Centre for Public Health Research, Massey University

WorkSafe Request for Proposals: Worker Exposure Survey Report

Part 2: Results from a worker exposure survey in seven targeted occupational groups

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EXECUTIVE SUMMARY

In November 2016, WorkSafe New Zealand (NZ) issued a Request for Proposals (RFP) for the delivery of a NZ Workforce Survey of self-reported occupational exposures. The purpose of the survey was to gather information across *all* industry groups and occupations in the NZ workforce to establish the prevalence of a wide range of occupational risk factors. The Centre for Public Health Research (CPHR) proposed a two-fold strategy to address the RFP requirements including: 1) a comprehensive report involving new analyses from two large existing workforce surveys conducted by CPHR in 2004-2006 and 2009-2010; and 2) A worker exposure survey in seven targeted occupational groups. This report refers to Part Two of CPHR's response to the RFP, which was a worker exposure survey (largely via telephone interview) in the following occupational groups: a) community-based nurses; b) collision repair workers; c) construction workers, d) hospitality workers; e) clerical workers; f) sawmill workers; and g) agricultural workers.

The survey of community-based nurses found high prevalences of exposure to the majority of biomechanical demands (e.g. awkward or tiring positions and lifting) and almost half of the sample reported exposure to environmental tobacco smoke. Two-thirds of nurses reported exposure to biological materials, of whom, 94% reported exposure to urine and over 60% reported exposure to blood/blood from wounds, faeces, and unspecified body fluids. Workplace bullying was reported by 58% of the sample and one-third reported that bullying occurs at least sometimes. Psychosocial hazards such as violence, time demand pressure, and job stress are also important risk factors for this group. Only about half of nurses reported that they frequently decide when to take a break and have some say in what work they do.

The majority of collision repair workers reported exposure to dust (specifically body filler/paint dust), smoke or fumes, solvents, and paint. At least 69% of workers reported exposure to biomechanical demands (with the exception of standing) and to tools that vibrate at least a quarter of the time. More than three quarters of workers reported working in hot/warm and cold/damp environments at least a quarter of the time, and exposure to loud noise for an average duration of 4 hours per day. Wet work exposure was reported by 40% of collision repair workers and more than half reported that they use thinners or another solvent to clean their hands/other body parts. Overall, psychosocial working conditions were favourable, although one-third reported that they have to work very fast often or all the time.

Construction workers reported high prevalences of exposure to dust (particularly construction and wood dust), smoke or fumes, and oils and solvents. The majority of biomechanical demands (e.g. lifting, repetitive tasks) were reported by at least 69% of workers and two-thirds reported use of vibrating tools at least a quarter of the time. More than 80% of the sample reported working outside a quarter of the time or more as well as working in hot/warm and cold/damp environments. Exposure to direct sunlight was reported by 81% of construction workers for an average duration of 7 hours per day in summer. Loud noise was reported by three quarters of workers for an average duration of 5 hours per day. Only around half of workers reported that they frequently decide when to take a break and have some say in what work they do. One-quarter of construction workers were worried about losing their job.

The survey in hospitality workers found that wet work exposure is an important risk factor; participants reported washing their hands on average 26 times per day and over half reported wet work exposure for an average duration of 2.3 hours per day, both of which are considered risk factors for contact dermatitis. This group also reported a high prevalence of exposure to cleaning products. More than half of hospitality workers reported exposure to biomechanical demands (e.g.

repetitive tasks, working at very high speed) and two-thirds reported working in a hot/warm environment at least a quarter of the time. One quarter of the sample reported that they have experienced bullying at work and 13% reported that this occurs at least sometimes. Fifty-eight percent of workers reported that they have to work very fast often or all the time and less than half reported that they decide when to take a break often or all the time.

The survey of clerical workers found that certain biomechanical demands were more prevalent compared to the general population. In particular, 90% of the sample reported carrying out repetitive tasks and 87% reported sitting a quarter of the time or more. Twenty-eight percent of workers have experienced violence at work and 10% reported that violence occurs at least sometimes. Around one-quarter of clerical workers also reported that they have experienced workplace bullying and 13% reported that this occurs at least sometimes. Almost one-fifth of workers felt that they are pressured to work long hours either often or all the time; however, workplace control was generally rated favourably by the clerical workers group.

The survey of sawmill workers found that the vast majority were exposed to loud noise for an average duration of 7 hours per day. This group reported high prevalences of exposure to dust (specifically wood dust), oils and solvents, and timber treatment chemicals. Certain biomechanical demands were high compared to the general population, including awkward or tiring positions (66%), lifting (70%), and repetitive tasks (82%) a quarter of the time or more. More than 70% of the sample reported working in hot/warm and cold/damp environments and 43% reported exposure to direct sunlight for an average duration of 4 hours per day. The average number of hours worked per week was high (46) and two-thirds reported working irregular hours. Just under half (47%) reported that they can decide when to take a break either often or all the time and one-third of workers reported that they have to work very fast often or all the time.

Agricultural workers reported on average a 50-hour working week and 57% reported working both long (>48) and irregular hours. There were high prevalences of exposure to pesticides, dust, and oils and solvents, as well as the biomechanical demands lifting and carrying out repetitive tasks. Nearly two-thirds of workers reported exposure to biological materials (including animal urine, faeces, and blood) for an average duration of 4 hours per day. More than three quarters reported working in cold/damp and hot/warm environments and 67% reported exposure to loud noise for an average duration of 2 hours per day. Exposure to direct sunlight was reported by the majority of workers for an average of 5 hours per day in summer. Agricultural workers reported favourable workplace control and low occurrences of workplace bullying and violence.

CONTENTS

INTRODUCTION

In November 2016, WorkSafe New Zealand (NZ) issued a Request for Proposals (RFP) for the delivery of a NZ Workforce Survey of self-reported occupational exposures. The RFP arose out of a need for a "*more comprehensive picture of current exposures in New Zealand workplaces and work practices which undermine positive health outcomes for workers".* The purpose of the survey was to gather information across *all* industry groups and occupations in the NZ workforce to establish the prevalence of a wide range of occupational risk factors, with the aim of providing WorkSafe with information to reliably target those most at risk of occupational ill-health.

The Centre for Public Health Research (CPHR) have previously conducted the only workforce surveys in NZ, which examined the prevalence and distribution of a wide range of self-reported occupational exposures in the general population i.e. the New Zealand Workforce Survey[1] (NZWS; 3,003 participants from the general population) and the Māori NZWS[2] (2,107 participants from the Māori general population). The participants for the NZWS were randomly selected from the 2003 and 2005 Electoral Rolls over a two-year period (2004-2006) and invited to take part in a telephone interview. The same methodology was used for the Māori NZWS where participants were randomly selected from the 2008 Māori and General Electoral Rolls over the 2009-2010 period.

The CPHR proposed to capitalise on the previous population-based surveys that had already collected data on the wide range of exposures requested in the RFP. The proposal was two-fold: 1) a comprehensive report involving new analyses from two large existing workforce surveys conducted by CPHR in 2004-2006 and 2009-2010; and 2) A worker exposure survey in seven targeted occupational groups.

The NZWS found that the prevalences of occupational risk factors were disproportionately high in workers in the agricultural (NZ Standard Classification of Occupations (NZSCO) 6), trades (NZSCO 7), and plant and machine operators and assemblers (NZSCO 8) occupational groups. For example, 75% of trades workers and 55% of plant and machine operators and assemblers reported exposure to dust in their current job. In addition, more than 50% of the workers in these groups reported exposure to lifting and loud noise a quarter of the time or more[1]. However, these occupational groups comprised 6%, 8%, and 6% respectively, of the total survey sample. Therefore, any survey which reflects the overall composition of the NZ workforce will include small numbers of the occupational groups with the highest risk of exposure to hazardous risk factors. Part Two of CPHR's proposal entailed conducting a new exposure survey targeted to these high-risk groups.

Three additional occupational groups were identified to be included in Part Two of the response to the RFP, in order to also cover occupational groups with psychosocial hazard concerns: community-based nurses, clerical workers, and hospitality workers.

Part Two involved administering CPHR's existing workforce exposure survey questionnaire to 100 workers in each of the seven high-risk occupational groups. The Part Two questionnaire included additional questions on psychosocial hazards, noise, personal protective equipment (PPE), sun exposure, biological hazards, wet work, and education level. **This report refers to Part Two of the response to the RFP.**

METHODS

The recruitment methods for the seven occupational groups are outlined below. Data collection took place from December 2017 to March 2019.

Community-based nurses (NZSCO 2: Professionals)

Community-based nurses were defined as Registered Nurses who travel within the community. This did not include General Practice nurses unless regular home visits were part of their job. Nurses were recruited through advertisements in the magazine of the NZ Nurses Organisation (NZNO; the largest trade union for nurses in NZ). The NZNO sent two emails to the NZ College of Primary Health Care Nurses (n=1806 members) and participants were also recruited through District Health Boards (DHBs), Māori health providers, Hauora, and other community organisations, including the Rural General Practice Network.

Collision repair workers (NZSCO 7: Trades workers)

Collision repair workers were recruited from a recently conducted (2011-2014) study investigating the association between solvent use in the vehicle collision repair industry and symptoms of neurotoxicity[3]. The collision repair workers for the previous study (n=373; aged between 17-70 years) were recruited from 175 workshops throughout the North Island of NZ, with a focus on Wellington and Auckland. Workshops were identified from the Yellow Pages and internet searches. Additional recruitment involved approaching workshops to ask if they could promote the study to staff.

Construction workers (NZSCO 7: Trades workers)

For the abovementioned study in collision repair workers, a comparison group of construction workers from various trades, with negligible/no exposure to solvents, were recruited in the same regions as the collision repair workers[3]. Construction workers were also recruited by contacting businesses and organisations of various sizes to ask if they could promote the study to staff.

Hospitality workers (NZSCO 5 Service and sales workers)

Hospitality workers included anyone working in hospitality including baristas, fast food workers, wait-staff, chefs, bar workers, food preparation, and catering company workers. Hospitality workers were recruited by contacting businesses and organisations of various sizes to ask if they could promote the study to staff, or through their Union.

Clerical workers (NZSCO 4 Clerks)

The recruitment for this group was based on the NZSCO Group 4 which is defined as "*occupations in which the main tasks involve the recording, organising, storing and retrieving of information, computing, numerical, financial and statistical data, and undertaking client-oriented clerical duties in relation to travel arrangements, money-handling, business information and appointments*"[4]. Clerical workers were recruited by contacting businesses and organisations of various sizes to ask if they could promote the study to staff. In addition, several clerical workers were recruited through their Union, or in response to a WorkSafe newsletter piece.

Sawmill Workers (NZSCO 8 Plant and machine operators and assemblers)

The CPHR previously conducted a longitudinal study[5] of sawmill workers (n=283) from seven sawmills or wood processing plants between 2009 and 2016. Sawmill workers were recruited from this previous study as well as through contacting additional sawmills, which were identified from internet searches and then contacted to ask if the study could be promoted to staff. This involved gaining the workers consent prior to a list being submitted to the CPHR recruiter. A Forest Industry Engineering Association Map provided further links as did several Occupational Health Nurses working in the sector.

Agricultural Workers (NZSCO 6 Agriculture and Fishery Workers)

Agricultural workers were recruited from a previous CPHR study of pesticide applicators (n=123) in which urine metabolites of commonly used pesticides were measured. In addition, letterbox drops were carried out in the Manawatu region and letters were also sent to randomly selected farms on the AgriBase (a national database which holds information on approximately 142,000 farms in NZ). Farming and rural organisations and farming consultants were also contacted to ask if they could promote the study to their staff or members. An article with details of participating in the study was also included in the free newspaper 'Southern Rural Life'. Participants were also recruited at farmers' markets. The recruitment strategy focussed on including agricultural workers who use agricultural chemicals or otherwise come into contact with agricultural chemicals.

Questionnaire

The questionnaire included questions about: i) current workplace exposures; ii) occupational morbidity (respiratory symptoms, sleep patterns, and musculoskeletal problems); and iii) demographics, including age, gender, ethnicity, and lifestyle factors such as smoking (the

questionnaire is available in Appendix 1). The exposure information collected for the current job is presented in Table 1.

Table 1: Exposure information collected for the worker exposure survey	
Exposure	**Variable type**
Job details:	
Hours per week	Number
Days per week	Number
Regularly work outside 8am-5pm?	Yes/No
If yes, please specify hours	Hours
Main activity of organisation	Text
Department	Text
Job title	Text
Please describe your specific job in detail (including what do you do? how do you do it? what materials do you use? what tools or machinery do you use? what type of process is it?)	Text
Current exposures:	
Dust	Yes/No
Smoke or fume	Yes/No
Gas	Yes/No
Oil and Solvents	Yes/No
Acids or Alkalis	Yes/No
Fungicides, Insecticides, Herbicides or Timber Preservatives	Yes/No
Other Chemicals	Yes/No
If yes to exposed, name/s of substance	Text
Weeks per year exposed	Number
Hours per day exposed	Number
Source of substance	Text
Physical and organisational factors - estimation of working time spent: All the time; ¾ of the time; ½ the time; ¼ of the time; Never	
awkward or tiring positions	5-point scale
awkward grip or hand movements	5-point scale
lifting	5-point scale
carrying out repetitive tasks	5-point scale
working at very high speed	5-point scale
working to tight deadlines	5-point scale
boring work	5-point scale
working in cold / damp environment	5-point scale
working in a hot / warm environment	5-point scale
standing	5-point scale
sitting	5-point scale
tools that vibrate	5-point scale
working outside	5-point scale

loud noise	5-point scale
Job stress	
In general, how stressful do you find your current job? Not at all stressful; Mildly stressful; Moderately stressful; Very stressful; Extremely stressful	5-point scale
Night shift	
In the last 4 weeks, did you work...for at least 3 hours between 12-5am?	Yes/No
Number of nights worked night shift in last 4 weeks	Number
Exposures and control measures:	
Risk controls for work with vibrating equipment or in vehicles that vibrate[a]	
Gloves provided (If yes, do you use it)	Yes/No
Vibration dampeners provided (If yes, do you use it)	Yes/No
Vibration absorbing seats provided (If yes, do you use it)	Yes/No
Training provided (If yes, do you use it)	Yes/No
Other (If yes, do you use it)	Yes/No; Text
Number of hours working with loud noise[b]	Number[c]
Risk controls for work with loud noise[b]	
Ear muffs provided (If yes, do you use it)	Yes/No
Ear plugs provided (If yes, do you use it)	Yes/No
Training provided (If yes, do you use it)	Yes/No
Job rotation provided (If yes, do you use it)	Yes/No
Noisy equipment placed in an isolated room (If yes, do you use it)	Yes/No
Quieter machinery purchased	Yes/No
Other (If yes, do you use it)	Yes/No; Text
Works in direct sunlight on a typical day[d]	Yes/No
Number of hours working in direct sunlight[d]	
In Summer	Number[c]
In Winter	Number[c]
Risk controls for work in direct sunlight[d]	
Sunscreen provided (If yes, do you use it)	Yes/No
Protective clothing provided (If yes, do you use it)	Yes/No
Hat provided (If yes, do you use it)	Yes/No
Sunglasses provided (If yes, do you use it)	Yes/No
Work reorganised outside peak UV hours (If yes, do you use it)	Yes/No
Other (If yes, do you use it)	Yes/No; Text
Works with biological materials on a typical day[e]	Yes/No
Number of hours working with biological materials on a typical day[e]	Number[c]
Main types of biological materials[e]	Text
Number of times hands are washed on a typical day[f]	Number
Number of hours hands are immersed in liquid[f]	Number[c]
Uses thinners/solvents to clean hands or other body parts[g]	Yes/No
If yes, how often: Seldom, Sometimes, Often, Very Often	4-point scale
Type of liquids hands are typically covered by[f]	Text
Risk controls for wet work[f]	
Gloves provided (If yes, do you use it)	Yes/No
Barrier cream provided (If yes, do you use it)	Yes/No

Moisturiser provided (If yes, do you use it)	Yes/No
Labelling and warning signs provided (If yes, do you use it)	Yes/No
Option to limit the time hands are in water/liquids (If yes, do you use)	Yes/No
Training provided (If yes, do you use it)	Yes/No
Other (If yes, do you use it)	Yes/No; Text
Provision of any *other* PPE at work	Yes/No
Goggles or protective glasses (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Footwear (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Apron/protective clothing (i.e. a spray suit) (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Simple dust mask (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Filter cartridge respirator (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Air Supplied Respirator or SCBA (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Gloves (If yes, do you use it)	Yes/No
If yes, for which tasks	Text
Other	Yes/No
Specify	Text
If yes, for which tasks	Text

[a]asked for Collision repair, construction, agricultural and sawmill workers
[b]asked for Collision repair, construction, agricultural, sawmill and hospitality workers
[c]could be answered for a typical day **or** a typical week
[d]asked for Construction, agricultural and sawmill workers
[e]asked for Agricultural workers and nurses
[f]asked for Collision repair, hospitality workers and nurses
[g]asked for Collision repair

The questions about noise, biological materials, sunlight exposure, wet work, and psychosocial hazards (see Appendix 1), were based on questions from the National Hazard Exposure Worker Surveillance (NHEWS) Survey, which was a survey of self-reported work-related exposures developed by the Australian Safety and Compensation Council[6]. The questions on loud noise were completed for collision repair, construction, agricultural, sawmill, and hospitality workers; the questions on direct sunlight were completed for construction, agricultural, and sawmill workers; the questions on wet work were completed for collision repair, hospitality workers, and nurses; and the questions on biological exposures were completed for agricultural workers and nurses. The NHEWS psychosocial questions were based on the Health and Safety Executive indicator tool, which is based on the demand control and support model of stress[7].

The majority of the interviews were conducted over the phone by an interviewer, with 6% conducted face-to-face and 5% completed by the participant and sent via post.

Ethics approval was obtained from the Massey University Human Ethics Committee (SOA 17/55).

Statistical analyses

All questionnaire information was entered into an ACCESS database. Socioeconomic status (SES) was assessed using the New Zealand Deprivation Index 2013 (NZDep2013), which is a census-based index with a relative deprivation score assigned to each geographical meshblock based on place of residence. A new job title variable was created from the text fields for main activity of the organisation, department, and self-reported job title. For collision repair and hospitality workers, "managers" and "owners" were re-categorised based on the description of a typical working day. The prevalence of physical and organisational exposures (other than irregular hours and night shift) was defined as the proportion of individuals who reported being exposed as part of their current job for at least a quarter of the time. The prevalence of all other exposures was defined as the proportion of individuals who reported being exposed (yes/no) as part of their current job, at any frequency, duration, or level of exposure. The exposure variable 'Fungicides, insecticides, herbicides or timber preservatives' is referred to as 'Pesticides' throughout this report. Night shift work was defined as working for pay, profit or income for at least three hours between midnight and 5am in the previous 4 weeks. In addition to the variables listed in Table 1, we also examined hours worked over 48 and 55 hours (i.e. long working hours), and irregular hours which was defined as regularly working outside the hours of 7am-8.30pm. The questions on sunlight, noise, wet work, and biological materials were answered in terms of typical daily *or* weekly exposure, which were calculated separately. Exposure for these questions was defined as one or more hours per day or one or more hours per week to be comparable to the results from the NHEWS. All analyses were conducted using STATA (STATA Statistical Software Release, 13.0) and SAS version 9.4.

The questionnaire included a check box list of 7 categories of chemical/dust exposures, after which more details were included in free text fields. Variables for specific occupational exposures (yes/no), for example acetone, caustic soda, timber treatment, were created using a word search programme developed in SAS (version 9.1). The programme was designed to search keywords (including alternative spelling and trade names) in the "name of substance" and "source of substance" free

text fields (see questionnaire Section A, Q12 in Appendix 1). For each newly created exposure category, the original text was checked to ensure that the new category captured all of the exposed participants. The specific exposures identified in this way from the free text fields are presented in Table 2. Three additional exposures were identified specifically for collision repair workers: body filler/paint dust, isocyanates, and spray booth gas.

Table 2: Specific occupational exposures identified from the questionnaire's free text fields.

Acids and alkalis	Cleaning products	Pesticides	Dusts	Solvents	Engine fuels and emissions	Machinery oils and fumes	Inks and dyes	Fibres	Paints and lacquers
Alkalis	Cleaning products	Fungicides	Agricultural dust	Solvents	Diesel engine emission	Machinery oils	Dyes	Fibreglass	Paints and lacquers
Acids	Bleach	Insecticides	Animal dust	Acetone	Diesel fuel	Machinery fumes	Printing	Insulation material	Paint thinner
Hydrochloric acid	Disinfectant	Herbicides	Grain dust	Adhesive	Engine emission	Hydraulic oil	Inks	Textile dust	
Sulphuric acid	Caustic soda	Fertiliser	Paper dust	Alcohol	Engine oil	Lubricant	Hair dyes	Asbestos	
	Chlorine	Animal drench	Construction dust	Degreasers	Kerosene	Cutting fluids			
		Timber treatment	Metal dust	Methylated spirits	Petrol fuel	Welding			
			Wood dust	Turpentine	Petrol fumes				
			Household dust	Formaldehyde	LPG				
			Road dust						
			Flour dust						

RESULTS

Participants from previous occupational studies made up approximately one third of the samples for sawmill and construction workers, about 40% for agricultural workers, and 79% for collision repair workers.

The results for the seven occupational groups are presented in separate sections alongside the results from the NZWS (the worker exposure survey conducted in 2004-2006, referred to as the 'general population' throughout this report), in order to provide a comparison of the specific occupational group with the general NZ working population. The questions on direct sunlight, biological materials, loud noise, wet work, and psychosocial hazards were not part of NZWS and therefore comparisons could not be made. Instead, results for these questionnaire sections were compared with results from the Australian NHEWS Survey[6]. This survey was a cross-sectional telephone survey conducted in 2008 and involved 1900 workers from five priority industries (transport and storage, health and community services, construction, manufacturing, and agriculture, forestry and fishing) and a further 2600 workers from the general population. Participants were selected using random digit telephone dialling. The NHEWS results were reported for industry groups, not for specific occupational groups, and therefore the results for the current occupational groups are presented alongside the most comparable NHEWS industry group. The occupational distribution of the relevant NHEWS industry groups is provided in Appendix 2. It is also important to note when comparing results that the NHEWS asked about exposure on a typical day at work during the week prior to the interview whereas the current survey asked about exposure on a typical day in general.

Section A: Community-Based Nurses

Table 1A presents the demographic characteristics of the survey sample for community-based nurses. The majority of the sample was female (95%) and the average age was 50 years with 75% of the sample aged above 45 years. There was a slightly higher proportion of Māori compared to the NZWS population (13% vs. 9.1%) and a higher proportion of 'Other' ethnicities (18% vs. 9.5%). There was also a lower proportion of current smokers (6% vs. 18.2%) and a lower proportion in the least deprived group compared to the NZWS population (18% vs. 26.4%). The majority of the sample were NZ citizens (92%) and 76% held a bachelor's degree or higher. The top four regions of residence were Wellington (26%), Waikato (12%), Manawatu-Whanganui (12%), and Auckland (11%).

Table 1A: Description of Community-based Nurses Sample				
	Nurses		**NZWS**	
	N=100		**N=3,003**	
	N	%	N	%
Gender				
Male	5	5.0	1431	47.7
Female	95	95.0	1572	52.4
Age at Interview				
Mean & SD	49.9	10.6	44.2	11.3
Range	23-69		20-67	
20 – 34 years	11	11.0	659	21.9
35 – 44 years	14	14.0	820	27.3
45 – 54 years	40	40.0	868	28.9
55+ years	35	35.0	656	21.8
Missing	*0*			
Ethnicity				
Pākehā	67	67.0	2386	79.6
Māori	13	13.0	273	9.1
Pacific Peoples	2	2.0	53	1.8
Other	18	18.0	285	9.5
Missing	*0*		*6*	
Smoking				
Never	52	52.0	1516	50.6
Current	6	6.0	546	18.2
Ex	42	42.0	932	31.1
Missing	*0*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	18	18.0	793	26.4
3 – 4	27	27.0	656	21.9
5 – 6	22	22.0	659	22.0
7 – 8	20	20.0	527	17.6
9 – 10 (most deprived)	13	13.0	367	12.2
Missing	*0*		*1*	

Residency status				
New Zealand citizen	92	92.0	-	-
Permanent resident	7	7.0	-	-
Working holiday/temporary visa	0	0.0	-	-
Other	1	1.0	-	-
Missing	*0*			
Education level				
High school or less	0	0.0	-	-
Trade certificate/diploma	24	24.0	-	-
Bachelor degree or higher	76	76.0	-	-
Missing	*0*		-	-
Region of residence				
Northland	7	7.0	-	-
Auckland	11	11.0	-	-
Waikato	12	12.0	-	-
Bay of Plenty	6	6.0	-	-
Taranaki	2	2.0	-	-
Gisborne	2	2.0	-	-
Manawatu-Whanganui	12	12.0	-	-
Hawke's Bay	2	2.0	-	-
Wellington	26	26.0	-	-
Nelson/Tasman	2	2.0	-	-
West Coast	4	4.0	-	-
Canterbury	7	7.0	-	-
Otago	5	5.0	-	-
Southland	2	2.0	-	-
Undefined or Missing	*0*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2A presents the job titles within the community-based nursing group. The 'community/primary NEC' group includes a wide range of community nursing roles such as palliative care, long-term conditions, community clinical nurses, and rural nurses.

