Do you see any patterns? Are there any gaps in your information? Can you think of ways to fill those gaps?
- use the information to educate your co-workers about the hazards
- draw some initial conclusions and points for action with your co-workers, based upon the information you have found (*see Section 3 of this manual for more details*)
- use the information as the basis for collective bargaining demands