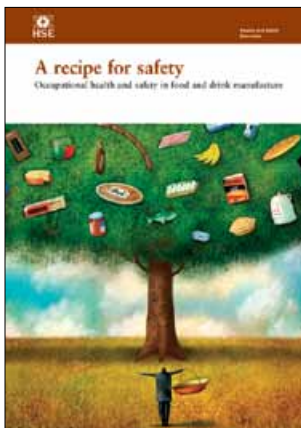


A recipe for safety

Occupational health and safety in food and drink
manufacture



This is a free-to-download, web-friendly version of HSG252 (First edition, published 2005). This version has been adapted for online use from HSE's current printed version.

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This book aims to increase awareness of the accident and ill health picture in the food and drink industries and to stimulate awareness of priority areas for attention. It targets management and safety representatives in firms of all sizes.

Although food and drink is processed in a strictly controlled environment to be safe and wholesome to eat, it would be wrong to perceive these industries as 'low risk' in terms of the safety and health of employees. Food processing operations, by their very nature, can be hazardous.

Positive action is needed to continue to improve the overall health and safety performance in the food and drink industries. Effective management of occupational safety and health is essential to sound business management. This book advises on managing safety risks and occupational health priorities, and also offers sources of further advice and information.

Many companies have excellent health and safety records - suggestions in this guidance reflect their good practice. In other companies, this positive safety culture needs to be developed. This guidance will help you do that in your company.

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This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.

Member organisations of the
Food Manufacture Health and Safety Forum

Food and Drink Federation
British Poultry Council
Meat Joint Working Party
Dairy UK
Health and Safety in Bakeries Liaison Committee
Agricultural Industries Confederation
British Beer and Pub Association
British Soft Drinks Association
Scotch Whisky Association
Union of Shop, Distributive and Allied Workers (USDAW)
Britain's General Union (GMB)
Bakers, Food and Allied Workers Union (BFAWU)
Transport and General Workers (T&G)
Health and Safety Executive

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Foreword

This new *Recipe for safety** maintains the same key messages as before, says Roger Nourish, Head of HSE's Agriculture and Food Sector.

These key messages are as follows:

- Positive action is needed to continue to improve overall health and safety performance in the food and drink industries.
- Concentrate effort on preventing the main causes of injury and occupational ill health: just 12 categories account for over 90% of all reports.
- Review the effectiveness of management arrangements for these main categories of risk: an action plan is suggested.

Raising awareness of these messages and promoting uptake of the advice in previous *Recipe for safety* publications has worked:

- Since 1990, the number of injuries reported in the food sector has dropped by 38%. Also, the number of injuries reported per 100 000 employees has dropped by 26% - twice the rate of manufacturing industry generally.
- Many individual sectors have dramatically reduced their overall reported injury incidence rates during this period. For example, over the past decade injury rates in dairies are down 22%, bakeries down 48%, and meat and poultry processing down 67%.
- Fatal injuries in the food and drink industries have reduced from an average of 9.25 per year prior to 1990 to an average of four per year between 2000 and 2004. Some causes of fatal injuries have been eliminated (eg from silo entry and being struck by lorry tailgates which fly open during tipping).
- Awareness of occupational health issues within the food sector has been raised and most employers are now aware of the need to tackle the causes of musculoskeletal injuries, occupational asthma, occupational dermatitis, noise-induced hearing loss and work-related stress.

This *Recipe for safety* therefore maintains the three key messages while updating the statistical information and acting as a signpost to further, more specific, advisory publications.

Finally, the benefits of safety representatives, employee representatives and management working together to implement *Recipe for safety* at local level are also important. Some industry sectors have achieved significant reductions in injuries of 50% when management and safety representatives worked together (see case studies on page 2).


I am pleased that this has been made easier in past years by the various initiatives undertaken by the Food and Drink Federation, other industry trade associations and the main trade unions involved (GMB, T&G, USDAW and BFAWU) to promote the *Recipe for safety* approach. These organisations have all joined with HSE to improve health and safety in the industry.

*This *Recipe for safety* replaces *A recipe for safety: Health and safety in the food and drink industries* TOP05(rev1) ISBN 0 7176 2432 3.

In 2004 these organisations were joined by others to form the larger Food Manufacture Health and Safety Forum. This Forum now comprises nine key trade associations and working groups, four trade unions and HSE's Agriculture and Food Sector, supported by expert groups such as the Food Industry Medical Association (FIMA).

The Forum has developed an agreed Common Strategy for improving health and safety in the food and drink industries. Its Terms of Reference seek to further reduce injuries and occupational ill health and to act as a catalyst for positive change, encouraging member companies to adopt and promote best practice. By such actions the food and drink industries will, I am sure, achieve considerable further success in improving their health and safety.

So please read on – safety pays and good health is good management.



Roger Nourish

Priority health and safety topics

The following are the priority health and safety topics for the food and drink manufacturing industries:

- Transport
- Falls from height
- Entry into silos
- Machinery
- Slips
- Manual handling
- Struck by objects
- Musculoskeletal injuries
- Occupational dermatitis
- Occupational asthma
- Noise-induced hearing loss
- Work-related stress

How to use this recipe

Although food and drink is processed in a strictly controlled environment to be safe and wholesome to eat, it would be wrong to perceive these industries as low risk in terms of the safety and health of employees. Food processing operations, by their very nature, can be hazardous. However, many companies have excellent health and safety records. Suggestions in this guidance reflect their good practice. In other companies, this positive health and safety culture needs to be developed. This guidance will help you develop a positive culture in your company if you do the following three steps:

1 Use the information about injury and ill health in this guidance

It will make you more aware of the need for positive action to improve the industry's overall injury and occupational ill-health figures. This guidance will give

you a wider perspective on the real risks in your sector of the food industry than your more limited in-company experience can give. You can then set more realistic, quantified objectives for improvement.

2 Concentrate on preventing the main causes of injuries and ill health

The main causes listed in this publication are derived from national injury and ill-health statistics and indicate the overall priorities for the food and drink industries.

Some companies may now have some of these risks (such as slips) under better control and so can determine their own risk profile. However, although the risk of a particular type of injury may have decreased in a particular workplace, the potential hazard still remains.

The main causes of fatal injuries:

- transport;
- falls from height;
- machinery (previously entry into silos).

The main causes of major injuries:*

- slips;
- falls from height;
- machinery.

The main causes of over-3-day absence injuries:

- handling and lifting;
- slips;
- being struck by objects.

The main occupational health priorities are to prevent:

- musculoskeletal injuries;
- occupational dermatitis;
- occupational asthma;
- noise-induced hearing loss;
- work-related stress.

** Major injuries include hospitalisation, serious fracture, amputation etc as defined by the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR).*

This guidance identifies the main priorities for each industry sector and outlines the key factors for effective arrangements to prevent or protect against the risks caused by these priorities.

3 Review the effectiveness of your health and safety arrangements

Effective management of occupational health and safety is essential to sound business management. An action plan to review your current health and safety arrangements and establish effective arrangements to prevent or protect against each of the main risks is suggested. This guidance details where further guidance

on each priority is available: check to see if you need it. Assist the implementation of these arrangements by encouraging everyone to co-operate.

Knowledge of the potential benefits to the business from avoiding the full costs of accidents, ill health and accidental damage should help convince fellow managers. Also discuss these arrangements with safety representatives or employee representatives: case studies have shown the benefits from working together on particular issues.

Remember:

- Inspectors will discuss progress in controlling these priority hazards with managers, safety representatives and employee representatives when they visit. The successful commercial record of the food and drink industry indicates that it has effective management skills. Inspectors will look at how these are applied to health and safety to reduce injuries.
- Concentrating on the priorities and establishing preventive or protective measures as identified in this guidance has been shown to work. You will need to check that you have done something at least as effective.
- Good companies already show what can be achieved, but there are too many poor-performing sites - for instance, injury rates at premises employing more than 1000 workers vary from 100 to 15 000 injuries per 100 000 employees.
- Good health and safety management leads to better health and safety performance and can reduce losses, retain customers and increase profitability.

This guidance is an updated recipe for making your business safe and sound.

Case studies

Benefits of management and safety representatives working together

Management and safety representatives at a large food production site set up three health and safety sub-committees to look at the high rate of injuries caused by slips and trips, striking against objects and burns. Their actions resulted in injury reductions of 22%, 41% and 43% respectively for the three causes of injury during the first year. A new sub-committee has now been set up to look at injuries caused by cuts.

Management and safety representatives working together at another large food production site achieved reductions of 50% in slip injuries and 33% in manual-handling injuries.

Much of the work on a food production site involved employees manually lifting 25 kg bags of sugar, biscuits and crumbs. The safety representative recognised the risks and initiated joint discussions with management on the introduction of mechanical hoists and lifting aids and using competent trainers to ensure that correct lifting techniques were used.

Why positive action is needed

Managers need to continue to assess and control risks, as required by health and safety legislation, in a cost-effective manner.

The poor health and safety records of some companies are jeopardising the performance of the whole industry so that overall:

- the food and drink industries report the highest number of injuries of any manufacturing sector - each year over 2% of the workforce receives an injury reported to HSE;
- the injury rate in the food and drink industries is among the highest in manufacturing;
- every employee in the food industry has a one-in-six chance of sustaining a major injury (eg hospitalisation, serious fracture or amputation) in the course of a 40-year career, and may expect to sustain one over-3-day absence injury;
- almost 5% of the workforce suffers from ill health caused or made worse by work (Self-reported Work-related Illness Survey 2001/02), making reports of occupational ill health more than double that of reportable injuries.

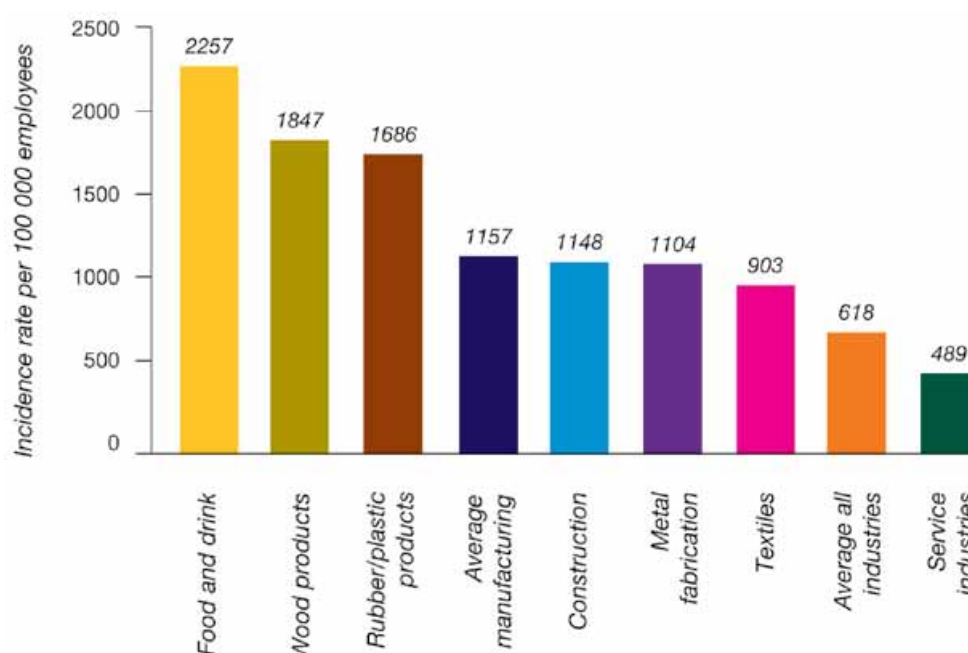
But ...