Table 2A: Description of Job Titles within the Community-based Nurses Sample		
	N=100	
	N	%
Public health nurse	6	6.0
District health nurse	26	26.0
Mental health nurse	6	6.0
Well Child Tamariki Ora	23	23.0
Community/Primary NEC	34	34.0
Occupational health	3	3.0
Other	2	2.0
NEC - Not elsewhere classified		

Table 3A presents the prevalences of self-reported exposures including organisational, dust/chemical, and physical factors. The community-based nurses worked on average 32.5 hours per week, which is less than the 39 hours per week reported by the NZWS population. Less than 5% reported working more than 48 hours per week and 14% reported regularly working outside 7am-8.30pm compared to 24% in the NZWS. In contrast, nurses reported a higher prevalence of night shift work (i.e. working for at least 3 hours between 12-5am in the past 4 weeks) compared to the general population (15% vs. 7.1%).

Overall, 92% of nurses reported exposure to at least one dust or chemical factor. The prevalence of self-reported dust exposure was 67% and the prevalence of exposure to smoke or fumes was 52%, which is higher than the equivalent exposures reported in the NZWS (29% and 18%, respectively). The prevalence of exposure to oils and solvents was lower (9% vs. 20.9%); however, self-reported pesticide exposure was higher (19% vs. 9.6%). Almost three quarters of the nurses reported 'other chemicals' compared to just 14% in the NZWS.

Biomechanical demands such as awkward or tiring positions (90%), awkward grip or hand movements (56%), lifting (69%), repetitive tasks (73%), and working at very high speed (62%) a quarter of the time or more were all more prevalent compared to the NZWS, with the exception of standing (7% vs. 28% for the NZWS). The nurses also reported a higher prevalence of working in a cold/damp (63% vs. 23.8%) and a hot/warm (63% vs. 27.8%) environment a quarter of the time or more compared to the general population. Working to tight deadlines (91%) a quarter of the time or more and reporting a very or extremely stressful job (26%) were also reported more frequently by the nurses compared to in the NZWS (73.1% and 15.1%, respectively).

Table 3A: Prevalence of current job exposures				
	Nurses		NZWS	
	N=100		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	32.5	9.9	39.0	14.7
Range	10.0-72.0		0.81-100	
Hours worked >48 hours	4	4.0	699	23.3
Hours worked >55 hours	1	1.0	271	9.1
Days worked per week: Mean & SD	4.3	1.0	4.9	1.1
Irregular hours*	14	14.0	679	23.5
Night shift in last 4 weeks	15	15.0	204	7.1
Number of night shifts worked[#] <5	10	10.0	90	45.2
5-10	4	4.0	65	32.7
10+	1	1.0	44	22.1
Current exposure				
Dust	67	67.0	881	29.3
Smoke or Fumes	52	52.0	541	18.0
Gas	12	12.0	239	8.0
Oil and Solvents	9	9.0	628	20.9
Acids or Alkalis	9	9.0	282	9.4
Pesticides	19	19.0	287	9.6
Other Chemicals	75	75.0	411	13.7
Any of the above	92	92.0	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	90	90.0	1679	56.1
Awkward grip or hand movements	56	56.0	1143	38.2
Lifting	69	69.0	1176	39.2
Repetitive Tasks	73	73.0	2037	68.2
Working at very high speed	62	62.0	1530	51.2
Working to tight deadlines	91	91.0	2185	73.1
Boring work	42	42.0	1235	41.4
Working in a cold/damp environment	63	63.0	709	23.8
Working in a hot/warm environment	63	63.0	830	27.8
Standing	7	7.0	837	28.0
Sitting	96	96.0	1946	65.0
Tools that vibrate	1	1.0	341	11.4
Working outside	18	18.0	884	29.6
Loud noise	7	7.0	895	29.9
Job stress				
Not at all-Mildly	26	26.0	1188	39.7
Moderately	48	48.0	1351	45.2
Very-Extremely	26	26.0	452	15.1
Missing	*1*		12	
*Started before 7am and/or finished after 8.30pm; 5 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4A presents the specific exposures reported and shows that the relatively high prevalence of exposure to the general category of dust reported in Table 3A above is predominantly household dust (58%) and road dust (22%). Almost half of the sample reported exposure to environmental tobacco smoke (ETS; 46%) and the high prevalence of reporting 'other chemicals' was predominantly hand sanitiser (62%) and alcohol-based wipes (32%). The specific type of insecticide reported was mainly household insect spray encountered on home visits. There was also a higher prevalence of self-reported exposure to disinfectants (10%) and cleaning products in general (26%), compared to the NZWS (4.2% and 13.2%, respectively).

Table 4A: Prevalence of specific exposures				
	Nurses		**NZWS**	
	N=100		**N=3003**	
Exposure	N	%	N	%
Acids and alkalis				
Alkalis	7	7.0	100	3.3
Acids	9	9.0	194	6.5
Hydrochloric acid	0	0.0	30	1.0
Sulphuric acid	0	0.0	45	1.5
Cleaning products				
Cleaning products	26	26.0	397	13.2
Bleach	0	0.0	50	1.7
Disinfectant	10	10.0	127	4.2
Caustic soda	0	0.0	42	1.4
Chlorine products	0	0.0	111	3.7
Hand sanitiser	62	62.0	na	na
Pesticides				
Fungicides	1	1.0	59	2.0
Insecticides	17	17.0	74	2.5
Herbicides	5	5.0	168	5.6
Fertiliser	1	1.0	28	0.9
Animal drench	0	0.0	29	1.0
Timber treatment	1	1.0	69	2.3
Dusts				
Agricultural dust	0	0.0	21	0.7
Animal dust	0	0.0	21	0.7
Grain dust	0	0.0	15	0.5
Paper dust	0	0.0	29	1.0
Construction dust	1	1.0	97	3.2
Metal dust	0	0.0	104	3.5
Wood dust	3	3.0	194	6.5
Household dust	58	58.0	120	4.0
Road dust	22	22.0	155	5.2
Flour dust	1	1.0	17	0.6

Solvents				
Solvents	12	12.0	357	11.9
Acetone	0	0.0	27	0.9
Adhesive	1	1.0	125	4.2
Alcohol	32	32.0	109	3.6
Degreasers	0	0.0	39	1.3
Methylated spirits	3	3.0	54	1.8
Turpentine	0	0.0	49	1.6
Formaldehyde	2	2.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	6	6.0	70	2.3
Diesel fuel	0	0.0	47	1.6
Engine emission	10	10.0	176	5.9
Engine oil	1	1.0	108	3.6
Kerosene	0	0.0	17	0.6
Petrol fuel	0	0.0	28	0.9
Petrol fumes	2	2.0	28	0.9
LPG	1	1.0	39	1.3
ETS	46	46.0	36	1.2
Machinery oils and fumes				
Machinery oils	0	0.0	61	2.0
Lubricants	0	0.0	76	2.5
Cutting fluids	0	0.0	20	0.7
Welding	1	1.0	91	3.0
Inks and dyes				
Dyes	0	0.0	23	0.8
Printing	0	0.0	18	0.6
Ink	0	0.0	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	0	0.0	20	0.7
Insulation materials	0	0.0	27	0.9
Asbestos	0	0.0	21	0.7
Paint and lacquers				
Paint and lacquers	0	0.0	127	4.2
Paint thinner	0	0.0	26	0.9

Sixty-four percent of nurses reported exposure (defined as one or more hours) to biological materials, compared to 56% of participants in the Health & Community Services industry from the NHEWS (Table 5A). However, the average duration of daily exposure was slightly lower than that reported in the NHEWS (3.9 hours vs. 4.8 hours). Of those who reporting exposure to biological materials, more than 60% reported exposure to blood/blood from wounds, faeces, unspecified body fluids, and 94% reported exposure to urine. Exposure to urine and unspecified body fluids were

higher than reported for the Health & Community Services industry in the NHEWS. About one third (35.9%) of the group also reported exposure to mucus/phlegm compared to just 6% in the NHEWS.

Table 5A: Exposure to biological materials			
	Nurses		**NHEWS Health & Community Services**
	N=100		**N=956**
	N	%	%
Does not work with biological materials	36	36.0	44.0
Exposed one or more hours a day	58	58.0	36.0
Exposed one or more hours a week	6	6.0	20.0
Total exposed	64	64.0	56.0
Daily mean hours	3.9 (n=58)	2.2 (SD)	4.8 (n=346)
Weekly mean hours	2.2 (n=6)	1.8 (SD)	14.0 (n=193)
Main types of biological materials			
Exposed	N=64		N=539
	N	%	%
Urine	60	93.8	71.0
Blood/blood from wounds	41	64.1	65.0
Faeces	40	62.5	45.0
Animal flesh	0	0.0	2.0
Vomit	7	10.9	13.0
Unspecified body fluids	40	62.5	12.0
Animal faeces	0	0.0	2.0
Saliva	2	3.1	8.0
Animal urine	0	0.0	1.0
Mucus/phlegm	23	35.9	6.0
Animal blood	0	0.0	1.0
Human tissue	10	15.6	4.0
Qu. If yes to working in places where there are biological materials, such as blood, urine, animal flesh or laboratory cultures, how long do you work in these places on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			

Table 6A presents the prevalence of exposure to wet work and the provision of PPE for this work. Community-based nurses reported washing their hands on average 11 times per day, which is lower than the 25 times per day reported by the Health & Community Services industry in the NHEWS. Twenty-four percent reported that they wash their hands 20 or more times a day, which is considered a risk factor for contact dermatitis (data not shown). Thirty-six percent of nurses reported immersing their hands in or having their hands covered by, any liquid for an average of 2.4 hours per day, which is the same as the proportion in the NHEWS. Of those who reported exposure to wet work, the majority reported that their employer provides protection, with gloves being the

most frequently used item for wet work exposure (80.6%), followed by labelling and warning signs (66.7%), training (55.6%), moisturiser use (38.9%) and use of barrier cream (30.6%).

Table 6A: Exposure to wet work and risk controls for wet work			
	Nurses		**NHEWS Health & Community Services**
	N=100		**N=956**
	N	%	%
Number of times washed hands in a typical day: Mean & SD	10.7	8.3 SD	Mean=24.9
Hands not immersed in water/liquids	64	64.0	63.0
Hands immersed one or more hours a day	35	35.0	25.0
Hands immersed one or more hours a week	1	1.0	11.0
Total exposed	36	36.0	36.0
Daily mean hours	2.4 (n=35)	3.5 SD	2.0 (n=236)
Weekly mean hours	4.0 (n=1)	na	5.1 (n=106)
Provision of protection			
Exposed	N=36		N=342
	N	%	%
Gloves provided	33	91.7	88.0
Uses gloves	29	80.6	na
Barrier cream provided	13	36.1	61.0
Uses barrier cream	11	30.6	na
Moisturiser provided	15	41.7	65.0
Used moisturiser	14	38.9	na
Labelling & warning signs provided	24	66.7	65.0
Uses labelling & warning signs	24	66.7	na
Option to limit time hands are in water/liquid	1	2.8	29.0
Uses option to limit time hands in water/liquid	1	2.8	na
Training provided	20	55.6	58.0
Uses training	20	55.6	na
Qu. On a typical day at work, excluding time spent hand-washing, how long do you have your hands immersed in or covered by any liquid (including water) with or without gloves?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 7A presents the main types of liquids on the hands for those that reported that their hands are immersed in or covered by water or liquids. Water and detergents/cleaning products/disinfectants were reported less frequently than in the NHEWS; however, the prevalence of bodily fluids was higher (22.2% vs. 6%).

Table 7A: Main types of liquids on hands			
	Nurses		NHEWS Health & Community Services
	N=36		N=342
	N	%	%
Water	7	19.4	69.0
Detergents/cleaning products/disinfectants	4	11.1	71.0
Oil/various	0	0	1.0
Solvents/thinners/methylated spirits	0	0	0.0
Fuel/petrol/kerosene	0	0	0.0
Grease	0	0	0.0
Concrete	0	0	0.0
Paint	0	0	1.0
Hydraulic oil	0	0	0.0
Degreaser	0	0	0.0
Bodily fluids	8	22.2	6.0
Qu. What liquids do you typically have your hands covered by?			
The NHEWS refers to exposure on a typical day at work last week			

Table 8A presents information on the provision and use of PPE. Ninety-five percent of the sample reported that their employer provides PPE, with gloves being the most frequently used item (79%), followed by apron/protective clothing (49%). Around half of the sample reported that their employer provides protective glasses and dust masks, however just under one third reported use of these items.

Table 8A: Prevalence of Personal Protective Equipment Use				
	Nurses		NZWS	
	N=100		N=3,003	
	N	%	N	%
Employer provides PPE*	95	95.0	na	na
Does your employer provide:				
Goggles or protective glasses	51	51.0	na	na
Uses goggles or protective glasses	29	29.0	568	18.9
Footwear	14	14.0	na	na
Uses footwear	13	13.0	665	22.2
Apron/protective clothing*	57	57.0	na	na
Uses apron/protective clothing*	49	49.0	716	23.9
Simple dust mask	45	45.0	na	na
Uses simple dust mask	30	30.0	390	13.0
Filter catridge respirator	3	3.0	na	na
Uses filter cartridge respirator	1	1.0	131	4.4
Air supplied respirator or SCBA	0	0.0	na	na
Uses air supplied respirator or SCBA	0	0.0	29	1.0
Gloves*	92	92.0	na	na
Uses gloves*	79	79.0	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 9A presents how often participants reported psychosocial working conditions, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for "often/all the time" for the Health & Community Services industry in the NHEWS are also provided for comparison (the full results are presented in Appendix 3). Time demand appeared to be an issue as all of the time demand items were reported more frequently than in the Health & Community Services industry in the NHEWS. In particular, 52% reported that they are unable to take enough breaks and 41% reported that they have to neglect tasks because they have too much to do, either often or all of the time, compared to 18% and 20%, respectively for the Health & Community Services industry in the NHEWS. Three quarters of the sample reported that they have some say in how their job is done either often or all the time, which was similar to the 76% reported in the NHEWS; however, only about half of nurses reported that they can decide when to take a break and that they have some say in what work they do often or all the time. Workplace bullying was reported by 58% of the sample compared to just 20% for the Health & Community Services group in the NHEWS (see Table A3.1 in Appendix 3). Frequent bullying (often/all the time) was reported by 11% of nurses compared to just 2% in the NHEWS. Of those that reported bullying, 50% reported that it was by patient(s), 66% reported it was by co-worker(s), and 31% reported that it was by a supervisor. Half of the sample reported that they have experienced violence at work and 22%

reported violence at their workplace at least sometimes. Almost one-third of nurses reported that they have been sexually harassed, of whom 12% reported that it occurs at least sometimes.

Table 9A: Psychosocial Working Conditions for Nurses- Part 1																	
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=956)	Don't know		
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%	
Time Demand in the Workplace																	
I am pressured to work long hours.	100	39	39.0	15	15.0	15	15.0	15	15.0	15	15.0	30	30.0	11	1	1.0	
I have unachievable deadlines.	100	24	24.0	21	21.0	27	27.0	18	18.0	10	10.0	28	28.0	11	0	0.0	
I have to work very fast.	100	11	11.0	11	11.0	33	33.0	25	25.0	20	20.0	45	45.0	39	0	0.0	
I am unable to take enough breaks.	100	16	16.0	16	16.0	16	16.0	25	25.0	27	27.0	52	52.0	18	0	0.0	
I have to neglect some tasks because I have too much to do.	100	12	12.0	11	11.0	36	36.0	26	26.0	15	15.0	41	41.0	20	0	0.0	
It's hard for me to juggle work requests from different people.	100	16	16.0	10	10.00	47	47.0	15	15.0	12	12.0	27	27.0	14	0	0.0	
Cognitive Demand in the Workplace																	
I have to keep track of more than one thing at a time.	100	2	2.0	0	0.0	5	5.0	21	21.0	72	72.0	93	93.0	80	0	0.0	
My work needs my undivided attention.	100	2	2.0	0	0.0	6	6.0	27	27.0	65	65.0	92	92.0	85	0	0.0	
Workplace Control																	
I can decide when to take a break.	100	13	13.0	7	7.0	28	28.0	24	24.0	28	28.0	52	52.0	53	0	0.0	
I have some say in what work I do.	100	16	16.0	11	11.0	26	26.0	27	27.0	20	20.0	47	47.0	56	0	0.0	
I have some say in how I get the job done.	100	5	5.0	1	1.0	18	18.0	33	33.0	43	43.0	76	76.0	76	0	0.0	
Bullying and Harassment																	
I was sexually harassed.	100	69	69.0	18	18.0	10	10.0	2	2.0	0	0.0	2	2.0	0	1	1.0	
I have experienced violence	100	50	50.0	28	28.0	19	19.0	3	3.0	0	0.0	3	3.0	NA	0	0.0	
I was bullied.	100	42	42.0	24	24.0	23	23.0	9	9.0	2	2.0	11	11.0	2	0	0.0	
If yes to bullying, was the person:	N	%															
	N=58																
Supervisor	18	31.0															
Co-worker/s	38	65.5															
Customer	2	3.4															
Patient	29	50.0															
Patient's family member	15	25.9															
Someone who worked for you	0	0.0															
*Health & Community Services																	

Table 10A presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control, compared to participants from the Health & Community Services industry who reported "disagree/strongly disagree" in the NHEWS. The majority of nurses agreed or strongly agreed with all of the items about co-worker support and 12% agreed or strongly agreed with the statement "*I am worried about losing my job*". The proportion of nurses who agreed or strongly agreed with the items about supervisor support ranged from 67% to 77%, which was slightly lower compared to the NHEWS results (see Appendix 3, Table A3.2). Eighty-six percent of participants reported that they agreed/strongly agreed with the statement "*I have the information I need to do my job*" and 77% agreed/strongly agreed with the statement "*I have the equipment I need to do my job*" (compared to 92% and 88%, respectively in the NHEWS). The majority (87%) of nurses reported that their employer provides counselling services and 68% reported that their employer has anti-bullying and anti-stress policies. The 'other' option included peer support supervision and the availability of mindfulness courses (data not shown).

Table 10A: Psychosocial Working Conditions in Nurses- Part 2																	
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS Disagree/Strongly Disagree (n=956)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Co-Worker Support & Job Insecurity																
I get the help and support I need from my fellow workers.	100	34	34.0	48	48.0	12	12.0	3	3.0	3	3.0	6	6.0	5	0	0.0
My fellow workers respect me.	100	43	43.0	49	49.0	4	4.0	1	1.0	2	2.0	3	3.0	3	1	1.0
My fellow workers are willing to listen to my work related problems.	100	37	37.0	51	51.0	3	3.0	6	6.0	3	3.0	9	9.0	5	0	0.0
I am worried about losing my job.	100	5	5.0	7	7.0	7	7.0	39	39.0	42	42.0	81	81.0	89	0	0.0
Workplace Control																
I have some say over the way I work.	100	44	44.0	51	51.0	2	2.0	2	2.0	1	1.0	3	3.0	8	0	0.0
Supervisor Support																
I can talk to my supervisor about something that has upset me at work.	100	41	41.0	36	36.0	16	16.0	6	6.0	1	1.0	7	7.0	10	0	0.0
My supervisor encourages me at work.	100	33	33.0	40	40.0	13	13.0	11	11.0	3	3.0	14	14.0	12	0	0.0
My supervisor supports me through emotionally demanding work.	100	32	32.0	35	35.0	18	18.0	13	13.0	2	2.0	15	15.0	15	0	0.0
I have the information I need to do my job.	100	31	31.0	55	55.0	6	6.0	7	7.0	1	1.0	8	8.0	5	0	0.0
I have the equipment I need to do my job.	100	24	24.0	53	53.0	9	9.0	12	12.0	2	2.0	14	14.0	9	0	0.0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Nurses		**NHEWS***
	N=98		**N=956**
	N	%	%
Have anti-stress and anti-bullying policies	67	68.4	70
Provide training on how to manage stress	38	38.8	52
Provide counselling services	85	86.7	72
Other	39	39.8	na
Don’t Know	12	12.2	1
Refuse to disclose	1	1.0	na

*Health & Community Services

Key observations for community-based nurses:

- The prevalence of **biomechanical demands** was high for community-based nurses; self-reported prevalences were above 56% for awkward grip or hand movements, lifting, repetitive tasks, and working at high speed, with 90% reporting that their job involved awkward or tiring positions a quarter of the time or more.
- A number of the common risk factors that were reported by community-based nurses were associated with the itinerant nature of the job and working in ever changing environments (namely patients' homes) where working conditions are often beyond their control. Almost half (46%) reported exposure to **environmental tobacco smoke** and 63% reported working in **hot/warm** and **cold/damp** environments at least a quarter of the time.
- Two thirds of community-based nurses reported exposure to **biological materials**, of whom 94% reported exposure to urine and over 60% reported exposure to blood/blood from wounds, faeces, and unspecified body fluids.
- The prevalence of reporting a very or extremely **stressful** job (26%) was higher for this occupational group compared to the general population (15%).
- **Bullying** appears to be a major issue for this group; 58% of the sample reported workplace bullying and 11% reported that bullying occurs often or all the time at their workplace. Of those that reported bullying, 50% reported that it was by patient(s), 66% reported it was by co-worker(s), and 31% reported that it was by a supervisor. The majority (87%) of nurses reported that their employer provides counselling services and 68% reported that their employer has anti-bullying and anti-stress policies.
- Half of the sample reported that they have experienced **violence** at work and 22% reported violence at their workplace at least sometimes. Almost one-third of nurses reported that they have been **sexually harassed**, of whom 12% reported that it occurs at least sometimes.
- **Time demand** appears to be an important psychosocial hazard for the community-based nurses. In particular, 52% reported that they are unable to take enough breaks and 41% reported that they have to neglect tasks because they have too much to do either often or all of the time.
- Thirty-six percent of nurses reported **wet work** exposure (i.e. immersing their hands in or having their hands covered by any liquid) for an average of 2.4 hours per day. Exposure to wet work for two or more hours per day is a risk factor for contact dermatitis. The nurses also reported washing their hands on average 11 times per day, with 24% washing their hands 20 times or more (a risk factor for contact dermatitis).
- The majority of the participating community-based nurses reported exposure to at least one **dust/chemical factor**; however, the high prevalence of dust was mainly household and road dust, and the high prevalence of 'other chemicals' was mainly hand sanitiser. There was a higher prevalence of cleaning product use (26%) compared to the general population.
- Community-based nurses worked on average 33 **hours** per week. Less than 5% reported working longer than 48 hours per week and 14% reported regularly working outside 7am-8.30pm. The prevalence of night shift work (15%) was higher compared to the general population.

- Three quarters of the sample reported that they have some say in how they get the job done either often or all the time whereas only about half reported that they can decide when to take a break and that they have some say in what work they do either often or all the time.
- The majority of participants (>75%) agreed or strongly agreed with all of the items about co-worker support and having the resources needed to do their job. The proportion of nurses who agreed or strongly agreed with the items about supervisor support ranged from 67% to 77%.
- Ninety-five percent of the sample reported that their employer provides **PPE**, with gloves being the most frequently used item (79%), followed by apron/protective clothing (49%).

Previous New Zealand studies on workplace exposures for community-based nurses

At 31 March 2017 there were 52,711 practising nurses in NZ, with 10% working in a DHB community setting and 15% working in a primary health care/community setting[8]. The sample for the current survey comprised mainly older females and whilst this sample is not necessarily representative of all community-based nurses, the average age of NZ nurses has been rising steadily; in 2017 44% were aged 50 years or over and 18% were aged 60 or over[8]. The phenomenon of an ageing nursing workforce, and its associated challenges, has been a focus of research in NZ[9] and internationally[10].

