3 Phases 2 and 3: Methods

A questionnaire was developed and distributed to a range of manufacturing companies. The questionnaire was aimed at staff responsible for health and safety and probed issues relating to current risk assessment processes, the type of risk assessment employed, subsequent interventions identified and obstacles to conducting risk assessments and implementing interventions. Companies were also asked to send in copies of their current risk assessment checklists for review. Information on who conducts risk assessments and levels of training were also collected.

The questionnaire was developed by the project team and peer-reviewed by colleagues in Loughborough University. The structure was conventional and relied on traditional data collection approaches so as to be robust and reliable while staying within ethical requirements in terms of the data collected and the time required for completion. A combination of closed questions, qualitative responses, Likert scales and free text was utilised to extract the most complete data. The questionnaire was piloted on three health and safety personnel in Loughborough University for comprehension and appropriateness of responses gained. A brief trial analysis of the pilot data was undertaken to ensure that the data collected effectively addressed the research questions for which the questionnaire was being employed. Minor revisions were made to aid the clarity of both the questions and the responses received. A copy of the questionnaire is presented in Appendix 1.

Three hundred questionnaires were sent to manufacturing companies in the East and West Midlands. The Midlands provided a convenient sample resource. Manufacturing was chosen as the appropriate sector since it had the highest incidence of the type of MSD injuries which many of the risk assessment checklists seek to address. Companies were selected at random from the Yellow Pages. Companies that did not return a questionnaire within two weeks of receipt were telephoned to encourage the completion and return of the questionnaires.

However, the response rate from this initial distribution was very poor (27 returned questionnaires, or 9 per cent). To increase the response rate, a second set of manufacturing companies was selected at random from the Yellow Pages, but this time each company was contacted before the questionnaire was sent. Telephone contact was first established with the person responsible for health and safety and it was ascertained from that individual whether they would be willing to complete the questionnaire for the research project. All those that said they would like to complete a questionnaire were then sent one by post. From this a further 81 questionnaires were distributed but again the response rate was very low (seven returned questionnaires, or 9 per cent).

To further increase the response rate, the questionnaire was developed into an online version which was placed on the ESRI and IOSH websites. A number of conferences in different sectors of manufacturing were visited to gain email addresses of attendees to send out links to the questionnaire. Furthermore, advertisements with links to the questionnaire were placed on the IOSH and ESRI websites and 100 questionnaires were distributed at a training course held by the Trades Union Congress (TUC) attended by people responsible for health and safety. These efforts significantly improved the number of responses (Table 3.1). In total, 88 completed questionnaires were received from companies with more than five employees. Section 4 of this report presents the results of the survey.

3.1 Phase 3 – Walk-through audits

Fifteen companies were randomly selected from those of the 88 that had stated an interest in participating further in the questionnaire. These companies were contacted and asked to provide copies of their risk assessment procedures and their checklists used for assessing MSDs. Each company was then visited by two ESRI researchers. During each site visit information concerning the following was gathered:

- type of work tasks conducted
- general risk assessment process
- risk assessment process specific to MSDs (for this, a distinction was made between manual handling risk assessments, which were defined as those assessments used to assess tasks which involved lifting, lowering, pushing and pulling of objects, and ULD risk assessments, which assessed tasks that did not necessarily involve heavy objects but were manually intensive and perhaps repetitive in nature)
- risk assessment outcomes and interventions

Table 3.1
Distribution of the questionnaire

Source of distribution	Number of questionnaires distributed	Number of completed questionnaires returned
Yellow Pages manufacturing section	381	34
Health and Safety at Work magazine advertisement		3
IOSH website and ESRI online questionnaire – email links sent direct to members of: • IOSH Food and Drink Production • The Health and Safety Confederation of British Wool Textiles • The British Tyre Manufacturing Association		IOSH website: 3 Online questionnaire: 30
Conference stand: Occupational Health and Safety in the Food Industry 2007	20	5
Conference stand: PLEDGE Ceramics Industry Health and Safety 2007	35	6
Training courses: Regional Education Midlands TUC	100	7
	Total	**88**

- any problems encountered in the risk assessment process
- general comments relating to health and safety and the assessment and control of risk.

The audit took the form of a semi-structured interview, with the interviewer providing a skeletal framework of fundamental generic questions, posed in a common format, and enhanced by additional information revealed by the visit. In principle, the core data of the audits would be comparable since the information would be gained by structured questions. In practice, the variability of the environments, activities and approaches meant that the main content was addressed but significant additional information was acquired. This information was either further detail on the prompted issues or spontaneously volunteered by the interviewee in the course of the audit.

In some cases, considerable discussion revolved around the specific processes being observed and the data collected could therefore extend significantly beyond the specific structured questions. An example would be where the industry had two components which serviced the artisan and mass-production sectors. The approaches and interventions required for the company in this case were much more diverse than for those involving a single production process. It was also the case that preconceptions regarding the nature of the manufacturing processes were often dispelled by the site visit and consequently the discussions regarding health and safety practices were, by necessity, less structured. However, the key issues were consistently addressed by the main prompts during the audit. The results can be seen in Section 4 of this report.

4 Phase 2: Survey results

4.1 Respondent companies

In total 88 completed questionnaires were received from companies with more than five employees. Companies with five than five employees were not included as valid respondents, as these companies are not required under the Health and Safety at Work etc Act 1974 to record risk assessment results and therefore are unlikely to have or use checklists or other written forms of assessing and recording risk. Of the 88 responding companies, 40 (45 per cent) were large companies (300 or more employees), 24 (27 per cent) medium-sized (50 to 299 employees) and 24 (27 per cent) were small (5 to 49 employees).

The sectors with the largest number of responding companies were the food and drink and transport manufacturing sectors, both with 32 per cent of respondents (Table 4.1). Table 4.2 shows the reported mean percentage of employees engaged in particular activities in each sector.

Shaded cells in the table highlight the sectors which had the greatest mean percentage of employees engaged in each activity. 'Food and drink' and 'Metal and metal goods' had the greatest mean percentage of the workforce engaged in manual handling activities and 'Glass and ceramic' and 'Transport' had the greatest mean percentage of the workforce engaged in repetitive short cycle work activities.

Table 4.1 Manufacturing sectors of respondent companies

Industry sector	Number of companies	Percentage of companies %
Food and drink manufacturing	28	31.8
Transport manufacturing	28	31.8
Refrigeration	10	11.4
Manufacturing tools	9	10.2
Consumer goods	6	6.8
Fuel	6	6.8
Paper manufacturing	6	6.8
Textile manufacturing	6	6.8
Other	6	6.8
Chemical manufacturing	5	5.7
Rubber and plastics	5	5.7
Electrical and electronics	4	4.5
Mining and quarrying	4	4.5
Timber manufacturing	4	4.5
Metal and metal goods	3	3.4
Packaging	3	3.4
Optical and precision instruments	2	2.3
Glass, ceramic and brick	1	1.1
Machinery manufacturing	1	1.1
Total	88	100.0

Table 4.2
Percentage of the workforce engaged in particular activities, split by manufacturing sector (two highest sectors highlighted)

	Manufacturing sector												
Type of task	Chemical	Consumer goods	Electrical and electronics	Food and drink	Glass, ceramic and brick	Machinery	Tools	Metal and metal goods	Refrigeration	Rubber and plastics	Textiles	Timber	Transport
Manual handling	66	69	30	74	69	10	10	71	57	63	70	50	55
Repetitive short cycle	34	49	10	50	65	10	10	33	33	30	10	27	63
Repetitive long cycle	20	47	33	44	13	10	0	51	20	35	55	33	43
Seated	26	41	60	18	18	80	70	26	27	23	25	30	30
Standing	30	55	13	44	20	0	10	22	27	35	40	17	27
Machine paced	26	22	0	53	53	10	0	36	0	30	55	30	32
Hand held tools	20	17	28	21	10	0	20	24	30	45	5	15	53
Computer	34	52	68	24	15	70	70	29	40	38	25	27	22
Frequent bending, twisting or reaching	50	57	15	55	50	10	30	56	53	53	55	27	72

4.2 health and safety responsibilities and training

Of the 88 respondents that completed the questionnaire, only 58 completed questions regarding their own training and health and safety responsibilities. Fifty-three respondents answered the question 'What percentage of your work time is spent conducting health and safety responsibilities?' The mean percentage of time spent on health and safety responsibilities was 46 per cent of total working time. Figure 4.1 shows that 13 respondents (25 per cent) reported spending approximately 10–20 per cent of their total working time on health and safety responsibilities and 11 (21 per cent) reported spending 90–100 per cent of their time on this.

Figure 4.1
Percentage of work time spent by respondents on health and safety responsibilities

The percentage of work time spent on health and safety responsibilities may be related to company size. People responsible for health and safety in large companies spent a greater percentage of their work time on health and safety duties than those in medium and small companies (Figure 4.2), with larger companies tending to have a dedicated health and safety manager/officer.

Fifty-three respondents answered the question about whether they had received specific training in risk assessment. Of those, 41 (77 per cent) had received specific risk assessment training. All but two people (94 per cent) responsible for health and safety in large and medium-sized companies had received specific training in risk assessment, whereas the figure in small companies was under 50 per cent. Of the 41 respondents receiving specific training in risk assessment, 32 (77 per cent) had received training through face-to-face training sessions (Figure 4.3).

Of the 41 respondents who had received specific training in risk assessment, 15 respondents (37 per cent) received training from a training company and 11 (27 per cent) received training from a consultant held in a location away from the workplace (Figure 4.4).

Out of the 41 respondents who had received specific training in risk assessment, 29 (71 per cent) reported that this training also included information specifically relating to the assessment of musculoskeletal risks. A notably greater percentage (93 per cent) of respondents from medium-sized companies attended risk assessment training courses that included information about assessing MSD risks than those from small or large companies (67 and 53 per cent respectively).