At least 80% of these accidents and considerable work-related ill health could be prevented: HSE surveys in other industries have shown that positive steps by management could have prevented injury in about 70% of cases, and action by workers a further 10%. See later sections for details of effective precautions.

So ...

Look at your company's health and safety performance. Do you need to improve? If you have more than three reportable injuries per year in a workforce of 100 then your injury rate is in excess of the food industry average and twice the average (2003/04 figures) for all manufacturing industries. Also compare your incidence of work-related ill health with the benchmarks set out in the chapter Occupational health: The priorities.

Figure 1 Reported injury incidence rates in the food and drink manufacturing industries compared with other industries (2002/03)



Notes on statistics used in this guidance:

- 1 The food and drink industries as described in this guidance include animal feed manufacture but exclude distribution, retail and catering.
- 2 Figures and analyses are based on notifications of injuries sent by employers to both HSE and local authorities as required by RIDDOR.
- 3 Figures and analyses are based on statistics for the latest years available. These figures and breakdown are typical of previous years with only minor variations.

The Food and Drink Federation

The Food and Drink Federation (FDF) is the voice of the UK food and drink manufacturing industries. It promotes the industry's views and works to build consumer confidence in the food chain as a whole. The Federation is committed to improving occupational health and safety performance throughout the industry.

FDF's membership comes from a wide range of companies and trade associations, from large international food and drink manufacturers with long-established brand names through to small companies manufacturing new organic products.

The particular interests of the food and drink industries are represented by a series of specialist panels whose membership is drawn from member companies and trade associations. These include the Occupational Health and Safety Panel, which meets at least three times a year. Panel members are all senior health and safety practitioners from member companies.

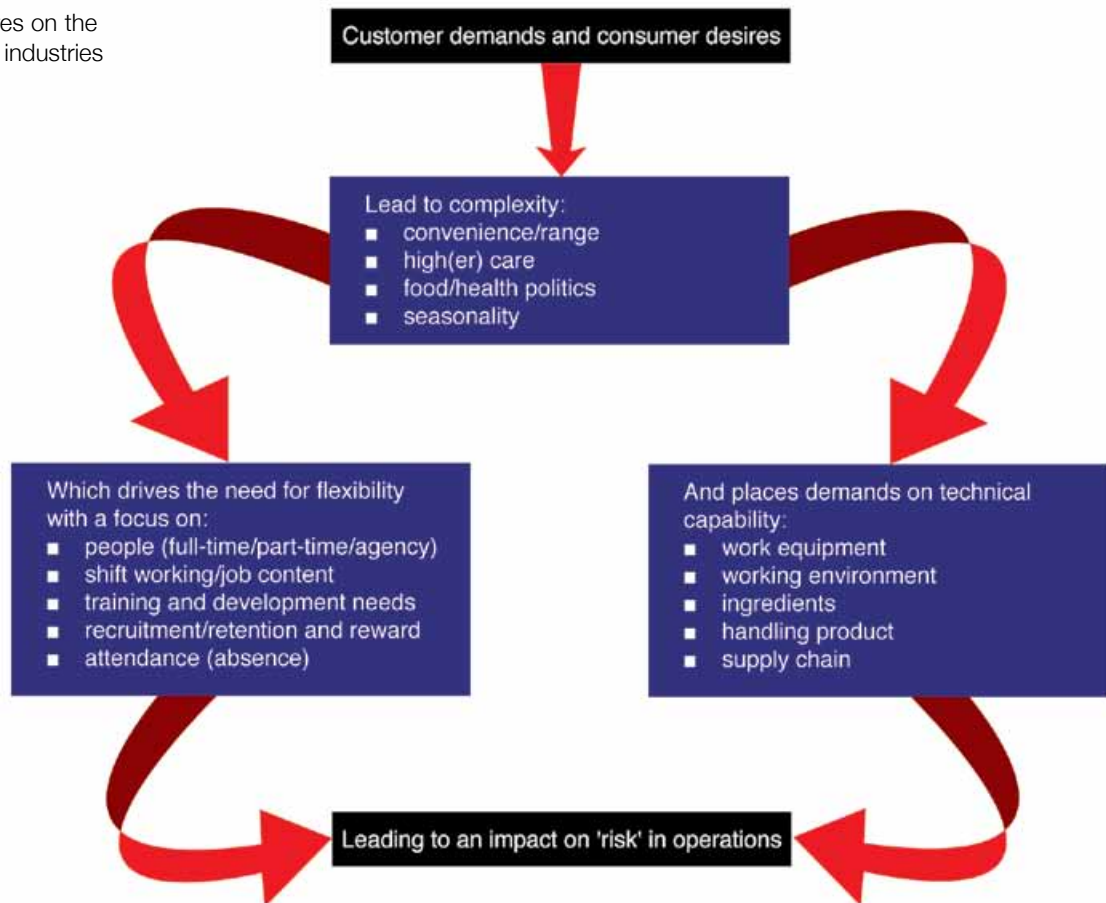
The well-being of food and drink industry workers is critical to business health

As at January 2005, 2.5 million people in the UK workforce are in receipt of incapacity benefits because they cannot work as a result of illness or injury. This represents over 7% of the workforce, and costs the country over £7 billion per year.

As with the rest of UK manufacturing, the food and drink industries face difficulties with the recruitment and retention of a flexible, capable and committed workforce that it can afford. Workers are generally both the most valuable and expensive

business assets. In addition, the industry has to cope with seasonal fluctuations in supply and demand and needs to be able to match the availability of human resource accordingly. Meanwhile consumers, aided and abetted by the industry's customers (retailers, wholesalers and food service suppliers), are demanding that manufacturers provide higher quality and added value for less return.

Figure 2 Pressures on the UK food and drink industries



Commercial realities and profitability are closely linked to the people working in the industry. The industry has a direct interest in looking after the people it already employs and an indirect interest in the well-being of the pool of human resource it draws on to meet the needs of flexibility and seasonality.

It is widely recognised that effective management of occupational safety and health is good for business. Enlightened companies have embedded this economic argument in the development of their health and safety policies and culture.

Policy extract from a major food company:

While our highest priority under this policy is securing the well-being of people, it is recognised that meeting this objective is beneficial to the business. Added value and a contribution to profitability are expected to accrue from effective management of occupational safety and health.

The added value comes from both ends of the balance sheet - reduced costs as well as higher efficiencies, productivity and profit. It is not just about the cost of claims and replacement labour, it is about the whole economic well-being of the business.

Health is as important as safety. How people are cared for, whether at work or in the event of absence from whatever cause, is important to the business.

Supporting a timely return to work after absence is beneficial to both a company and its workers. But ill health in the workplace (and injuries which are not positively managed) can become chronic ill health and create the incapacitated of the future. Economic inactivity due to injury or ill health is not good for workers or their employers and in itself can become a further burden on health, leading to long-term issues for both parties.

Dealing positively with ill health caused or made worse by work is the critical factor in protecting the company and its workforce. A proactive occupational health team will deal with discomfort in the workplace before it becomes pain, sickness and absence. This will reduce the potential for incapacity arising from chronic ill health and arguably reduce the risk of injury from accidents at the same time.

Would your company like a stable, well-motivated, flexible and efficient workforce? Would people like to work in a safe and healthy environment where levels of care and rewards reflect the benefits of working for a profitable company?

FDF endorses Recipe for Safety. All the ingredients are there to help the industry move further towards this ideal world.

It pays to manage health and safety

Paying the price: The cost of accidents

The human cost

Apart from the obvious pain, suffering and disability inflicted, without effective health and safety management, businesses will lose not only money but also key employees. Failure to control hazards undermines the efforts firms are making to motivate and keep employees through training initiatives. Both over-3-day absence injuries as well as major injuries can be serious if they mean employees can no longer do the type of work they are trained for.

Lost profit

HSE information suggests the cost of accidents could represent:

- as much as 37% of profit;
- 5% of operating costs;
- 36 times the insured costs.

The true cost of accidents and ill health can far outweigh the costs of prevention.

Legal penalties

Poor control of health and safety will mean pressure from enforcing authorities. HSE enforcement has increased in the food and drink industries and may result in:

- Prohibition Notices which stop production;
- Improvement Notices requiring remedial action within a specified timescale;
- prosecution: maximum penalties in the lower courts for breaches of health and safety regulations have increased to £5000 and to £20 000 for breaches of

main requirements of the Health and Safety at Work etc Act 1974. Unlimited fines and imprisonments are open to the higher courts.

Loss of plant

Poor health and safety control can lead to the loss of key plant, buildings or stock.

- HSE was notified of over 160 dangerous occurrences (fires, explosions, failures of lifting equipment etc) from food and drink industries in 2003/04 under RIDDOR. This represented 17% of the total for manufacturing.

Insurance costs

Poor health and safety will also lead to civil law claims. Your employer's liability insurance premium may increase or cover may even be refused because of a poor claims record.

Other commercial costs

The methods for controlling health and safety risks are the same as for controlling quality and protecting the environment. If you fail to manage health and safety you also risk quality and environmental consequences. Some sectors report that they risk losing major customers if they find standards unsatisfactory.