The epidemiological literature on occupational exposures in NZ nurses is limited, and virtually non-existent for community-based nurses. The NZNO conduct biennial surveys of a random selection (~10%) of its membership on employment issues, including working patterns, pay and employment agreements, and workload and staffing. The most recent survey (n=739) in 2017 reported that only around half of the participants agreed with the statement: "*Bullying and harassment are not a problem where I work*"[11], suggesting that bullying may be a problem for community-based nurses and the wider nursing workforce. Older NZ studies have also focused on job stressors[12, 13], and threats and violence against and interpersonal conflict within registered nurses in their first year of practice[14, 15].

In the current survey, the prevalence of biomechanical demands for community-based nurses was high. Several NZ studies have examined the prevalence of musculoskeletal disorders (MSD) in nurses[16, 17] whilst studies examining work-related risk factors for MSD are limited. Harcombe et al[18] previously conducted a cross-sectional survey that investigated the association between work-related risk factors and self-reported MSD in nurses, office workers, and postal workers. The study found that physical work tasks (including keyboard use for >4 hours, lifting, and repeated

wrist/finger movements for >4 hours) were moderately associated with lower back, shoulder, and wrist/hand pain. Job strain was associated with lower back, shoulder, wrist/hand, and knee pain with the strongest association for neck pain (Odds Ratio (OR) =3.46; 95% Confidence Interval (CI) 1.30-9.21). However, the overall sample size (n=443) was too small to present the results for individual occupational groups.

Section B: Collision Repair Workers

Table 1B presents the demographic characteristics of the survey sample for collision repair workers. All but one of the collision repair workers were male and the average age was 45 years. There was an almost equal number in all age groups with the exception of a higher proportion in the 35-44 year age group. There was a higher proportion of ex-smokers compared to the NZWS sample (42% vs. 31.1%) but a similar proportion of current smokers (15% vs 18.2%). There was also a higher proportion in the most deprived group compared to the NZWS sample (20% vs. 12.2%) but a lower proportion in the second most deprived group (14% vs. 17.6%). The participants mainly came from Auckland (28%), Wellington (21%) and the Manawatu-Whanganui region (19%).

Table 1B: Description of Collision Repair Workers Sample				
	Collision Repair		**NZWS**	
	N=100		**N=3,003**	
	N	%	N	%
Gender				
Male	99	99.0	1431	47.7
Female	1	1.0	1572	52.4
Age at Interview				
Mean & SD	44.5	11.3	44.2	11.3
Range	25-68		20-67	
20 – 34 years	22	22.0	659	21.9
35 – 44 years	31	31.0	820	27.3
45 – 54 years	22	22.0	868	28.9
55+ years	25	25.0	656	21.8
Missing	*0*			
Ethnicity				
Pākehā	80	80.0	2386	79.6
Māori	6	6.0	273	9.1
Pacific Peoples	1	1.0	53	1.8
Other	12	12.0	285	9.5
Missing	*1*		*6*	
Smoking				
Never	43	43.0	1516	50.6
Current	15	15.0	546	18.2
Ex	42	42.0	932	31.1
Missing	*0*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	21	21.0	793	26.4
3 – 4	25	25.0	656	21.9
5 – 6	17	17.0	659	22.0
7 – 8	14	14.0	527	17.6
9 – 10 (most deprived)	20	20.0	367	12.2
Missing	*3*		*1*	

Residency status				
New Zealand citizen	91	91.0	-	-
Permanent resident	8	8.0	-	-
Working holiday/temporary visa	0	0.0	-	-
Other	0	0.0	-	-
Missing	*1*			
Education level				
High school or less	11	11.0	-	-
Trade certificate/diploma	82	82.0	-	-
Bachelor degree or higher	0	0.0	-	-
Missing	*7*		-	-
Region of residence				
Northland	3	3.0	-	-
Auckland	28	28.0	-	-
Waikato	8	8.0	-	-
Bay of Plenty	2	2.0	-	-
Taranaki	3	3.0	-	-
Gisborne	0	0.0	-	-
Manawatu-Whanganui	19	19.0	-	-
Hawke's Bay	7	7.0	-	-
Wellington	21	21.0	-	-
Nelson/Tasman	1	1.0	-	-
West Coast	2	2.0	-	-
Canterbury	1	1.0	-	-
Otago	2	2.0	-	-
Southland	2	2.0	-	-
Undefined or Missing	*1*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2B presents the job titles within the collision repair workers group. The current survey comprised 63 spray painters and 37 panel beaters. The previous study by Keer et al[3] (which was the sampling frame for the current survey) reported that most of the workshops were small to medium in size and that spray painters generally carried out a wide range of tasks, including sanding, degreasing, masking, paint mixing, spray painting inside spray booths, and cleaning spray equipment. The main tasks carried out by panel beaters were disassembly and replacement or repair of damaged parts (including chassis realignment and cutting, welding, and grinding of steel/aluminium/plastic), planishing to restore (steel or aluminium) panels, degreasing of panels/ parts (usually with heavy duty solvent-based degreasers), filling of damaged panels with polyester resin, and sanding of repaired areas.

Table 2B: Description of Job Titles within the Collision Repair Sample		
	N	%
	N=100	
Panel beater	37	37.0
Spray painter	63	63.0

Table 3B presents information on current job exposures including organisational, dust/chemical, and physical factors. Collision repair workers reported working an average of 45 hours per week, which is higher than the general population (39 hours); however, they reported regularly working outside the hours of 7am-8.30pm (16% vs. 23.5%), and working night shift (2% vs. 7.1%), less frequently than the NZWS population.

Collision repair workers reported a high prevalence of exposure to all dust/chemical factors compared to the general population, with the exception of pesticides. More than 80% of collision repair workers reported exposure to dust (99%), smoke or fumes (81%), oils and solvents (92%), and 'other chemicals' (80%).

At least 69% of participants reported exposure to the majority of biomechanical demands. Awkward or tiring positions (76%), awkward grip or hand movements (69%), lifting (76%), repetitive tasks (90%), and working at very high speed (70%) a quarter of the time or more were reported much more frequently than in the general population. The exception was for standing (19% vs. 28% for the NZWS). The collision repair workers also reported a higher prevalence of working in a cold/damp (75% vs. 23.8%) and a hot/warm (84% vs. 27.8%) environment compared to the NZWS population. In addition, more than 80% of the participants reported exposure to loud noise and using tools that vibrate a quarter of the time or more. The prevalence of reporting a not at all or mildly stressful job was higher for the collision repair group compared to the general population (46% vs. 39.7%).

Table 3B: Prevalence of current job exposures				
	Collision Repair Workers		NZWS	
	N=100		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	44.8	8.9	39.0	14.7
Range	5.0-80.0		0.81-100	
Hours worked >48 hours	24	24.0	699	23.3
Hours worked >55 hours	9	9.0	271	9.1
Days worked per week: Mean & SD	5.1	0.4	4.9	1.1
Irregular hours*	16	16.0	679	23.5
Night shift in last 4 weeks	2	2.0	204	7.1
Number of night shifts worked[#] <5	2	2.0	90	45.2
5-10	0	0.0	65	32.7
10+	0	0.0	44	22.1
Current exposure				
Dust	99	99.0	881	29.3
Smoke or Fumes	81	81.0	541	18.0
Gas	33	33.0	239	8.0
Oil and Solvents	92	92.0	628	20.9
Acids or Alkalis	30	30.0	282	9.4
Pesticides	3	3.0	287	9.6
Other Chemicals	80	80.0	411	13.7
Any of the above	100	100.0	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	76	76.0	1679	56.1
Awkward grip or hand movements	69	69.0	1143	38.2
Lifting	76	76.0	1176	39.2
Repetitive Tasks	90	90.0	2037	68.2
Working at very high speed	70	70.0	1530	51.2
Working to tight deadlines	91	91.0	2185	73.1
Boring work	58	58.0	1235	41.4
Working in a cold/damp environment	75	75.0	709	23.8
Working in a hot/warm environment	84	84.0	830	27.8
Standing	19	19.0	837	28.0
Sitting	47	47.0	1946	65.0
Tools that vibrate	81	81.0	341	11.4
Working outside	25	25.0	884	29.6
Loud noise	82	82.0	895	29.9
Job stress				
Not at all-Mildly	46	46.0	1188	39.7
Moderately	37	37.0	1351	45.2
Very-Extremely	17	17.0	452	15.1
Missing	*0*		12	
*Started before 7am and/or finished after 8.30pm; 2 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4B presents specific self-reported exposures and shows that the majority of participants reported exposure to body filler/paint dust (87%), solvents (84%), paint thinner (73%), paint and lacquers (60%), and degreasers (58%). About one-third reported exposure to welding fumes (33%) and acids (32%) and about one-quarter reported exposure to isocyanates (23%), metal dust (24%), and engine emissions (24%). Twenty-two percent of collision repair workers reported exposure to gases from the spray booths and to cleaning products.

Table 4B: Prevalence of specific exposures				
	Collision Repair		**NZWS**	
	N=100		**N=3003**	
	N	%	N	%
Acids and alkalis				
Alkalis	2	2.0	100	3.3
Acids	32	32.0	194	6.5
Hydrochloric acid	1	1.0	30	1.0
Sulphuric acid	2	2.0	45	1.5
Cleaning products				
Cleaning products	22	22.0	397	13.2
Bleach	0	0.0	50	1.7
Disinfectant	6	6.0	127	4.2
Caustic soda	0	0.0	42	1.4
Chlorine products	1	1.0	111	3.7
Hand sanitiser	15	15.0	na	na
Pesticides				
Fungicides	0	0.0	59	2.0
Insecticides	2	2.0	74	2.5
Herbicides	2	2.0	168	5.6
Fertiliser	0	0.0	28	0.9
Animal drench	0	0.0	29	1.0
Timber treatment	0	0.0	69	2.3
Dusts				
Body filler/paint dust	87	87.0	na	na
Agricultural dust	0	0.0	21	0.7
Animal dust	0	0.0	21	0.7
Grain dust	0	0.0	15	0.5
Paper dust	0	0.0	29	1.0
Construction dust	0	0.0	97	3.2
Metal dust	24	24.0	104	3.5
Wood dust	0	0.0	194	6.5
Household dust	6	6.0	120	4.0
Road dust	4	4.0	155	5.2
Flour dust	0	0.0	17	0.6
Solvents				

Solvents	84	84.0	357	11.9
Acetone	3	3.0	27	0.9
Adhesive	11	11.0	125	4.2
Alcohol	14	14.0	109	3.6
Degreasers	58	58.0	39	1.3
Methylated spirits	6	6.0	54	1.8
Turpentine	1	1.0	49	1.6
Isocyanates	23	23.0	na	na
Formaldehyde	0	0.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	4	4.0	70	2.3
Diesel fuel	1	1.0	47	1.6
Engine emission	24	24.0	176	5.9
Engine oil	9	9.0	108	3.6
Kerosene	3	3.0	17	0.6
Petrol fuel	0	0.0	28	0.9
Petrol fumes	0	0.0	28	0.9
LPG	1	1.0	39	1.3
ETS	2	2.0	36	1.2
Machinery oils and fumes				
Machinery oils	0	0.0	61	2.0
Lubricants	4	4.0	76	2.5
Cutting fluids	0	0.0	20	0.7
Welding	33	33.0	91	3.0
Inks and dyes				
Dyes	0	0.0	23	0.8
Printing	0	0.0	18	0.6
Ink	0	0.0	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	1	1.0	20	0.7
Insulation materials	0	0.0	27	0.9
Asbestos	0	0.0	21	0.7
Paint and lacquers				
Paint and lacquers	60	60.0	127	4.2
Paint thinner	73	73.0	26	0.9
Spray booth gas	22	22.0	na	na

Table 5B presents information on exposure to loud noise and on the provision of protection. Loud noise was defined as noise so loud that you would have to raise your voice to be heard to speak to people who are at one arm's length away from you (which equates to 85 decibels (dB(A))), and exposure was defined as one or more hours per day or one or more hours per week. Seventy-five percent of collision repair workers reported exposure to loud noise for an average of 3.9 hours per day, compared to a lower proportion (58%) reported by the manufacturing industry in the NHEWS,

but higher average durations (5.9 hours per day or 18.7 hours per week). The majority (94.7%) reported that their employer provides earmuffs and that they also use them (86.7%).

Table 5B: Exposure to loud noise and risk controls for loud noise			
	Collision Repair Workers		**NHEWS Manufacturing**
	N=100		**N=714**
	N	%	%
Does not work in loud noise	25	25.0	42.0
Exposed one or more hours a day	71	71.0	37.0
Exposed one or more hours a week	4	4.0	21.0
Total exposed	75	75.0	58.0
Daily mean hours	3.9 (n=71)	2.2 SD	5.9 (n=264)
Weekly mean hours	4 (n=4)	4.0 SD	18.7 (n=147)
Provision of noise protection			
Exposed	N=75		N=411
Ear muffs provided	71	94.7	77.0
Uses ear muffs	65	86.7	na
Ear plugs provided	45	60.0	88.0
Uses ear plugs	20	26.7	na
Training provided	34	45.3	56.0
Used training	31	41.3	na
Job rotation available	10	13.3	45.0
Uses job rotation	9	12.0	na
Noisy equipment is placed in an isolated room	0	0.0	28.0
Uses equipment	0	0.0	na
Quieter machinery is purchased whenever possible	22	29.3	41.0
Nothing	2	2.7	3.0
Qu. If more than 'never' to 17(n) 'loud noise', how long do you work in loud noise on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 6B presents the prevalence of exposure to wet work and the provision of protection. Collision repair workers reported washing their hands on average nine times per day, compared to an average of 10 times reported by the manufacturing group in the NHEWS. Fifty-four percent reported that they use thinners or another solvent to clean their hands/other body parts and 17% reported that they did this often or very often (data not shown). Of these workers, 85% reported that they used thinners to clean their hands/other body parts and the remainder used other solvents such as methylated spirits or "Prepsol" (data not shown). Forty percent of collision repair workers reported that they have their hands immersed or covered by any liquid for an average of 2.5 hours per day compared to 23% for the manufacturing group in the NHEWS (for an average of 2.2 hours per day

and 5.8 hours per week). The majority (95%) of collision repair workers exposed to wet work reported that their employer provides gloves and 88% reported that they used gloves. Half of those exposed to wet work also reported that barrier cream is provided, although only 18% reported they use it.

Table 6B: Exposure to wet work and risk controls for wet work			
	Collision Repair Workers		**NHEWS Manufacturing**
	N=100		**N=714**
	N	%	%
Number of times washed hands in a typical day: Mean & SD	8.5	9.9 SD	Mean=10.1
Uses thinners/another solvent to clean hands/other body parts	54	54.0	na
Hands not immersed in water/liquids	60	60.0	77.0
Hands immersed one or more hours a day	36	36.0	13.0
Hands immersed one or more hours a week	4	4.0	10.0
Total exposed	40	40.0	23.0
Daily mean hours	2.5 (n=36)	2.2 (SD)	2.2 (n=94)
Weekly mean hours	1.9 (n=4)	1.4 (SD)	5.8 (n=70)
Provision of protection			
Exposed	N=40		N=164
	N	%	%
Gloves provided	38	95.0	83.0
Uses gloves	35	87.5	na
Barrier cream provided	20	50.0	52.0
Uses barrier cream	7	17.5	na
Moisturiser provided	6	15.0	42.0
Used moisturiser	6	15.0	na
Labelling & warning signs provided	31	77.5	65.0
Uses labelling & warning signs	30	75.0	na
Option to limit time hands are in water/liquid	5	12.5	35.0
Uses option to limit time hands in water/liquid	5	12.5	na
Training provided	12	30.0	44.0
Uses training	12	30.0	na
Qu. On a typical day at work, excluding time spent hand-washing, how long do you have your hands immersed in or covered by any liquid (including water) with or without gloves?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 7B presents the main types of liquids on the hands for those that reported that their hands are immersed in or covered by water or liquids. The most common liquids were solvents/thinners/methylated spirits (65%), water (58%), and paint (55%).

Table 7B: Main types of liquids on hands			
	Collision Repair Workers		**NHEWS Manufacturing**
Exposed	**N=40**		**N=164**
	N	%	%
Water	23	57.5	47.0
Detergents/cleaning products/disinfectants	11	27.5	29.0
Oil/various	1	2.5	10.0
Solvents/thinners/methylated spirits	26	65.0	12.0
Fuel/petrol/kerosene	1	2.5	5.0
Grease	1	2.5	6.0
Concrete	0	0.0	0.0
Paint	22	55.0	2.0
Hydraulic oil	0	0.0	3.0
Degreaser	5	12.5	4.0
Bodily fluids	0	0.0	2.0
Qu. What liquids do you typically have your hands covered by?			
The NHEWS refers to exposure on a typical day at work last week			

Table 8B presents the prevalence of the provision and use of PPE. Every participant reported that their employer provides PPE. There were high prevalences of provision and use for gloves (100% and 97%), goggles or protective glasses (95% and 89%), and filter cartridge respirators (91% and 80%). Ninety-one percent also reported provision of simple dust masks but only 69% reported using them.

Table 8B: Prevalence of Personal Protective Equipment Use				
	Collision Repair Workers		NZWS	
	N=100		N=3,003	
	N	%	N	%
Employer provides PPE*	100	100.0	na	na
Does your employer provide:				
Goggles or protective glasses	95	95.0	na	na
Uses goggles or protective glasses	89	89.0	568	18.9
Footwear	84	84.0	na	na
Uses footwear	83	83.0	665	22.2
Apron/protective clothing*	94	94.0	na	na
Uses apron/protective clothing*	85	85.0	716	23.9
Simple dust mask	91	91.0	na	na
Uses simple dust mask	69	69.0	390	13.0
Filter catridge respirator	91	91.0	na	na
Uses filter cartridge respirator	80	80.0	131	4.4
Air supplied respirator or SCBA	76	76.0	na	na
Uses air supplied respirator or SCBA	54	54.0	29	1.0
Gloves*	100	100.0	na	na
Uses gloves*	97	97.0	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 9B presents how often participants reported adverse psychosocial working conditions, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for “often/all the time” for the Manufacturing industry in the NHEWS are also provided for comparison (the full results are presented in Appendix 3, Table A3.3). The reporting of the time demand items either often or all the time were slightly higher for the collision repair workers compared to the manufacturing industry in the NHEWS and the item with the highest prevalence was having to work very fast (34%). By contrast, the collision repair workers reported more favourably workplace control items; 68% reported that they have some say in what work they do either often or all the time and 88% reported that they have some say in how they get the job done (compared to 53% and 70% in the NHEWS, respectively). Seventeen percent reported that they have experienced bullying at work but only 2% reported that this had occurred often/all the time. Of those that reported bullying, 59% reported that it was by co-worker(s).

Table 9B: Psychosocial Working Conditions for Collision Repair Workers - Part 1																	
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=714)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Time Demand in the Workplace																
I am pressured to work long hours.	100	62	62.0	10	10.0	14	14.0	9	9.0	5	5.0	14	14.0	9	0	0.0
I have unachievable deadlines.	100	38	38.0	28	28.0	23	23.0	7	7.0	4	4.0	11	11.0	10	0	0.0
I have to work very fast.	100	17	17.0	11	11.0	38	38.0	24	24.0	10	10.0	34	34.0	32	0	0.0
I am unable to take enough breaks.	100	62	62.0	14	14.0	10	10.0	8	8.0	5	5.0	13	13.0	8	0	0.0
I have to neglect some tasks because I have too much to do.	100	30	30.0	14	14.0	40	40.0	13	13.0	3	3.0	16	16.0	16	0	0.0
It's hard for me to juggle work requests from different people.	100	40	40.0	14	14.0	32	32.0	8	8.0	6	6.0	14	14.0	12	0	0.0
Cognitive Demand in the Workplace																
I have to keep track of more than one thing at a time.	100	1	1.0	0	0.0	12	12.0	26	26.0	61	61.0	87	87.0	68	0	0.0
My work needs my undivided attention.	100	2	2.0	5	5.0	13	13.0	26	26.0	54	54.0	80	80.0	73	0	0.0
Workplace Control																
I can decide when to take a break.	100	12	12.0	3	3.0	19	19.0	21	21.0	44	44.0	65	65.0	62	0	0.0
I have some say in what work I do.	100	10	10.0	5	5.0	17	17.0	20	20.0	48	48.0	68	68.0	53	0	0.0
I have some say in how I get the job done.	100	2	2.0	1	1.0	9	9.0	21	21.0	67	67.0	88	88.0	70	0	0.0
Bullying and Harassment																
I was sexually harassed.	100	97	97.0	2	2.0	0	0.0	1	1.0	0	0.0	1	1.0	0	0	0.0
I have experienced violence	100	78	78.0	16	16.0	6	6.0	0	0.0	0	0.0	0	0.0	NA	0	0.0
I was bullied.	100	83	83.0	7	7.0	8	8.0	1	1.0	1	1.0	2	2.0	2	0	0.0
If yes to bullying, was the person:	N	%														
	N=17															
Supervisor	3	17.6														
Co-worker/s	10	58.8														
Customer	6	35.3														
Patient	0	0.0														
Patient's family member	0	0.0														
Someone who worked for you	3	17.6														
*Manufacturing																

Table 10B presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control, compared to participants from the Manufacturing group who reported "disagree/strongly disagree" in the NHEWS (the full results are presented in Appendix 3, Table A3.4). The majority of participants (>90%) agreed or strongly agreed with all of the items about co-worker support, and only 9% agreed or strongly agreed with the statement "*I am worried about losing my job*". The proportion of collision repair workers who agreed or strongly agreed with the items about supervisor support ranged from 72% to 82%, which was similar to the NHEWS results (see Appendix 3, Table A3.4). Ninety-five percent of participants reported that they agreed/strongly agreed with the statement "*I have the information I need to do my job*" and 92% agreed/strongly agreed with the statement "*I have the equipment I need to do my job*" (compared to 85% and 87%, respectively in the NHEWS). Only 15% of collision repair workers reported that their employer provides counselling services and 29% reported that their employer has anti-bullying and anti-stress policies (although 31% did not answer this question). The equivalent figures from the manufacturing industry in the NHEWS were 44% and 55%, respectively. The 'other' option mainly included managers having an 'open door policy' (data not shown).

Table 10B: Psychosocial Working Conditions for Collision Repair Workers - Part 2																	
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS* Disagree /Strongly Disagree (n=714)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Co-Worker Support & Job Insecurity																
I get the help and support I need from my fellow workers.	98	26	26.5	66	67.4	4	4.1	2	2.0	0	0.0	2	2.0	6	0	0.0
My fellow workers respect me.	98	31	31.6	61	62.2	3	3.1	3	3.1	0	0.0	3	3.1	3	0	0.0
My fellow workers are willing to listen to my work related problems.	98	25	25.5	65	66.3	4	4.1	4	4.1	0	0.0	4	4.1	10	0	0.0
I am worried about losing my job.	99	5	5.1	4	4.0	5	5.1	18	18.2	67	67.7	85	85.9	80	0	0.0
Workplace Control																
I have some say over the way I work.	100	50	50.0	45	45.0	3	3.0	2	2.0	0	0.0	2	2.0	9	0	0.0
Supervisor Support																
I can talk to my supervisor about something that has upset me at work.	89	33	37.1	40	44.9	13	14.6	3	3.4	0	0.0	3	3.4	10	0	0.0
My supervisor encourages me at work.	88	23	26.1	40	45.5	19	21.6	6	6.8	0	0.0	6	6.8	17	0	0.0
My supervisor supports me through emotionally demanding work.	85	22	25.9	39	45.9	18	21.2	6	7.1	0	0.0	6	7.1	18	0	0.0
I have the information I need to do my job.	99	50	50.5	44	44.4	4	4.0	1	1.0	0	0.0	1	1.0	11	0	0.0
I have the equipment I need to do my job.	100	54	54.0	38	38.0	5	5.0	3	3.0	0	0.0	3	3.0	9	0	0.0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Collision Repair		**NHEWS***
	N=69		**N=714**
	N	%	%
Have anti-stress and anti-bullying policies	20	29.0	55
Provide training on how to manage stress	10	14.5	31
Provide counselling services	10	14.5	44
Other	26	37.7	na
Don't Know	10	14.5	3
Refuse to disclose	0	0.0	na

*Manufacturing

Key observations for collision repair workers:

- The majority of the sample reported exposure to **dust/chemical** factors. More than 80% of collision repair workers reported exposure to dust (99%), smoke or fumes (81%), oils and solvents (92%), and 'other chemicals' (80%). More specifically, the majority of participants reported exposure to body filler/paint dust (87%), solvents (84%), paint thinner (73%), paint (60%), and degreasers (58%).
- At least 69% of participants reported exposure to the majority of **biomechanical demands**, including awkward or tiring positions (76%), awkward grip or hand movements (69%), lifting (76%), repetitive tasks (90%), and working at very high speed (70%) a quarter of the time or more.
- Eighty-one percent reported using **tools that vibrate** at least a quarter of the time.
- The collision repair workers also reported a higher prevalence of working in a **cold/damp** (75%) and a **hot/warm** (84%) environment compared to the general population.
- Three quarters of collision repair workers reported exposure to **loud noise** for an average duration of 4 hours per day and the majority (87%) reported use of ear muffs.
- Collision repair workers reported washing their hands on average nine times per day. Forty percent reported that they have their hands immersed or covered by any liquid (**wet work**) for an average of 3 hours per day. More than half (54%) reported that they use thinners or another solvent to clean their hands/other body parts and 17% reported that they did so frequently. The majority (95%) of exposed workers reported that their employer provides gloves and 88% reported that they used gloves.
- The reported provision and use of **PPE** was high. The provision and use of gloves (100% and 97%), goggles or protective glasses (95% and 89%), and filter cartridge respirators (91% and 80%), was very high.
- Collision repair workers reported working an average of 44 **hours** per week, which is higher than the general population (39 hours); however, they reported lower prevalences of working irregular hours (15% vs. 23.5%) and night shift (2% vs. 7.1%) compared to the general population.
- Almost half of the sample (46%) reported that their job was not at all or mildly **stressful**.
- The reporting of the **time demand** items, either often or all the time, was generally low and ranged between 11-16%, with the exception of 34% reporting that they have to work very fast often or all the time.
- Of the **workplace control** items, 68% reported that they have some say in what work they do either often or all the time and 88% reported that they have some say in how they get the job done.
- Seventeen percent reported that they have experienced **bullying** at work but only 2% reported that bullying occurred often or all the time. Of those that reported bullying, 59% reported that it was by co-worker(s). Only 15% of collision repair workers reported that their employer provides counselling services and 29% reported that their employer has anti-bullying and anti-stress policies.
- The majority of participants (>90%) agreed or strongly agreed with all of the items **about co-worker support** and having the **resources** needed to do their job. The proportion of workers who agreed or strongly agreed with the items about **supervisor support** was high and ranged from 72% to 82%.