4.3 Risk assessment of musculoskeletal risks

Of the 82 respondents that answered the question asking whether any risk assessments for musculoskeletal risks had been conducted, 22 respondents (27 per cent) reported that all work tasks had been assessed, 47 (57 per cent) said that some MSD risk assessment had been conducted and 13

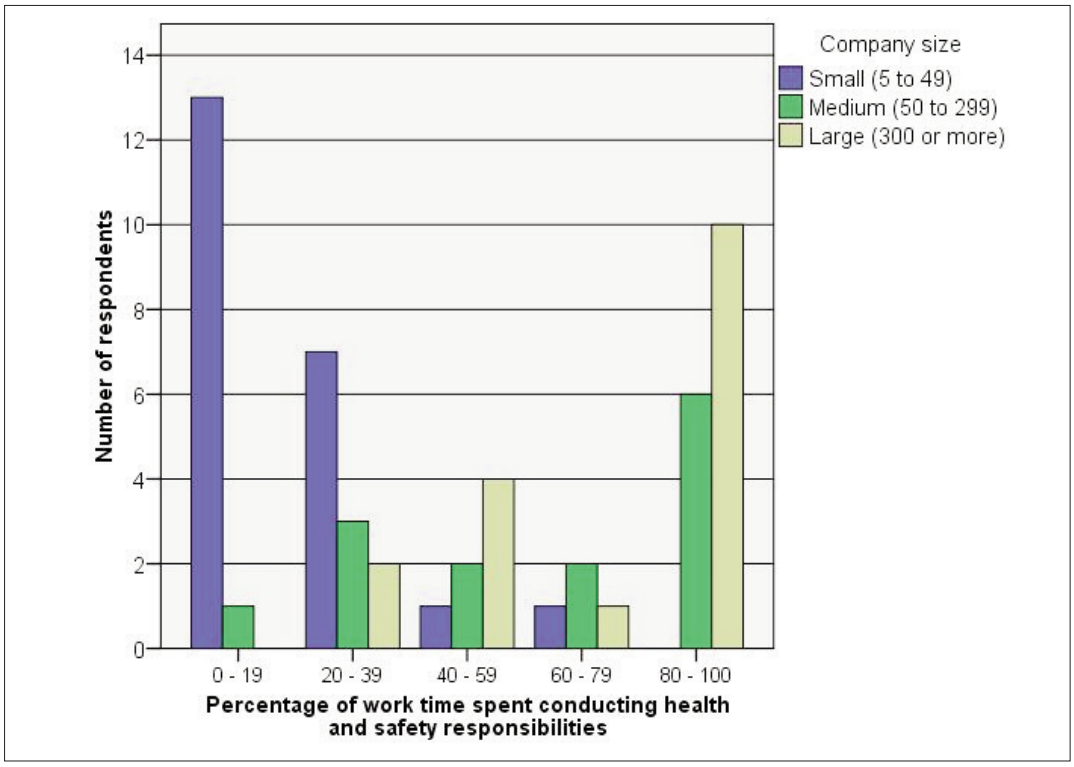

Figure 4.2
Percentage of respondents' work time spent on health and safety responsibilities by company size

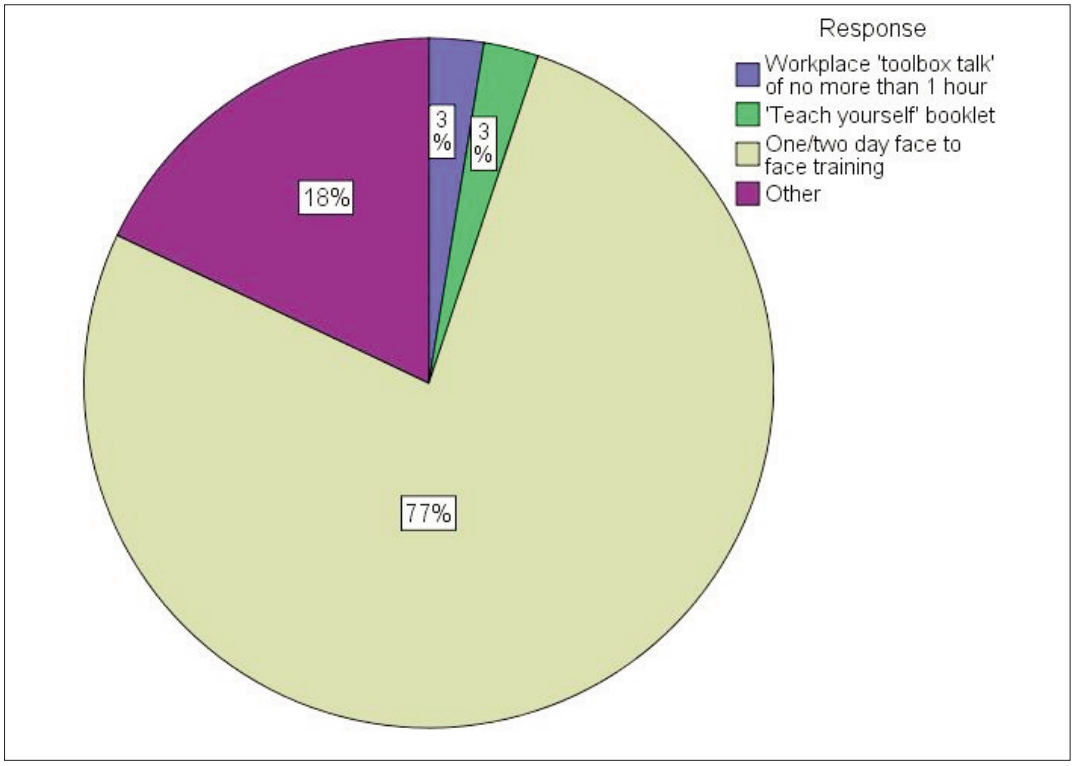

Figure 4.3
Percentage of respondents that had received specific risk assessment training and what format the training was in

respondents (16 per cent) reported that no risk assessments for MSD risk had been conducted. More respondents from medium and large companies reported that they had conducted MSD risk assessments for all tasks than those from small companies (8 from medium companies (38 per cent), 10 from large companies (27 per cent) and 4 from small companies (17 per cent) – see Figure 4.5).

The majority of companies that had conducted risk assessments of MSD risks reported using checklist-based risk assessments. Of the 69 respondents that reported that their company had conducted MSD risk assessments on all or some tasks, 30 (43 per cent) said that all of these

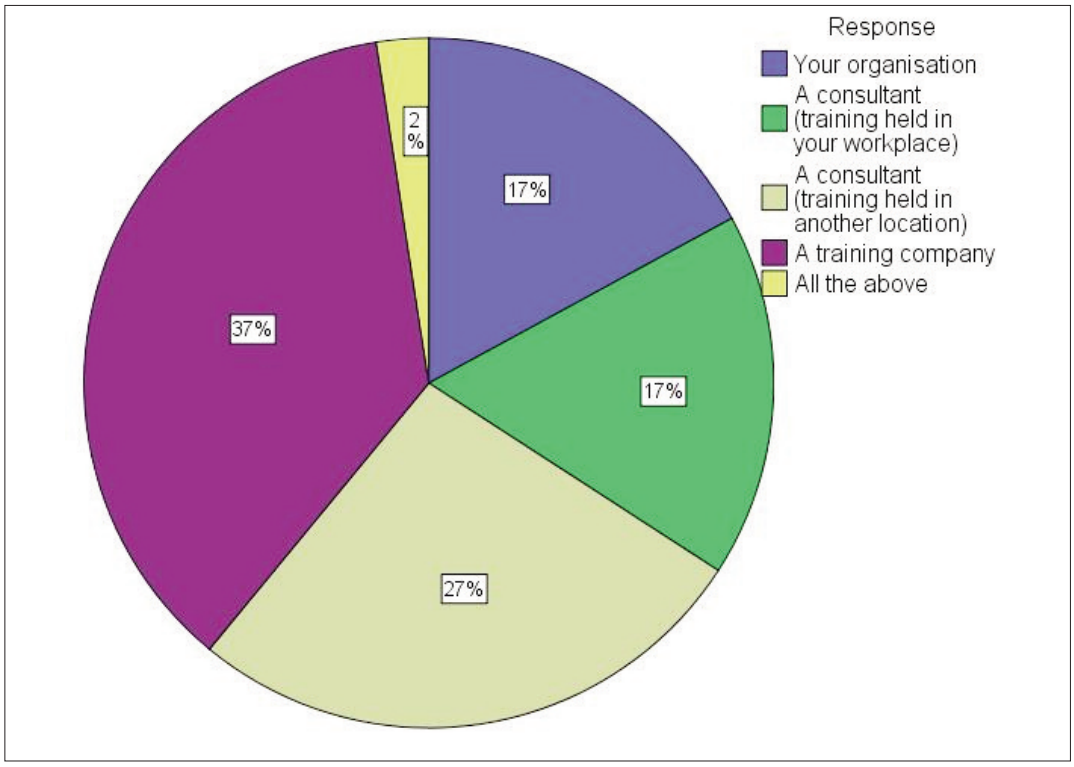

Figure 4.4 Percentage of respondents that had received specific risk assessment training and where the training took place

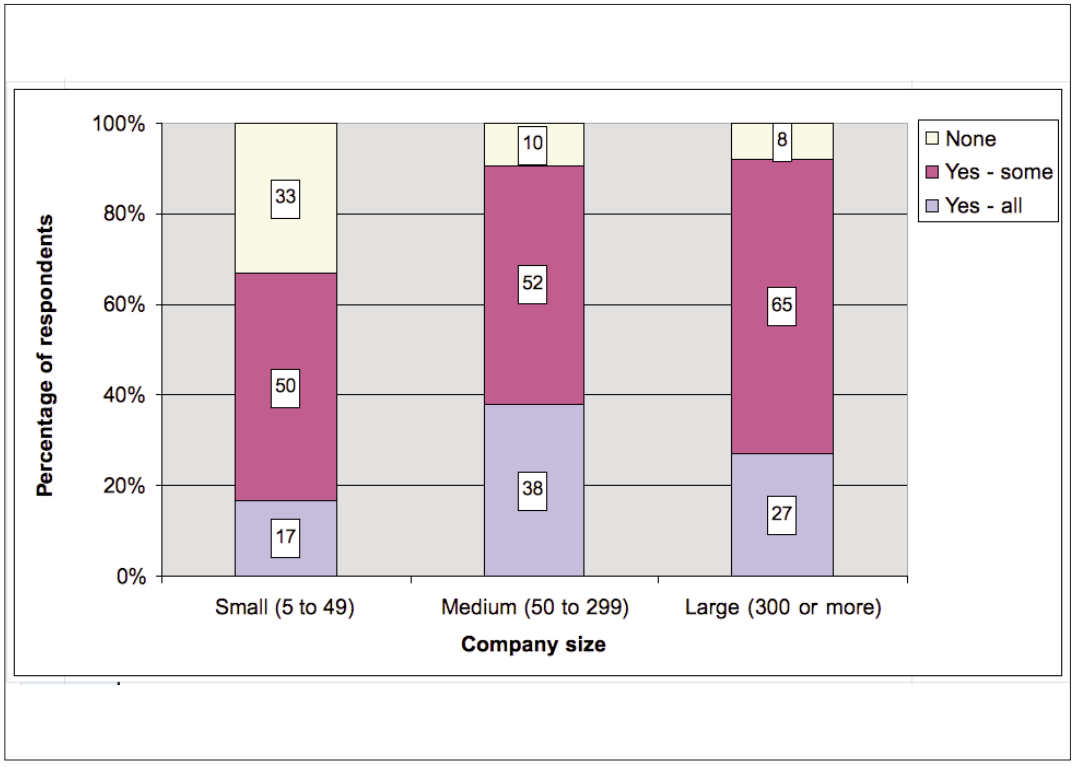

Figure 4.5 Percentage of respondents reporting that MSD risk assessments have been carried out, by company size

assessments used checklists and 28 (41 per cent) said that some of them did. The remaining 16 per cent reported that none of their MSD assessments used a checklist.