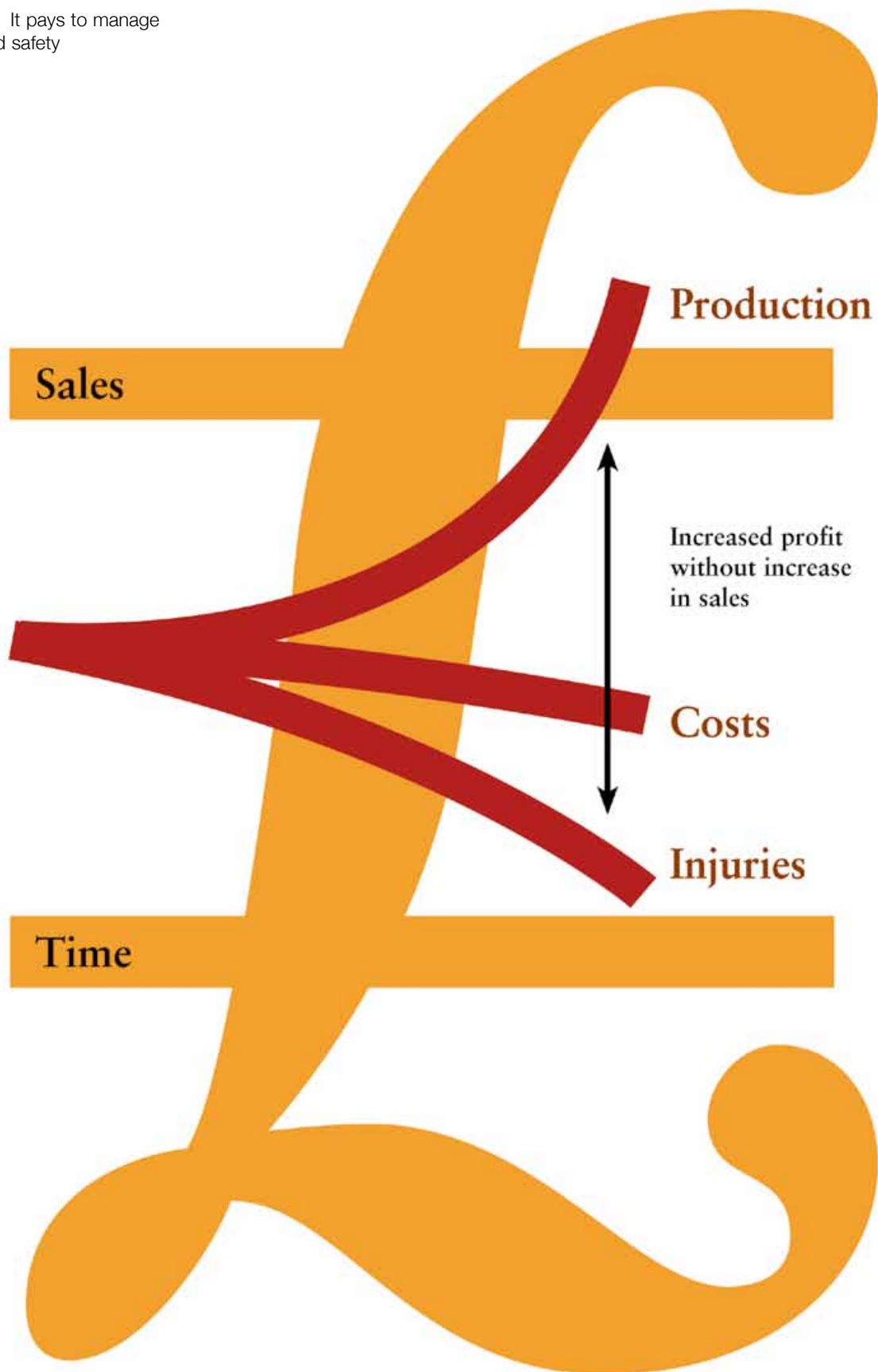
Management control of health and safety is cost-effective: Safety pays

A major multi-site food processing and distribution company trialled an HSE-devised method of assessing the full cost of accidents. They collected information on both the hidden and insured costs of all loss-inducing incidents.¹⁻² It showed their senior management that the true recoverable cost of accidents is an area that needs and justifies control. The same circumstances which caused injury also created production losses, quality and cost problems.

In most food companies, profits depend on the control of costs - including health and safety - just as much as increased sales or higher prices. Effective management of potential health and safety losses can therefore increase profitability.

The key to controlling priority health and safety hazards is application of management skills, not advanced technology or expensive measures.

Figure 3 It pays to manage health and safety



Action plan for management

What you can do to review and improve your safety organisation

You can:



Cost the full impact of accidents and occupational ill health to your business - measuring the full costs of losses (see previous section) can help convince everyone of the potential for cost savings to be made from good management of health and safety.¹⁻²



Calculate your company's injury rate and compare it against the yardsticks given in Table 1. Then set quantified objectives, eg a specific reduction in a particular cause of injury. Also compare your company's work-related ill-health absence against the six benchmarks in chapter *Occupational health: The priorities*.



Concentrate your health and safety efforts on the main causes of injury and ill health according to your assessment of what the main risks are in your company. In general, they are likely to be those highlighted in this guidance, but you may have some site-specific risks such as ammonia refrigeration or dust explosions. Start with the causes of injuries and illnesses that most damage quality of life. Give attention first to implementing the health and safety requirements which address these priorities and their underlying managerial causes. Be sure to consult with those monitoring your workers' occupational health to identify where people are being harmed or affected by occupational factors.



Recognise the sort of management approach to risks explicit in the Management of Health and Safety at Work Regulations 1999:³

- identify potential hazards;
- assess which risks are significant and what their contributory factors are;⁴
- set up arrangements for planning, organising, controlling and monitoring and reviewing the preventive and precautionary measures needed;
- eliminate the risks;
- reduce risks that cannot be eliminated;
- devise safe systems of work;
- inform, train and involve the workforce;
- monitor and test all safeguards;
- review effectiveness.

The same strategy is used to control quality (eg in ISO 9000) and environmental issues. Promote an integrated approach to the management of all potential loss areas. Include health, safety and absence management as an integral part of this.



Consult and involve safety representatives or employee representatives in planning, writing procedures, solving problems, reviewing and discussing health and safety arrangements.⁵⁻⁶



Review your written statement of policy, organisation and arrangements.⁷⁻⁸ Make sure people carry it out in practice and keep to it. Ensure it includes arrangements for tackling relevant priorities highlighted in this guidance. See later sections for the key factors of relevant management arrangements.

Table 1 will allow you to compare the injury incidence rate in your business with the national average to assist setting quantitative objectives for improvement.

Table 1 Injury incidence rates 2002/03 (per 100 000 employees) reported to HSE and local authorities for a selection of the main food and drinks sectors

	Major injuries*	Over-3-day injuries	All injuries*
Slaughtering - poultry	588	4078	4667
Fruit and vegetable juice	350	3650	4000
Slaughtering - meat	530	2951	3481
Dairy and cheese products	454	3026	3480
Fruit and vegetable processing	416	2847	3263
Brewing	399	2382	2781
Oils and fats (refined)	333	2417	2750
Malt manufacture	208	1958	2167
Fish processing	290	1833	2124
Bread and cakes	248	1765	2012
Soft drinks and mineral waters	260	1583	1842
Ice cream	250	1437	1687
Meat and poultry products	241	1430	1672
Potato processing	232	1379	1610
Pet food	346	1231	1577
Sugar confectionery	169	1312	1482
Grain mill products	242	1136	1379
Spirits	168	1103	1271
Animal feeds	268	915	1183
Biscuits and preserved pastry/cakes	122	940	1062
Cider and fruit wines	91	863	954
Condiments and seasonings	111	822	933
Tea and coffee processing	87	623	710
Macaroni, noodles etc	N/A	600	600
Food and drink industry average	294	1962	2257
All manufacturing industry average	194	962	1157

* includes fatal injuries (three in food industry)

To calculate your own company s injury incidence rates: multiply the number of major, over-3-day or all reportable injuries (as required) on your site per year by 100 000 and divide this by the number of employees.

Notes:

- 1 Major injuries include hospitalisation, serious fracture, amputation etc, as defined by RIDDOR.
- 2 The true injury incidence rates will be higher than shown above because around 44% of reportable injuries are not reported in the manufacturing and construction industries.
- 3 The figures in Table 1 are calculated from injuries reported to HSE and local authorities under RIDDOR for the year 2002/03 and annual employment survey data for persons employed.
- 4 Some industries have been omitted from Table 1 because accurate employment data was not available.

The methods used and the conclusions of all the trials are detailed in:

- 1 *The costs of accidents at work* HSG96 (Second edition) HSE Books 1997 ISBN 0 7176 1343 7
- 2 *The cost to Britain of workplace accidents and work-related ill health in 1995/96* HSG101 (Second edition) HSE Books 1999 ISBN 0 7176 1709 2

Further information is given in:

- 3 *Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance* L21 (Second edition) HSE Books 2000 ISBN 0 7176 2488 9
- 4 *Practical aspects of risk assessment Guidance note no 1* Food and Drink Federation, 6 Catherine Street, London WC2 5JJ
- 5 *Safety representatives and safety committees* L87 (Third edition) HSE Books 1996 ISBN 0 7176 1220 1
- 6 *A guide to the Health and Safety (Consultation with Employees) Regulations 1996. Guidance on Regulations* L95 HSE Books 1996 ISBN 0 7176 1234 1
- 7 *Successful health and safety management* HSG65 (Second edition) HSE Books 1997 ISBN 0 7176 1276 7
- 8 *Five steps to risk assessment* Leaflet INDG163(rev1) HSE Books 1998 (single copy free or priced packs of 10 ISBN 0 7176 1565 0)

Is your health and safety policy adequate?

Does your policy reflect the emphasis in the Management of Health and Safety at Work Regulations 1999? Does it contain at least the following, as required by the Health and Safety at Work etc Act 1974, Section 2(3)?

The general policy

A recognition by management that it is responsible for achieving good health and safety performance and will establish a systematic approach, subject to feedback and review.

The organisation

A record of the organisational, functional or geographical responsibilities of management, so you can identify who is responsible for every area, from director to individual employee. Leave no area out.

The arrangements

An account of how you plan, organise, control, monitor and review to ensure that you meet stated health and safety objectives.

Include arrangements for:

- Assessment of risks and identification of preventive and protective measures which need to be set up and implemented.
- Safety inspections: you need details of who will carry these out, the frequency and methods of reporting.
- Assistance: identify who will be your competent person to assist in the assessment and implementation of the necessary preventive and protective measures. Find sources of advice on health and safety to help inspection and supervisors. Set out the role of safety managers and details of occupational health provisions, especially health surveillance.
- Provision of occupational health monitoring and advice, the extent of which will be determined by the risks (manual handling, repetitive work using the upper limbs, exposure to dust, noise etc).
- Monitoring: detail how each layer of management will make sure that responsibilities for health and safety have been met and safety inspections are reaching the right standards.
- Directors responsibilities to be taken into account.⁹
- Accountability of managers for their section's health and safety performance.¹⁰
- Training: develop competence and commitment. Make arrangements for training to meet regulatory and job-specific needs, including training managers and individuals in the roles they have to play in the safety organisation.¹¹⁻¹³
- Measurement: use information from inspections and monitoring, sickness absence and injury reports, maintenance requests etc.
- Purchasing procedures for new plant, machinery, substances and processes: prepare specifications of suitable equipment, liaise with suppliers and contractors and check the specification is met.¹⁴
- Tackling particular risks (eg slips, manual handling) with detailed arrangements.
- Emergency, maintenance and repairs.
- Co-operation with others whose employees may be on site (eg contractors).¹⁵
- Joint consultation procedures for involvement of employee/safety representatives, especially training provision and the role of the safety committee in overseeing the effectiveness of the arrangements.
- Absence control and rehabilitation procedures.
- Audit and review: how will management use these techniques to revise the safety organisation and policy to meet objectives?