Previous New Zealand studies on workplace exposures for collision repair workers

Keer et al recently conducted a study investigating the association between solvent use in the CR industry and symptoms of neurotoxicity[3]. The study (which was the sampling frame for the current survey) of 370 vehicle collision repair and 211 reference workers measured personal, full-shift airborne solvent levels for 50 spray painters and 36 panel beaters plus a small group of office workers from 18 workshops. Overall, solvent levels were low and below current exposure standards. Airborne solvent levels were highest in spray painters (geometric mean combined solvent level of 2.7 ppm) followed by panel beaters (0.5 ppm) and office staff (0.2 ppm). The highest exposure levels were associated with time spent mixing paint, cleaning spray guns/equipment with solvents, spraying primer, and spraying clear coat paint. The study also showed that most airborne solvent exposures took place outside the spraying booth where controls on exposure were often absent or ineffective; the highest average and peak exposures recorded were for non-spray painting tasks (e.g. mixing paint, cleaning spray equipment). Despite low average airborne solvent levels overall, associations with specific symptom domains showed increased risks of neurological (Odds Ratio 4.2), psychosomatic (OR 3.2), mood (OR 2.1), memory (OR 2.9), and memory and concentration symptoms combined (OR 2.4; all $p<0.05$). Although airborne levels were highest in spray painters, the strongest risks of neurobehavioural effects observed were for panel beaters.

A recent paper by Keer et al[19] examined the spray painters from the study above and found that workers who frequently used gloves and respirators were significantly less likely to report symptoms of neurotoxicity (OR=0.15, $p<0.05$). There was an overall reduction in risk of 90% for those who frequently used both types of PPE. Frequent glove use was shown to be the most protective, which suggests that dermal exposures may play a role in the development of symptoms.

The current survey found that the reported provision and use of PPE was high; however, information on the frequency and duration of PPE use, and for which tasks, was not collected. Video exposure monitoring observations in the study by Keer et al suggest that respirators were typically worn only inside the spray booth, where spray painters only spend on average 7% of their work shift. In addition, almost 70% of workers reported washing their hands in solvents (compared to 54% in the current survey). Also, 27% reported doing so frequently, and this was associated with an increased risk of symptoms (OR 3.1 for reporting ≥10 symptoms, $p<0.05$)[19].

Section C: Construction Workers

Table 1C presents the demographic characteristics of the survey sample for construction workers. The majority of the sample was male (92%) and the average age was 42 years with almost 60% of the sample aged below 45 years. There was a higher proportion of Māori compared to the NZWS population (23.2% vs. 9.1%) and a higher proportion of Pacific peoples (6.5% vs. 1.8%) and 'Other' ethnicities (27.8% vs. 9.5%). There was also a higher proportion of ex-smokers (39.8% vs. 31.1%) and a higher proportion in the most deprived group compared to the NZWS population (16.7% vs. 12.2%). NZ citizens comprised three quarters of the sample and 45% held a trade certificate/diploma. The top four regions of residence were Wellington (39.8%), Auckland (33.3%), Manawatu-Whanganui (4.6%), and Otago (4.6%).

Table 1C: Description of Construction Workers Sample				
	Construction Workers		**NZWS**	
	N=108		**N=3,003**	
	N	%	N	%
Gender				
Male	99	91.7	1431	47.7
Female	9	8.3	1572	52.4
Age at Interview				
Mean & SD	41.7	12.1	44.2	11.3
Range	19-68		20-67	
20 – 34 years	36	33.3	659	21.9
35 – 44 years	28	25.9	820	27.3
45 – 54 years	26	24.1	868	28.9
55+ years	18	16.7	656	21.8
Missing	*0*			
Ethnicity				
Pākehā	46	42.6	2386	79.6
Māori	25	23.2	273	9.1
Pacific Peoples	7	6.5	53	1.8
Other	30	27.8	285	9.5
Missing	*0*		*6*	
Smoking				
Never	41	38.0	1516	50.6
Current	24	22.2	546	18.2
Ex	43	39.8	932	31.1
Missing	*0*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	20	18.5	793	26.4
3 – 4	17	15.7	656	21.9
5 – 6	28	25.9	659	22.0
7 – 8	20	18.5	527	17.6
9 – 10 (most deprived)	18	16.7	367	12.2

Missing	*5*		*1*	
Residency status				
New Zealand citizen	81	75.0	-	-
Permanent resident	7	6.5	-	-
Working holiday/temporary visa	6	5.6	-	-
Other	14	13.0	-	-
Missing	*0*			
Education level				
High school or less	40	37.0	-	-
Trade certificate/diploma	49	45.4	-	-
Bachelor degree or higher	18	16.7	-	-
Missing	*1*		-	-
Region of residence				
Northland	0	0.0	-	-
Auckland	36	33.3	-	-
Waikato	8	7.4	-	-
Bay of Plenty	1	0.9	-	-
Taranaki	0	0.0	-	-
Gisborne	3	2.8	-	-
Manawatu-Whanganui	5	4.6	-	-
Hawke's Bay	0	0.0	-	-
Wellington	43	39.8	-	-
Nelson/Tasman	2	1.9	-	-
West Coast	0	0.0	-	-
Canterbury	4	3.7	-	-
Otago	5	4.6	-	-
Southland	3	2.8	-	-
Undefined or Missing	*1*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2C presents the job titles within the construction workers group. Skilled labourers included specific trades such carpenters, builders, and plasterers. Machinery operators also included truck drivers and the engineers were site engineers who were on site at least 50% of the time.

Table 2C: Description of Job Titles within the Construction Workers Sample		
	N	%
	N=108	
Skilled labourer	48	44.4
Foreman	17	15.7
Project manager	5	4.6
Labourer	21	19.4
Machinery operator	8	7.4
Health and Safety	3	2.8
Engineer	6	5.6

Table 3C presents the current job exposures including organisational, dust/chemical, and physical factors. Construction workers reported working an average of 47 hours per week, which is higher than the general population (39 hours) and long working hours (both >48hours and >55 hours) were reported more frequently compared to the general population (43.5% vs. 23.3% and 19.4% vs. 9.1%), respectively). In addition, a higher proportion of construction workers reported regularly working outside of the hours 7am-8.30pm compared to the NZWS population (31.5% vs. 23.5%).

The proportion of workers exposed to dust (92.6%), smoke or fumes (51.9%), oils and solvents (41.7%), pesticides (22.2%), and 'other chemicals' (68.5%) were all higher compared to the general population. At least 69% of participants reported exposure to the majority of biomechanical demands. Awkward or tiring positions (84.3%), awkward grip or hand movements (69.4%), lifting (83.3%) and repetitive tasks (87%) a quarter of the time or more were experienced more frequently than in the general population. The exception was for standing (24.1% vs. 28% for the NZWS). The construction workers also reported a higher prevalence of working in a cold/damp (84.3% vs. 23.8%) and a hot/warm (83.3% vs. 27.8%) environment compared to the NZWS population. Working outside at least a quarter of the time was reported by 87% and 84% of the participants reported exposure to loud noise. Two-thirds of participants reported using tools that vibrate a quarter of the time or more.

The prevalence of reporting a not at all or mildly stressful job was higher for the construction workers group compared to the general population (59.3% vs. 39.7%).

Table 3C: Prevalence of current job exposures				
	Construction Workers		NZWS	
	N=108		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	47.2	10.1	39.0	14.7
Range	10.5-67.0		0.81-100	
Hours worked >48 hours	47	43.5	699	23.3
Hours worked >55 hours	21	19.4	271	9.1
Days worked per week: Mean & SD	5.2	0.6	4.9	1.1
Irregular hours*	34	31.5	679	23.5
Night shift in last 4 weeks	8	7.4	204	7.1
Number of night shifts worked[#] <5	4	3.7	90	45.2
5-10	1	0.9	65	32.7
10+	2	1.9	44	22.1
Current exposure				
Dust	100	92.6	881	29.3
Smoke or Fumes	56	51.9	541	18.0
Gas	12	11.1	239	8.0
Oil and Solvents	45	41.7	628	20.9
Acids or Alkalis	10	9.3	282	9.4
Pesticides	24	22.2	287	9.6
Other Chemicals	74	68.5	411	13.7
Any of the above	103	95.4	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	91	84.3	1679	56.1
Awkward grip or hand movements	75	69.4	1143	38.2
Lifting	90	83.3	1176	39.2
Repetitive Tasks	94	87.0	2037	68.2
Working at very high speed	64	59.3	1530	51.2
Working to tight deadlines	94	87.0	2185	73.1
Boring work	61	56.5	1235	41.4
Working in a cold/damp environment	91	84.3	709	23.8
Working in a hot/warm environment	90	83.3	830	27.8
Standing	26	24.1	837	28.0
Sitting	44	40.7	1946	65.0
Tools that vibrate	73	67.6	341	11.4
Working outside	94	87.0	884	29.6
Loud noise	91	84.3	895	29.9
Job stress				
Not at all-Mildly	64	59.3	1188	39.7
Moderately	31	28.7	1351	45.2
Very-Extremely	13	12.0	452	15.1
Missing	*0*		12	
*Started before 7am and/or finished after 8.30pm; 3 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4C presents the prevalence of specific self-reported exposures. The majority of the sample (see Table 3C above) reported workplace exposure to dust, largely construction dust (59.3%) or wood dust (46.3%). Around one-fifth also reported exposure to road dust (23.1%) and metal dust (20.4%). Adhesive use and the general category of solvents were reported by 43% and 29%, respectively. Almost one-third reported paint exposure (27.8%) and around one-fifth reported exposure to insulation materials (19.4%) and timber treatment chemicals (18.5%).

Table 4C: Prevalence of specific exposures				
	Construction		**NZWS**	
	N=108		**N=3003**	
Exposure	**N**	**%**	**N**	**%**
Acids and alkalis				
Alkalis	2	1.9	100	3.3
Acids	7	6.5	194	6.5
Hydrochloric acid	1	0.9	30	1.0
Sulphuric acid	0	0.0	45	1.5
Cleaning products				
Cleaning products	15	13.9	397	13.2
Bleach	0	0.0	50	1.7
Disinfectant	1	0.9	127	4.2
Caustic soda	0	0.0	42	1.4
Chlorine products	2	1.9	111	3.7
Hand sanitiser	6	5.6	na	na
Pesticides				
Fungicides	5	4.6	59	2.0
Insecticides	6	5.6	74	2.5
Herbicides	6	5.6	168	5.6
Fertiliser	0	0.0	28	0.9
Animal drench	0	0.0	29	1.0
Timber treatment	20	18.5	69	2.3
Dusts				
Agricultural dust	0	0.0	21	0.7
Animal dust	0	0.0	21	0.7
Grain dust	0	0.0	15	0.5
Paper dust	0	0.0	29	1.0
Construction dust	64	59.3	97	3.2
Metal dust	22	20.4	104	3.5
Wood dust	50	46.3	194	6.5
Household dust	6	5.6	120	4.0
Road dust	25	23.1	155	5.2
Flour dust	0	0.0	17	0.6
Solvents				
Solvents	31	28.7	357	11.9

Acetone	0	0.0	27	0.9
Adhesive	46	42.6	125	4.2
Alcohol	4	3.7	109	3.6
Degreasers	8	7.4	39	1.3
Methylated spirits	3	2.8	54	1.8
Turpentine	7	6.5	49	1.6
Formaldehyde	0	0.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	19	17.6	70	2.3
Diesel fuel	4	3.7	47	1.6
Engine emission	12	11.1	176	5.9
Engine oil	5	4.6	108	3.6
Kerosene	0	0.0	17	0.6
Petrol fuel	1	0.9	28	0.9
Petrol fumes	12	11.1	28	0.9
LPG	2	1.9	39	1.3
ETS	4	3.7	36	1.2
Machinery oils and fumes				
Machinery oils	5	4.6	61	2.0
Lubricants	11	10.2	76	2.5
Cutting fluids	5	4.6	20	0.7
Welding	7	6.5	91	3.0
Inks and dyes				
Dyes	0	0.0	23	0.8
Printing	0	0.0	18	0.6
Ink	0	0.0	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	4	3.7	20	0.7
Insulation materials	21	19.4	27	0.9
Asbestos	6	5.6	21	0.7
Paint and lacquers				
Paint and lacquers	30	27.8	127	4.2
Paint thinner	11	10.2	26	0.9
Paint dust	5	4.6	17	0.6

Table 5C presents the prevalence of exposure to loud noise and the risk controls measures applied. Seventy-seven percent of workers reported exposure to loud noise for an average of 4.5 hours per day, compared to a lower proportion (53%) reported by the construction industry in the NHEWS, but with similar average daily durations (4.2 hours per day). The majority (88%) of workers reported that their employer provides ear muffs and that they also use them (80.7%). Whilst 72% reported that their employer provides ear plugs, only 42% reported using them. Around one-fifth also reported that job rotation is available and quieter machinery is purchased whenever possible.

Table 5C: Exposure to loud noise and risk controls for loud noise			
	Construction Workers		NHEWS Construction
	N=108		N=655
	N	%	%
Does not work in loud noise	25	23.1	47.0
Exposed one or more hours a day	75	69.4	30.0
Exposed one or more hours a week	8	7.4	23.0
Total exposed[#]	83	76.9	53.0
Daily mean hours	4.5 (n=75)	2.9 SD	4.2 (n=194)
Weekly mean hours	8.5 (n=8)	9.4 SD	13.6 (n=150)
Provision of noise protection			
Exposed	N=83		N=344
Ear muffs provided	73	88.0	75.0
Uses ear muffs	67	80.7	na
Ear plugs provided	60	72.3	74.0
Uses ear plugs	35	42.2	na
Training provided	39	47.0	43.0
Used training	38	45.8	na
Job rotation available	18	21.7	38.0
Uses job rotation	14	16.9	na
Noisy equipment is placed in an isolated room	2	2.4	21.0
Uses equipment	2	2.4	na
Quieter machinery is purchased whenever possible	17	20.5	40.0
Nothing	2	2.4	8.0
Qu. If more than 'never' to 17(n) 'loud noise', how long do you work in loud noise on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 6C presents the prevalence of exposure to sunlight and risk controls for sunlight. Exposure was defined as working in direct sunlight, with or without protective lotions or clothing, for one or more hours per day or one or more hours per week. The current survey collected average duration of exposure in summer and winter, whereas the NHEWS did not distinguish between the seasons. Exposure to direct sunlight was reported by 81% of construction workers for an average of 6.6 hours per day in summer and a slightly lower 5.3 hours per day in winter. The provision of sun protection was generally higher for the construction workers compared to the construction industry in the NHEWS with the exception of work being organised outside of peak UV hours (6% vs. 21%).

Table 6C: Exposure to sunlight and risk controls for sunlight			
	Construction Workers		NHEWS Construction
	N=103		N=655
	N	%	%
Does not work in sunlight	20	19.4	40.0
In Summer			
Exposed one or more hours a day	78	75.7	36.0
Exposed one or more hours a week	3	2.8	24.0
Daily mean hours	6.6 (n=78)	2.5 SD	5.6 (n=234)
Weekly mean hours	7.7 (n=3)	3.5 SD	19.0 (n=158)
In Winter			
Exposed one or more hours a day	74	71.8	
Exposed one or more hours a week	5	4.9	
Daily mean hours	5.3 (n=74)	2.6 SD	
Weekly mean hours	5.8 (n=5)	3.6 SD	
Total exposed	83	80.6	60.0
Provision of sun protection			
Exposed	N=83		N=392
Sunscreen provided	78	94.0	75.0
Uses sunscreen	65	78.3	na
Protective clothing provided	62	74.7	76.0
Uses protective clothing	59	71.1	na
Hat provided	68	81.9	78.0
Uses hat	64	77.1	na
Sunglasses provided	67	80.7	66.0
Uses sunglasses	62	74.7	na
Work is reorganised outside peak UV hours	5	6.0	21.0
Uses reorganisation	4	4.8	na
Nothing	0	0.0	8.0
Qu. On a typical day at work, how long did you work in direct sunlight, with or without protective lotions or clothing?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 7C presents the prevalence of the provision and use of PPE. Almost every participant (98.2%) reported that their employer provides PPE. The provision and use of gloves (95.4% and 87%), goggles or protective glasses (94.4% and 89.8%), and simple dust masks (88% and 75%) were all high.

Table 7C: Prevalence of Personal Protective Equipment Use				
	Construction Workers		NZWS	
	N=108		N=3,003	
	N	%	N	%
Employer provides PPE*	106	98.2	na	na
Does your employer provide:				
Goggles or protective glasses	102	94.4	na	na
Uses goggles or protective glasses	97	89.8	568	18.9
Footwear	92	85.2	na	na
Uses footwear	91	84.3	665	22.2
Apron/protective clothing*	80	74.1	na	na
Uses apron/protective clothing*	78	72.2	716	23.9
Simple dust mask	95	88.0	na	na
Uses simple dust mask	81	75.0	390	13.0
Filter catridge respirator	52	48.2	na	na
Uses filter cartridge respirator	33	30.6	131	4.4
Air supplied respirator or SCBA	17	15.7	na	na
Uses air supplied respirator or SCBA	7	6.5	29	1.0
Gloves*	103	95.4	na	na
Uses gloves*	94	87.0	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 8C presents how often participants reported psychosocial working conditions, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for "often/all the time" for the Construction industry in the NHEWS are also provided for comparison (the full results are presented in Appendix 3). The prevalences of reporting time demand items either often or all the time were generally low and the highest prevalence was for having to work very fast (27%). The results were similar to the construction industry in the NHEWS except for lower prevalences for "*I have to neglect tasks because I have too much to do*" (8.3% vs. 14%) and "*It's hard for me to juggle work requests from different people*" (4.6% vs. 16%). The reported cognitive demand and workplace control items were also lower compared to the NHEWS results; 52% reported that either often or all the time they can decide when to take a break and 44% have some say in what work they do. Twenty percent reported that they have experienced bullying at work with 14% reporting that bullying rarely occurs and 5% reporting that it sometimes occurs. Workplace violence was experienced by 7% of participants at least sometimes.

Table 8C: Psychosocial Working Conditions for Construction Workers - Part 1																	
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=655)	Don't know		
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%	
Time Demand in the Workplace																	
I am pressured to work long hours.	108	34	31.5	20	18.5	36	33.3	8	7.4	10	9.3	18	16.7	16	0	0.0	
I have unachievable deadlines.	108	50	46.3	19	17.6	27	25.0	10	9.3	2	1.9	12	11.1	12	0	0.0	
I have to work very fast.	108	23	21.3	17	15.7	39	36.1	17	15.7	12	11.1	29	26.9	32	0	0.0	
I am unable to take enough breaks.	108	56	51.9	18	16.7	19	17.6	13	12.0	2	1.9	15	13.9	12	0	0.0	
I have to neglect some tasks because I have too much to do.	108	48	44.4	17	15.7	33	30.6	8	7.4	1	0.9	9	8.3	14	0	0.0	
It's hard for me to juggle work requests from different people.	108	50	46.3	20	18.5	32	29.6	4	3.7	1	0.9	5	4.6	16	0	0.0	
Cognitive Demand in the Workplace																	
I have to keep track of more than one thing at a time.	108	4	3.7	4	3.7	39	36.1	20	18.5	41	38.0	61	56.5	73	0	0.0	
My work needs my undivided attention.	108	6	5.6	3	2.8	29	26.9	26	24.1	44	40.7	70	64.8	79	0	0.0	
Workplace Control																	
I can decide when to take a break.	108	20	18.5	8	7.4	24	22.2	24	22.2	32	29.6	56	51.9	72	0	0.0	
I have some say in what work I do.	108	9	8.3	11	10.2	40	37.0	21	19.4	27	25.0	48	44.4	69	0	0.0	
I have some say in how I get the job done.	108	5	4.6	3	2.8	34	31.5	34	31.5	32	29.6	66	61.1	82	0	0.0	
Bullying and Harassment																	
I was sexually harassed.	108	104	96.3	2	1.9	2	1.9	0	0.0	0	0.0	0	0.0	0	0	0.0	
I have experienced violence	108	87	80.6	13	12.0	8	7.4	0	0.0	0	0.0	0	0.0	NA	0	0.0	
I was bullied.	108	88	81.5	15	13.9	5	4.6	0	0.0	0	0.0	0	0.0	1	0	0.0	
If yes to bullying, was the person:	N	%															
	N=20																
Supervisor	8	40.0															
Co-worker/s	9	45.0															
Customer	1	5.0															
Patient	0	0.0															
Patient's family member	0	0.0															
Someone who worked for you	0	0.0															
*Construction																	

Table 9C presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control, compared to participants from the Construction industry who reported “disagree/strongly disagree” in the NHEWS. The majority of participants (>74%) agreed or strongly agreed with all of the items about co-worker support; however, 26% agreed or strongly agreed with the statement “*I am worried about losing my job*” (compared to 9% in the NHEWS). The proportion of workers who agreed or strongly agreed with the items about supervisor support ranged from 72% to 80%, which was slightly lower compared to the NHEWS results (see Appendix 3, Table A3.2). Eighty-three percent of participants reported that they agreed/strongly agreed with the statement “*I have the information I need to do my job*” and 87% agreed/strongly agreed with the statement “*I have the equipment I need to do my job*” (compared to 87% and 86%, respectively in the NHEWS). The availability of counselling services was reported by 40% and 47% reported that their employer has anti-bullying and anti-stress policies.