4.3.1 Resources used

The resource reportedly used by most companies was the HSE Manual Handling Operations Regulations 1992 (53 out of 88 respondents, 60 per cent). The second most used resources were the Health and Safety (Display Screen Equipment) Regulations 1992 and the HSE's 'Five steps to risk

assessment' leaflet. Additionally, 56% of all companies used a checklist that was developed in house to assess musculoskeletal risks (Table 4.3).

Table 4.3
Resources used to help with assessing and controlling MSD risks

Resource	Number of respondents	Percentage of respondents
HSE Manual Handling Operations Regulations 1992	53	60
Checklist developed in house	49	56
HSE *Five steps to risk assessment* leaflet	48	55
Health and Safety (Display Screen Equipment) Regulations 1992	48	55
HSE Manual Handling Assessment Charts (MAC)	37	42
HSE HSG60 *Work related upper limb disorders: a guide to prevention*	23	26
Checklist provided by external consultant/advisor	19	22
Quick Exposure Check (QEC)	6	7
NIOSH lifting equation	5	6
Rapid Upper Limb Assessment (RULA)	1	1
Don't know	2	2

People responsible for conducting the risk assessments

In response to the question 'Who conducts the risk assessments for musculoskeletal risks?', 47 out of 74 respondents (64 per cent) reported that the person responsible for health and safety conducted risk assessments of MSDs, ie the health and safety officer or manager. This was followed by 'supervisors' (43 per cent), 'health and safety representatives' (42 per cent) and 'managers' (41 per cent) (Table 4.4).

Table 4.4
Who conducts MSD risk assessments in respondents' workplaces

Resource	Number of respondents	Percentage of respondents
The health and safety officer/manager (person responsible for health and safety)	47	64
Supervisor	33	43
Health and safety representatives	32	42
Manager	31	41
Worker	26	34
External consultant	14	18

Twenty-seven per cent of respondents reported that none of the assessors of MSD risks had received any training in completing the risk assessment checklist, while 45 per cent reported that some of the assessors had received training and 28% reported that all assessors had received training.

4.3.2 Effectiveness of risk assessments for assessing MSD risks

Questions 32–37 of the questionnaire required respondents to mark on a percentage scale their level of confidence in the effectiveness of specific aspects of the risk assessment used to assess MSD risk:

- capturing all the risks
- prioritising areas for improvement/action
- differentiating between high, medium and low risk tasks
- correct use
- sufficient time for correct use.

Seventy-three respondents completed question 32: 'How confident do you feel that the risk assessment used to assess musculoskeletal risk factors in your company is capturing all the risks?' Twenty-three per cent of respondents were less than 50 per cent confident of this. However, 50 per cent of respondents reported 70 per cent or greater confidence (Figure 4.6).

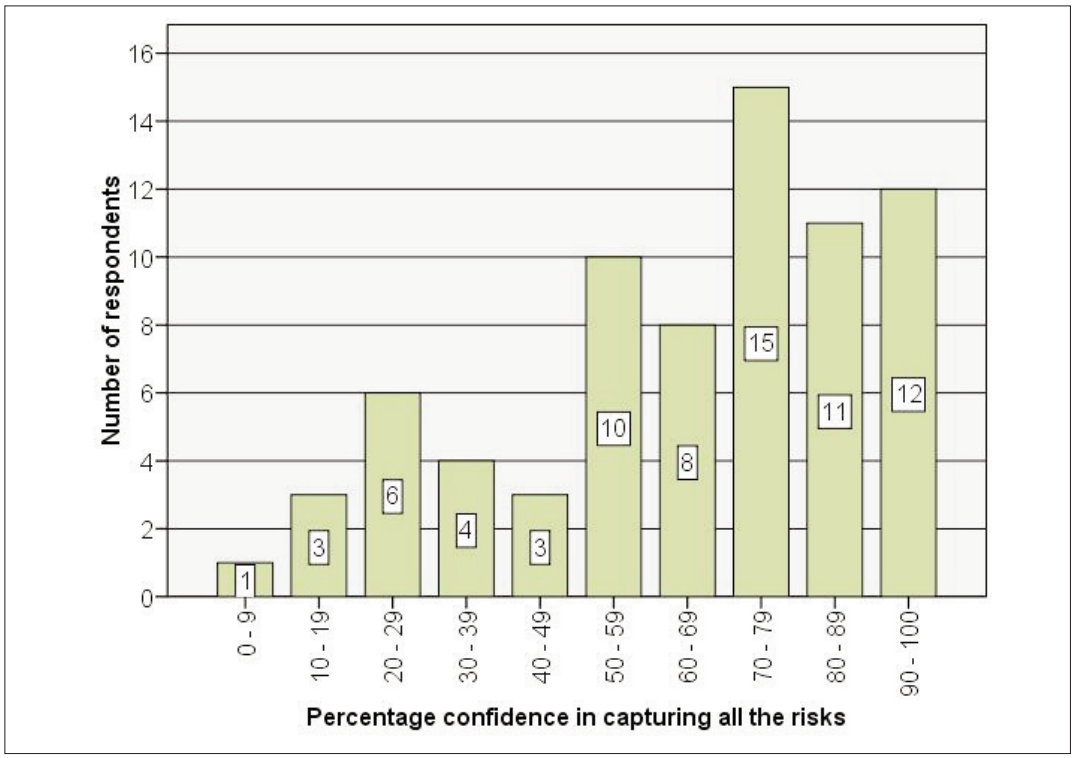

Figure 4.6
Respondents' confidence that MSD risk assessments in their workplace are capturing all the risks

Sixty-seven respondents completed question 33: 'How confident do you feel that the risk assessment to assess musculoskeletal risk factors in your company is prioritising areas for improvement/action?' Eighteen respondents (27 per cent) were less than 50 per cent confident in this, but 32 (48 per cent) reported having 70 per cent or greater confidence in their risk assessments in this regard (Figure 4.7).

Sixty-seven respondents completed question 34: 'How confident do you feel that the risk assessment used to assess musculoskeletal risk factors in your company is accurate in differentiating between high, medium and low risk tasks?' Nine respondents (13 per cent) were less than 50 per cent confident in this, but over half of respondents (37, or 55 per cent) reported 70 per cent or greater confidence (Figure 4.8).

Sixty-seven respondents completed question 35: 'How confident do you feel that you (or whoever conducts the risk assessment) are using the musculoskeletal risk assessment correctly?' Thirteen respondents (19 per cent) were less than 50 per cent confident about this, but over half of respondents (36, or 54 per cent) reported 70 per cent or greater confidence. (Figure 4.9).

Seventy-three respondents completed question 36: 'How confident do you feel that you (or whoever conducts the risk assessment) have sufficient time to conduct the risk assessment correctly?' Sixteen respondents (22 per cent) were less than 50 per cent confident about this, but 36 respondents (49 per cent) reported 70 per cent or greater confidence. (Figure 4.10).

Overall, 7 per cent and 49 per cent of respondents were very satisfied and satisfied respectively with the risk assessment that their company used to assess MSD risk. A quarter (25 per cent) were neither satisfied nor dissatisfied, and 19 per cent were either dissatisfied or very dissatisfied.

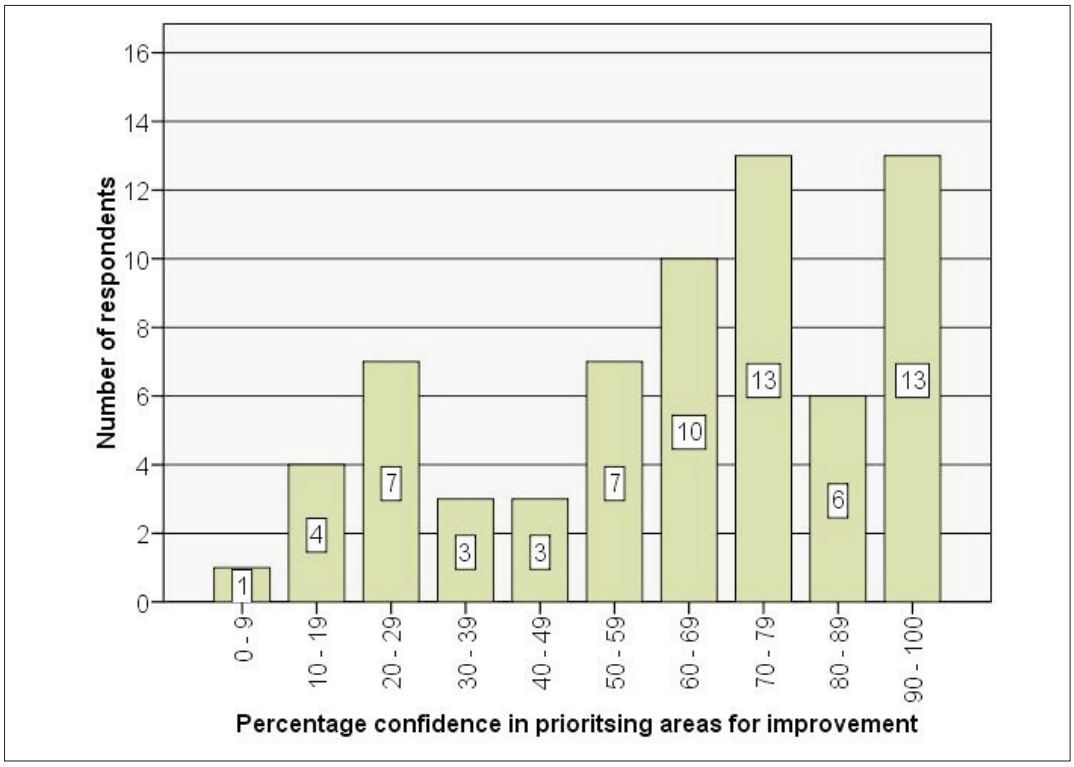

Figure 4.7
Respondents' confidence that MSD risk assessments in their workplace prioritise areas for improvement or action