Further information is contained in:

- 9 *Directors responsibilities for health and safety* INDG343 HSE Books 2000 ISBN 0 7176 2080 8
- 10 *Managing health and safety* HSE Books 1997 ISBN 0 7176 1153 1
- 11 *The health and safety climate survey tool* (software program) HSE Books 1997 ISBN 0 7176 1462 X
- 12 *Health and safety training: What you need to know* Leaflet INDG345 HSE Books 2001 (single copy free or priced packs of 15 ISBN 0 7176 2137 5)
- 13 *Training for health and safety in the food industry* Food and Drink Industry Training Organisation, 6 Catherine Street, London WC2 5JJ
- 14 *Effective purchasing procedures for equipment in the food and drink industries* Leaflet INDG323 HSE Books 2000 (single copy free)
- 15 *Managing risk - adding value: How big firms manage contractual relations to reduce risk* HSE Books 1998 ISBN 0 7176 1536 7

Safety: The priorities

All sectors and sizes of company in the food and drink industries can examine how the safety priorities detailed here apply to them. (Large companies do not necessarily have better safety records.)

Companies can most fruitfully concentrate their preventative effort in the areas which cause most injuries:

- production areas: over 90% of major and over-3-day absence injuries occur in production areas;
- general activities: two-thirds of major and over-3-day absence injuries in production areas involve the general activities of transfer on site, handling, maintenance and cleaning;
- vulnerable staff: 80% of deaths and 70% of major injuries in production areas are to men (who represent only 55% of the workforce). But young workers (20 to 30-year-olds) of both sexes and 50 to 60-year-old women (who are injured more severely after a fall) are also priority groups.

The main causes of injury in the food and drink industries, shown below, account for over 80% of all reported injuries.

Table 2 The main causes of injury in the food and drink industries

Deaths*	Major injuries**	Over-3-day injuries
94% of all deaths between 2000-04 were from these causes:	60% of major industries between 2000-03 were from these three causes:	75% of over-3-day injuries between 2000-03 were from these three causes:
1 Transport (38%) Especially from use of lift trucks and HGVs.	1 Slips (37%) More significant in food and drink industries than elsewhere. 75% of slips and trips are slips, 90% of which are caused by wet contamination.	1 Handling and lifting (35%) 60% of these involved handling heavy objects. Frequent lifting/handling is also a major cause of injury.
2 Falls from a height (28%) Stairs, ladders, scaffolds, temporary access and falls from vehicles account for about a quarter of the total of fatal and major injuries.	2 Falls from a height (12%) See deaths.	2 Slips (26%) See major injuries.
3 Machinery/plant (28%) This remains the third potential hazard for deaths. Prior to 1994, entry into silos was the third main cause of death; current vigilance must be maintained.	3 Machinery (11%) A quarter occur during cleaning. Three quarters of injuries are at machines with no or inadequate guarding. In only 3% of cases does an employee abuse the guard.	3 Struck by moving objects (14%) A quarter from hand tools (especially hand knives), a third from falling objects. Then being hit by moving pallet trucks etc.

* Brief summary reports of fatalities are on the HSE Food website at: www.hse.gov.uk/food.

** Major injuries include hospitalisation, serious fracture, amputation etc, as defined by RIDDOR.

The main causes of injuries within the industry sectors

The food and drink industry-wide causes of injuries are also the priorities within each of the industry sectors. In each sector, inspectors' investigations have identified the main situations in which most injuries occur. A detailed analysis for each sector is available on the HSE Food website at: www.hse.gov.uk/food. The industry priorities are summarised below:

grain... flour... animal feed

- handling and lifting - especially moving sacks
- falls from height - off ladders, stairs and vehicles
- slips and trips - more prominent than usual due to obstructions and uneven floors
- exposure to substances (eg chlorine, hydrochloric acid, sulphur dioxide)
- machinery - screw conveyors, rotary valves, roller mills, mixers (mostly during maintenance, cleaning, refilling etc)
- entry into silos - risk from engulfment, lack of respirable atmosphere, mechanical hazards (eg sweep augers)
- transport - including lift trucks and trailers when tipping

bread cakes biscuits

- slips - mostly due to wet or contaminated floors
- handling and lifting - especially lifting and pushing/pulling heavy weights
- struck by an object (eg hand knife) or striking against an object
- machinery - conveyors, wrapping machinery, pie and tart machines, dough brakes, moulders, mixers, roll plant, pinning rolls/belts
- transport - including lift trucks

meat poultry fish slaughtering

- being struck by an object - mostly by hand tools including knives, especially during boning out
- handling and lifting - especially lifting heavy weights, pushing/pulling trolleys and contact with sharp edges
- slips - mostly on wet or greasy floors
- machinery - such as bandsaws, derinders, skinning machines, pie and tart machines, conveyors and packaging machinery
- transport - including lift trucks

milk cheese

- handling and lifting - especially repetitive lifting, pushing/pulling heavy trolleys and contact with sharp edges
- slips - due to wet floors
- being struck by an object - mostly falling objects, sometimes hand tools
- exposure to substances - cleaning fluids, fume, splashes, CIP (clean-in-place) failures, steam, hot water
- falls from height - off ladders, stairs, tanks and from vehicles/tankers
- transport - including tanker movements and lift trucks
- machinery - lifting machines, conveyors, packaging machines

fruit... vegetables

- handling and lifting - especially repetitive lifting and moving boxes etc and contact with sharp edges
- slips - due to wet floors
- being struck by an object - mostly falling packages, sometimes hand tools
- falls from height - off ladders, work platforms, stairs and from vehicles
- striking against fixed or moveable objects
- machinery - conveyors, packaging machines, slicing machines, palletisers
- transport - including lift trucks

chocolate... sugar confectionery

- handling and lifting - especially repetitive lifting, pushing/pulling heavy loads or contact with sharp edges
- slips - due to wet/contaminated floors
- being struck by an object - mostly falling packages, sometimes hand tools
- striking against fixed or moveable objects
- machinery - conveyors, packaging machines
- exposure to harmful substances - burns and scalds from carrying open containers of hot product, manual dispensing of caustic cleaners

beer... spirits... soft drinks

- handling and lifting - especially barrels, casks and drink packs
- slips - mostly due to wet floors
- being struck by a falling objects - barrels, casks, drink packs
- falls from height - off ladders, work platforms, stairs and from vehicles
- machinery - conveyors, bottling machines, packaging machines, palletisers
- exposure to harmful substances - cleaning chemicals, hot liquids
- transport - especially lift trucks

Managing the safety hazards

After you have assessed which risks are significant (guided by this publication) you will need to identify the causative factors for each risk and set out specific arrangements to address their safe management.

Transport: Are you controlling all transport hazards?

Nearly half the deaths in the food and drink industries result from transport-related accidents. Proven effective management of transport hazards include:

- segregation of pedestrians from vehicles where reasonably practicable - especially in new buildings - to avoid people being struck (nearly 60% of transport-related injuries result from people being struck by vehicles);
- setting up safe systems for reversing (reversing causes 25% of struck-by-vehicle injuries);
- training lift truck drivers (lift trucks cause half the struck-by-vehicle injuries);

- ensuring safe working platforms on lift trucks (25% of transport-related deaths);
- avoidance of access onto tanker tops and grain vehicles etc, for sheeting/unsheeting (or if avoiding top access is not reasonably practicable, safe access with handrails);
- keeping clear of the tailgate of tipping trailers - tailgates can fly open and strike people (in earlier years this was a significant cause of fatalities);
- systems to prevent tipping lorries and trailers overturning.

Further advice can be found in:

Workplace transport safety in food and drink premises Food Information Sheet FIS21 HSE Books 1999

Workplace transport safety: An employers guide HSG136 (Second edition) HSE Books 2005 ISBN 0 7176 6154 7 (due to be published later 2005)

Safety in working with lift trucks HSG6 (Third edition) HSE Books 2000 ISBN 0 7176 1781 5

Rider-operated lift trucks. Operator training. Approved Code of Practice and guidance L117 HSE Books 1999 ISBN 0 7176 2455 2

Case studies

A worker in a food factory received fatal crush injuries to his head when an HGV tractor unit was reversing onto a trailer in a loading bay. The worker's head became trapped between the reversing trailer and the frame of the loading bay door. Safe systems of work are required for reversing operations.

Carrying out a regular stock check led to the death of a worker in a cold-store area. He was elevated on a lift-truck working platform and was being moved forward slowly. As the truck moved along the gangway, it passed underneath a high-level cross member supporting the cold store racking, trapping the worker's head between the cross member and the vertical plate at the back of the working platform.

Falls from a height: Have you pre-planned all access needs?

Have you identified all jobs which might involve the need for access to height to see that suitable and effective safeguards are provided? In particular, attention needs to be paid to:

- provision of permanent access (eg on machinery) or pre-planning temporary access (including arrangements with contractors);
- training in correct use of temporary access and a maintenance inspection scheme;
- identification of fragile roof materials and maintenance of stairways and ladders;
- consideration of mechanical access aids to free operators hands to hold on where they have to carry or use articles and tools.

Further advice is given in:

Preventing falls from height in the food and drink industries Food Information Sheet FIS30 HSE Books 2001

Do people still enter silos, vessels or other confined spaces in your company?

The consequences of accidents in confined spaces are severe and the work environment may be unhealthy. The Confined Spaces Regulations 1997 require alternatives to entry where possible. Where entry is unavoidable, safe systems of work for entry must be provided and followed. Check you have systems in place to:

- design or modify silos and vessels so they are self-cleaning and material runs freely;
- if necessary, fit vibration pads, other flow aids or cleaning-in-place systems;
- prevent entry into silos which still contain enough material to pose an engulfment/asphyxiation risk;
- use remotely-operated silo cleaning and unblocking equipment so that entry is unnecessary if bridging or blocking occurs.

Where avoidance of entry into confined spaces is not reasonably practicable, then:

- strictly follow a safe system of work for entry and rescue - ensure other forms of danger are isolated (mechanical plant, floodings etc);
- prevent entry into vessels and silos until the atmosphere within is non-hazardous - where this is not possible, ensure suitable respiratory protective equipment is worn.

Further advice is given in:

Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice, Regulations and guidance L101 HSE Books 1997
ISBN 0 7176 1405 0

Case studies

Unlit access to a roof space meant death for a cold store manager. He stepped off the boarded area surrounding the trap door and fell between the ceiling joists, through the fragile panels of an asbestos board ceiling, into a battery charging room below. Better means of access should have been available and used.