Table 9C: Psychosocial Working Conditions in Construction Workers- Part 2																
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS* Disagree /Strongly Disagree (n=655)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Co-Worker Support & Job Insecurity																
I get the help and support I need from my fellow workers.	108	28	25.9	63	58.3	14	13.0	2	1.9	0	0.0	2	1.9	4	1	0.9
My fellow workers respect me.	107	27	25.2	67	62.6	12	11.2	0	0.0	0	0.0	0	0.0	2	1	0.9
My fellow workers are willing to listen to my work related problems.	108	23	21.3	57	52.8	23	21.3	4	3.7	0	0.0	4	3.7	6	1	0.9
I am worried about losing my job.	107	15	14.0	13	12.2	15	14.0	29	27.1	34	31.8	63	58.9	87	1	0.9
Workplace Control																
I have some say over the way I work.	107	34	31.8	61	57.0	7	6.5	4	3.7	1	0.9	5	4.7	3	0	0.0
Supervisor Support																
I can talk to my supervisor about something that has upset me at work.	106	30	28.3	55	51.9	13	12.3	7	6.6	0	0.0	7	6.6	7	1	0.9
My supervisor encourages me at work.	105	32	30.5	48	45.7	19	18.1	4	3.8	1	1.0	5	4.8	10	1	1.0
My supervisor supports me through emotionally demanding work.	105	24	22.9	51	48.6	18	17.1	7	6.7	2	1.9	9	8.6	12	3	2.9
I have the information I need to do my job.	108	29	26.9	60	55.6	13	12.0	5	4.6	1	0.9	6	5.6	8	0	0.0
I have the equipment I need to do my job.	108	31	28.7	63	58.3	11	10.2	3	2.8	0	0.0	3	2.8	9	0	0.0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Construction		**NHEWS***
	N=96		**N=655**
	N	%	%
Have anti-stress and anti-bullying policies	45	46.9	34
Provide training on how to manage stress	23	24.0	21
Provide counselling services	38	39.6	29
Other	37	38.5	na
Don't Know	20	20.8	2
Refuse to disclose	1	1.0	na

*Construction

Key observations for construction workers

- Construction workers reported working a higher average number of hours per week (47 hours) and higher proportions reported working **long** hours (44% reported working more than 48 hours) and **irregular hours** (32%) compared to the general population.
- The majority of construction workers reported exposure to at least one **dust/chemical factor**. Exposure to dust (93%), smoke or fumes (52%), oils and solvents (42%), pesticides (22%), and 'other chemicals' (69%) were all more prevalent compared to the general population. More specifically, dust exposure was largely construction dust (59%) and wood dust (46%). Around one-fifth also reported exposure to road dust (23%) and metal dust (20%). Adhesive use and the general category of solvents were reported by 43% and 29%, respectively.
- At least 69% of participants reported exposure to the majority of **biomechanical demands**. Awkward or tiring positions (84%), awkward grip or hand movements (69%), lifting (83%) and repetitive tasks (87%) a quarter of the time or more were all more common than in the general population.
- The construction workers also reported a high prevalence of working in a **cold/damp** (84%) and a **hot/warm** (83%) environment and 87% reported **working outside** at least a quarter of the time.
- Two-thirds of workers reported the use of **vibrating tools** at least a quarter of the time.
- Three quarters of workers reported exposure to **loud noise** for an average of 5 hours per day. The majority (88%) reported that their employer provides ear muffs and that they also use them (81%), whereas 72% reported that their employer provides ear plugs but only 42% reported ear plug use. Around one-fifth of workers also reported that job rotation is available and quieter machinery is purchased whenever possible.
- Exposure to **direct sunlight** was reported by 81% of construction workers for an average of 7 hours per day in summer and 5 hours per day in winter. The provision of sun protection was generally high.
- Almost every participant reported that their employer provides **PPE**. The provision and use of gloves (95% and 87%), goggles or protective glasses (94% and 90%), and simple dust masks (88% and 75%), was very high.
- A quarter of the sample reported that they were worried about losing their job.
- Almost 60% of workers rated their job as not at all or mildly **stressful**.
- The prevalences of reporting **time demand** items either often or all the time were generally low with the highest prevalence for having to work very fast (27%).
- Of the **workplace control** items, only around 52% reported that they can decide, either often or all the time, when to take a break and 44% have some say in what work they do.
- One-fifth of construction workers reported that they have experienced **bullying** at work with 5% reporting that it sometimes occurs. **Violence** was experienced by 7% of participants at least sometimes. The availability of counselling services was reported by 40% and 47% reported that their employer has anti-bullying and anti-stress policies.
- The majority of participants (>74%) agreed or strongly agreed with all of the items about co-worker support and having the resources needed to do their job. The proportion of

construction workers who agreed or strongly agreed with the items about supervisor support ranged from 72% to 80%.

Previous New Zealand studies on workplace exposures for construction workers

Studies on work-related exposures in construction workers in NZ are rare. CPHR recently conducted a pilot study of respirable crystalline silica (RCS) exposure in construction workers in Canterbury[20]. RCS exposure in the construction industry is most commonly associated with tasks such as abrasive blasting, cutting, grinding and polishing of building materials such as concrete, brick and cement, and also newer high silica content building materials such as Linea board. The study found that 44% of all samples (n=39) exceeded the NZ WES for RCS (100 μg/m^3) and 56% exceeded the ACGIH recommended TLV of 25 μg/m^3, with highs of >4,700 μg/m^3. Most samples (80-100%) associated with high-risk tasks exceeded 25 μg/m^3, as did 20% taken on general construction-site labourers, and 25% on workers cutting Linea board. It also showed high general respirable dust levels, limited use of exposure controls, and a general lack of awareness of risk[20].

The prevalence of exposure to direct sunlight in the current survey was high. In a study including 39 builders in Central Otago[21], electronic dosimeters were used to measure real-time occupational ultraviolet radiation (UVR) exposure on five consecutive working days in January–March 2007. The study found that all mean daily UVR exposure measurements were in excess of the current recommended occupational exposure limits.

Section D: Hospitality Workers

Table 1D presents the demographic characteristics of the survey sample for hospitality workers. Sixty-five percent of the sample were female and 35% were male. The average age was 33 years and 61% were in the youngest age group of 20-34 years. There was a higher proportion of 'Other' ethnicities (32.3% vs. 9.5%) and a higher proportion of current smokers compared to the NZWS sample (30.3% vs. 18.2%). There was also a higher proportion in the most deprived group (21.2% vs. 12.2%). Almost half of the sample (47.5%) had a high school education or less. Three-quarters of the sample were from Wellington, with 6% from Auckland and 5% from Manawatu-Whanganui.

Table 1D: Description of Hospitality Workers Sample				
	Hospitality Workers		**NZWS**	
	N=99		**N=3,003**	
	N	%	N	%
Gender				
Male	35	35.4	1431	47.7
Female	64	64.7	1572	52.4
Age at Interview				
Mean & SD	32.9	13.2	44.2	11.3
Range	17-63		20-67	
20 – 34 years	60	60.6	659	21.9
35 – 44 years	12	12.1	820	27.3
45 – 54 years	11	11.1	868	28.9
55+ years	11	11.1	656	21.8
Missing	*5*			
Ethnicity				
Pākehā	50	50.5	2386	79.6
Māori	13	13.1	273	9.1
Pacific Peoples	2	2.0	53	1.8
Other	32	32.3	285	9.5
Missing	*2*		*6*	
Smoking				
Never	40	40.4	1516	50.6
Current	30	30.3	546	18.2
Ex	28	28.3	932	31.1
Missing	*1*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	13	13.1	793	26.4
3 – 4	20	20.2	656	21.9
5 – 6	14	14.1	659	22.0
7 – 8	19	19.2	527	17.6
9 – 10 (most deprived)	21	21.2	367	12.2
Missing	*12*		*1*	
Residency status				

New Zealand citizen	81	81.8	-	-
Permanent resident	8	8.1	-	-
Working holiday/temporary visa	6	6.1	-	-
Other	3	3.0	-	-
Missing	*1*			
Education level				
High school or less	47	47.5	-	-
Trade certificate/diploma	22	22.2	-	-
Bachelor degree or higher	27	27.3	-	-
Missing	*3*		-	-
Region of residence				
Northland	0	0.0	-	-
Auckland	6	6.1	-	-
Waikato	2	2.0	-	-
Bay of Plenty	0	0.0	-	-
Taranaki	1	1.0	-	-
Gisborne	0	0.0	-	-
Manawatu-Whanganui	5	5.1	-	-
Hawke's Bay	0	0.0	-	-
Wellington	76	76.8	-	-
Nelson/Tasman	1	1.0	-	-
West Coast	0	0.0	-	-
Canterbury	2	2.0	-	-
Otago	1	1.0	-	-
Southland	2	2.0	-	-
Undefined or Missing	*3*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2D presents the job titles within the hospitality workers group. Several of the job titles involved tasks common to other job titles within this group. For example, café workers often also carried out food preparation, barista work, and waited tables.

Table 2D: Description of Job Titles within the Hospitality Workers Sample		
	N	%
	N=99	
Barista	15	15.2
Chef/Cook	15	15.2
Waiter	3	3.0
Fast food server/café assistant	44	44.4
Kitchenhand	5	5.1
Catering assistant	8	8.1
Bar tender	8	8.1
Other	1	1.0

Table 3D presents the current job exposures including organisational, dust/chemical, and physical factors. The average number of hours worked per week was 35 hours, which was lower than the 39 hours reported in the NZWS. A lower proportion also worked more than 48 hours per week (11.1% vs. 23.3%); however, a slightly higher proportion reported regularly working outside the hours of 7am-8.30pm (27.3% vs. 23.5%).

Hospitality workers reported more frequent exposure to smoke or fumes (31.3% vs. 18.0%), gas (27.3% vs. 8%), oils and solvents (37.4% vs. 20.9%), and 'other chemicals' (62.6% vs. 13.7%) compared to the NZWS population. More than 50% of the participants reported exposure to awkward or tiring positions (65.7%), awkward grip or hand movements (53.5%), lifting (64.7%), repetitive tasks (90.9%), working at very high speed (92.9%), and standing (51.5%) a quarter of the time or more. A higher proportion also reported working in a hot/warm environment (66.7%) compared to the general population (27.8%). The prevalence of reporting a not at all or mildly stressful job was higher for the hospitality workers compared to the NZWS population (55.6% vs. 39.7%).

Table 3D: Prevalence of current job exposures				
	Hospitality Workers		NZWS	
	N=99		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	34.9	13.0	39.0	14.7
Range	5.0-80.0		0.81-100	
Hours worked >48 hours	11	11.1	699	23.3
Hours worked >55 hours	4	4.0	271	9.1
Days worked per week: Mean & SD	4.8	1.2	4.9	1.1
Irregular hours*	27	27.3	679	23.5
Night shift in last 4 weeks	5	5.1	204	7.1
Number of night shifts worked[#] <5	1	1.0	90	45.2
5-10	1	1.0	65	32.7
10+	2	2.0	44	22.1
Current exposure				
Dust	22	22.2	881	29.3
Smoke or Fumes	31	31.3	541	18.0
Gas	27	27.3	239	8.0
Oil and Solvents	37	37.4	628	20.9
Acids or Alkalis	3	3.0	282	9.4
Pesticides	12	12.1	287	9.6
Other Chemicals	62	62.6	411	13.7
Any of the above	84	84.9	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	65	65.7	1679	56.1
Awkward grip or hand movements	53	53.5	1143	38.2
Lifting	64	64.7	1176	39.2
Repetitive Tasks	90	90.9	2037	68.2
Working at very high speed	92	92.9	1530	51.2
Working to tight deadlines	71	71.7	2185	73.1
Boring work	60	60.6	1235	41.4
Working in a cold/damp environment	12	12.1	709	23.8
Working in a hot/warm environment	66	66.7	830	27.8
Standing	51	51.5	837	28.0
Sitting	12	12.1	1946	65.0
Tools that vibrate	9	9.1	341	11.4
Working outside	7	7.1	884	29.6
Loud noise	31	31.3	895	29.9
Job stress				
Not at all-Mildly	55	55.6	1188	39.7
Moderately	30	30.3	1351	45.2
Very-Extremely	14	14.1	452	15.1
Missing	*0*		12	
*Started before 7am and/or finished after 8.30pm; 32 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4D presents the prevalence of specific self-reported exposures. The most common exposure reported was for cleaning products (68.7%), followed by solvents (30.3%) and degreasers (20.2%).

Table 4D: Prevalence of specific exposures				
	Hospitality Workers		**NZWS**	
	N=99		**N=3003**	
Exposure	N	%	N	%
Acids and alkalis				
Alkalis	3	3.0	100	3.3
Acids	3	3.0	194	6.5
Hydrochloric acid	0	0.0	30	1.0
Sulphuric acid	0	0.0	45	1.5
Cleaning products				
Cleaning products	68	68.7	397	13.2
Bleach	8	8.1	50	1.7
Disinfectant	11	11.1	127	4.2
Caustic soda	2	2.0	42	1.4
Chlorine products	8	8.1	111	3.7
Hand sanitiser	18	18.2	na	na
Pesticides				
Fungicides	0	0.0	59	2.0
Insecticides	11	11.1	74	2.5
Herbicides	1	1.0	168	5.6
Fertiliser	1	1.0	28	0.9
Animal drench	0	0.0	29	1.0
Timber treatment	0	0.0	69	2.3
Dusts				
Agricultural dust	0	0.0	21	0.7
Animal dust	0	0.0	21	0.7
Grain dust	0	0.0	15	0.5
Paper dust	0	0.0	29	1.0
Construction dust	2	2.0	97	3.2
Metal dust	0	0.0	104	3.5
Wood dust	2	2.0	194	6.5
Household dust	7	7.1	120	4.0
Road dust	11	11.1	155	5.2
Flour dust	0	0.0	17	0.6
Solvents				
Solvents	30	30.3	357	11.9
Acetone	0	0.0	27	0.9
Adhesive	0	0.0	125	4.2
Alcohol	6	6.1	109	3.6
Degreasers	20	20.2	39	1.3
Methylated spirits	4	4.0	54	1.8

Turpentine	2	2.0	49	1.6
Formaldehyde	0	0.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	1	1.0	70	2.3
Diesel fuel	0	0.0	47	1.6
Engine emission	3	3.0	176	5.9
Engine oil	0	0.0	108	3.6
Kerosene	0	0.0	17	0.6
Petrol fuel	0	0.0	28	0.9
Petrol fumes	1	1.0	28	0.9
LPG	3	3.0	39	1.3
ETS	5	5.1	36	1.2
Machinery oils and fumes				
Machinery oils	0	0.0	61	2.0
Lubricants	2	2.0	76	2.5
Cutting fluids	0	0.0	20	0.7
Welding	0	0.0	91	3.0
Inks and dyes				
Dyes	0	0.0	23	0.8
Printing	0	0.0	18	0.6
Ink	0	0.0	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	0	0.0	20	0.7
Insulation materials	0	0.0	27	0.9
Asbestos	0	0.0	21	0.7
Paint and lacquers				
Paint and lacquers	2	2.0	127	4.2
Paint thinner	0	0.0	26	0.9

Table 5D presents the prevalence of exposure, and the risk controls applied, for loud noise. Nearly one quarter of hospitality workers reported exposure to loud noise for an average of 3.6 hours per day, which was slightly higher than the 18% reported by the Accommodation, Cafes & Restaurants industry in the NHEWS. The prevalence of control measures for noise exposure was low.

Table 5D: Exposure to loud noise and risk controls for loud noise			
	Hospitality Workers		NHEWS Accommodation, Cafes & Restaurants
	N=99		N=91
	N	%	%
Does not work in loud noise	75	75.8	82.0
Exposed one or more hours a day	19	19.2	10.0
Exposed one or more hours a week	5	5.0	8.0
Total exposed	24	24.2	18.0
Daily mean hours	3.6 (n=19)	2.1 SD	~
Weekly mean hours	2.9 (n=5)	0.9 SD	~
Provision of noise protection			
Exposed	N=24		N=16
	N	%	%
Ear muffs provided	0	0.0	19.0
Uses ear muffs	0	0.0	na
Ear plugs provided	1	4.2	19.0
Uses ear plugs	1	4.2	na
Training provided	2	8.3	6.0
Used training	2	8.3	na
Job rotation available	2	8.3	19.0
Uses job rotation	2	8.3	na
Noisy equipment is placed in an isolated room	0	0.0	13.0
Uses equipment	0	0.0	na
Quieter machinery is purchased whenever possible	1	4.2	0.0
Nothing	15	62.5	75.0
Qu. If more than 'never' to 17(n) 'loud noise', how long do you work in loud noise on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
~ = means not provided if base size is 10 or less			
na - not applicable			

Table 6D presents the prevalence of exposure to wet work and of the risk controls applied for wet work. Hospitality workers reported washing their hands on average 26 times per day (SD=23.8). Fifty-one percent of hospitality workers reported immersing their hands in or having their hands covered by any liquid for an average of 2.3 hours per day, which is similar to the 49% reported by the Accommodation, Cafes and Restaurants industry in the NHEWS (the average duration was 2.4 hours per day; 6.3 hours per week). Almost all of exposed workers (96%) reported that their employer provides gloves; however, only 68% reported that they used gloves. The reported use of other control measures for wet work were low (12-20%).

Table 6D: Exposure to wet work and risk controls for wet work			
	Hospitality Workers		NHEWS Accomodation, Cafes & Restaurants
	N=99		N=91
	N	%	%
Number of times washed hands in a typical day: Mean & SD	25.6	23.8 SD	Mean=23.9
Hands not immersed in water/liquids	49	49.5	50.0
Hands immersed one or more hours a day	42	42.4	34.0
Hands immersed one or more hours a week	8	8.1	15.0
Total exposed	50	50.5	49.0
Daily mean hours	2.3 (n=42)	3.0 SD	2.4 (n=31)
Weekly mean hours	10.1 (n=8)	12.6 SD	6.3 (n=14)
Provision of protection			
Exposed	N=50		N=45
	N	%	%
Gloves provided	48	96.0	93.0
Uses gloves	34	68.0	na
Barrier cream provided	9	18.0	29.0
Uses barrier cream	7	14.0	na
Moisturiser provided	14	28.0	27.0
Used moisturiser	10	20.0	na
Labelling & warning signs provided	20	40.0	53.0
Uses labelling & warning signs	15	30.0	na
Option to limit time hands are in water/liquid	6	12.0	29.0
Uses option to limit time hands in water/liquid	6	12.0	na
Training provided	10	20.0	29.0
Uses training	9	18.0	na
Qu. On a typical day at work, excluding time spent hand-washing, how long do you have your hands immersed in or covered by any liquid (including water) with or without gloves?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 7D presents the main types of liquids on hands. The majority of hospitality workers exposed to wet work reported immersing their hands in water and dishwashing liquid through washing dishes.

Table 7D: Main types of liquids on hands			
	Hospitality Workers		NHEWS Accomodation, Cafes & Restaurants
	N=50		N=45
	N	%	%
Water	44	88.0	82.0
Detergents/cleaning products/disinfectants	32	64.0	69.0
Oil/various	1	2.0	4.0
Solvents/thinners/methylated spirits	1	2.0	0.0
Fuel/petrol/kerosene	0	0.0	0.0
Grease	0	0.0	2.0
Concrete	0	0.0	0.0
Paint	0	0.0	0.0
Hydraulic oil	0	0.0	0.0
Degreaser	0	0.0	2.0
Bodily fluids	0	0.0	0.0
Qu. What liquids do you typically have your hands covered by?			
The NHEWS refers to exposure on a typical day at work last week			

Table 8D presents the prevalence of the provision and use of PPE. Almost all of the sample (96%) reported that their employer provides PPE. Gloves were provided for 90% of workers, whereas reported use was 75%. Apron/protective clothing were provided for 82% of workers whereas reported use was 75%.

Table 8D: Prevalence of Personal Protective Equipment Use				
	Hospitality Workers		NZWS	
	N=99		N=3,003	
	N	%	N	%
Employer provides PPE*	95	96.0	na	na
Does your employer provide:				
Goggles or protective glasses	22	22.2	na	na
Uses goggles or protective glasses	15	15.2	568	18.9
Footwear	15	15.2	na	na
Uses footwear	13	13.1	665	22.2
Apron/protective clothing*	81	81.8	na	na
Uses apron/protective clothing*	74	74.8	716	23.9
Simple dust mask	13	13.1	na	na
Uses simple dust mask	9	9.1	390	13.0
Filter catridge respirator	0	0.0	na	na
Uses filter cartridge respirator	0	0.0	131	4.4
Air supplied respirator or SCBA	0	0.0	na	na
Uses air supplied respirator or SCBA	0	0.0	29	1.0
Gloves*	89	89.9	na	na
Uses gloves*	74	74.8	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 9D presents how often participants reported psychosocial factors, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for "often/all the time" for the Accommodation, Cafes & Restaurants industry in the NHEWS are also provided for comparison (the full results are presented in Appendix 3). More than half (58%) reported that either often or all of the time they have to work very fast, and a quarter of the workers reported that they are unable to take enough breaks and that they have to neglect some tasks because they have too much to do (compared to 59%, 19% and 19%, respectively in the NHEWS). Just less than half reported that they can decide when to take a break either often or all the time (47%); however, more than 60% reported that they have some say in what work they do or how their job is done either often or all the time, which is slightly higher compared to the NHEWS results. One quarter of the sample reported that they have experienced bullying at work and 13% reported that this occurs at least sometimes. Of those that reported bullying, 48% reported it was by customer(s), 48% reported it was by co-worker(s), and 28% reported that it was by a supervisor. Sixteen percent reported that they have experienced violence at work, of whom 7% reported that it at least sometimes occurs. Sexual harassment at work was reported by 13% of participants, of whom 5% reported that it at least sometimes occurs.

Table 9D: Psychosocial Working Conditions for Hospitality Workers- Part 1																
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=91)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Time Demand in the Workplace																
I am pressured to work long hours.	99	40	40.4	16	16.2	28	28.3	9	9.1	6	6.1	15	15.2	12	0	0.0
I have unachievable deadlines.	99	64	64.7	14	14.1	10	10.1	10	10.1	1	1.0	11	11.1	13	0	0.0
I have to work very fast.	99	5	5.1	2	2.0	35	35.4	35	35.4	22	22.2	57	57.6	59	0	0.0
I am unable to take enough breaks.	99	36	36.4	13	13.1	25	25.3	16	16.2	9	9.1	25	25.3	19	0	0.0
I have to neglect some tasks because I have too much to do.	99	33	33.3	11	11.1	31	31.3	19	19.2	4	4.0	23	23.2	19	1	1.0
It's hard for me to juggle work requests from different people.	99	46	46.5	17	17.2	23	23.2	11	11.1	2	2.0	13	13.1	9	0	0.0
Cognitive Demand in the Workplace																
I have to keep track of more than one thing at a time.	99	4	4.0	1	1.0	12	12.1	24	24.2	58	58.6	82	82.8	80	0	0.0
My work needs my undivided attention.	99	5	5.1	3	3.0	18	18.2	33	33.3	40	40.4	73	73.7	63	0	0.0
Workplace Control																
I can decide when to take a break.	99	11	11.1	11	11.1	31	31.3	20	20.2	26	26.3	46	46.5	45	0	0.0
I have some say in what work I do.	99	8	8.1	5	5.1	23	23.2	32	32.3	30	30.3	62	62.6	50	1	1.0
I have some say in how I get the job done.	99	4	4.0	10	10.1	16	16.2	34	34.3	34	34.3	68	68.7	62	1	1.0
Bullying and Harassment																
I was sexually harassed.	99	86	86.9	8	8.1	3	3.0	2	2.0	0	0.0	2	2.0	1	0	0.0
I have experienced violence	99	83	83.8	9	9.1	6	6.1	1	1.0	0	0.0	1	1.0	NA	0	0.0
I was bullied.	99	74	74.8	12	12.1	9	9.1	3	3.0	1	1.0	4	4.0	4	0	0.0
If yes to bullying, was the person:	N	%														
	N=25															
Supervisor	7	28.0														
Co-worker/s	12	48.0														
Customer	12	48.0														
Patient	0	0.0														
Patient's family member	0	0.0														
Someone who worked for you	0	0.0														
*Accomodation, Cafes & Restaurants																

Table 10D presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control, compared to participants from the Accommodation, Cafes & Restaurants group who reported "disagree/strongly disagree" in the NHEWS. The majority of participants (>80%) agreed or strongly agreed with all of the items about co-worker support and 11% agreed or strongly agreed with the statement "*I am worried about losing my job*". The proportion of workers who agreed or strongly agreed with the items about supervisor support ranged from 68% to 76%. A lower proportion disagreed/strongly disagreed with the statements "*My supervisor encourages me at work*" and "*My supervisor supports me through emotionally demanding work*" compared to the NHEWS results (see Table 10D). Eighty-eight percent of participants reported that they agreed/strongly agreed with the statement "*I have the information I need to do my job*" and 94% agreed/strongly agreed with the statement "*I have the equipment I need to do my job*" (compared to 92% and 84%, respectively in the NHEWS). Only 18% of hospitality workers reported that their employer provides counselling services and 32% reported that their employer has anti-bullying and anti-stress policies. The 'other' option mainly included good communication with the boss and co-workers (data not shown).