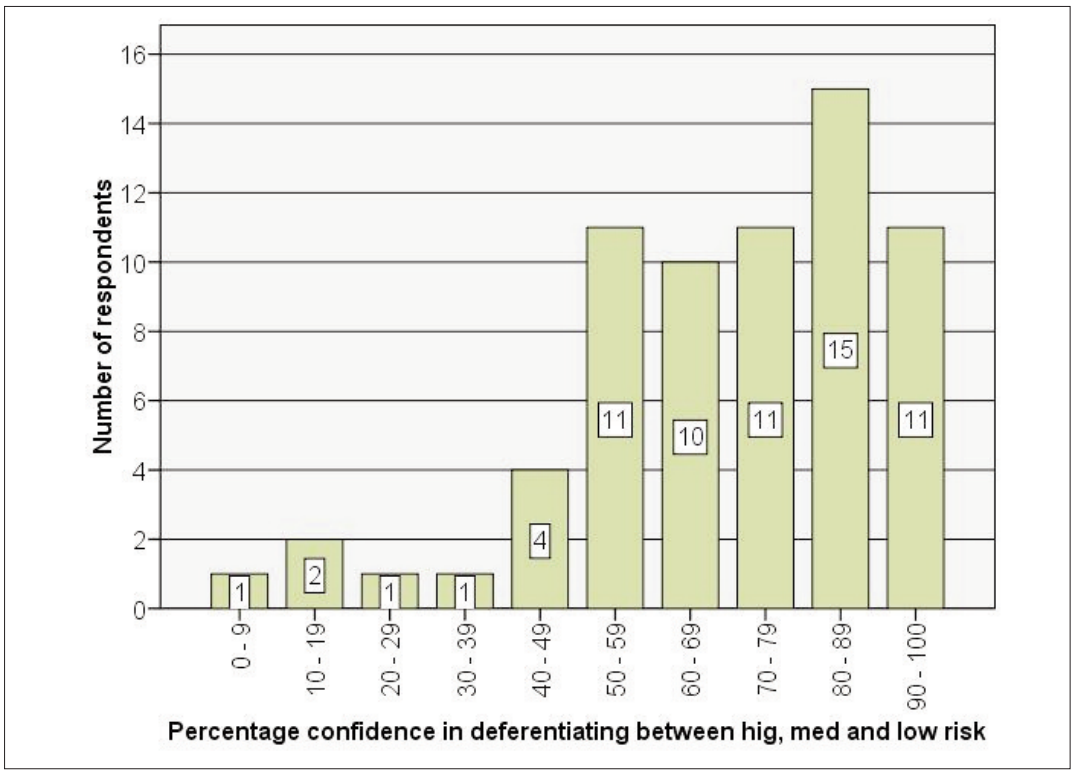

Figure 4.8
Respondents' confidence that MSD risk assessments in their workplace differentiate correctly between high, medium and low risks

Twenty-six respondents reported what they liked most about the risk assessment they currently use to assess MSD risk. A full list of the reported 'most liked' aspects is presented in Appendix B, question 38. Table 4.5 presents a summary of these aspects. The most liked aspect was that the checklist was straightforward and simple to use. This was followed by improving consistency across assessment and ensuring nothing is missed out and also that best practice/guidance is used to make the assessment.

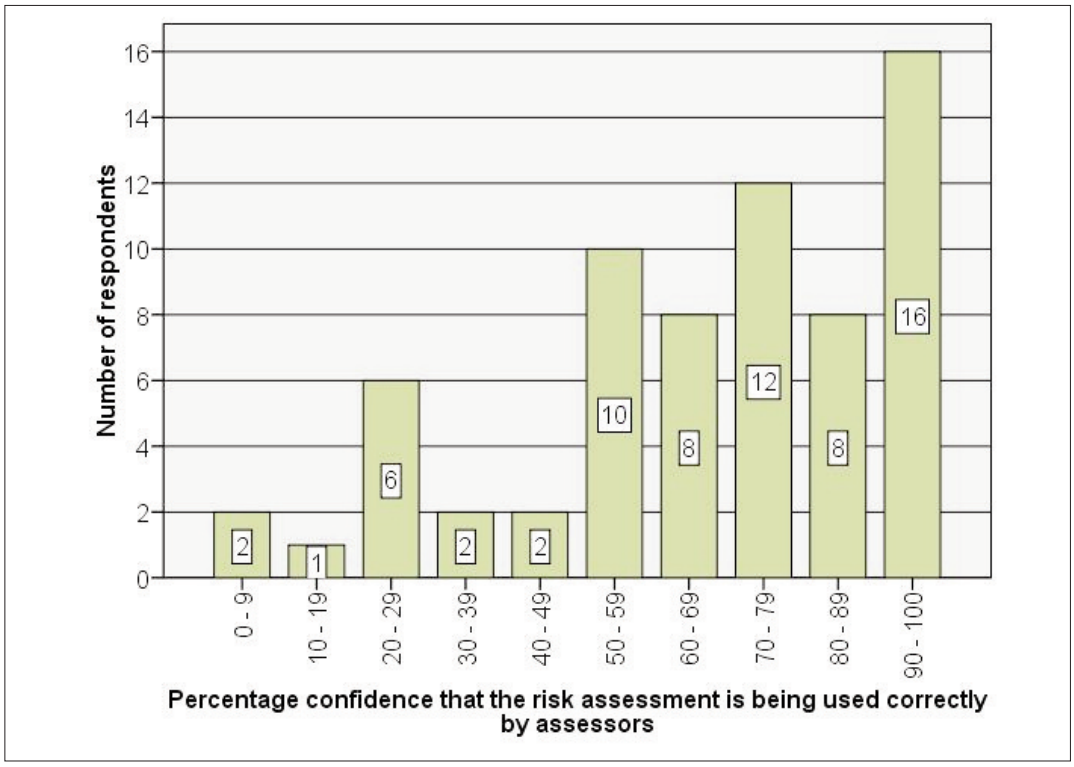

Figure 4.9
Respondents' confidence that MSD risk assessments in their workplace are being used correctly

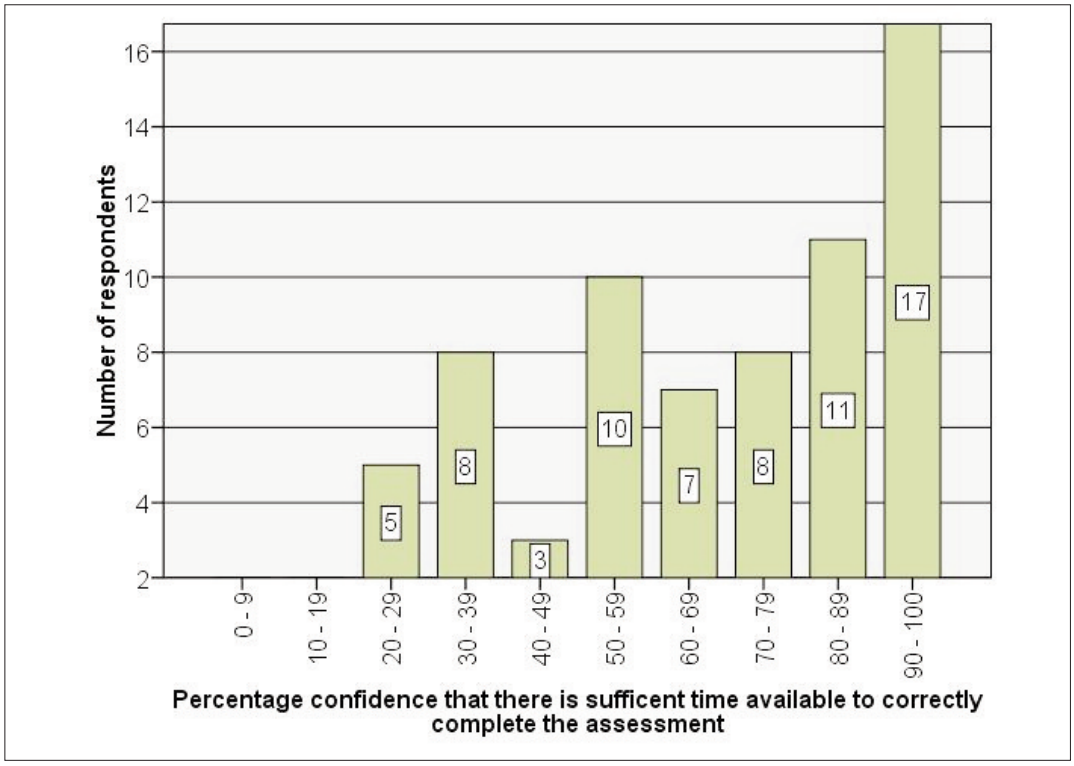

Figure 4.10
Respondents' confidence that the person responsible for MSD risk assessments in their workplace has time to carry them out properly

Table 4.5
Respondents' most liked aspects of MSD risk assessments

Most liked aspects of risk assessments used for assessing MSD risks	Number of respondents
Straightforward and simple to use	8
The checklist ensures that you are following guidance and best practice as it is based on either set of regulations, consultations of best practices and HSE guidance.	3
The checklist makes it difficult to forget to perform any of the required steps and improves consistency across assessments	3
Incorporates a numerical and colour coding score system to highlight high risk manual handling tasks	2
It gets the workers involved	2
It triggers areas to check	1
Easy to demonstrate results	1
Requires little training	1

Twenty-three respondents provided dislikes about the risk assessment they used to assess MSD. A full list of the dislikes is presented in Appendix B, question 39. Table 4.6 presents a summary of those aspects. The most commonly reported dislike was the time taken to conduct the assessments. This was followed by difference in ratings between assessors due to differences in level of understanding.

Table 4.6
Respondents' most disliked aspects of MSD risk assessments

Most disliked aspects of risk assessments used for assessing MSD risks	Number of respondents
Time	6
There are difference between assessors and their level of understanding. Very subjective.	2
Often not completed correctly	1
Problems accessing the results from the assessments	1
Could be more comprehensive	1
It is a very involved document and could be trimmed down	1
It's too simple	1
There is nowhere on the form to document how you come to the numerical score. The form doesn't allow a description on how you come to the score.	1
There are no separate columns for the target dates and responsibilities for each individual action,	1

4.4 Identifying and implementing interventions and actions

Respondents were asked to rate the level of likelihood that once MSD risks have been identified, then changes to reduce the risk will be also identified. Forty-nine respondents answered this question. Of these, 25 respondents (51 per cent) reported that it was 80–100 per cent likely that changes to reduce the risk would be identified, whereas 11 respondents (22 per cent) reported that the likelihood was 30–59 per cent (Figure 4.11).