An employee in a bread bakery fell just two feet and suffered fatal injuries. A metal ramp was placed between the bakery's loading bay and the back of a delivery van so he could push a trolley loaded with trays of bread straight into the back of the van. After a few loads, the metal ramp slipped just as the operator was pushing another trolley into the van. The metal

ramp was not secured to either the vehicle or the loading bay and fell to the ground - so did the wheeled trolley and the operator.

In factories where deaths from silo working occurred, there were safe systems of work for sending people into bins - but they failed. One animal feed mill recognised that this unpleasant, dusty activity of sending people into bins to clear blockages and hang-ups of grain was potentially dangerous and that safe systems of work could fail. They were one of the first to buy remotely-operated silo cleaning equipment. This can be operated by one person and taken from bin to bin. It is positioned on top of the bin and a gyratory flail is lowered into the silo on a boom. The operator is safe, staying above the silo while manipulating the flail. The feed company can now clean out their bins easily, safely, regularly and more cheaply, reducing production hold-ups.

Machinery: Do you have arrangements to examine the suitability of equipment and use of safeguards?

Such arrangements should include purchasing procedures which ensure the correct specification, selection and checking of new equipment. Existing equipment should be examined to see that it is still suitable with respect to health and safety. Pay special attention to guarding conveyors, all types of packaging machinery and bread and meat machinery.

Manufacturers and suppliers of machinery must comply with the Supply of Machinery (Safety) Regulations 1992 which require new machinery to be safe and bear the EC mark of conformity (CE mark).

When providing safeguards, it is especially important in the food industry to remember that the operator needs frequent, easy access to assist product flow, clear blockages or clean the machinery. Hinged guards are usually preferable, with a high standard of interlocks, eg coded magnetic interlocks.

Make sure guard operation and use is checked regularly.

Further guidance is given in:

Supplying new machinery: A short guide to the law and some information on what to do for anyone supplying machinery for use at work Leaflet INDG270 HSE Books 1998 (single copy free or priced packs of 15 ISBN 0 7176 1560 X)

Buying new machinery: A short guide to the law and some information on what to do for anyone buying new machinery for use at work Leaflet INDG271 HSE Books 1998 (single copy free or priced packs of 15 ISBN 0 7176 1559 6)

Safeguarding flatbelt conveyors in the food and drink industries Food Information Sheet FIS25 HSE Books 2001

Guidance on safeguarding principles is contained in:

BS EN ISO 12100-2: 2003 *Safety of machinery. Basic concepts. General principles for design. Technical principles* British Standards Institution

Machine-specific standards include:

BS EN 415-4: 1998 *Safety of packaging machines. Palletisers and depalletisers* British Standards Institution

BS EN 454: 2000 *Food processing machinery. Planetary mixers Safety and hygiene requirements* British Standards Institution

BS EN 1672-2: 2005 *Food processing machinery. Basic concepts. Hygiene requirements.* British Standards Institution

Food and packaging machines for which machine-specific standards are available are shown on the HSE food website at: **www.hse.gov.uk/food**

Case studies

A worker cleaning underneath one end of a conveyor belt in a packing area had his hand and arm drawn into the running nip between the belt and the end roller. His injuries included loss of the arm. Conveyors cause 30% of machinery injuries in the food and drink industries. Guarding should be effective, but allow safe cleaning.

A maintenance fitter was injured by a chain and sprocket transmission drive when he was greasing part of a cake line in a cake factory which had a history of similar accidents. HSE served an Improvement Notice on the company requiring the review of routine maintenance for all plant and equipment. The review identified the access hazards and devised safeguards so these activities could be carried out safely. The company substantially reguarded much of their plant, allowing maintenance operations to take place safely. They reinforced this work with awareness training and set up safe systems of work for maintenance personnel.

Slips: Does your company have specific arrangements?

Arrangements to prevent slips will usually include:

- assessment of whether slip risks are significant in your business, and if so, what are the causative factors;
- management arrangements specifically to target slip risks;
- getting rid of the sources of wet (or other) contamination or preventing it reaching walkways.

If there remains a residual risk:

- set up an effective cleaning regime;
- clear up contamination and dry floors as soon as possible;
- provide floors of sufficient surface roughness and with adequate drainage;
- provide adequate marking and lighting;
- ensure the shoe sole/floor combination is matched;
- train staff and ensure tasks do not require them to move or carry goods inappropriately in a residually slippery area.

Monitor and review the effectiveness of the arrangements.

Further advice is given in:

Slips and trips: Guidance for the food processing industry HSG156 HSE Books 1996 ISBN 0 7176 0832 8

Slips and trips: Summary guidance for the food industry Food Information Sheet FIS6 HSE Books 1996

Preventing slips in the food and drink industries: Technical update on floor specifications Food Information Sheet FIS22 HSE Books 1999

Stop slips: Managing slips to reduce injuries and cost Video HSE Books 2000 ISBN 0 7176 1819 6

Case studies

An employee was injured when walking past a tray area in a large bakery. The floor was wet from run-off and from pre-wash spray. The man, who was wearing normal outdoor shoes, slipped and fell, breaking his femur. A non-slip surface was subsequently installed and the control of water spray was implemented. Additionally, suitable safety footwear was issued with soles that provided better grip in wet conditions.

In a plant bakery a worker slipped in a puddle of fat on the floor at the corner of a fryer. Her arm went into the reservoir of hot fat in the fryer causing burns to her arm and hand. The fat was leaking from a faulty valve. The valve was replaced and a system set up to spot and clean up spills.

Handling: Have you reviewed your manual handling activities?

Identify the activities likely to cause injuries from your own records and from industry experience:

- 60% of handling injuries result from handling heavy loads, only 6% from sharp edges and 7% from being crushed during handling;
- about 50% of the injuries occur during lifting and lowering, 16% when carrying and 12% when pulling.

Most work-related back pain results from frequent and heavy handling. The main priority activities to review are:

- stacking and destacking boxes, containers, sacks etc (53% of injuries);
- pushing wheeled racks; and
- manual handling of drinks containers, eg casks and kegs.

Get rid of (or reduce) manual handling risks for these activities where reasonably practicable, eg lighter containers, mechanical handling aids etc.

Where the manual handling cannot be avoided, identify the contributory risk factors

and minimise their effect. Use the HSE Manual Handling Assessment Charts (MAC), which can help prioritise manual handling risks from lifting and carrying. See *Further guidance* or visit the website at: www.hse.gov.uk/msd/mac/index.

Monitor and review the effectiveness of these arrangements.

Further advice is given in:

Injuries and ill health caused by handling in the food and drink industries
Food Information Sheet FIS23 HSE Books 2000

Reducing injuries caused by sack handling in the food and drink industries
Food Information Sheet FIS31 HSE Books 2001

Roll cages and wheeled racks in the food and drink industries: Reducing manual handling injuries FIS33 HSE Books 2003

Moving food and drink: Manual handling solutions for the food and drink industries HSG196 HSE Books 2000 ISBN 0 7176 1731 9

Manual handling in drinks delivery HSG119 HSE Books 1994
ISBN 0 7176 0731 3

Manual handling assessment charts (MAC) INDG383 HSE Books 2003
ISBN 0 7176 2741 1

Are you making the best use of lifting and handling aids? INDG398 HSE Books 2004
ISBN 0 7176 2900 7

Getting to grips with manual handling INDG143rev2 HSE Books 2004
ISBN 0 7176 2828 0

Manual handling. Manual Handling Operations Regulations 1992 (as amended). Guidance on Regulations L23 (Third edition) HSE Books 2004
ISBN 0 7176 2823 X

Case studies

Preparing orders in a food warehouse involved lifting loads weighing up to 50 kg onto pallets. The bending, pulling and twisting required was causing many musculoskeletal injuries. The task was redesigned so that no heavy lifting above shoulder height was required and the maximum package weight was reduced to 25 kg. Injury rates decreased by 30% and costs reduced by 40%. Absenteeism went from 9% to 2% and the cost of implementation was recouped in 12 months.

Trays of pork cuts were stacked ten high and pushed on four-wheeled trolleys by production staff. Strains and sprains from pushing the trolleys were common, mainly due to damaged trolley wheels. The company implemented a trolley maintenance programme and employed a person whose main job was to repair, maintain and replace faulty wheels. There was a dramatic decrease in injuries, fewer staff complaints and an increase in productivity.

Struck by falling objects and handtools: Have you reviewed handling and storage arrangements and use of tools?

The provision of physical safeguards to prevent or protect against falling objects (eg falling from storage racks) is particularly important in the food and drink industries.

Give careful consideration to methods of stacking, handling and movement of goods to prevent articles falling. Mechanical aids may help.

Hand tools are also a particularly significant cause of injuries, especially hand knives.

Further advice is given in:

Guidance on safe working with knives in meat preparation is given in:

Safe use of knives Guidance note 8 published by the British Meat Processors Association (BMPA), 12 Cock Land, London EC1A 9BU

Aprons, trousers and vests used in meat slaughter and preparation should comply with:

BS EN ISO 13998: 2003 *Protective clothing. Aprons, trousers and vests protecting against cuts and stabs by hand knives*. British Standards Institution

Gloves and arm guards should comply with:

BS EN 1082-1: 1997 *Protective clothing. Gloves and arm guards protecting against cuts and stabs by hand knives. Chain mail gloves and arm guards* British Standards Institution

BS EN 1082-2: 2000 *Protective clothing. Gloves and arm guards protecting against cuts and stabs by hand knives. Gloves and arm guards made of material other than chain mail* British Standards Institution

BS EN 14328: 2005 *Protective clothing. Gloves and arm guards protecting against cuts by powered knives* British Standards Institution

Case studies

A maintenance fitter was killed and an engineer injured when a large twin-arm dough-mixing machine fell from the forks of a fork-lift truck. The machine was on the forks to enable maintenance work from beneath. Many accidents occur during maintenance operations and special attention needs to be paid to ensuring safe systems of work.

A worker received a serious hand injury when using a sharp knife to debone meat. The company now provides knife-proof arm guards and gloves for the non-knife hand and knife-proof aprons.

Occupational health: The priorities

The big picture

Every year, in all industries, 1.5 million workers suffer from ill health caused or made worse by work. In the food and drink industries, an estimated 29 000 workers (4.8% of the workforce) suffered from ill health caused or made worse by work during 2001/02, according to the Self-reported Work-related Illness (SWI) Survey for those years. This compares with 2.2% of workers receiving an injury reported to HSE under RIDDOR during the same year.

From this data, the risk of a worker suffering occupational ill health at work in the food and drink industries is more than twice that of sustaining an injury. This is reflected in civil claims; more claims now result from occupational ill-health issues than from safety issues - reversing the trend in earlier years.

Occupational health is generally more difficult to manage than safety. The causes and consequences of poor safety at work are immediate and often relatively easy to deal with. Work-related causes of ill health can be more difficult to spot. It can often take some time for symptoms to develop so the connection between cause and effect is less obvious, but once the problems have been recognised and acknowledged, solutions are now well documented.