Table 10D: Psychosocial Working Conditions for Hospitality Workers- Part 2																
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS* Disagree /Strongly Disagree (n=91)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Co-Worker Support & Job Insecurity																
I get the help and support I need from my fellow workers.	99	43	43.4	40	40.4	10	10.1	6	6.1	0	0.0	6	6.1	12	0	0.0
My fellow workers respect me.	99	43	43.4	44	44.4	7	7.1	4	4.0	1	1.0	5	5.1	5	0	0.0
My fellow workers are willing to listen to my work related problems.	99	43	43.4	39	39.4	10	10.1	7	7.1	0	0.0	7	7.1	10	0	0.0
I am worried about losing my job.	99	2	2.0	9	9.1	5	5.1	26	26.3	57	57.6	83	83.8	84	0	0.0
Workplace Control																
I have some say over the way I work.	99	42	42.4	42	42.4	11	11.1	4	4.0	0	0.0	4	4.0	11	0	0.0
Supervisor Support																
I can talk to my supervisor about something that has upset me at work.	98	49	50.0	25	25.5	14	14.3	8	8.2	2	2.0	10	10.2	11	0	0.0
My supervisor encourages me at work.	98	46	46.9	27	27.6	17	17.4	4	4.1	4	4.1	8	8.2	20	0	0.0
My supervisor supports me through emotionally demanding work.	98	36	36.7	31	31.6	20	20.4	9	9.2	2	2.0	11	11.2	22	0	0.0
I have the information I need to do my job.	99	49	49.5	38	38.4	8	8.1	2	2.0	2	2.0	4	4.0	6	0	0.0
I have the equipment I need to do my job.	99	44	44.4	49	49.5	4	4.0	1	1.0	1	1.0	2	2.0	7	0	0.0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Hospitality		**NHEWS***
	N=90		**N=91**
	N	%	%
Have anti-stress and anti-bullying policies	29	32.2	48
Provide training on how to manage stress	13	14.4	26
Provide counselling services	16	17.8	34
Other	32	35.2	na
Don't Know	9	10.0	4
Refuse to disclose	1	1.1	na

*Accomodation, Cafes & Restaurants

Key observations for hospitality workers

- Hospitality workers reported washing their hands on average 26 times per day (SD=23.8) and 51% reported **wet work** exposure for an average of 2.3 hours per day, both of which are considered risk factors for contact dermatitis. Of those exposed to wet work, the main types of liquids on hands were water and detergent from washing dishes. Almost all of the exposed workers reported that their employer provides gloves for wet work; however, only 68% reported that they used gloves. The reported use of other control measures for wet work were low (12-20%).
- The majority of hospitality workers reported exposure to at least one **dust/chemical** factor. Nearly two-thirds reported exposure to 'other chemicals'. In particular, 69% reported exposure to cleaning products. Exposure to smoke or fumes (31%), gas (27%), and oils and solvents (37%) were also more frequent when compared to the general population.
- More than 50% of hospitality workers reported exposure to **biomechanical demands** including awkward or tiring positions (66%), awkward grip or hand movements (54%), lifting (65%), repetitive tasks (91%), working at very high speed (93%), and standing (52%) a quarter of the time or more.
- Two-thirds of participants reported working in a **hot/warm environment** (67%) at least a quarter of the time.
- One quarter of the sample reported that they have experienced **bullying** at work and 13% reported that they this occurs at least sometimes. Of those that reported bullying, 48% reported it was by customer(s), 48% reported it was by co-worker(s), and 28% reported that it was by a supervisor. Only 18% of hospitality workers reported that their employer provides counselling services and 32% reported that their employer has anti-bullying and anti-stress policies.
- Sixteen percent reported that they have experienced **violence**, of whom 7% reported that it at least sometimes occurs. **Sexual harassment** at work was reported by 13% of participants, of whom 5% reported that it at least sometimes occurs.
- Fifty-eight percent of workers reported that they have to work very fast either often or all the time and about one-quarter reported that they are unable to take enough breaks and that they have to neglect some tasks because they have too much to do either often or all the time.
- Just under half (47%) reported that they can decide when to take a break either often or all the time whereas more than 60% reported that they have some say in what work they do or how their job is done either often or all the time.
- The average number of **hours** worked per week was 35 and 27% reported regularly working outside the hours of 7am-8.30pm, which was slightly higher than the prevalence reported in the general population.
- Almost all of the sample reported that their employer provides **PPE**. Gloves were provided for 90% of workers, whereas reported use was 75%. Apron/protective clothing were provided for 82% of workers whereas reported use was 75%.
- More than half (56%) of hospitality workers reported that their job was not at all or mildly **stressful**.

- The majority of participants (>80%) agreed or strongly agreed with all of the items about **co-worker support** and agreed or strongly agreed that they had the **resources** to do their job. The proportion of workers who agreed or strongly agreed with the items about **supervisor support** ranged from 68% to 76%.

Previous New Zealand studies on workplace exposures for hospitality workers

NZ studies of occupational exposures for hospitality workers have been limited to environmental tobacco smoke (ETS[22] [23]), which were conducted prior to the introduction of Smokefree Environments Amendment Act 2003 banning smoking in bars, cafes, and restaurants.

Section E: Clerical Workers

Table 1E presents the demographic characteristics of the survey sample for the clerical workers. The majority (73.3%) of the sample was female and the average age was 46 years. There was a higher proportion of Māori in the clerical group compared to the NZWS population (16.8% vs. 9.1%) and a higher proportion of current smokers (22.8% vs. 18.2%). There were also higher proportions in the most deprived groups compared to the NZWS sample. One third of the participants were from Wellington and 28% from the Manawatu-Whanganui region.

Table 1E: Description of Clerical Workers Sample				
	Clerical Workers		**NZWS**	
	N=101		**N=3,003**	
	N	%	N	%
Gender				
Male	27	26.7	1431	47.7
Female	74	73.3	1572	52.4
Age at Interview				
Mean & SD	46.2	14.5	44.2	11.3
Range	20-72		20-67	
20 – 34 years	29	28.7	659	21.9
35 – 44 years	12	11.9	820	27.3
45 – 54 years	27	26.7	868	28.9
55+ years	32	31.7	656	21.8
Missing	*1*			
Ethnicity				
Pākehā	70	69.3	2386	79.6
Māori	17	16.8	273	9.1
Pacific Peoples	3	3.0	53	1.8
Other	11	10.9	285	9.5
Missing	*0*		*6*	
Smoking				
Never	42	41.6	1516	50.6
Current	23	22.8	546	18.2
Ex	36	35.6	932	31.1
Missing	*0*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	16	15.8	793	26.4
3 – 4	10	9.9	656	21.9
5 – 6	22	21.8	659	22.0
7 – 8	35	34.7	527	17.6
9 – 10 (most deprived)	17	16.8	367	12.2
Missing	*1*		*1*	
Residency status				
New Zealand citizen	93	92.1	-	-
Permanent resident	6	5.9	-	-

Working holiday/temporary visa	2	2.0	-	-
Other	0	0.0	-	-
Missing	*0*			
Education level				
High school or less	33	32.7	-	-
Trade certificate/diploma	35	34.7	-	-
Bachelor degree or higher	33	32.7	-	-
Missing	*0*		-	-
Region of residence				
Northland	2	2.0	-	-
Auckland	8	7.9	-	-
Waikato	0	0.0	-	-
Bay of Plenty	0	0.0	-	-
Taranaki	7	6.9	-	-
Gisborne	1	1.0	-	-
Manawatu-Whanganui	28	27.7	-	-
Hawke's Bay	2	2.0	-	-
Wellington	35	35.6	-	-
Nelson/Tasman	4	4.0	-	-
West Coast	2	2.0	-	-
Canterbury	5	5.0	-	-
Otago	3	3.0	-	-
Southland	3	3.0	-	-
Undefined or Missing	*0*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2E presents the job titles within the sample. The 'managers' were typically from small motels who were responsible for all of the clerical duties.

Table 2E: Description of Job Titles within the Clerical Workers Sample		
	N	%
	N=101	
Office worker	23	22.8
Receptionist	14	13.9
Administrator	9	8.9
Library assistant	24	23.8
Call centre worker	6	5.9
Manager	21	20.8
Other	4	4.0

Table 3E presents the prevalences of current job exposures including organisational, dust/chemical, and physical factors. The average number of hours worked per week was 44.1, which is higher than

the average of 39 hours reported in the NZWS. The proportion of clerical workers working greater than 55 hours per week on average was also higher (17.8%) compared to the NZWS (9.1%).
Over half of the group (54.5%) reported exposure to dust compared to the NZWS (29.3%). Exposure to pesticides (12.9% vs. 9.6%) and 'other chemicals' (59.4% vs. 13.7%) were also more frequent compared to the general population.

Biomechanical demands were more prevalent in the clerical group compared to the general population, particularly for awkward or tiring positions (69.3% vs. 56.1%), lifting (48.5% vs. 39.2%), repetitive tasks (90.1% vs. 68.2%), and sitting (87.1% vs. 65%) a quarter of the time or more. Clerical workers also reported a higher prevalence of a not at all or mildly stressful job (58.4%) compared to the general population (39.7%).

Table 3E: Prevalence of current job exposures				
	Clerical Workers		NZWS	
	N=101		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	44.1	20.3	39.0	14.7
Range	14-115.5		0.81-100	
Hours worked >48 hours	22	21.8	699	23.3
Hours worked >55 hours	18	17.8	271	9.1
Days worked per week: Mean & SD	5.4	1.0	4.9	1.1
Irregular hours*	23	22.8	679	23.5
Night shift in last 4 weeks	3	3.0	204	7.1
Number of night shifts worked[#] <5	0	0.0	90	45.2
5-10	1	1.0	65	32.7
10+	2	2.0	44	22.1
Current exposure				
Dust	55	54.5	881	29.3
Smoke or Fumes	17	16.8	541	18.0
Gas	4	4.0	239	8.0
Oil and Solvents	21	20.8	628	20.9
Acids or Alkalis	5	5.0	282	9.4
Pesticides	13	12.9	287	9.6
Other Chemicals	60	59.4	411	13.7
Any of the above	76	75.3	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	70	69.3	1679	56.1
Awkward grip or hand movements	43	42.6	1143	38.2
Lifting	49	48.5	1176	39.2
Repetitive Tasks	91	90.1	2037	68.2
Working at very high speed	54	53.5	1530	51.2
Working to tight deadlines	78	77.2	2185	73.1
Boring work	53	52.5	1235	41.4
Working in a cold/damp environment	17	16.8	709	23.8
Working in a hot/warm environment	36	35.6	830	27.8
Standing	18	17.8	837	28.0
Sitting	88	87.1	1946	65.0
Tools that vibrate	2	2.0	341	11.4
Working outside	24	23.8	884	29.6
Loud noise	17	16.8	895	29.9
Job stress				
Not at all-Mildly	59	58.4	1188	39.7
Moderately	26	25.7	1351	45.2
Very-Extremely	15	14.9	452	15.1
Missing	*1*		12	
*Started before 7am and/or finished after 8.30pm; 5 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4E presents specific exposures and shows that the relatively high prevalence of exposure to dust reported in Table 3E above is predominantly household dust (34.7%), followed by road dust (10.9%). Similarly, the relatively high prevalence of exposure to 'other chemicals' was largely cleaning products (34.7%) and hand sanitiser (43.6%). One-fifth (20.8%) of clerical workers reported exposure to solvents compared to 11.9% in the NZWS, and these were mainly methylated spirits and other solvent-based cleaners. Around 20% of the clerical workers were "managers" for small motels and their duties involved both administrative and cleaning duties.

Table 4E: Prevalence of specific exposures				
	Clerical workers		**NZWS**	
	N=101		**N=3003**	
	N	%	N	%
Acids and alkalis				
Alkalis	3	3.0	100	3.3
Acids	2	2.0	194	6.5
Hydrochloric acid	0	0.0	30	1.0
Sulphuric acid	1	1.0	45	1.5
Cleaning products				
Cleaning products	35	34.7	397	13.2
Bleach	10	9.9	50	1.7
Disinfectant	12	11.9	127	4.2
Caustic soda	0	0.0	42	1.4
Chlorine products	12	11.9	111	3.7
Hand sanitiser	44	43.6	na	na
Pesticides				
Fungicides	0	0.0	59	2.0
Insecticides	9	8.9	74	2.5
Herbicides	10	9.9	168	5.6
Fertiliser	0	0.0	28	0.9
Animal drench	0	0.0	29	1.0
Timber treatment	0	0.0	69	2.3
Dusts				
Agricultural dust	0	0.0	21	0.7
Animal dust	0	0.0	21	0.7
Grain dust	0	0.0	15	0.5
Paper dust	1	1.0	29	1.0
Construction dust	4	4.0	97	3.2
Metal dust	2	2.0	104	3.5
Wood dust	5	5.0	194	6.5
Household dust	35	34.7	120	4.0
Road dust	11	10.9	155	5.2
Flour dust	0	0.0	17	0.6
Paint dust	1	1.0	na	na

Solvents				
Solvents	21	20.8	357	11.9
Acetone	0	0.0	27	0.9
Adhesive	2	2.0	125	4.2
Alcohol	17	16.8	109	3.6
Degreasers	2	2.0	39	1.3
Methylated spirits	13	12.9	54	1.8
Turpentine	1	1.0	49	1.6
Formaldehyde	0	0.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	1	1.0	70	2.3
Diesel fuel	1	1.0	47	1.6
Engine emission	9	8.9	176	5.9
Engine oil	1	1.0	108	3.6
Kerosene	1	1.0	17	0.6
Petrol fuel	1	1.0	28	0.9
Petrol fumes	1	1.0	28	0.9
LPG	1	1.0	39	1.3
ETS	1	1.0	36	1.2
Machinery oils and fumes				
Machinery oils	0	0.0	61	2.0
Lubricants	1	1.0	76	2.5
Cutting fluids	0	0.0	20	0.7
Welding	1	1.0	91	3.0
Inks and dyes				
Dyes	0	0.0	23	0.8
Printing	0	0.0	18	0.6
Ink	6	5.9	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	0	0.0	20	0.7
Insulation materials	0	0.0	27	0.9
Asbestos	0	0.0	21	0.7
Paint and lacquers				
Paint and lacquers	0	0.0	127	4.2
Paint thinner	2	2.0	26	0.9

Table 5E presents information on the provision and use of PPE. Fifty four percent of the sample reported that their employer provides PPE, with gloves being the most frequently used item (35.6%).

TABLE 5E: PREVALENCE OF PERSONAL PROTECTIVE EQUIPMENT USE				
	Clerical Workers		NZWS	
	N=101		N=3,003	
	n	%	n	%
Employer provides PPE*	54	54.0	na	na
Does your employer provide:				
Goggles or protective glasses	21	20.8	na	na
Uses goggles or protective glasses	13	12.9	568	18.9
Footwear	13	12.9	na	na
Uses footwear	12	11.9	665	22.2
Apron/protective clothing*	19	18.8	na	na
Uses apron/protective clothing*	9	8.9	716	23.9
Simple dust mask	22	21.8	na	na
Uses simple dust mask	9	8.9	390	13.0
Filter catridge respirator	8	7.9	na	na
Uses filter cartridge respirator	1	1.0	131	4.4
Air supplied respirator or SCBA	7	6.9	na	na
Uses air supplied respirator or SCBA	0	0.0	29	1.0
Gloves*	46	45.5	na	na
Uses gloves*	36	35.6	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 6E presents how often participants reported on psychosocial aspects of their working conditions, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for "often/all the time" for the Finance and Insurance industry in the NHEWS are also reported for comparison (the full results are presented in Appendix 3). There was a higher prevalence of reporting pressure to work long hours either often or all the time (18.8% vs 10%), and a lower prevalence of having to work very fast either often or all the time (22.8% vs 38%), compared to the Finance and Insurance industry in the NHEWS. There were high prevalences (>70%) of reporting often/all the time for the items on cognitive demand and workplace control; with the exception of a lower proportion (62.4%) reporting that they have a say in what work they do either often or all the time. Twenty-eight percent of clerical workers reported that they have experienced violence and 10% reported that this occurs at least sometimes. One quarter of clerical workers also reported that they have experienced bullying, with 13% reporting that they are bullied at work at least sometimes. Of those that reported bullying, 39% reported that it was by customer(s), 54% reported it was by co-worker(s), and 46% reported that it was by a supervisor.

Table 6E: Psychosocial Working Conditions for Clerical Workers- Part 1																	
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=94)	Don't know		
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%	
Time Demand in the Workplace																	
I am pressured to work long hours.	101	54	53.5	16	15.8	11	10.9	11	10.9	8	7.9	19	18.8	10	1	1.0	
I have unachievable deadlines.	101	64	63.4	15	14.9	16	15.8	3	3.0	3	3.0	6	5.9	7	0	0.0	
I have to work very fast.	101	31	30.7	12	11.9	35	34.7	13	12.9	10	9.9	23	22.8	38	0	0.0	
I am unable to take enough breaks.	101	53	52.5	16	15.8	18	17.8	8	7.9	6	5.9	14	13.9	12	0	0.0	
I have to neglect some tasks because I have too much to do.	101	24	23.8	10	9.9	45	44.6	14	13.9	8	7.9	22	21.8	17	0	0.0	
It's hard for me to juggle work requests from different people.	101	37	36.6	19	18.8	27	26.7	12	11.9	4	4.0	16	15.8	17	0	0.0	
Cognitive Demand in the Workplace																	
I have to keep track of more than one thing at a time.	101	2	2.0	2	2.0	14	13.9	27	26.7	56	55.5	83	82.2	87	0	0.0	
My work needs my undivided attention.	101	7	6.9	5	5.0	19	18.8	35	34.7	35	34.7	70	69.3	78	0	0.0	
Workplace Control																	
I can decide when to take a break.	101	7	6.9	5	5.0	12	11.9	20	19.8	57	56.4	77	76.2	83	0	0.0	
I have some say in what work I do.	101	14	13.9	7	6.9	16	15.8	22	21.8	41	40.6	63	62.4	58	1	1.0	
I have some say in how I get the job done.	101	5	5.0	0	0.0	16	15.8	33	32.7	47	46.5	80	79.2	74	0	0.0	
Bullying and Harassment																	
I was sexually harassed[#].	101	92	91.1	5	5.0	1	1.0	2	2.0	0	0.0	2	2.0	0	0	0.0	
I have experienced violence[#]	101	72	71.3	18	17.8	7	6.9	3	3.0	0	0.0	3	3.0	NA	0	0.0	
I was bullied[#].	101	74	73.3	13	12.9	10	9.9	2	2.0	1	1.0	3	3.0	1	0	0.0	
If yes to bullying, was the person:	N	%															
	N=26																
Supervisor	12	46.2															
Co-worker/s	14	53.8															
Customer	10	38.5															
Patient	1	3.8															
Patient's family member	0	0.0															
Someone who worked for you	0	0.0															
*Finance & Insurance																	
[#]1 refused to answer																	

Table 7E presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control, compared to participants from the Finance and Insurance industry who reported “disagree/strongly disagree” in the NHEWS. The majority of participants agreed or strongly agreed with all of the items about co-worker support and 14% agreed or strongly agreed with the statement “*I am worried about losing my job*”. The proportions who agreed or strongly agreed with the items about supervisor support ranged from 73% to 83%, which were similar to the NHEWS results (see Appendix 3). Eighty-one percent agreed/strongly agreed that they have the information to do their job and 96% agreed/strongly agreed that they had the equipment to do their job (compared to 91% and 98%, respectively in the NHEWS). Fifty-eight percent of clerical workers reported that their employer offers counselling services and 57% reported that their employer has anti-bullying and anti-stress policies.

Table 7E: Psychosocial Working Conditions in Clerical Workers- Part 2																		
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS* Disagree /Strongly Disagree (n=94)	Don't know		Refused	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%	N	%
Co-Worker Support & Job Insecurity																		
I get the help and support I need from my fellow workers.	99	44	44.4	42	42.4	7	7.1	5	5.1	1	1.0	6	6.1	6	0	0.0	0	0.0
My fellow workers respect me.	99	50	50.5	42	42.4	3	3.0	4	4.0	0	0.0	4	4.0	3	0	0.0	0	0.0
My fellow workers are willing to listen to my work related problems.	99	42	42.4	37	37.4	15	15.2	4	4.0	1	1.0	5	5.1	1	0	0.0	0	0.0
I am worried about losing my job.	99	7	7.1	7	7.1	8	8.1	24	24.2	52	52.5	76	76.8	84	1	1.0	0	0.0
Workplace Control																		
I have some say over the way I work.	99	54	54.6	35	35.4	5	5.1	3	3.0	2	2.0	5	5.1	3	0	0.0	0	0.0
Supervisor Support																		
I can talk to my supervisor about something that has upset me at work.	91	46	50.6	30	33.0	6	6.6	6	6.6	2	2.2	8	8.8	10	0	0.0	1	1.1
My supervisor encourages me at work.	90	40	44.4	35	38.9	5	5.6	8	8.9	1	1.1	9	10.0	14	0	0.0	1	1.1
My supervisor supports me through emotionally demanding work.	88	30	34.1	35	39.8	10	11.4	9	10.2	3	3.4	12	13.6	16	0	0.0	1	1.1
I have the information I need to do my job.	98	42	42.9	37	37.8	14	14.3	4	4.1	1	1.0	5	5.1	4	0	0.0	0	0.0
I have the equipment I need to do my job.	99	53	53.5	42	42.4	2	2.0	2	2.0	0	0.0	2	2.0	2	0	0.0	0	0.0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Clerical workers N=79		**NHEWS* N=94**
	N	%	%
Have anti-stress and anti-bullying policies	45	57.0	69
Provide training on how to manage stress	39	49.4	52
Provide counselling services	46	58.2	74
Other	30	38.0	na
Don’t Know	9	11.4	4
Refuse to disclose	0	0.0	na

*Finance & Insurance

Key observations for clerical workers:

- Clerical workers reported working on average 44 hours per week and 18% reported working **long hours** (i.e. >55 hours per week). Almost one-fifth (19%) of the clerical workers felt that they are pressured to work long hours either often or all the time.
- **Biomechanical demands** were more prevalent for the clerical group compared to the general population, particularly for awkward or tiring positions (69%), lifting (49%), repetitive tasks (90%), and sitting (87%) a quarter of the time or more.
- Around one quarter of clerical workers reported that they have experienced **bullying** at their workplace, with 13% reporting that they are bullied at work at least sometimes. Of those that reported bullying, 39% reported that it was by customer(s), 54% reported it was by co-worker(s), and 46% reported that it was by a supervisor. Fifty-eight percent of clerical workers reported that their employer offers counselling services and 57% reported that their employer has anti-bullying and anti-stress policies.
- **Violence** at work was reported by 28% of clerical workers, with 10% reporting that they have experienced violence at least sometimes.
- Three quarters of clerical workers reported exposure to at least one dust or chemical factor; however, the dust was mainly household and road dust, and the 'other chemicals' was mainly hand sanitiser (44%) and cleaning products (35%). One fifth of clerical workers also reported exposure to solvents. Around 20% of the clerical workers were "managers" for small motels and their duties involved both administrative and cleaning duties.
- There were high prevalences (>70%) of reporting often/all the time for the items about cognitive demand and workplace control; with the exception of a lower proportion (62%) reporting that they have a say in what work they do either often or all the time.
- The majority of participants agreed or strongly agreed with all of the items about co-worker and supervisor support. Fourteen percent agreed or strongly agreed with the statement "*I am worried about losing my job*". There were also high proportions of workers who agreed/strongly agreed that they had the resources to do their job.
- Fifty-eight percent of clerical workers reported that their job was not at all or mildly stressful.

Previous New Zealand studies on workplace exposures for clerical workers

The few NZ studies on occupational exposures in clerical workers have included investigations of keyboard use as a risk factor for MSD[24], physical work tasks and job strain as risk factors for MSD[18], and job pressure and mental health[25]. Fogg et al[24] conducted a cross-sectional study looking at upper limb MSDs in office workers and found that upper extremity MSD was more commonly reported by keyboard operators compared to non-keyboard operators, with a point prevalence of 48% for having at least one upper extremity MSD. Harcombe et al[18] examined associations between work-related risk factors and self-reported MSD in nurses, office workers, and postal workers. The study found

that physical work tasks (including keyboard use for >4 hours, lifting, and repeated wrist/finger movements for >4 hours) were moderately associated with lower back, shoulder, elbow, and wrist/hand pain. Job strain was associated with lower back, shoulder, wrist/hand, and knee pain with the strongest association for neck pain (OR =3.46; 95% CI 1.20-9.21). However, results were not presented for individual occupational groups. More recently, Lilley et al[25] conducted a cross-sectional survey in a random sample of clerical workers and cleaners and found that combined exposure to low job control, high job demands, and job insecurity was associated with poor mental health; however, clerical workers were not examined separately and occupation was adjusted for in the analyses.