Respondents were asked to rate the level of likelihood that 'once MSD risks have been identified, how likely is it that changes to reduce the risk will be Implemented?' Eighty-three respondents answered this question. Just under half of them (37 respondents, 45 per cent) reported that it was

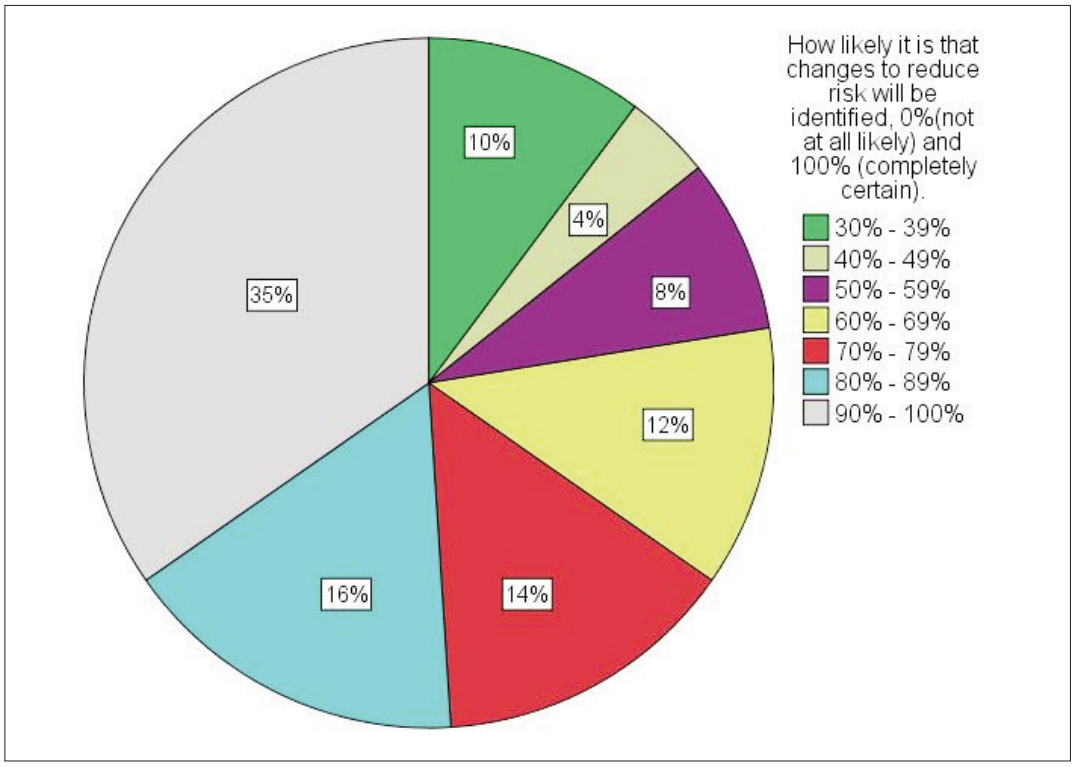

Figure 4.11 Respondents' rating of how likely it is that changes to reduce the risk will be identified

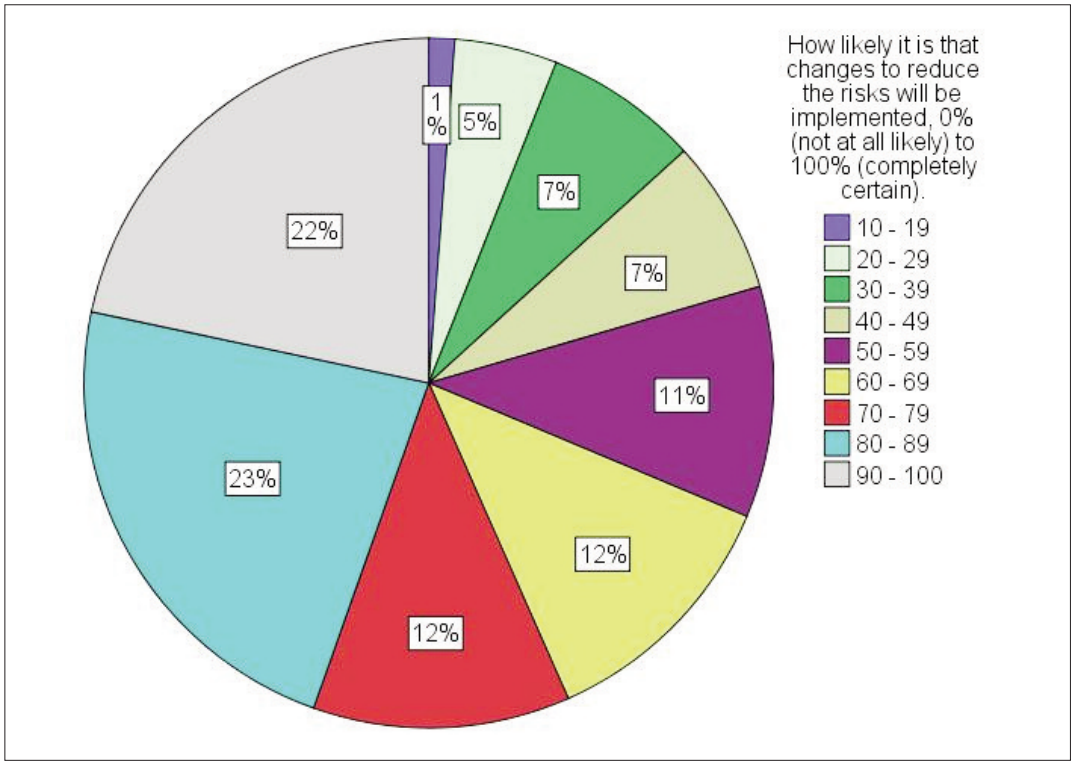

Figure 4.12 Respondents' rating of how likely it is that changes to reduce the risk will be implemented

80–100 per cent likely, while 17 respondents (20 per cent) reported that the likelihood was 0–59 per cent (Figure 4.12)

Of the 83 respondents who answered question 34, 74 provided additional information regarding the types of obstacle encountered. Error: Reference source not found 4.8 presents a summary of the main reported obstacles to implementing action or controls. Full comments are presented in the table in Appendix B, question 43. The most reported obstacle was cost (34 respondents) followed by employees' attitudes and resistance to change (19 respondents) and then time (11 respondents) (see Table 4.7).

Main obstacles	Number of respondents	Percentage %
Cost	34	41
Employee attitudes and resistance to change	19	23
Time	11	13
Enforcing changes	4	5
Communication with employees and management	4	5
Training	4	5
Finding / identifying solutions	3	4
Awareness	2	2
Changes to production	2	2
Space	2	2
Customer requirements	2	2
Language (foreign workforce)	1	1
Flexible labour force with frequent changes in staff	1	1

Table 4.7
Number of respondents reporting obstacles to implementing changes or interventions to reduce the risk of MSDs

4.5 Involvement of the workforce

4.5.1 Supervisors

Around two-thirds of all respondents (49 out of 74, 66 per cent) reported that supervisors were involved in the risk assessment of MSDs. Twenty-three respondents (31 per cent) reported that supervisors were not involved.

Of the 49 respondents that reported that supervisors were involved in the process, 46 provided more information on how the supervisors were involved. Table 4.8 presents a summary of the main ways in which supervisors were reported to be involved. Appendix E, question 27 presents the full comments. The most commonly reported way in which supervisors are involved was 'Supervisors advise and provide information on the type of tasks conducted'. This was reported by 11 respondents.

4.5.2 Workers (operatives/shop floor workers)

Two-thirds of the respondents (50 out of 75, 67 per cent) reported that workers were involved in assessing MSD risks. The remaining 25 respondents (33 per cent) reported that workers were not involved.

Of the 50 respondents who reported that workers are involved, 42 provided more information on the nature of this involvement. A summary of the main ways in which workers are involved in the assessment of MSD risks is presented in Table 4.9. Full comments are presented in Appendix B, question 28. The most commonly reported form of involvement was that 'Workers are consulted and provide information on the type of tasks/postures conducted'. This was reported by 17 respondents.

4.6 Support towards health and safety activities

Questions 21a to 21d asked respondents to mark on a percentage scale the level of perceived support they gained from workers, supervisors, managers and engineers/equipment designers for health and safety initiatives and activities to address MSDs.

Respondents from small companies reported a higher mean percentage value of support from managers and supervisors than those from medium and large companies (Table 4.10). Small, medium and large companies all reported similar mean levels of support from workers and engineers, ranging from mean values of 42 to 65 per cent.

Table 4.8
Summary of the main ways in which supervisors are involved in assessing MSD risks

Responses	Number of respondents
Supervisors advise and provide information on the type of tasks conducted	11
Supervisors conduct the risk assessments	8
Supervisors assist with and/or are consulted during the assessment	8
Supervisors are part of the risk assessment team	6
Supervisors are trained and conduct the risk assessments	5
Supervisors are given the results and the recommendation for improvement actions	4
Supervisors expected to ensure recommendation / action are implemented and followed	4
Supervisors report any problems	3
Supervisors are made aware of the results from the risk assessments	3
Supervisors are consulted regarding control measures/changes	2
Supervisors review any control that are implemented following an assessment	2

Table 4.9
Summary of the main ways in which workers are involved in assessing MSD risks

Responses	Number of respondents
Workers are consulted and provide information on the type of tasks/postures involved	17
Some workers are part of the risk assessment team	7
Workers are invited to assist the assessment	6
Workers are consulted and asked to report any problems	3
Some workers conduct the risk assessments	3
Workers are trained to identify/understand the risks	2
Workers can put forward suggestions for improvement	2
Workers are made aware of the results from the risk assessments	2
Workers are trained and conduct the risk assessments	1
Workers are consulted regarding control measures/changes	1

4.6.1 Support from workers

Thirty-one out of 83 respondents (37 per cent) reported that they felt more than 70 per cent supported by the workers in health and safety matters, whereas 29 per cent felt less than 50 per cent supported (Figure 4.13).

4.6.2 Support from supervisors

Twenty-seven out of 80 respondents (34 per cent) reported that they felt more than 70 per cent supported by supervisors in health and safety matters, whereas 39 per cent felt less than 50 per cent supported (Figure 4.14).

4.6.3 Support from managers

Thirty-seven out of 82 respondents (45 per cent) reported that they felt more than 70 per cent supported by managers in health and safety matters, whereas 32 per cent felt less than 50 per cent

		Supported by			
Company size		Workers	Supervisors	Management	Engineers & equipment designers
Small (1 to 49)	Number of respondents	21	18	20	17
	Mean %	54	71	70	57
	Minimum %	10	20	0	0
	Maximum %	100	100	100	100
Medium (50 to 299)	Number of respondents	23	23	22	21
	Mean %	54	58	60	65
	Minimum %	10	20	10	10
	Maximum %	95	90	100	90
Large (300 or more)	Number of respondents	39	39	40	38
	Mean %	56	44	53	42
	Minimum %	2	10	10	0
	Maximum %	100	90	90	80

Table 4.10 Mean, minimum and maximum percentages of support reported from worker groups in small, medium and large companies