For the most common occupational health problems, such as back injuries, there may be other causes that have nothing to do with work. Workers may be unwilling to admit themselves that they have work-related health problems because of fears about their job or the stigma attached to certain types of illness. For these reasons it is doubly important to identify and reduce aggravating factors arising from work.

Despite the availability of information on solutions to work-related health problems, local knowledge about the most effective solutions can be limited. Some of the larger businesses in the industry employ specialist occupational health staff, usually with a medical background. However, for most businesses, especially small businesses, access to reliable medical advice on occupational health is very limited. When most people have a health problem they visit their GP, but most GPs are not well-qualified to deal with occupational health issues.

Most businesses do not need to set up specialist departments or pay for medical advisors to control occupational health on a day-to-day basis. The vast majority of occupational ill health results from a small number of basic causes, all of which can be controlled by management and workers working together to identify practical control measures that are suitable for their workplace. However, use of occupational physicians and other experts can be cost effective in appropriate circumstances.

This section explains the common causes of occupational ill health in the food and drink industries and gives advice on how to manage them.

Main causes

The main causes of occupational ill health in the food and drink industries are, in order:

- **musculoskeletal disorders (MSDs):** mainly comprising work-related upper limb disorders (WRULDs) and back injuries;
- **work-related stress:** which can be caused by poor work organisation;

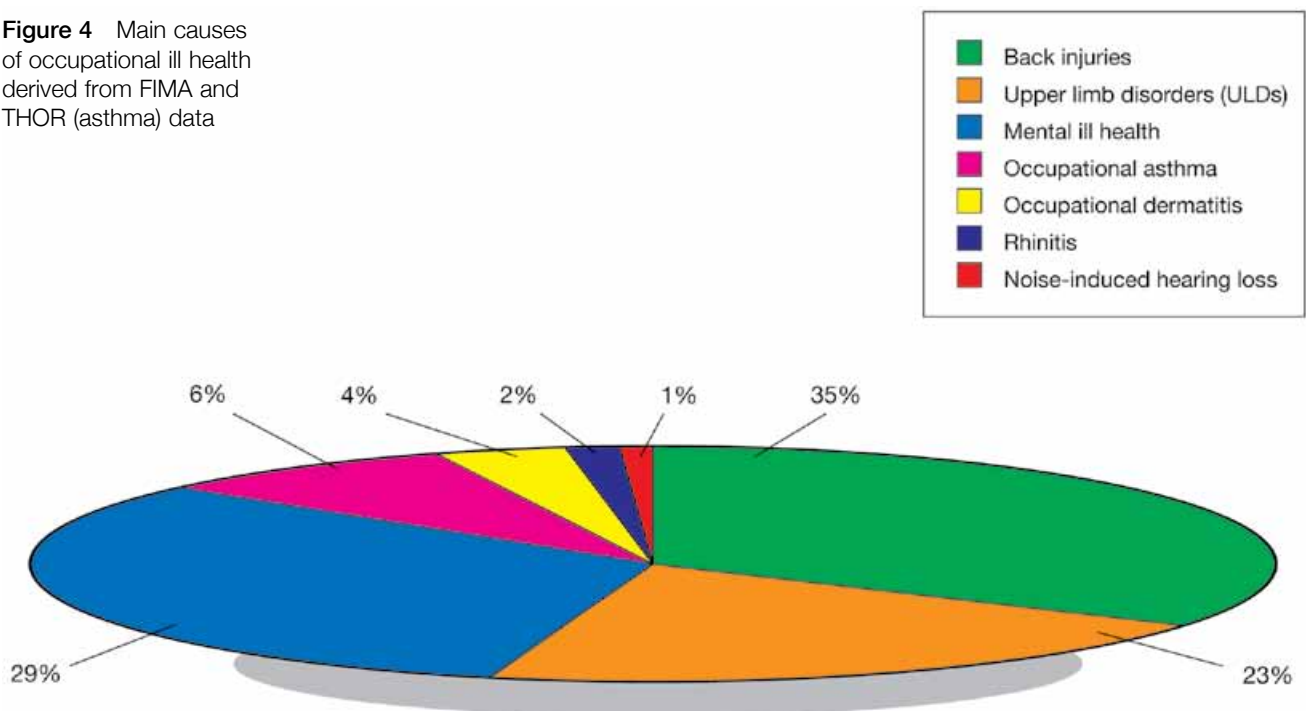
- **occupational asthma:** caused by inhalation of bakery and grain dusts;
- **occupational dermatitis:** from handwashing, contact with foodstuffs etc;
- **rhinitis:** caused by irritant dusts such as bakery and grain dusts, spices and seasonings;
- **noise-induced hearing loss:** where noise levels exceed 85 dB(A).

Of the above risks, MSDs (both WRULDs and back injuries) are by far the most common. However other risks are significant and apply where conditions permit. See Figure 4.

Extent of the problem

There is no single source of reliable data on the extent of occupational ill health. HSE has carried out an analysis of four national data sources that give some information on risks in food and drink manufacture. Each data source has its own shortcomings - eg the list of reportable diseases under RIDDOR is very restricted and under-reporting is much worse for diseases than for injuries. However, when taken together, a consistent picture emerges.

Figure 4 Main causes of occupational ill health derived from FIMA and THOR (asthma) data



Musculoskeletal disorders (MSDs)

All the data sources confirm that MSDs are the most significant occupational health risk, resulting in:

- 74% of cases of ill health reported to HSE under RIDDOR between 2000-02;
- 55% of disorders reported by specialist doctors between 2001-03 under The Health Occupation Reporting Network (THOR);
- 38% of compensation cases under the Department for Work and Pensions (DWP) occupational health Industrial Injuries Scheme (IIS) between 2000-02;
- some of the highest incidence rates reported by occupational physicians in the Food Industry Medical Association (FIMA) between 1997-2001;

- of these MSDs, the vast majority are WRULDs and spine/back disorders, recorded as 63% and 33% respectively under THOR.

*Benchmark: * FIMA reports 647 injuries per 100 000 workers for back pain and 415 injuries per 100 000 workers for WRULDs.*

* FIMA data comes from occupational health physicians working with large employers. To compare your own company's rates against these benchmarks, multiply the number of cases of back pain (or WRULDs as appropriate) on your site by 100 000 and divide this by the number of employees.

The causes of MSDs

- MSDs (mainly upper-limb disorders and back problems) affected two-thirds of food and drink workers interviewed as part of a survey of over 1500 people from all industries who suffered from an illness caused or made worse by their work. Two-thirds of those food and drink workers with a musculoskeletal complaint suffered from a condition that affected their back.
- MSDs include a variety of strain, sprain and overuse problems affecting the body's muscles and joints.
- These problems include everything from backache and slipped discs to WRULDs, which include disorders such as tenosynovitis and other conditions causing pain, numbness, swelling and tingling in the arms, hands and wrists.
- MSDs can be caused, for example, by lifting heavy or awkward loads resulting in chronic back pain or by repeated awkward movements, eg on packing lines, poultry lines.
- About half the food factories in an HSE survey (which covered most industry sectors) were found to have employees suffering from WRULD.
- Particular industry priorities are: stacking, cutting, wrapping, packing and drinks delivery.

Work-related stress and mental ill health

No data is available for the prevalence of work-related stress in the food and drink manufacturing industries. However work-related stress is often cited as a cause of mental ill health. Medically-diagnosed mental ill health (eg depression) accounted for:

- 18% of disorders reported by specialist doctors under THOR;
- the third highest incidence rate (out of seven categories) reported in some large food companies by FIMA.

Benchmark: FIMA reports 534 cases per 100 000 workers for mental ill health.

The causes of work-related stress

- Stress is a significant occupational health risk. There is a clear link between poor work organisation and subsequent ill health.
- Pressure in itself is not necessarily bad and many people thrive on it. It is when pressure experienced by an individual exceeds their ability to cope with it that ill-health problems can result.
- Work-related stress caused by excessive work demands, lack of control over work etc is often cited as a cause of mental ill health.

Further guidance:

HSE's Management Standards for work-related stress provide a means of measuring organisational performance in tackling stress and provide a description of good management practice across six broad areas of work design - demands, control, support, relationships, role and change. The Standards can be found at: www.hse.gov.uk/stress/standards.

Real solutions real people: A managers guide to tackling work-related stress (resource pack) HSE Books 2003 ISBN 0 7176 2767 5

Work-related stress: A short guide Leaflet INDG281(rev1) HSE Books 2001 (single copy free or priced packs of 10 ISBN 0 7176 2112 X)

Tackling work-related stress: A guide for employees Leaflet INDG341 HSE Books 2001 (single copy free or priced packs of 20 ISBN 0 7176 2065 4)

Also at: www.hse.gov.uk/stress

Occupational asthma

All data sources record a significant level of asthma in food and drink manufacturing:

- 9% of cases of ill health reported under RIDDOR;
- 14% of disorders reported by specialist doctors under THOR;
- 33% of compensation cases under the DWP IIS.

The main causes of asthma are inhalation of dust from grain and flour, with bakers having the second highest incidence rate of all occupations in any industry.

Benchmark: THOR reports 105 cases per 100 000 workers (FIMA, which covers only larger companies, reports 31 cases per 100 000 workers).

The causes of occupational asthma

- Work-related asthma affects workers inhaling dusts which are respiratory sensitisers - such as dust from grain, flour, enzyme additives, egg protein, fish protein, spices and wood - so workers involved in milling, malting, baking, fish processing and coopering etc, are at particular risk.
- Asthma is an extremely distressing and potentially a life-threatening disease.
- Chest consultants reporting to the THOR scheme estimated that, over all industries, bakers are the occupational group which is the second most likely to suffer occupationally-induced asthma, at a rate about 40 times the all occupations average.

Occupational dermatitis

All data sources record a significant level of dermatitis:

- 13% of cases of ill health reported under RIDDOR;
- 10% of disorders reported by specialist doctors under THOR;
- 10% of compensation cases under the DWP IIS;
- the fifth highest incidence rate (out of seven categories) reported by FIMA.

The main causes of dermatitis are contact with soaps/cleaners, flour and other foods and wet work.

Benchmark: FIMA reports 69 cases per 100 000 workers.

The causes of occupational dermatitis

- Occupational dermatitis affects workers handling meat, fish, poultry, fruit and vegetables, as well as bakers, confectioners, cooks, cleaners and many other workers.
- In food preparation, it usually affects the hands and forearms.
- It results in redness, scaling and blistering of the skin often sufficiently badly to keep people off work and serious enough to force them to change jobs.
- Occupational dermatitis is caused by contact with water, soaps and detergents (55% of cases) and contact with a wide variety of food such as sugar, flour/dough, citrus fruits, vegetables, spices and herbs, fish and seafoods, meat and poultry (40% of cases).
- It affects an estimated 8500 people in the food and catering industries each year - about 10% of the total in all industries.