Section F: Sawmill Workers

Table 1F presents the demographic characteristics of the survey sample of sawmill workers. The majority of sawmill workers were male (90.5%) and the average age was 45 years. There was a higher proportion of Māori (33.7% vs. 9.1%) and of ex-smokers (40% vs. 31.1%) but a similar proportion of current smokers (21.1% vs 18.2%) compared to the NZWS sample. There was also a higher proportion in the two most deprived groups compared to the NZWS sample. The majority of participants came from the Bay of Plenty (39%) and Nelson/Tasman (34.7%).

Table 1F: Description of Sawmill Workers Sample				
	Sawmill Workers		**NZWS**	
	N=95		**N=3,003**	
	N	%	N	%
Gender				
Male	86	90.5	1431	47.7
Female	9	9.5	1572	52.4
Age at Interview				
Mean & SD	45.2	12.9	44.2	11.3
Range	20-67		20-67	
20 – 34 years	27	28.4	659	21.9
35 – 44 years	16	16.8	820	27.3
45 – 54 years	27	28.4	868	28.9
55+ years	25	26.3	656	21.8
Missing	*0*			
Ethnicity				
Pākehā	53	55.8	2386	79.6
Māori	32	33.7	273	9.1
Pacific Peoples	3	3.2	53	1.8
Other	6	6.3	285	9.5
Missing	*1*		*6*	
Smoking				
Never	36	37.9	1516	50.6
Current	20	21.1	546	18.2
Ex	38	40.0	932	31.1
Missing	*1*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	7	7.4	793	26.4
3 – 4	13	13.7	656	21.9
5 – 6	18	19.0	659	22.0
7 – 8	27	28.4	527	17.6
9 – 10 (most deprived)	28	29.5	367	12.2
Missing	*2*		*1*	
Residency status				

New Zealand citizen	89	93.7	-	-
Permanent resident	4	4.2	-	-
Working holiday/temporary visa	2	2.1	-	-
Other	0	0.0	-	-
Missing	*0*			
Education level				
High school or less	56	59.0	-	-
Trade certificate/diploma	35	36.8	-	-
Bachelor degree or higher	3	3.2	-	-
Missing	*1*		-	-
Region of residence				
Northland	2	2.1	-	-
Auckland	4	4.2	-	-
Waikato	13	13.7	-	-
Bay of Plenty	37	39.0	-	-
Taranaki	1	1.1	-	-
Gisborne	0	0.0	-	-
Manawatu-Whanganui	0	0.0	-	-
Hawke's Bay	2	2.1	-	-
Wellington	1	1.1	-	-
Nelson/Tasman	33	34.7	-	-
West Coast	0	0.0	-	-
Canterbury	0	0.0	-	-
Otago	0	0.0	-	-
Southland	0	0.0	-	-
Undefined or Missing	*0*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2F presents the job titles within the sawmill workers group. Almost 60% of the sample were green and dry millers.

Table 2F: Description of Job Titles within the Sawmill Workers Sample

	N	%
	N=95	
Green milling	33	34.7
Dry milling	23	24.2
Supervisor/management	10	10.5
Maintenance/trades	15	15.8
Treatment plant operator	9	9.5
Mobile plant operator	4	4.2
Yard worker	1	1.1

Table 3F presents the current job exposures including organisational, dust/chemical, and physical factors. Sawmill workers reported working an average of 46 hours per week, which is higher than the general population (39 hours). Working more than 48 hours per week was reported by a third of the sample (compared to 23.3% in the NZWS), and irregular working hours were reported by 61% of sawmill workers.

The highest prevalence of exposure was reported for dust (92.6%), followed by oils and solvents (59%), pesticides (54.7%; i.e. fungicides, insecticides, herbicides, and timber treatment chemicals), and smoke or fumes (54.7%). The prevalence of certain biomechanical demands was high compared to the general population, including awkward or tiring positions (66.3% vs. 56.1%), lifting (69.5% vs. 39.2%), and repetitive tasks (82.1% vs. 68.2%) a quarter of the time or more. The sawmill workers also reported a higher prevalence of working in a cold/damp (71.6% vs. 23.8%) and a hot/warm (81.1% vs. 27.8%) environment compared to the NZWS population, and 61% reported working outside at least a quarter of the time. In addition, 92% of the participants reported exposure to loud noise a quarter of the time or more. The prevalence of reporting a not at all or mildly stressful job was higher for this group compared to the general population (53.7% vs. 39.7%).

Table 3F: Prevalence of current job exposures				
	Sawmill Workers		NZWS	
	N=95		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	46.3	5.3	39.0	14.7
Range	30.0-60.0		0.81-100	
Hours worked >48 hours	32	33.7	699	23.3
Hours worked >55 hours	4.9	0.6	271	9.1
Days worked per week: Mean & SD	5.1	0.6	4.9	1.1
Irregular hours*	58	61.1	679	23.5
Night shift in last 4 weeks	8	8.4	204	7.1
Number of night shifts worked[#] <5	3	3.2	90	45.2
5-10	1	1.1	65	32.7
10+	4	4.2	44	22.1
Current exposure				
Dust	88	92.6	881	29.3
Smoke or Fumes	52	54.7	541	18.0
Gas	7	7.4	239	8.0
Oil and Solvents	56	59.0	628	20.9
Acids or Alkalis	14	14.7	282	9.4
Pesticides	52	54.7	287	9.6
Other Chemicals	36	37.9	411	13.7
Any of the above	91	95.8	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	63	66.3	1679	56.1
Awkward grip or hand movements	44	46.3	1143	38.2
Lifting	66	69.5	1176	39.2
Repetitive Tasks	78	82.1	2037	68.2
Working at very high speed	48	50.5	1530	51.2
Working to tight deadlines	59	62.1	2185	73.1
Boring work	55	57.9	1235	41.4
Working in a cold/damp environment	68	71.6	709	23.8
Working in a hot/warm environment	77	81.1	830	27.8
Standing	36	37.9	837	28.0
Sitting	53	55.8	1946	65.0
Tools that vibrate	28	29.5	341	11.4
Working outside	58	61.1	884	29.6
Loud noise	87	91.6	895	29.9
Job stress				
Not at all-Mildly	51	53.7	1188	39.7
Moderately	36	37.9	1351	45.2
Very-Extremely	8	8.4	452	15.1
Missing	*0*		12	
*Started before 7am and/or finished after 8.30pm; 3 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4F presents the prevalence of specific self-reported exposures. Wood dust exposure was reported by 84% and timber treatment chemicals were reported by 42% of workers. More than 30% also reported exposure to solvents, road dust, and lubricants.

Table 4F: Prevalence of specific exposures				
	Sawmill		**NZWS**	
	N=95		**N=3003**	
Exposure	N	%	N	%
Acids and alkalis				
Alkalis	10	10.5	100	3.3
Acids	11	11.6	194	6.5
Hydrochloric acid	0	0.0	30	1.0
Sulphuric acid	2	2.1	45	1.5
Cleaning products				
Cleaning products	13	13.7	397	13.2
Bleach	0	0.0	50	1.7
Disinfectant	3	3.2	127	4.2
Caustic soda	0	0.0	42	1.4
Chlorine products	0	0.0	111	3.7
Hand sanitiser	6	6.3	na	na
Pesticides				
Fungicides	6	6.3	59	2.0
Insecticides	6	6.3	74	2.5
Herbicides	4	4.2	168	5.6
Fertiliser	0	0.0	28	0.9
Animal drench	0	0.0	29	1.0
Timber treatment	40	42.1	69	2.3
Dusts				
Agricultural dust	1	1.1	21	0.7
Animal dust	0	0.0	21	0.7
Grain dust	0	0.0	15	0.5
Paper dust	0	0.0	29	1.0
Construction dust	3	3.2	97	3.2
Metal dust	5	5.3	104	3.5
Wood dust	80	84.2	194	6.5
Household dust	3	3.2	120	4.0
Road dust	36	37.9	155	5.2
Flour dust	0	0.0	17	0.6
Solvents				
Solvents	35	36.8	357	11.9
Acetone	0	0.0	27	0.9
Adhesive	3	3.2	125	4.2
Alcohol	4	4.2	109	3.6

Degreasers	9	9.5	39	1.3
Methylated spirits	0	0.0	54	1.8
Turpentine	1	1.1	49	1.6
Formaldehyde	0	0.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	21	22.1	70	2.3
Diesel fuel	8	8.4	47	1.6
Engine emission	5	5.3	176	5.9
Engine oil	5	5.3	108	3.6
Kerosene	3	3.2	17	0.6
Petrol fuel	1	1.1	28	0.9
Petrol fumes	1	1.1	28	0.9
LPG	1	1.1	39	1.3
ETS	0	0.0	36	1.2
Machinery oils and fumes				
Machinery oils	11	11.6	61	2.0
Lubricants	35	36.8	76	2.5
Cutting fluids	8	8.4	20	0.7
Welding	3	3.2	91	3.0
Inks and dyes				
Dyes	2	2.1	23	0.8
Printing	2	2.1	18	0.6
Ink	7	7.4	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	0	0.0	20	0.7
Insulation materials	0	0.0	27	0.9
Asbestos	0	0.0	21	0.7
Paint and lacquers				
Paint and lacquers	7	7.4	127	4.2
Paint thinner	6	6.3	26	0.9
Paint dust	0	0.0	17	0.6

Table 5F presents the prevalence of exposure to loud noise and risk controls applied for loud noise. Loud noise was reported by the majority (92%) of sawmill workers, compared to the lower proportion (58%) reported by the manufacturing industry in the NHEWS. Sawmill workers reported exposure for an average of 7.4 hours per day compared to 5.9 hours per day and 18.7 hours per week in the NHEWS. The majority (98%) reported that their employer provides ear muffs and that they also use them (88.5%). One-quarter reported that job rotation is available and one-fifth reported that quieter machinery is purchased whenever possible and noisy equipment is placed in an isolated room.

Table 5F: Exposure to loud noise and risk controls for loud noise			
	Sawmill Workers		NHEWS Manufacturing
	N=95		N=714
	N	%	%
Does not work in loud noise	8	8.4	42.0
Exposed one or more hours a day	84	88.4	37.0
Exposed one or more hours a week	3	3.2	21.0
Total exposed	87	91.6	58.0
Daily mean hours	7.4 (n=84)	2.7 SD	5.9 (n=264)
Weekly mean hours	30 (n=3)	21.8 SD	18.7 (n=147)
Provision of noise protection			
Exposed	N=87		N=411
Ear muffs provided	85	97.7	77.0
Uses ear muffs	77	88.5	na
Ear plugs provided	47	54.0	88.0
Uses ear plugs	29	33.3	na
Training provided	57	65.5	56.0
Used training	49	56.3	na
Job rotation available	22	25.3	45.0
Uses job rotation	19	21.8	na
Noisy equipment is placed in an isolated room	18	20.7	28.0
Uses equipment	11	12.6	na
Quieter machinery is purchased whenever possible	19	21.8	41.0
Nothing	0	0.0	3.0
Qu. If more than 'never' to 17(n) 'loud noise', how long do you work in loud noise on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 6F presents the prevalence of exposure to sunlight and the risk controls applied. Sunlight exposure was reported by 43% of sawmill workers for an average of 4.2 hours per day in summer and a slightly lower 3.6 hours per day in winter. The majority of workers reported that their employer provides sunscreen but only half of the sample reported sunscreen use. There was a relatively high prevalence of use of clothing, hats, and sunglasses; however, the proportion who reported that work can be organised outside of peak UV hours was lower compared to the NHEWS (9.8% vs. 17%).

Table 6F: Exposure to sunlight and risk controls for sunlight			
	Sawmill Workers		NHEWS Manufacturing
	N=95		N=714
	N	%	%
Does not work in sunlight	54	56.8	76.0
In Summer			
Exposed one or more hours a day	40	42.1	13.0
Exposed one or more hours a week	1	1.1	10.0
Daily mean hours	4.2 (n=40)	2.6 SD	3.0 (n=95)
Weekly mean hours	3.0 (n=1)	na	8.5 (n=74)
In Winter			
Exposed one or more hours a day	39	41.1	
Exposed one or more hours a week	1	1.1	
Daily mean hours	3.6 (n=39)	2.3 SD	
Weekly mean hours	3.0 (n=1)	na	
Total exposed	41	43.2	24.0
Provision of sun protection			
Exposed	N=41		N=169
Sunscreen provided	35	85.4	58.0
Uses sunscreen	20	48.8	na
Protective clothing provided	28	68.3	64.0
Uses protective clothing	28	68.3	na
Hat provided	28	68.3	62.0
Uses hat	28	68.3	na
Sunglasses provided	33	80.5	59.0
Uses sunglasses	32	78.1	na
Work is reorganised outside peak UV hours	4	9.8	17.0
Uses reorganisation	3	7.3	na
Nothing	2	4.9	20.0
Qu. On a typical day at work, how long did you work in direct sunlight, with or without protective lotions or clothing?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 7F presents the prevalence of the provision and use of PPE. PPE was provided by 100% of employers, with the provision and use of gloves (97.9% and 93.7%), goggles or protective glasses (91.6% and 89.5%), and simple dust masks (75.8% and 66.3%) all being very high.

Table 7F: Prevalence of Personal Protective Equipment Use				
	Sawmill Workers		NZWS	
	N=95		N=3,003	
	N	%	N	%
Employer provides PPE*	95	100.0	na	na
Does your employer provide:				
Goggles or protective glasses	87	91.6	na	na
Uses goggles or protective glasses	85	89.5	568	18.9
Footwear	92	96.8	na	na
Uses footwear	92	96.8	665	22.2
Apron/protective clothing*	71	74.7	na	na
Uses apron/protective clothing*	64	67.4	716	23.9
Simple dust mask	72	75.8	na	na
Uses simple dust mask	63	66.3	390	13.0
Filter catridge respirator	33	34.7	na	na
Uses filter cartridge respirator	21	22.1	131	4.4
Air supplied respirator or SCBA	9	9.5	na	na
Uses air supplied respirator or SCBA	0	0.0	29	1.0
Gloves*	93	97.9	na	na
Uses gloves*	89	93.7	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 8F presents how often participants reported psychosocial working conditions, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for "often/all the time" for the Manufacturing industry in the NHEWS are also provided for comparison (the full results are presented in Appendix 3). The time demand items reported either often or all the time ranged between 10-15%, with the exception of 31% reporting that they have to work very fast often or all the time. Sawmill workers reported lower prevalences of workplace control items compared to the NHEWS results; 47% reported that they can decide when to take a break either often or all the time and 65% reported that they have some say in how they get the job done (compared to 62% and 70% in the NHEWS, respectively). Twenty-two percent reported that they have experienced bullying at work with 10% reporting that it occurs at least sometimes.

Table 8F: Psychosocial Working Conditions for Sawmill Workers- Part 1																
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=714)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Time Demand in the Workplace																
I am pressured to work long hours.	95	59	62.1	8	8.4	14	14.7	9	9.5	5	5.3	14	14.7	9	0	0.0
I have unachievable deadlines.	95	61	64.2	11	11.6	10	10.5	9	9.5	4	4.2	13	13.7	10	0	0.0
I have to work very fast.	95	38	40.0	8	8.4	20	21.1	22	23.2	7	7.4	29	30.5	32	0	0.0
I am unable to take enough breaks.	95	59	62.1	11	11.6	12	12.6	9	9.5	4	4.2	13	13.7	8	0	0.0
I have to neglect some tasks because I have too much to do.	95	39	41.1	14	14.7	31	32.6	9	9.5	2	2.1	11	11.6	16	0	0.0
It's hard for me to juggle work requests from different people.	95	53	55.8	11	11.6	22	23.2	8	8.4	1	1.1	9	9.5	12	0	0.0
Cognitive Demand in the Workplace																
I have to keep track of more than one thing at a time.	95	8	8.4	2	2.1	16	16.8	29	30.5	40	42.1	69	72.6	68	0	0.0
My work needs my undivided attention.	95	3	3.2	0	0.0	8	8.4	41	43.2	43	45.3	84	88.4	73	0	0.0
Workplace Control																
I can decide when to take a break.	95	28	29.5	5	5.3	17	17.9	22	23.2	23	24.2	45	47.4	62	0	0.0
I have some say in what work I do.	95	13	13.7	10	10.5	22	23.2	30	31.6	20	21.1	50	52.6	53	0	0.0
I have some say in how I get the job done.	95	12	12.6	3	3.2	18	19.0	34	35.8	28	29.5	62	65.3	70	0	0.0
Bullying and Harassment																
I was sexually harassed.	95	93	97.9	2	2.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
I have experienced violence[#]	95	84	88.4	6	6.3	3	3.2	1	1.1	0	0.0	1	1.1	NA	0	0.0
I was bullied[#].	95	73	76.8	12	12.6	7	7.4	2	2.1	0	0.0	2	2.1	2	0	0.0
If yes to bullying, was the person:	N	%														
	N=21															
Supervisor	11	52.4														
Co-worker/s	13	61.9														
Customer	0	0.0														
Patient	0	0.0														
Patient's family member	0	0.0														
Someone who worked for you	0	0.0														
*Manufacturing																
[#]1 refused to answer																

Table 9F presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control. A comparison is made with the proportion of participants from the Manufacturing group who reported “disagree/strongly disagree” in the NHEWS. The majority of participants (>84%) agreed or strongly agreed with all of the items about co-worker support and 14% agreed or strongly agreed with the statement “*I am worried about losing my job*”. The proportion of sawmill workers who agreed or strongly agreed with the items about supervisor support and ranged from 81% to 93%, which were slightly higher than the NHEWS results (see Appendix 3, Table A3.2). Ninety-five percent of participants reported that they agreed/strongly agreed with the statement “*I have the information I need to do my job*” and 97% agreed/strongly agreed with the statement “*I have the equipment I need to do my job*” (compared to 85% and 87%, respectively in the NHEWS). Almost two-thirds reported that their employer provides counselling services and 72% reported that their employer has anti-bullying and anti-stress policies.

Table 9F: Psychosocial Working Conditions in Sawmill Workers- Part 2																		
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS* Disagree /Strongly Disagree (n=714)	Don't know		Refused	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%	N	%
Co-Worker Support & Job Insecurity																		
I get the help and support I need from my fellow workers.	95	36	37.9	44	46.3	7	7.4	7	7.4	0	0.0	7	7.4	6	0	0.0	1	1.05
My fellow workers respect me.	95	33	34.7	56	59.0	4	4.2	1	1.1	0	0.0	1	1.1	3	0	0.0	1	1.05
My fellow workers are willing to listen to my work related problems.	95	24	25.3	58	61.1	9	9.5	2	2.1	1	1.1	3	3.2	10	0	0.0	1	1.05
I am worried about losing my job.	95	3	3.2	10	10.5	4	4.2	31	32.6	47	49.5	78	82.1	80	0	0.0	0	0
Workplace Control																		
I have some say over the way I work.	95	32	33.7	47	49.5	10	10.5	5	5.3	1	1.1	6	6.3	9	0	0.0	0	0
Supervisor Support																		
I can talk to my supervisor about something that has upset me at work.	95	44	46.3	44	46.3	3	3.2	3	3.2	0	0.0	3	3.2	10	0	0.0	1	1.05
My supervisor encourages me at work.	95	48	50.5	35	36.8	8	8.4	3	3.2	0	0.0	3	3.2	17	0	0.0	1	1.05
My supervisor supports me through emotionally demanding work.	95	34	35.8	43	45.3	12	12.6	3	3.2	1	1.1	4	4.2	18	1	1.1	1	1.05
I have the information I need to do my job.	95	51	53.7	39	41.1	3	3.2	2	2.1	0	0.0	2	2.1	11	0	0.0	0	0
I have the equipment I need to do my job.	95	50	52.6	42	44.2	2	2.1	1	1.1	0	0.0	1	1.1	9	0	0.0	0	0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Sawmill		**NHEWS***
	N=94		**N=714**
	N	%	%
Have anti-stress and anti-bullying policies	68	72.3	55
Provide training on how to manage stress	35	37.2	31
Provide counselling services	61	64.9	44
Other	35	37.2	na
Don’t Know	8	8.5	3
Refuse to disclose	0	0.0	na

*Manufacturing

Key observations for sawmill workers

- Sawmill workers reported working an average of 46 hours per week and **long working hours** (>48 hours per week) were reported by a third of the sample. **Irregular** working hours were reported by 61% of sawmill workers.
- **Loud noise** was reported by 92% of sawmill workers for an average duration of 7 hours per day. Almost all of the sample reported that their employer provides ear muffs and that they also use them (89%). One-quarter reported that job rotation is available and one-fifth of workers reported that quieter machinery is purchased whenever possible and noisy equipment is placed in an isolated room.
- The majority of the sample reported exposure to at least one **dust/chemical factor**. The highest prevalences of exposure were reported for dust (93%), followed by oils and solvents (59%), pesticides (55%), and smoke or fumes (55%). More specifically, wood dust exposure was reported by 84% and timber treatment chemicals were reported by 42% of workers. More than 30% also reported exposure to solvents, road dust, and lubricants.
- The prevalence of certain **biomechanical demands** were high compared to the general population, including awkward or tiring positions (66%), lifting (70%), and repetitive tasks (82%) a quarter of the time or more.
- The sawmill workers also reported a high prevalence of working in a **cold/damp** (72%) and a **hot/warm** (81%) environment, and 61% reported **working outside** at least a quarter of the time.
- Exposure to **direct sunlight** exposure was reported by 43% of sawmill workers for an average duration of 4 hours per day in summer and 3.6 hours per day in winter. The majority of workers reported that their employer provides sunscreen but only half of the sample reported sunscreen use. There was a relatively high prevalence of use of clothing, hats, and sunglasses; however, the proportion who reported that work can be organised outside of peak UV hours was low.
- More than half of participants reported that their job was not at all or mildly **stressful**.
- Just under half (47%) reported that they can decide when to take a break either often or all the time and 65% reported that they have some say in how they get the job done.
- Twenty-two percent reported that they have experienced **bullying** at work with 10% reporting that it occurs at least sometimes. Almost two-thirds reported that their employer provides counselling service and 72% reported that their employer has anti-bullying and anti-stress policies.
- The majority of participants (>81%) agreed or strongly agreed with all of the items about co-worker support, supervisor support, and having the resources needed to do their job.
- Every participant reported that their employer provides **PPE**. The provision and use for gloves (98% and 94%), goggles or protective glasses (92% and 90%), and simple dust masks (76% and 66%) was very high.

Previous New Zealand studies on workplace exposures for sawmill workers

CPHR has conducted exposure surveys in several studies investigating asthma and other respiratory symptoms in sawmill workers. A large study of 772 workers from five sawmills found that pine sawmilling was associated with an increased prevalence of asthma and cough symptoms compared with the general population[26]. A further study in a subset of these workers measured inhalable levels of wood dust and found that the geometric mean dust concentration was 0.52 mg/m^3. The study found a significant (and progressive) decline in lung function in sawmill workers with higher exposures to both dry and green wood dust. The average dust levels for these high exposure groups (0.6–0.8 mg/m^3) were below the current NZ WES-TWA of 2 mg/m^3 [27]. More recently, CPHR conducted a longitudinal study[5] of 281 sawmill workers from 7 milling operations and found that the average levels of inhalable wood dust were 0.6 mg/m^3. The study also found a moderately increased risk of asthma symptoms for workers in the high exposure categories compared to the non-exposed or mixed exposure categories, reinforcing the findings of earlier studies that reported adverse respiratory effects at dust levels well below the NZ WES of 2 mg/m^3. Whilst these studies focused on inhalable wood dust, an earlier study assessed levels of microbial exposures (bacterial endotoxin and β(1,3)-glucan) in 37 samples from two sawmills and found that endotoxin levels were elevated with 50% of all measured samples above 50EU/m^3 [28].

Section G: Agricultural Workers

Table 1G presents the demographic characteristics of the survey sample for agricultural workers. The majority of agricultural workers were Pākehā males and the average age was 48 years. There was also a higher proportion in the oldest age group compared to the NZWS sample (31.7% vs. 21.8%). There was a higher proportion of never smokers compared to the NZWS sample (62.4% vs. 50.6%) and lower proportions in the two most deprived groups compared to the NZWS sample. The majority of participants came from the Manawatu-Whanganui (35.6%), Taranaki (25.7%) and the Hawke's Bay (13.9%).