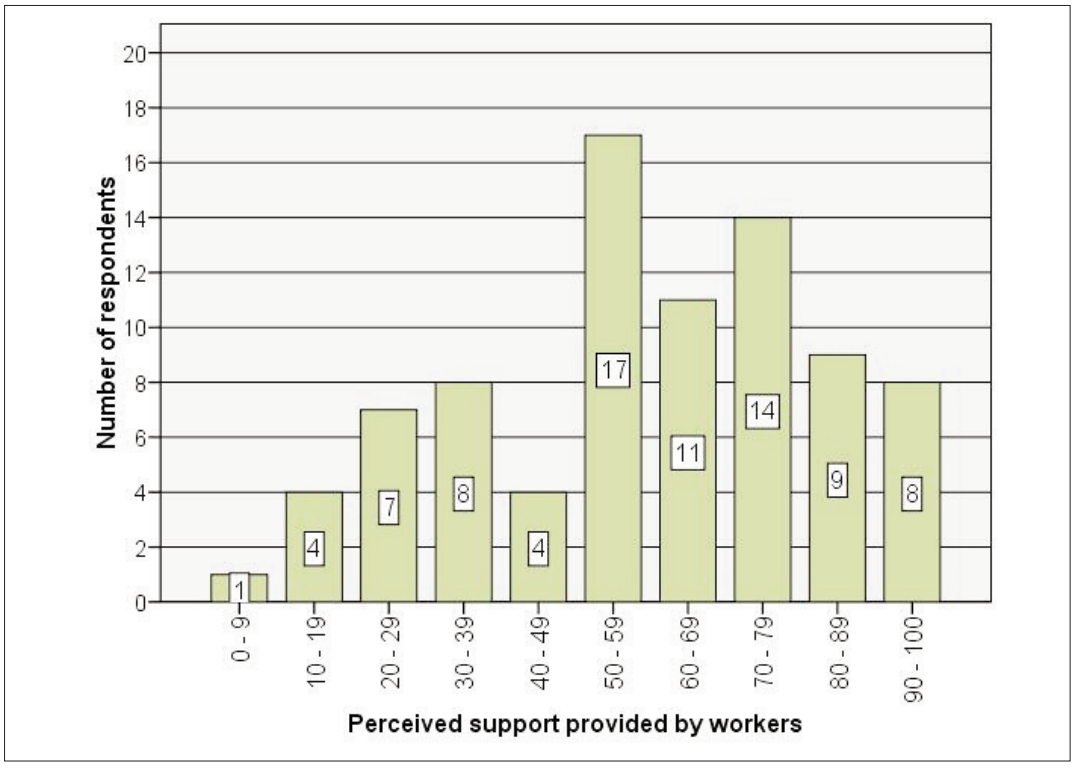

Figure 4.13 Percentage of respondents and the percentage of perceived support received from workers

supported (Table 4.15). It should be noted that analysis based on company size shows that small companies reported the greatest number of respondents reporting high percentages of support. This may be because respondents from small companies tend also to be the managers and therefore this result may be skewed slightly in a positive direction. Table 4.11 shows the level of reported support split by company size.

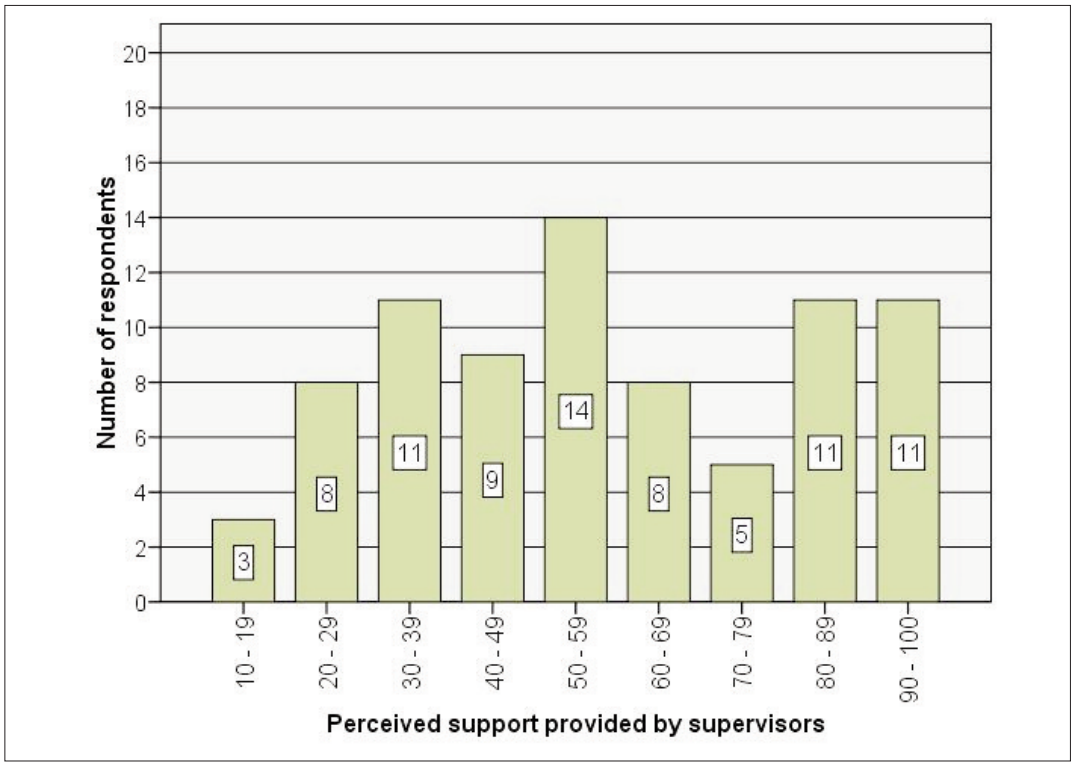

Figure 4.14
Percentage of respondents and the percentage of perceived support received from supervisors

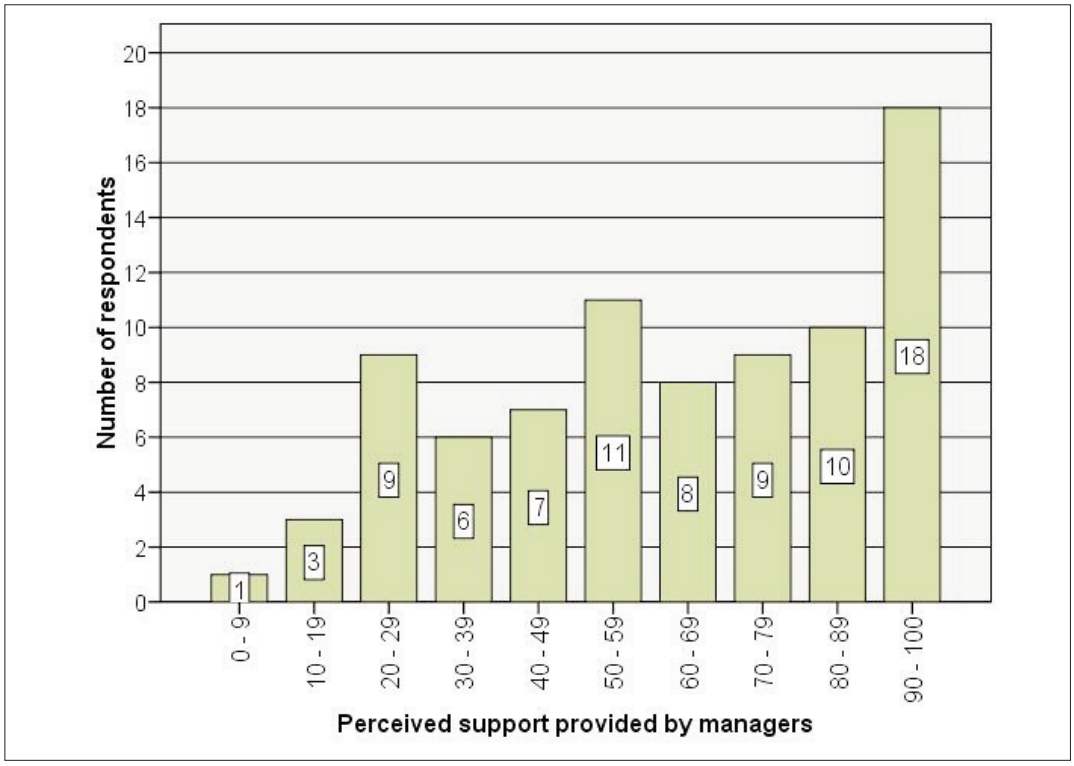

Figure 4.15
Percentage of respondents and the percentage of perceived support received from managers

	Company size					
	Small (1 to 49)		Medium (50 to 299)		Large (300 or more)	
	Count	Percent	Count	Percent	Count	Percent
0–9%	1	5	0	0	0	0
10–19%	0	0	2	9	1	3
20–29%	2	10	2	9	5	13
30–39%	1	5	1	5	4	10
40–49%	2	10	2	9	3	8
50–59%	0	0	2	9	9	23
60–69%	1	5	2	9	5	13
70–79%	0	0	2	9	7	18
80–89%	3	15	4	18	3	8
90–100%	10	50	5	23	3	8
Total	**20**	**100**	**22**	**100**	**40**	**100**

Table 4.11 Percentage of respondents from different sizes of company and the percentage of perceived support received from managers

4.6.4 Support from engineers/equipment designers

Thirty-two out of 76 respondents (42 per cent) reported that they felt more than 70 per cent supported by engineers/equipment designers in health and safety matters, whereas 37 per cent felt less than 50 per cent supported (Figure 4.16).

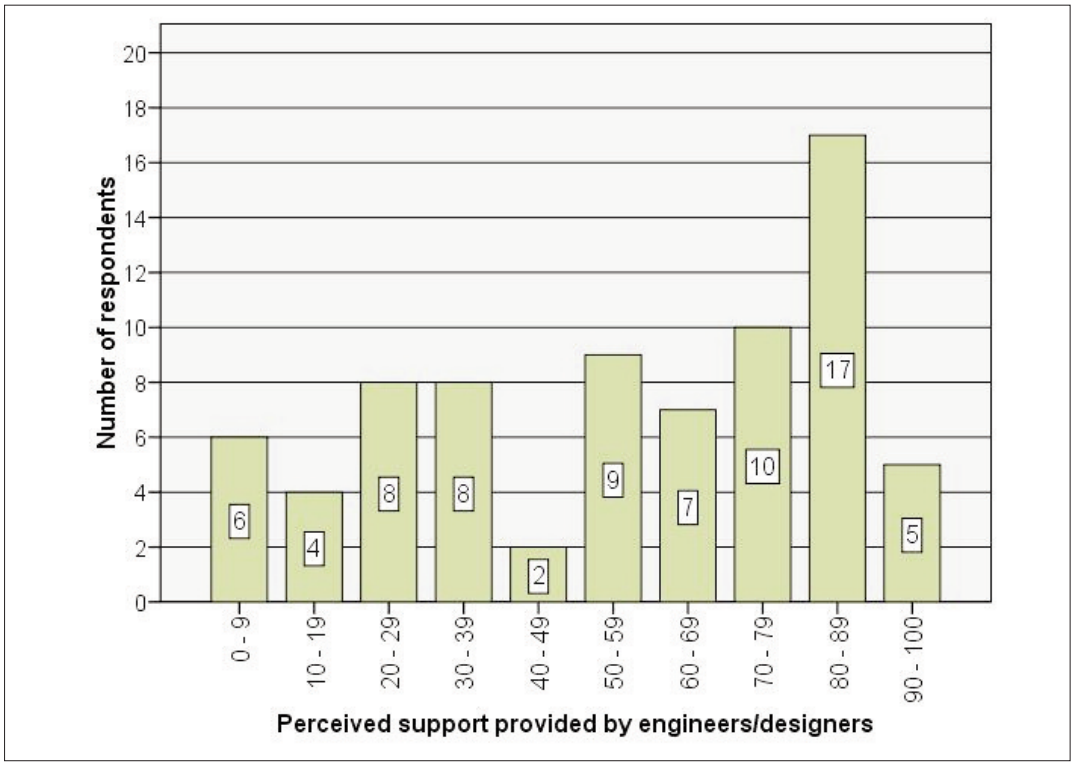

Figure 4.16 Percentage of respondents and the percentage of perceived support received from engineers and equipment designers

4.7 Summary of survey results

4.7.1 Training

Seventy-seven per cent of respondents had received specific risk assessment training. Nearly all people responsible for health and safety in large and medium-sized companies had received specific training in risk assessment, whereas fewer than 50 per cent of those in small companies had.