Rhinitis

Under the DWP IIS, 15% of compensation cases were for rhinitis, which also had the sixth highest incidence rate (out of seven categories) reported by FIMA. Rhinitis (runny or stuffy nose) results in inflammation of the nasal mucous membrane caused by irritant dusts.

Benchmark: FIMA reports 38 cases per 100 000 workers.

The causes of rhinitis

- Grain, flour, spices, seasonings and wood dust can cause rhinitis, conjunctivitis (watery or prickly eyes) and other irritant effects.

Noise-induced hearing loss

3% of compensation cases under the DWP IIS were for hearing loss, which also results in about 75% of occupational health insurance claims.

Benchmark: FIMA reports 16 cases per 100 000 workers.

The causes of noise-induced hearing loss

- Exposure to high levels of noise at work can cause irreversible hearing damage, which can be difficult to detect as the effects build up gradually over time.
- Noise levels can be high either in large areas (eg bottling halls) or locally from noisy plant and machinery (eg product impact on hoppers).
- If your site-level assessment of risks identifies noise to be a priority, this is best controlled at source.

Further guidance can be found in:

Reducing noise exposure in the food and drink industries Food Information Sheet FIS32 HSE Books 2002

Sound solutions for the food and drink industries: Reducing noise in food and drink manufacturing HSG232 HSE Books 2002 ISBN 0 7176 2548 6

Case studies

Glass jars were transported along a conveyor from the jar cleaner to the filler. The glass jars clashed together producing noise levels of 96 dB(A). An enclosure was put over the conveyor at a cost of £2000 and the conveyor speed was changed to reduce jar clashing. Noise levels reduced to 86 dB(A).

At a large bakery, a machine was used to blow debris out of bread baking tins by means of compressed air jets. Employees were exposed to noise levels of 91-92 dB(A) during this process. The company built a soundproof room around the machine, reducing noise levels to below 85 dB(A).

A soft drinks factory used a large air compressor, air from which was used to operate machines on the bottling line. The air compressor was located in the middle of the production area and produced noise levels of 94-95 dB(A). The company moved the air compressor out of the production hall into a nearby enclosed and unmanned room, eliminating the noise source.

Developing an occupational health policy

There are three broad issues to consider in the development of effective occupational health management:

1 Prevention

There is a legal and moral responsibility on the employer to do whatever is reasonably practicable to prevent work-related ill health. In addition to compliance with general duties under the Health and Safety at Work etc Act and the Management of Health and Safety at Work Regulations, some more specific legal duties are relevant to the common health problems. For example, the Control of Substances Hazardous to Health Regulations (COSHH) and Approved Code of Practice deals with substances that cause asthma. COSHH is also relevant for dermatitis and the Manual Handling Operations Regulations are relevant for many MSD problems.

Identifying work-related health risks may not be straightforward, but there are a number of sources that can be used.

HSE/trade sector guidance:

HSE has now produced a lot of guidance on the main issues. Much of this is available through the HSE website (www.hse.gov.uk) and the microsite devoted to food and drink manufacture at: www.hse.gov.uk/food. These sites offer advice on MSDs, stress, asthma and all the other main issues.

The general HSE information has been supported by sector-specific guidance from trade associations and from trade unions. For example, the Health and Safety in Bakeries Liaison Committee has developed guidance on dust control in bakeries (see *Occupational asthma: Have you really implemented COSHH?* on page 39).

In order to safeguard workers health, the cause of occupational health risks must first be known. In most cases these will be self-evident to those familiar with the contents of this publication and related guidance. Once the main risks (MSDs, dust, noise etc) are determined, action can be taken to risk assess these topics individually in the same way as safety issues. It is important to determine not only the individuals (or groups of individuals) exposed to these risks but also the degree to which they are exposed and likely consequences. This knowledge will also be useful when recruiting personnel, or during rehabilitation, to ensure the work environment does not adversely affect any pre-existing medical condition.

Monitoring sickness absence

Attendance management has become a major issue with many large employers. Information obtained from more tightly-managed attendance can be very useful in spotting possible work-related health problems. If there are certain jobs or parts of the workplace where absence is higher, this may be an indication of a problem. High levels of back pain or WRULD symptoms may be associated with certain types of work.

Some caution needs to be exercised when analysing absence patterns. More detail may be available from medically-certificated absences (usually over seven days) than from self-certificated absence. However, Med3s (absence certificates) are mainly completed by GPs who have little experience or training in occupational health.

Some sensitivity may also be needed about personal information for individuals that is protected by data protection laws. The Information Commissioner has recently published a code of practice that gives advice on this: *Employment Practices Data Protection Code Part 4 Information about Workers Health* (www.informationcommissioner.gov.uk).

Listening to the workers

A lot of information can be gained from the workers themselves. Workers may be reluctant to admit to health problems to management if they think it might damage their job prospects or if the information is sensitive. However, there are a number of ways of gathering their experience or collecting their opinions that can protect confidentiality and ensure a more honest response.

Trade union safety representatives are often trained in the use of techniques such as body mapping, surveying with discomfort questionnaires etc - all basic techniques that help to identify which areas of the body hurt when staff are at work and why. See, for example, USDAW s report *Charting Back Pain* (www.usdaw.org.uk/resource_library/#HealthandSafety) or the ILO study of workers (barefoot research) (www.ilo.org/public/english/protection/ses/info/publ/2barefoot.htm).

Managing the risk

As with any health and safety problem, the hierarchy of control measures in Schedule 1 of the Management of Health and Safety at Work Regulations should be followed. Where possible, removing the hazard is the best option. Reliance on individual protection through personal protective equipment (PPE) should normally be a last resort. There are many examples of successful intervention in HSE guidance.

Often the process of managing occupational health only requires good communication between managers and workers. There is usually no need to employ specialist assistance or experts; however, involvement of occupational physicians and specialists can be cost effective in appropriate circumstances. When expert advice is needed it may not be medical, eg for many MSD problems, an ergonomist might be more appropriate, or for an asthma problem an occupational hygienist.

Specialist services in this area are not well developed in this country at present. However HSE is keen to promote the development of better sources of advice. There are a small number of occupational safety and health advice services in operation:

- In Scotland, Healthy Working Lives (previously Safe and Healthy Work) has been running for a few years now. This offers a Freephone Advice Line on
- 0800 019 2211 and a free initial site visit from a health and safety advisor. If more specialist help is needed it can advise on where to get it. Further information is on the Healthy Working Lives website: www.hwl.org.uk.
- For England and Wales, HSE has announced a £20 million pilot for Workplace Health Direct to provide a similar national helpline, and up to six separate pilots in regions across England and Wales providing qualified health and safety advisors. Further information is on the Workplace Health Direct website: www.hse.gov.uk/workplacehealth/index.htm.

2 Rehabilitation

Even if everything possible is being done to prevent people suffering ill health from their work, there still will be occasions where someone does become ill. The initial cause of their health problem may not be work related, but the consequences still need to be managed. It is quite possible that someone might develop backache or a stress-related illness because of non-work-related factors, but if they work in a job that involves heavy lifting or that is very intensive then there is a real chance that their work could aggravate the condition and turn it into something more serious. Failure to manage an episode of ill health could result in more permanent illness and the loss of a valued employee.

Further advice on managing sickness absence:

DWP and HSE have developed some useful guidance on the management of sickness absence and the retention of staff who may have developed a health problem: www.hse.gov.uk/sicknessabsence

Managing sickness absence and return to work: An employer's and manager's guide HSG249 HSE Books 2004 ISBN 0 7176 2882 5

Managing sickness absence and return to work in small businesses Leaflet INDG399 HSE Books 2004 (single copy free or priced packs of 20 ISBN 0 7176 2914 7)

3 Health promotion

The Department of Health has identified health in the workplace as a central part of its public health policy. It is keen to see more being done to prevent work-related ill health but also to see the workplace being used as a vehicle for promoting healthier lifestyles.

Health promotion may seem like a fad or gimmick but it can make good business sense. Examples of useful initiatives that can benefit the employer as well as the employees include:

- promoting healthy eating and offering healthy alternatives in the canteen;
- helping staff to stop smoking; and
- educating staff about drinking and drug use as part of an overall policy on drugs and alcohol.

However, health promotion is not a substitute for prevention of work-related ill health. It may be attractive to offer it as a part of the overall health policy, but the primary reason for having such a policy is to make sure that staff are not being made ill by the work that they do.

Managing the occupational health priorities

Have you assessed and met your occupational health needs?

An assessment of risk can identify the main activities and situations likely to be harmful to health so you can then decide how to meet these occupational health needs in your company. Health surveillance is particularly needed for hazards which have no occupational exposure standards for judging whether the control measures are adequate.

Examples of when health surveillance is likely to be required include where there is a risk of occupational asthma (eg exposure to sensitisers such as grain dust, flour dust, bakery dust, fish or egg protein or spices), MSDs (including WRULDs), exposure to microbiological infections (eg in slaughterhouses), risk of dermatitis and work in hot or cold environments. Remember: food materials may have a sensitising effect even at very low exposures.

A professional approach is needed to occupational health. This could usefully be linked in with food safety/hygiene needs.

Musculoskeletal disorders

Do you have a management package of measures to prevent, investigate and control musculoskeletal injuries, such as strains from frequent and heavy lifting or WRULDs from repetitive work? Preventive measures are cost effective. It is not possible to prevent all cases of MSDs, so early reporting of symptoms, proper treatment and rehabilitation are essential.

A successful approach for managing WRULDs

Automation

Introduce automation where possible. Review processes not automated and where the speed of working has been increased by upstream automation, eg take-off from conveyors.

Work design

Incorporate ergonomics into the design of tools, machines, workplaces and work methods. Pay attention to reducing vibration, the force required and to postural changes.

Duration of exposure

Look at job rotation, speed of working, breaks and provision of assistance. Take particular care when the duration of exposure is increased during overtime or peak demand working.

Environment

Make sure it is warm and that there is adequate space, seating and daylight.

Risk assessment

In your risk assessment, identify injury-causing tasks which require one or more of the following:

- force;
- repetition;
- awkward posture.

Reduce the injury potential in tasks where possible by tackling these three causes.

Pre-employment screening

This will help ensure people are not placed in jobs that will aggravate existing or past musculoskeletal or other conditions.

Job placement

Ensure likely injury-producing tasks are not given to known sufferers and injury-aggravating tasks not given to past sufferers.

Training employees

Employees should have training and information on the nature of likely injuries and causative factors, safe lifting methods (especially posture and methods of carrying) and the need to report injuries.

Monitor employees

Check on workers in injury-producing or aggravating tasks early in a new job, eg after four weeks, to ensure no contra-indications to placement.