A significantly greater percentage (93 per cent) of respondents from medium-sized companies attended risk assessment training courses that included assessing MSD risks than those from small or large companies (67 and 53 per cent respectively).

Twenty-seven per cent of respondents reported that none of the assessors of MSD risks had received any training in completing the risk assessment checklist; 45 per cent reported that some of the assessors had received training and 28 per cent said that all had received training.

4.7.2 Assessing tasks for MSD risks

Sixty-four per cent of respondents reported that the person who conducted risk assessments for MSDs was the health and safety officer or manager. This was followed by 'Supervisors' (43 per cent), 'health and safety representatives' (42 per cent) and 'Managers' (41 per cent).

Twenty-seven per cent reported that all work tasks had been assessed for MSD risks. A greater percentage of respondents from medium and large companies reported that they had conducted MSD risk assessments for all tasks than those from small companies (namely 38 per cent of medium-sized companies, 27 per cent of large companies and 17 per cent of small companies. Overall, 57 per cent of respondents reported that only some tasks had been assessed for MSD risks and 16 per cent reported that none had been conducted.

4.7.3 Type of risk assessment used

Forty-three per cent of respondents reported that all their risk assessments used to assess MSD risks were checklist-based, while 41 per cent said that only some of their MSD risk assessments used a checklist. The remaining 16 per cent reported that none of their MSD assessments used a checklist.

Fifty-six per cent of all companies used a checklist that was developed in house to assess musculoskeletal risks.

The most liked aspect was that the checklist was straightforward and simple to use. This was followed by improving consistency across assessment, ensuring nothing is missed out and also that best practice/guidance is applied to make the assessment.

The most commonly reported dislike was the time taken to conduct the assessments. This was followed by difference in ratings between assessors due to differences in level of understanding.

4.7.4 Acting on the risk assessment findings - reducing the risks

Just over half (51 per cent) of respondents reported that it was 80–100 per cent likely that changes to reduce the risk would be identified, whereas 22 per cent reported that the likelihood was 30–59 per cent.

Just under half (45 per cent) of respondents reported that it was 80–100 per cent likely that changes to reduce the risk would be implemented. One-fifth (20 per cent) said that the likelihood was 0–59 per cent. The most reported obstacle was cost (34 respondents) followed by employees' attitudes and resistance to change (19 respondents) and then lack of time (11 respondents).

4.7.8 Involvement of staff in MSD risk assessment

Nearly two-thirds (66 per cent) of all respondents reported that supervisors were involved in the risk assessment of musculoskeletal disorders. The most commonly reported way in which supervisors are involved was 'Supervisors advise and provide information on the type of tasks conducted'. This was reported by 11 respondents.

Again, two-thirds (67 per cent) of all respondents reported that workers were involved in the risk assessment of musculoskeletal disorders. The most commonly reported way in which workers are involved was 'Workers are consulted and provide information on the type of tasks/postures conducted'. This was reported by 17 respondents.

5 Phase 3: Findings from the walk-through audit

This section presents a summary of the common themes and findings recorded from 15 site visits made to a range of manufacturing companies. The summary highlights comments made by particular companies regarding general risk assessment and MSD risk assessments. Appendix C presents the full results for each company. The companies are referred to as cases 1–15.

5.1 General risk assessment

General risk assessments were conducted at all sites and all demonstrated similar processes. These general risk assessments were typically conducted using a checklist comprising items referring to general top-level risks, eg handling of chemicals, manual handling, PPE. For every ticked item a reference is provided to a more detailed and specific risk assessment that covers that topic and which needs to be completed, eg manual handling, COSHH (Control of Substances Hazardous to Health).

Cases 6 and 7 commented that the risk assessment process was often seen as just a form-filling exercise. Case 12 reported that:

> People get hung up on completing the checklists correctly rather than implementing the solutions. Sometimes the actual completion of a checklist acts as a deterrent in doing anything to reduce the risks. People tend to think that completing a checklist is the end of the process.

Cases 1 and 3 commented that the benefit of using a checklist-based general risk assessment ensured consistency across assessors and different departments. The prompts and checklist items also provided a good aide-mémoire for assessors to consider all the risks.

Cases 1, 2, 11 and 12 reported that support from upper management on implementing and enforcing action based on risk assessment results was often poor because of lack of understanding and awareness.

Informing staff of the results of risk assessments was reported as being problematic because language difficulties in companies that employed large numbers of migrant workers. Several of the companies visited are currently investing in getting documents and training materials translated and some companies are investigating the increased use of pictorial methods of presenting important health and safety information (cases 3, 7, 8 and 11).

5.2 MSD risk assessment

This section focuses on issues raised in relation to risk assessment processes specific to musculoskeletal disorders. During discussions with people responsible for health and safety, a distinction was made between manual handling risk assessments (which were defined as those assessments used to assess tasks which involved lifting, lowering, pushing and pulling of objects) and ULD risk assessments, which assessed tasks that did not necessarily involve heavy objects but were manually intensive and perhaps repetitive in nature.

5.2.1 Training

Training supervisors

A maximum of six companies out of the 15 provided training to supervisors in general, manual handling and ULD basics and risks/hazards (Table 5.1). In case 9 it was explained that line leaders are trained in the hazards and in what to look for regarding MSD risk, eg poor postures. It was stated that this training is undocumented. When the line leaders observe someone adopting a poor working posture or adopting an inappropriate or poor work technique, they will point out their concern to the worker and discuss how to improve their technique. If the poor technique continues, the line leader will inform the health and safety manager, who will come and observe the tasks and assess the likely cause.

Training the broader workforce (shop floor workers)

Nine out of 15 companies provided manual handling information to workers. Fewer companies (six out of 15) provided information about ULDs to workers. The majority of the training given to workers for general health and safety, manual handling and ULDs was provided as part of the induction process (Table 5.1).

Table 5.1
The number of visited companies and the level of training provided to supervisors and workers

	Training received	General health and safety	Manual Handling	ULDs
Supervisors	Basic introduction	2	2	2
	Specific training in identifying hazards or risk factors	1	4	3
	Specific training in conducting risk assessments	2	0	0
	None	4	4	5
	Not provided	4		
Workers	As part of inductions	3	6	5
	Specific training in identifying hazards or risk factors	1	3	1
	Specific training in conducting risk assessments	0	0	0
	None	1	2	5
	Not provided	3		

Cases 1, 2, 5, 8 and 12 all stated that they would like to have all members of staff at all levels trained to conduct risk assessments for MSDs. Case 2 commented that this would help the workforce to accept change.

Case 12, in particular, had an interesting health and safety training package which forms part of all new workers' induction. The training includes basic health and safety information and behavioural health and safety. It is a package that was developed in house but which is delivered at Grimsby College. It is a two-hour session and the main part is a board game called 'Risky'. The game presents a series of home- and work-based scenarios with different risks and outcomes. It is designed to get people thinking about the broader implications of taking risks – ie the effect on them personally and on factors such as time.

Case 15 had just introduced a new training programme in which external trainers come in and train a range of shop floor workers to be trainers in manual handling and ULDs. The contractors will train a small number of shop floor workers in the 'best' working practices (ie training the trainers). These shop floor workers will then train the remaining workforce. It is hoped that these individuals will also conduct the assessments in the future. By training workers to be the trainers rather than just giving this role to the supervisors, the company hopes to improve the workers' esteem, increase early recognition of problems, use peer pressure to encourage good rather than bad practices, enhance policing of health and safety requirements and empower the workforce.

5.2.2 Types of risk assessment used

All sites visited had processes that involved a high percentage of repetitive tasks and manual handling tasks that would require some form of ULD or manual handling risk assessment. However, several of the sites visited reported a low percentage of tasks as repetitive and tended to report them as manual handling tasks. From observations it became apparent that in most companies the health and safety officer or managers referred to the majority of tasks as manual handling and used manual handling assessment to assess them. There appeared to be a lack of understanding of the difference between manual handling and ULD risk tasks. It was often not recognised that a different assessment for the different types of task was required (cases 1, 3 and 9–11).

It was found that a number of companies assessed repetitive tasks (low loads) using the MAC tool or other manual handling lifting assessment tools. These were inappropriate tools for these types of task and therefore a lot of the hazards presented by highly repetitive tasks were being missed (cases 1, 2 and 8).

ULD assessments

Table 5.2 shows the types of checklist used for risk assessment for ULDs and manual handling. Eight out of the 15 companies did not conduct risk assessments for ULDs (cases 3, 7–9 and 11–14). One company (case 9) reported that assessments of ULDs were currently not being conducted because they were confident that risks would be identified, but they were concerned that once identified and recorded they would not know what to do or how to address the risks. They feared they would be 'opening a can of worms'. Two out of the 15 companies used HSG60 to assess ULD risks (cases 5 and 6). Four out of 15 companies used checklists that were developed in house to assess ULD risk (Cases 1, 2, 10 and 15). Case 10 used assessments that were made four years ago by a consultant to predict the risks presented by new equipment. They did not complete new and specific assessments but looked for similarities with existing equipment and applied their risk assessments.

Manual handling assessments

Table 5.2 shows the type of checklist used for risk assessment for manual handling and ULDs. Seven out of the 15 companies used the MAC tool to conduct manual handling assessments (2, 5, 7–10 and 12). Case 8 commented that they liked the MAC tool because it was consistent and not subjective. Case 12 reported problems with this tool regarding the number of assessments required. The health safety manager pointed out that the MAC tool is seen as specific to the individual rather than the task and because there are many staff it is unpractical to complete an assessment for every individual. Case 6 commented that the MAC tool is poor for assessing tasks which involve pushing and pulling.

		Manual handling	ULDs
Yes – all	In-house developed checklist	2	0
	Standard checklist	1 (MAC)	2
Yes – some	In-house developed checklist	4	4
	Standard checklist	6 (MAC)	0
None		0	8
Information not provided		2	1

Table 5.2
Types of checklist used for manual handling and ULD risk assessments

5.2.3 Involvement of staff in MSD risk assessment

Cases 4 and 5 commented that staff are encouraged to get involved in all risk assessments. Case 8 stated that recently the company had provided funding to train more staff in risk assessment and that the health and safety officer wanted to use the funding to focus on MSDs.

Cases 1 and 12 reported that they would ideally like a greater number of the workforce involved in the assessment process. Case 12 stated that:

> The company has a new operations director who is very keen on health and safety and they are acting as main driving force for new developments in health and safety. The operations director wants people on the shop floor to get more involved in the risk assessment process and would like the responsibility to shift to the supervisors, production managers and to the workers themselves. The health and safety manager supports this and commented [that] involving and training workers in more specific risk assessments such as ULDs would improve worker understanding of the risks.