Occupational health provision

Several tasks are identified above, but you can also undertake rehabilitation and monitoring of sufferers.

Review sickness-absence records

Consider medical review of employees, eg after four weeks absence; also consider access to physiotherapy treatment etc as required.

Monitor the effectiveness of the strategy

To ensure the approach to managing WRULDs is effective, it should be regularly monitored.

Further information is given in:

Moving food and drink: Manual handling solutions for the food and drink industries HSG196 HSE Books 2000 ISBN 0 7176 1731 9

Injuries and ill health caused by handling in the food and drink industries Food Information Sheet FIS23 HSE Books 2000

Upper limb disorders in the workplace HSG60 (Second edition) HSE Books 2002 ISBN 0 7176 1978 8

Manual handling. Manual Handling Operations Regulations 1992 (as amended). Guidance on Regulations L23 (Third edition) HSE Books 2004 ISBN 0 7176 2823

Occupational asthma: Have you really implemented COSHH?

Complying with the Control of Substances Hazardous to Health Regulations 2002 (COSHH) provides the framework for management of hazards:

- assessing health risks;
- preventing exposure, if reasonably practicable;
- adequate control (if preventing exposure not reasonably practicable);
- monitoring, surveillance, examination of plant, training.

Specific guidance about COSHH for the food industries, on how to assess and control the hazards from food products, has been prepared jointly by HSE and trade associations.

Further information is given in a number of HSE publications including:

Guidance on dust control and health surveillance in bakeries, and *Breathe easy* (video, training package and booklet) are available from the Federation of Bakers, 6 Catherine Street, London WC2B 5JW, www.bakersfederation.org.uk.

A baker's dozen: Thirteen essentials for health and safety in bakeries HSG233
HSE Books 2003 ISBN 0 7176 2616 4

Preventing asthma at work. How to control respiratory sensitisers L55
HSE Books 1994 ISBN 0 7176 0661 9

Respiratory sensitisers and COSHH: Breathe freely - An employers leaflet on preventing occupational asthma Leaflet INDG95(rev2) HSE Books 1995 (single copy free or priced packs of 15 ISBN 0 7176 0914 6)

Grain dust Environmental Hygiene Guidance Note EH66 (Second edition) HSE Books 1998 ISBN 0 7176 1535 9

Grain dust in maltings (maximum exposure limits) Environmental Hygiene Guidance Note EH67 HSE Books 1993 ISBN 0 11 886357 6

Control of substances hazardous to health (Fifth edition). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance L5 (Fifth edition) HSE Books 2005
ISBN 0 7176 2981 3

Controlling exposure to disinfectants used in the food and drink industries
Food Information Sheet FIS29 HSE Books 2001

Case studies

In a single year one company recorded 875 absences per 1000 employees due to WRULDs. They managed the problem using the approach set out here. Three years later the incidence was reduced to just 85 absences per 1000 employees per year.

Baking tin lids were placed and removed from baking tins at a rate of up to 650 per hour by one or two operatives. Staff complained about the repetitiveness of the work which involved stooping, twisting and holding loads away from the body. The company automated the process at a cost of £16 000. The operators could be redeployed elsewhere, complaints ceased, noise reduced, production improved and the yearly cost saving was between £50-60 000.

A 20-year-old man was admitted to hospital from work with an acute asthmatic attack caused by flour dust inhalation. In the previous 12 months he had been absent from work for 25 days with chest symptoms. His exposure to flour dust was dramatically reduced by engineering controls and better work methods and he was able to go back to work. In the following three years he did not have any time off with chest problems.

Dermatitis: Have you managed the risk?

Your assessment should identify tasks where workers' hands come into contact with water, soaps, detergents and foodstuffs such as those listed on page 20. Sickness absence due to skin problems should be monitored and workers' complaints investigated. If a dermatitis problem is identified, the cause should be established and, if possible, the substance removed or replaced with something safer.

If this is not possible, contact with the substance should be prevented in some other way, eg by not touching the foodstuff or by wearing gloves (but remember, some people are sensitive to rubber and latex glove materials).

The situation should be closely monitored to ensure the control measures are effective.

Further information can be found in:

Occupational dermatitis in the catering and food industries Food Information Sheet FIS17 HSE Books 1997

Preventing dermatitis at work: Advice for employers and employees Leaflet INDG233 HSE Books 1996 (single copy free or priced packs of 15 ISBN 0 7176 1246 5)

Medical aspects of occupational skin disease Medical Guidance Note MS24 (Second edition) HSE Books 1998 ISBN 0 7176 1545 6

Case studies

A number of employees in a food production area developed dermatitis. This was traced to water disinfecting tablets which were used to wash vegetables. The employer stopped those who had developed dermatitis

working in this area and issued gloves to all the food handlers who were subsequently involved in this work. This satisfactorily resolved the problem.

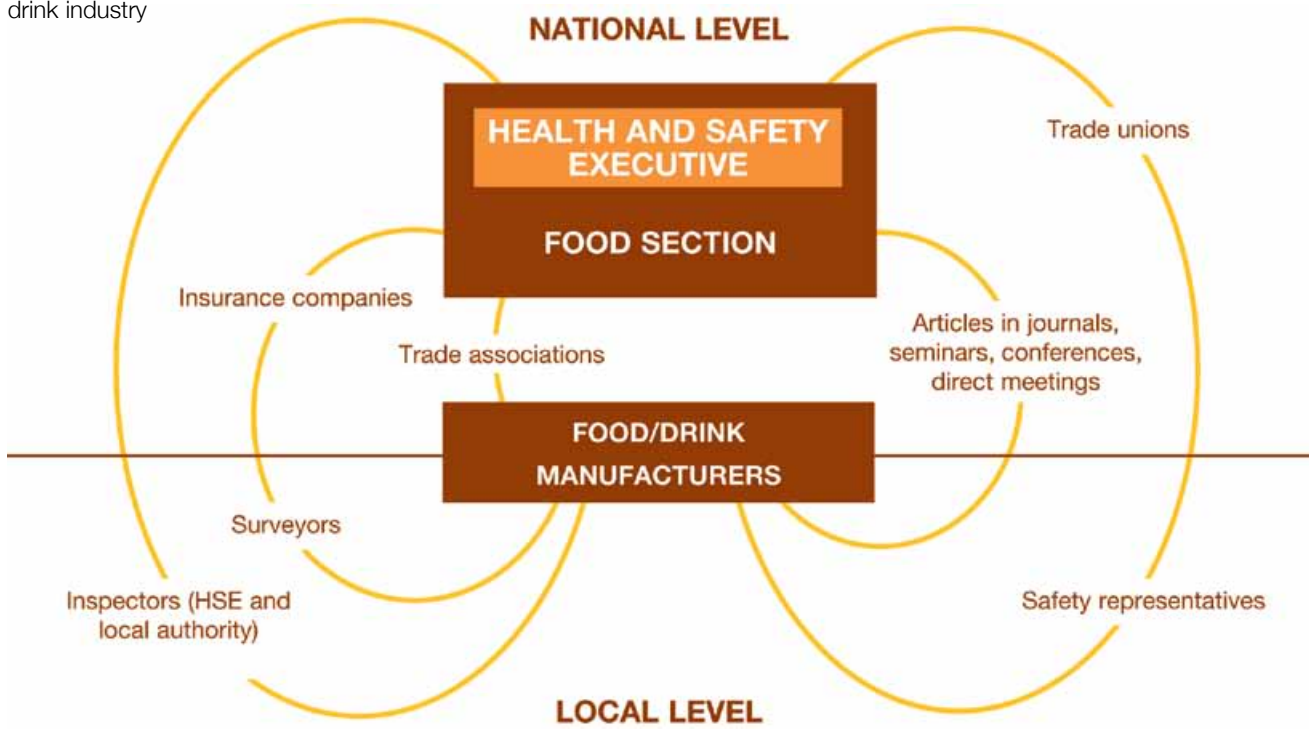
A 40-year-old female employee wore latex gloves when handling garlic and ginger in the production of soups and sauces. The skin on her hands occasionally became cracked and bled, necessitating time off work. Investigations into the cause of her dermatitis found that it was due to the latex gloves and not the ingredients she handled. She now wears hypoallergenic non-latex gloves and continues to work in the same department.

What is HSE doing?

HSE is:

- raising awareness of the need to improve through the Food Manufacture Health and Safety Forum, health and safety liaison committees, conferences, and articles in trade journals. Wide distribution of this guidance will inform those who have not been reached already and reinforce the message throughout the industry. The Food and Drink Federation, other trade associations and trade unions are helping via their newsletters and have run conferences jointly with HSE to stress the approach in this guidance;
- prompting attention to wider issues of health and safety as detailed in this guidance, rather than just the narrower areas such as machinery guarding as in the past;
- encouraging industry to inform its members of the more detailed information available on the main injury-producing situations in their sector of the food industry;
- running campaigns highlighting occupational ill-health risks;
- providing an agenda for discussions, by this guidance, between equally informed managers and safety representatives. Visiting inspectors will also use this guidance as a basis for discussion with safety representatives and management;
- working with representatives of local authority associations to assist consistency of enforcement and advice to the food industry. Local authority inspectors visit retail catering and food premises and distribution warehouses;
- enforcing the law where necessary;
- ensuring a consistent message on priorities is given to companies so they do not receive conflicting demands. HSE's Food Section has liaised with those who can influence health and safety to agree the approach outlined in Figure 5.

Figure 5 Influencing health and safety in the food and drink industry



Getting help and advice

Few firms can hope to have all the answers on planning, organisation and control. One of the essential elements of a safety policy is identifying where to get information and help. This can be obtained from a number of sources, including HSE's food manufacture website: www.hse.gov.uk/food.

In addition to those mentioned in this publication, a wide range of advice is published by HSE. In particular, *Essentials of health and safety at work* HSE Books 1999 0 7176 0716 X is a primary access guide.

You can also obtain advice from the following sources:

- HSE offices (look under Health and Safety Executive in telephone book) can provide both specific advice and help;
- offices of your local authority Environmental Health Department (especially for health and safety issues in retail establishments);
- employers' federations (eg the Food and Drink Federation) and trade associations;
- trade unions;
- safety consultants;
- small business advisory centres and groups;
- local safety groups;
- professional bodies and organisations;
- certain universities and technical colleges;
- safety and trade journals;
- suppliers of machinery and substances for use at work.

While every effort has been made to ensure the accuracy of the references listed in this publication, their future availability cannot be guaranteed.

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Food and Drink Federation
Union of Shop, Distributive and Allied Workers (USDAW)
Member organisations of the Food Manufacture Health and Safety Forum
Food Industry Medical Association (FIMA)

Further information

HSE priced and free publications can be viewed online or ordered from www.hse.gov.uk or contact HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995. HSE priced publications are also available from bookshops.

For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

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