Case 4 commented on its concerns regarding older staff and tackling ingrained bad habits. It was reported that company incidents involving older staff were particularly high. The health and safety manager reported that the older staff found it difficult to switch to new and safer work routines. This company had initiated a training programme to address these issues which is targeted at this group of staff.

Case 8 highlighted a negative aspect and concern for involving staff who have not been trained in health and safety in assessing risk. They provided an example where in the past a supervisor conducted risk assessments for manual handling. It was found that the supervisors tended to underestimate the risks and the method of risk assessment used was very subjective. Now only health

and safety officers and managers conduct assessments and they use the MAC tool, which is less subjective.

5.2.4 Acting on the risk assessment findings – reducing the risks

Difficulties in identifying solutions or controls
Cases 5 and 9 reported that they were able to identify risks but they found it difficult to identify solutions or controls. Because of this, case 9 stated that they had not carried out any formal assessment of ULD problems, fearing that they would be 'opening a can of worms'.

Perception of MSDs as a low priority problem
Case 6 explained that the outcomes of MSD injuries are not fatal so there is a tendency for staff and managers to give them a low priority in terms of addressing the risks. Previous risk assessment and prioritising action has tended to focus on high risk hazards, such as COSHH and chemical burns. This prioritising action is based on perception rather than probability and actual frequency rates. The health and safety manager was currently addressing this by showing that manual handling and MSDs needed high priority as, although they have a relative low severity, the frequency rate is high.

Cases 7 and 8 raised their concern that migrant and agency staff could be covering up problems and that injuries or poor health might be going unreported. Short term staff may leave due to problems but data are not currently collected on this.

Worker resistance to change
Three companies (Cases 2, 8 and 15) commented that workers' resistance to change was the main obstacle to successfully implementing changes to reduce risks. Furthermore, Cases 2 and 8 commented that workers were currently aware of the risks posed by their working practices but they were happy to accept them. Case 12 reported that one of the obstacles to implementing changes or new initiatives was convincing staff that the changes were for their benefit and not the company's.

A few companies had taken different approaches in an attempt to reduce workers' resistance to change. Case 11 reported that it now always involves staff (the end users) in equipment selection and wherever possible asks for a trial period with new equipment before purchasing it. However, on several occasion this had resulted in equipment being trialled, selected and approved by workers, who then refused to use it once it had been purchased. The health and safety officer was unclear why this was and was now looking at methods of enforcement. Case 15 reported on a new scheme to train shop floor workers (long established staff) to become trainers in musculoskeletal issues and correct working practices. This was attempting to give ownership of the new working methods to the workers, and also to combat peer pressure and macho cultures which sought to retain old working practices.

Culture (macho and performance pride)
Case 6 reported that it was the 'macho culture' regarding manual handling that makes the adoption of new practices very difficult and often unsuccessful. Macho culture was reported as resulting in staff ignoring recommended lifting practices in order to outdo, or outperform, colleagues. Similarly, case 15 reported that work pride was an issue, with staff being determined to meet deadlines even though management accepted that certain deadlines could not always be met due to external issues, such as traffic and delivery problems. However, in an effort to make up time and still meet deadlines, staff pressurised themselves to work at faster rates, often at expense of safety.

Enforcement of correct or good working practices
Case 12 reported that it used enforcement to ensure safe working practices were adopted. The company stated that there were disciplinary procedures that team leaders could follow to ensure that workers engaged in safe working practices and also, where required, that they performed set exercises and took rest breaks. However, supervisors often failed to implement disciplinary action to ensure safe working practices. This was primarily due to team leaders not wanting to damage relationships within teams. Team leaders were often members of staff who had been promoted internally and therefore tended to have strong friendships within their teams, making them unlikely to take disciplinary action.

Communication
Informing staff of the results of risk assessments was reported as problematic because of language difficulties in companies that employed a high percentage of migrant workers. A number of the

companies visited were currently investing in getting documents and training materials translated and some were investigating the increased use of pictorial methods of presenting important health and safety information (cases 7, 8 and 11).

Contract demands from clients

Several companies commented on the impact of clients' demands. In order to win contracts, companies must perform well against a range of criteria determined by clients. Clients can also be very specific as to how the process should be run and how the output should be presented or packaged. Several companies reported that this places constraints on what health and safety interventions can be implemented. It was stated that it is often difficult to design work to the benefit of the workers as this is normally at the expense of losing a client. The criteria set by the client are of the highest importance and very rarely include health and safety.

Case 15 provided an example where the client's specification for how the product must be delivered dictated the processes the company could use. Previously, the company lines had been automated to remove a high percentage of the repetitive and manually intensive work conducted by staff. This resulted in automated packing of products into large shelving containers. However, because the client demanded delivery of the same number of products but in smaller units, workers were required to repack the goods, thereby turning the job from an automated process back into a heavily manually intensive task.

Case 12 reported that its industry, food and drink, is very strongly driven by the large supermarkets, which conduct audits of all their suppliers to ensure they are using good practice. This has significantly increased the budget given for food safety. There are 25 food safety technical staff to ensure good practice and standards compared to only one health and safety member of staff. The health and safety manager stated that if clients included health and safety work practice in their audit funding, then resources for health and safety would significantly increase.

Similarly suppliers also have an impact on health and safety by dictating how work has to be performed. Cases 7 and 11 provided examples regarding deliveries. Both of these companies received deliveries of fresh produce which comes on trolleys where the products are often stacked above shoulder and head height. This is to maximise the use of space in lorries at the expense of greater manual handling difficulties at the receiving company.

Requirements from clients may change the situation. It was reported that customers such as Tesco use 'environment' as a criterion for filtering who gets a contract. It was commented that if they placed emphasis on health and safety as a criterion, funding would soon become available to resource new initiatives and equipment. Case 15 is currently trying to get funding by giving an environmental twist to the reason for changing back to using its fully automated system. Case 4 stated that this already happens in its industry and that to gain contracts from particular clients they have to demonstrate good health safety policies and practices.

Cost

Cases 2, 11 and 12 reported that cost was an issue for installing solutions to reduce risks and that often management commitment to making changes was poor. Case 2 stated that the cost of solutions was often too great when the company is already working to tight margins. Cases 11 and 12 reported that the cost of purchasing new equipment or training courses solely to improve health and safety was difficult to justify to senior management or company directors, as there is nothing to illustrate the reduction in cost unless an accident has already occurred.

Paper-based exercise

Often risks are identified but no changes are made. Case 12 commented that people get hung up on completing the checklists correctly rather than implementing the solutions. It was stated that sometimes the actual completion of a checklist acts as a deterrent in doing anything to reduce the risks. People tend to think that completing a checklist is the end of the process.

6 Phases 2 and 3: Summary and discussion

The results from phases 2 and 3 provide a snapshot of current risk assessment processes used in the manufacturing industry. The results show that, for those responding companies, checklists are the predominant format of, and method for, assessing risks at a general level and for conducting more specific risk assessments such as for MSDs. The most reported positive aspects for using checklists were that they were straightforward and simple to use, that they provided a consistent means of assessing tasks and that they employed best practice or guidance. The most commonly reported dislike was the time taken to conduct the assessments, followed by difference in ratings between assessors due to differences in level of understanding.

Findings from the audit walk-through showed that all companies used a similar format of checklist for conducting general risk assessment. This typically comprised general top-level risks, eg handling of chemicals, manual handling and PPE, which then provided a reference to a more detailed and specific risk assessment, eg for manual handling or COSHH.

The results from the questionnaire revealed that just over half of all responding companies (56 per cent) used checklists that had been developed in house to assess MSD risks, 42 per cent used the MAC tool specifically for assessing manual handling tasks and 60 per cent used the Manual Handling Operations Regulations as a resource to help with assessments. By comparison, only 26 per cent of companies reported using HSG60 as guidance to preventing upper limb problems.

This difference in figures regarding the use of manual handling and ULD assessment resources is reflected in findings from the walk-through audit, which suggests that there are issues relating to understanding and distinguishing between manual handling tasks and manually intensive tasks. All sites visited during the walk-through audits (phase 3) had a high percentage of repetitive and manual handling tasks that would require some form of ULD or manual handling risk assessment. However, several of the sites visited reported a low percentage of tasks as repetitive and tended to report them as manual handling tasks and consequently used manual handling assessment to assess them. It was found that a number of companies assessed low load repetitive tasks using the MAC tool or other manual handling lifting assessment tools. This was found to be inappropriate for the tasks in question and may therefore have resulted in the hazards of highly repetitive tasks being missed.

Although a high percentage of respondents reported using checklist-based risk assessments to assess MSDs, only a few had conducted some form of assessment of all work tasks (27 per cent).

In comparison, 57 per cent reported that only some tasks had been assessed for MSD risks and 16 per cent reported that no risk assessments for MSD risks had been conducted. Results from the walk-through audit provided an insight into one of the reasons this might be, with several companies commenting that they had not conducted assessments as they were confident that they would identify risks, but that they had no idea how to address those risks once they had been formally identified.

A large proportion of the participating companies (64 per cent) reported that the person responsible for health safety conducted risk assessments of MSDs, ie the health and safety officer or manager. This was followed by supervisors (43 per cent) and then health and safety representatives (42 per cent), managers (41 per cent) and workers (34 per cent). Only some of these individuals had received specific training in conducting the assessments. Of the companies that reported that risk assessment of MSDs had been conducted, 27 per cent used a checklist as a standalone tool, with no training provided to assessors. On the other hand, 27 per cent had provided training to all the assessors in how to conduct the assessments using the supplied checklist and 45 per cent reported that only some of the assessors had received training.

The walk-through audit showed that six companies out of the 15 provided training to supervisors in general health and safety, manual handling and ULDs, but this did not include conducting risk assessments. Nine out of 15 companies provided information on manual handling to workers but fewer (six out of 15) provided information about ULDs. The majority of the training given to workers for general health and safety, manual handling and ULDs was provided as part of the induction process and just provided a brief overview. Discussion with companies during the walk-through audit showed that several companies wanted to have all members of staff at all levels trained to conduct risk assessment for MSDs. Case 2 in particular commented that this would assist in the acceptance of change by the workforce.

From the questionnaires it was found that the most reported obstacles to implementing interventions to reduce the risk were cost (41 per cent) followed by employees' attitudes and resistance to change (23 per cent) and then lack of time (13 per cent). These results were supported by and probed further in the walk-through audit, which found that the following all acted as obstacles to implementing improvements to reduce risk:

- worker resistance to change
- enforcement of correct/good working practices
- communication
- contract demands from clients
- cost.

It is interesting to note that underlying nearly all of these aspects is the workforce and their awareness and understanding of the problems and risks. One way in which this may be addressed, and which is recognised by most of the participating companies of the walk-through audit, is through improving the training and awareness of the workers on the shop floor regarding the risks and to get them actively involved in assessing these risks.