Table 1G: Description of Agricultural Workers Sample				
	Agricultural Workers		**NZWS**	
	N=101		**N=3,003**	
	N	%	N	%
Gender				
Male	92	91.1	1431	47.7
Female	9	8.9	1572	52.4
Age at Interview				
Mean & SD	47.9	11.7	44.2	11.3
Range	24-79		20-67	
20 – 34 years	14	13.9	659	21.9
35 – 44 years	32	31.7	820	27.3
45 – 54 years	23	22.8	868	28.9
55+ years	32	31.7	656	21.8
Missing	*0*			
Ethnicity				
Pākehā	95	94.1	2386	79.6
Māori	1	1.0	273	9.1
Pacific Peoples	0	0.0	53	1.8
Other	3	3.0	285	9.5
Missing	*2*		*6*	
Smoking				
Never	63	62.4	1516	50.6
Current	4	4.0	546	18.2
Ex	30	29.7	932	31.1
Missing	*4*		*9*	
Deprivation Index 2013*				
1 – 2 (least deprived)	25	24.8	793	26.4
3 – 4	26	25.7	656	21.9
5 – 6	29	28.7	659	22.0
7 – 8	6	5.9	527	17.6
9 – 10 (most deprived)	9	8.9	367	12.2
Missing	*6*		*1*	
Residency status				

New Zealand citizen	96	95.1	-	-
Permanent resident	2	2.0	-	-
Working holiday/temporary visa	0	0.0	-	-
Other	0	0.0	-	-
Missing	*3*			
Education level				
High school or less	28	27.7	-	-
Trade certificate/diploma	36	35.6	-	-
Bachelor degree or higher	34	33.7	-	-
Missing	*3*		-	-
Region of residence				
Northland	0	0.0	-	-
Auckland	0	0.0	-	-
Waikato	0	0.0	-	-
Bay of Plenty	2	2.0	-	-
Taranaki	26	25.7	-	-
Gisborne	3	3.0	-	-
Manawatu-Whanganui	36	35.6	-	-
Hawke's Bay	14	13.9	-	-
Wellington	6	5.9	-	-
Nelson/Tasman	0	0.0	-	-
West Coast	1	1.0	-	-
Canterbury	5	5.0	-	-
Otago	0	0.0	-	-
Southland	3	3.0	-	-
Undefined or Missing	*8*			
*The deprivation index for the NZWS was the 2006 version.				

Table 2G presents the job titles within the agricultural workers group. Dairy farmers made up 43% of the sample followed by sheep/beef farmers (13.9%). Of the sample, 12% were contract sprayers.

Table 2G: Description of Job Titles within the Agricultural Workers Sample		
	N	%
	N=101	
Sheep/beef farmer	14	13.9
Dairy farmer	43	42.6
Mixed farmer	3	3.0
Orchardist/viticulture	11	10.9
Flower grower	2	2.0
Sprayer	12	11.9
Gardener/greenkeeper	5	5.0
Market gardener	2	2.0
Other	9	8.9

Table 3G presents the current job exposures including organisational, dust/chemical, and physical factors. The average number of hours worked per week was 50, which was much higher than the 39 hours reported in the NZWS. Fifty-seven percent reported working more than 48 hours and 37% reported working more than 55 hours (compared to 23.3% and 9.1% in the NZWS, respectively). The average number of days worked per week was six, and 57% reported regularly working outside the hours of 7am-8.30pm.

Agricultural workers reported more frequent exposure to all dust/chemical factors compared to the general population, with the exception of gases. Pesticide exposure was reported by 84% followed by dust (65.4%) and oils and solvents (65.4%). Exposure to acids or alkalis (37.6%) and 'other chemicals' (44.6%) were also reported more frequently compared to the general population (9.4% and 13.7%, respectively).

The prevalences of awkward or tiring positions and awkward grip or hand movements were similar to the general population. The proportions who reported lifting (77.2%) and repetitive tasks (79.2%) were higher compared to the NZWS (39.2% and 68.2%, respectively), whereas working at very high speed (34.7% vs. 51.2%) and working to tight deadlines (67.3% vs. 73.1%) were less common than in the NZWS. Most (95.1%) of the workers reported working outside at least a quarter of the time and more than three quarters reported working in cold/damp and hot/warm environments. In addition, just over half of the participants reported exposure to loud noise a quarter of the time or more.

The prevalence of reporting a not at all or mildly stressful job was higher for the agricultural workers compared to the general population (60.4% vs. 39.7%).

Table 3G Prevalence of current job exposures				
	Agricultural Workers		NZWS	
	N=101		N=3,003	
	N	%	N	%
Organisational factors				
Hours worked per week: Mean & SD	50.6	16.5	39.0	14.7
Range	10.0-95.0		0.81-100	
Hours worked >48 hours	58	57.4	699	23.3
Hours worked >55 hours	37	36.6	271	9.1
Days worked per week: Mean & SD	6.3	0.8	4.9	1.1
Irregular hours*	58	57.4	679	23.5
Night shift in last 4 weeks	9	8.9	204	7.1
Number of night shifts worked[#] <5	2	2.0	90	45.2
5-10	1	1.0	65	32.7
10+	1	1.0	44	22.1
Current exposure				
Dust	66	65.4	881	29.3
Smoke or Fumes	45	44.6	541	18.0
Gas	0	0.0	239	8.0
Oil and Solvents	66	65.4	628	20.9
Acids or Alkalis	38	37.6	282	9.4
Pesticides	85	84.2	287	9.6
Other Chemicals	45	44.6	411	13.7
Any of the above	99	98.0	1488	49.6
Physical factors (≥25% of the time)				
Awkward or tiring positions	52	51.5	1679	56.1
Awkward grip or hand movements	40	39.6	1143	38.2
Lifting	78	77.2	1176	39.2
Repetitive Tasks	80	79.2	2037	68.2
Working at very high speed	35	34.7	1530	51.2
Working to tight deadlines	68	67.3	2185	73.1
Boring work	26	25.7	1235	41.4
Working in a cold/damp environment	83	82.2	709	23.8
Working in a hot/warm environment	78	77.2	830	27.8
Standing	23	22.8	837	28.0
Sitting	71	70.3	1946	65.0
Tools that vibrate	14	13.9	341	11.4
Working outside	96	95.1	884	29.6
Loud noise	52	51.5	895	29.9
Job stress				
Not at all-Mildly	61	60.4	1188	39.7
Moderately	32	31.7	1351	45.2
Very-Extremely	6	5.9	452	15.1
Missing	*2*		12	
*Started before 7am and/or finished after 8.30pm; 7 individuals did not have enough information to determine whether they worked irregular hours				
[#]Of those that reported working night shift				

Table 4G presents the prevalence of specific self-reported exposures. The highest prevalence of exposure was reported for herbicide use (91.1%), followed by lubricants (48.5%), and insecticides (46.5%). Around 40% reported exposure to acids and to alkalis and about one-third reported exposure to cleaning products, engine oil, and fungicides.

Table 4G: Prevalence of specific exposures				
	Agricultural		**NZWS**	
	N=101		**N=3003**	
Exposure	**N**	**%**	**N**	**%**
Acids and alkalis				
Alkalis	39	38.6	100	3.3
Acids	41	40.6	194	6.5
Hydrochloric acid	1	1.0	30	1.0
Sulphuric acid	0	0.0	45	1.5
Cleaning products				
Cleaning products	34	33.7	397	13.2
Bleach	6	5.9	50	1.7
Disinfectant	8	7.9	127	4.2
Caustic soda	1	1.0	42	1.4
Chlorine products	21	20.8	111	3.7
Hand sanitiser	0	0.0	na	na
Pesticides				
Fungicides	37	36.6	59	2.0
Insecticides	47	46.5	74	2.5
Herbicides	92	91.1	168	5.6
Fertiliser	16	15.8	28	0.9
Animal drench	21	20.8	29	1.0
Timber treatment	19	18.8	69	2.3
Dusts				
Agricultural dust	13	12.9	21	0.7
Animal dust	10	9.9	21	0.7
Grain dust	21	20.8	15	0.5
Paper dust	0	0.0	29	1.0
Construction dust	1	1.0	97	3.2
Metal dust	24	23.8	104	3.5
Wood dust	16	15.8	194	6.5
Household dust	2	2.0	120	4.0
Road dust	10	9.9	155	5.2
Flour dust	0	0.0	17	0.6
Solvents				
Solvents	18	17.8	357	11.9
Acetone	0	0.0	27	0.9
Adhesive	1	1.0	125	4.2
Alcohol	0	0.0	109	3.6

Degreasers	6	5.9	39	1.3
Methylated spirits	0	0.0	54	1.8
Turpentine	0	0.0	49	1.6
Formaldehyde	1	1.0	16	0.5
Engine fuels and emissions				
Diesel engine emission	14	13.9	70	2.3
Diesel fuel	4	4.0	47	1.6
Engine emission	13	12.9	176	5.9
Engine oil	34	33.7	108	3.6
Kerosene	0	0.0	17	0.6
Petrol fuel	6	5.9	28	0.9
Petrol fumes	4	4.0	28	0.9
LPG	0	0.0	39	1.3
ETS	0	0.0	36	1.2
Machinery oils and fumes				
Machinery oils	10	9.9	61	2.0
Lubricants	49	48.5	76	2.5
Cutting fluids	1	1.0	20	0.7
Welding	20	19.8	91	3.0
Inks and dyes				
Dyes	4	4.0	23	0.8
Printing	0	0.0	18	0.6
Ink	0	0.0	32	1.1
Hair dye	0	0.0	11	0.4
Fibres				
Fibreglass	1	1.0	20	0.7
Insulation materials	1	1.0	27	0.9
Asbestos	0	0.0	21	0.7
Paint and lacquers				
Paint and lacquers	4	4.0	127	4.2
Paint thinner	4	4.0	26	0.9
Paint dust	0	0.0	17	0.6

Table 5G presents the prevalence of exposure to loud noise and risk controls for loud noise. Loud noise was reported by 67% of workers compared to a lower proportion (39%) reported by the Agriculture, Forestry and Fishing industry in the NHEWS. Agricultural workers reported exposure for an average of 2.4 hours per day and 4.6 hours per week, which is lower than the 4.3 hours per day and 13.1 hours per week in the NHEWS. The majority (92.7%) reported that their employer provides ear muffs and that they also use ear muffs (89.7%). Around one-third reported that they undertook training and 29% reported that they rotate jobs to minimise noise exposure.

Table 5G: Exposure to loud noise and risk controls for loud noise			
	Agricultural Workers		NHEWS Agriculture, Forestry & Fishing
	N=101		N=317
	N	%	%
Does not work in loud noise	33	21.7	60.0
Exposed one or more hours a day	27	26.7	22.0
Exposed one or more hours a week	41	40.6	17.0
Total exposed	68	67.3	39.0
Daily mean hours	2.4 (n=27)	1.09 SD	4.3 (n=70)
Weekly mean hours	4.6 (n=41)	8.0 SD	13.1 (n=55)
Provision of noise protection			
Exposed	N=68		N=125
Ear muffs provided	63	92.7	68.0
Uses ear muffs	61	89.7	na
Ear plugs provided	9	13.2	54.0
Uses ear plugs	8	11.8	na
Training provided	24	35.3	27.0
Used training	23	33.8	na
Job rotation available	21	30.9	37.0
Uses job rotation	20	29.4	na
Noisy equipment is placed in an isolated room	3	4.4	14.0
Uses equipment	3	4.4	na
Quieter machinery is purchased whenever possible	5	7.4	39.0
Nothing	2	2.9	15.0
Qu. If more than 'never' to 17(n) 'loud noise', how long do you work in loud noise on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 6G presents the prevalence of exposure to sunlight and risk controls for sunlight. Exposure to direct sunlight was reported by 95% of workers for an average of 5.1 hours per day in summer and a slightly lower 3.4 hours per day in winter, compared to 74% in the NHEWS for an average of 5.6 hours per day and 22.2 hours per week. Only half reported that protective clothing was provided with 69-92% reporting use of sun protection wear.

Table 6G: Exposure to sunlight and risk controls for sunlight			
	Agricultural Workers		NHEWS Agriculture, Forestry & Fishing
	N=101		N=317
	N	%	%
Does not work in sunlight	5	5.0	26.0
In Summer			
Exposed one or more hours a day	96	95.1	49.0
Exposed one or more hours a week	0	0.0	26.0
Daily mean hours	5.1 (n=96)	2.5 SD	5.6 (n=155)
Weekly mean hours	na (n=0)	na	22.2 (n=81)
In Winter			
Exposed one or more hours a day	88	87.1	
Exposed one or more hours a week	1	1.0	
Daily mean hours	3.4 (n=88)	1.5 SD	
Weekly mean hours	10 (n=1)	na	
Total exposed	96	95.1	74.0
Provision of sun protection			
Exposed	N=96		N=236
Sunscreen provided	72	75.0	69.0
Uses sunscreen	64	66.7	na
Protective clothing provided	47	49.0	68.0
Uses protective clothing	46	47.9	na
Hat provided	88	91.7	78.0
Uses hat	87	90.6	na
Sunglasses provided	67	69.8	59.0
Uses sunglasses	66	68.8	na
Work is reorganised outside peak UV hours	16	16.7	30.0
Uses reorganisation	14	14.6	na
Nothing	1	1.0	9.0
Qu. On a typical day at work, how long did you work in direct sunlight, with or without protective lotions or clothing?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			
na - not applicable			

Table 7G presents the prevalence of exposure to biological materials. Sixty-three percent of agricultural workers reported exposure (defined as one or more hours) to biological materials, compared to 34% of participants in the Agricultural, Forestry and Fishing industry from the NHEWS. However, the average duration of daily exposure was slightly lower than that reported in the NHEWS (3.5 hours vs. 4.6 hours). Of those reporting exposure to biological materials, 66% reported exposure

to animal urine, 58% reported exposure to animal faeces, 53% were exposed to animal blood (e.g. calving and lambing), and 22% reported exposure to animal flesh (e.g. home kill).

Table 7G: Exposure to biological materials			
	Agricultural Workers		**NHEWS Agriculture, Forestry & Fishing**
	N=101		**N=317**
	N	%	%
Does not work with biological materials	37	36.6	66.0
Exposed one or more hours a day	46	45.5	17.0
Exposed one or more hours a week	18	17.8	17.0
Total exposed	64	63.4	34.0
Daily mean hours	3.5 (n=46	1.7 SD	4.6 (n=53)
Weekly mean hours	3.7 (n=18)	3.6 SD	12.9 (n=54)
Main types of biological materials			
Exposed	N=64		N=107
	N	%	%
Urine	0	0.0	11.0
Blood/blood from wounds	0	0.0	13.0
Faeces	0	0.0	6.0
Animal flesh	14	21.9	21.0
Vomit	0	0.0	0.0
Unspecified body fluids	0	0.0	0.0
Animal faeces	37	57.8	44.0
Saliva	0	0.0	1.0
Animal urine	42	65.6	25.0
Mucus/phlegm	0	0.0	0.0
Animal blood	34	53.1	12.0
Human tissue	0	0.0	0.0
Qu. If yes to working in places where there are biological materials, such as blood, urine, animal flesh or laboratory cultures, how long do you work in these places on a typical day?			
Exposure defined as one or more hours a day, or one or more hours a week			
The NHEWS refers to exposure on a typical day at work last week			

Table 8G presents the prevalence of the provision and use of PPE. Almost every participant reported that their employer provides PPE. The provision and use of gloves (92.1% and 91.1%), goggles or protective glasses (87.1% and 86.1%), apron/protective clothing (85.2%), and filter cartridge respirators (60.4% and 57.4%) were all high.

Table 8G: Prevalence of Personal Protective Equipment Use				
	Agricultural Workers		NZWS	
	N=101		N=3,003	
	N	%	N	%
Employer provides PPE*	99	98.0	na	na
Does your employer provide:				
Goggles or protective glasses	88	87.1	na	na
Uses goggles or protective glasses	87	86.1	568	18.9
Footwear	97	96.0	na	na
Uses footwear	96	95.1	665	22.2
Apron/protective clothing*	86	85.2	na	na
Uses apron/protective clothing*	86	85.2	716	23.9
Simple dust mask	33	32.7	na	na
Uses simple dust mask	30	29.7	390	13.0
Filter catridge respirator	61	60.4	na	na
Uses filter cartridge respirator	58	57.4	131	4.4
Air supplied respirator or SCBA	1	1.0	na	na
Uses air supplied respirator or SCBA	1	1.0	29	1.0
Gloves*	93	92.1	na	na
Uses gloves*	92	91.1	835	27.8
na - not applicable				
*Includes answers for the provision of control questions from the specific exposures: sunlight, vibration, and wet work				

Table 9G presents how often participants reported psychosocial working conditions, including time demand, cognitive demand, workplace control, and bullying and harassment. The results for "often/all the time" for the Agriculture, Forestry & Fishing industry in the NHEWS are also provided for comparison (the full results are presented in Appendix 3). The prevalences of the time demand items was generally lower compared to the Agriculture, Forestry and Fishing industry in the NHEWS, with the exception of a higher proportion reporting that they are unable to take enough breaks (23.8% vs. 10%). More than 80% reported all of the workplace control items either often or all the time, which were slightly higher than the NHEWS results. Bullying was reported by 10% of the sample, with 6% reporting that bullying occurs rarely and 4% reporting that bullying sometimes occurs.

Table 9G: Psychosocial Working Conditions for Agricultural Workers- Part 1																
	Total	Never		Rarely		Sometimes		Often		All the time		Often/All the time		NHEWS* Often/All the time (n=317)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Time Demand in the Workplace																
I am pressured to work long hours.	101	43	42.6	12	11.9	28	27.7	7	6.9	8	7.9	15	14.9	17	0	0.0
I have unachievable deadlines.	101	58	57.4	22	21.8	15	14.9	3	3.0	1	1.0	4	4.0	9	0	0.0
I have to work very fast.	101	32	31.7	24	23.8	27	26.7	13	12.9	3	3.0	16	15.8	26	0	0.0
I am unable to take enough breaks.	101	42	41.6	13	12.9	20	19.8	10	9.9	14	13.9	24	23.8	10	0	0.0
I have to neglect some tasks because I have too much to do.	101	26	25.7	18	17.8	42	41.6	11	10.9	2	2.0	13	12.9	19	0	0.0
It's hard for me to juggle work requests from different people.	101	54	53.5	12	11.9	26	25.7	6	5.9	1	1.0	7	6.9	10	0	0.0
Cognitive Demand in the Workplace																
I have to keep track of more than one thing at a time.	101	2	2.0	1	1.0	7	6.9	13	12.9	76	75.3	89	88.1	61	0	0.0
My work needs my undivided attention.	101	1	1.0	2	2.0	14	13.9	19	18.8	63	62.4	82	81.2	72	0	0.0
Workplace Control																
I can decide when to take a break.	101	2	2.0	4	4.0	10	9.9	14	13.9	68	67.3	82	81.2	77	0	0.0
I have some say in what work I do.	101	1	1.0	0	0.0	4	4.0	8	7.9	86	85.2	94	93.1	75	0	0.0
I have some say in how I get the job done.	101	0	0.0	0	0.0	3	3.0	11	10.9	85	84.2	96	95.1	83	0	0.0
Bullying and Harassment																
I was sexually harassed.	101	99	98.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
I have experienced violence	101	90	89.1	9	8.9	0	0.0	0	0.0	0	0.0	0	0.0	NA	0	0.0
I was bullied.	101	89	88.1	6	5.9	4	4.0	0	0.0	0	0.0	0	0.0	2	0	0.0
If yes to bullying, was the person:	N	%														
	N=10															
Supervisor	2	20.0														
Co-worker/s	3	30.0														
Customer	1	10.0														
Patient	0	0.0														
Patient's family member	0	0.0														
Someone who worked for you	0	0.0														
*Agriculture, Forestry & Fishing																

Table 10G presents the extent to which participants agreed with statements on co-worker support, supervisor support, job insecurity, and workplace control, compared to participants from Agriculture, Forestry & Fishing group who reported "disagree/strongly disagree" in the NHEWS. The majority of participants (>82%) agreed or strongly agreed with all of the items about co-worker support and only 10% agreed or strongly agreed with the statement "*I am worried about losing my job*". The proportion of workers who agreed or strongly agreed with the items about supervisor support ranged from 46% to 64% (although these questions were relevant for only half of the sample), which were lower compared to the NHEWS results (see Appendix 3, Table A3.2). Ninety-six percent of participants reported that they agreed/strongly agreed with the statement "*I have the information I need to do my job*" and 97% agreed/strongly agreed with the statement "*I have the equipment I need to do my job*" (compared to 93% and 91%, respectively in the NHEWS). Only 7% of workers reported that their employer provides counselling services and 16% reported that their employer has anti-bullying and anti-stress policies.

Table 10G: Psychosocial Working Conditions in Agricultural Workers- Part 2																
	Total	Strongly agree		Agree		Neutral		Disagree		Strongly disagree		Disagree/Strongly Disagree		NHEWS* Disagree /Strongly Disagree (n=317)	Don't know	
	N	N	%	N	%	N	%	N	%	N	%	N	%	%	N	%
Co-Worker Support & Job Insecurity																
I get the help and support I need from my fellow workers.	92	67	72.8	19	20.7	4	4.4	2	2.2	0	0.0	2	2.2	5	0	0.0
My fellow workers respect me.	92	72	78.3	18	19.6	2	2.2	0	0.0	0	0.0	0	0.0	2	0	0.0
My fellow workers are willing to listen to my work related problems.	89	54	60.7	19	21.4	12	13.5	1	1.1	2	2.3	3	3.4	7	1	1.1
I am worried about losing my job.	98	3	3.1	7	7.1	1	1.0	4	4.1	83	84.7	87	88.8	87	0	0.0
Workplace Control																
I have some say over the way I work.	98	87	88.8	7	7.1	2	2.0	0	0.0	2	2.0	2	2.0	6	0	0.0
Supervisor Support																
I can talk to my supervisor about something that has upset me at work.	50	26	52.0	6	12.0	17	34.0	1	2.0	0	0.0	1	2.0	15	0	0.0
My supervisor encourages me at work.	50	22	44.0	8	16.0	16	32.0	4	8.0	0	0.0	4	8.0	12	0	0.0
My supervisor supports me through emotionally demanding work.	46	17	37.0	4	8.7	17	37.0	7	15.2	1	2.2	8	17.4	19	0	0.0
I have the information I need to do my job.	98	77	78.6	17	17.4	4	4.1	0	0.0	0	0.0	0	0.0	4	0	0.0
I have the equipment I need to do my job.	98	77	78.6	18	18.4	2	2.0	1	1.0	0	0.0	1	1.0	6	0	0.0

Does your employer provide any of the following to prevent people from becoming too stressed at work?			
	Agricultural workers		NHEWS*
	N=74		N=317
	N	%	%
Have anti-stress and anti-bullying policies	12	16.2	25
Provide training on how to manage stress	4	5.4	18
Provide counselling services	5	6.8	23
Other	5	6.8	na
Don’t Know	10	13.5	2
Refuse to disclose	0	0.0	na

*Agriculture, Forestry & Fishing

Key observations for agricultural workers:

- The average number of **hours** worked per week was 50, which was much higher than the 39 reported in the NZWS. Fifty-seven percent reported working more than 48 hours and 37% reported working more than 55 hours. The average number of days worked per week was six and 57% reported regularly working outside the hours of 7am-8.30pm.
- Agricultural workers reported a higher prevalence of exposure to all **dust/chemical factors** compared to the general population, with the exception of gases. Pesticide exposure was reported by 84% followed by dust (65%) and oils and solvents (65%). The prevalences of exposure to acids or alkalis (38%) and 'other chemicals' (45%) were also higher compared to the general population. More specifically, the highest prevalence of exposure was reported for herbicide use (91%), followed by lubricants (49%), and insecticides (47%). Around 40% reported exposure to acids and to alkalis and about one-third reported exposure to cleaning products, engine oil, and fungicides.
- The proportions who reported **lifting** (77%) and carrying out **repetitive tasks** (79%) were higher compared to the general population.
- Most (95%) of the workers reported working **outside** at least a quarter of the time and more than three quarters reported working in a **cold/damp** and a **hot/warm** environment.
- Exposure to **loud noise** was reported by two-thirds of the sample with average durations of 2 hours per day and 5 hours per week. Over 90% reported that their employer provides ear muffs and that they also use them. Around one-third reported that they undertook training and 29% reported that they rotate jobs to minimise noise exposure.
- Exposure to **direct sunlight** was reported by 95% of workers for an average of 5 hours per day in summer and a slightly lower 3 hours per day in winter. Only half reported that protective clothing was provided with 69-92% reporting use of sun protection wear.
- Sixty-three percent of agricultural workers reported exposure to **biological materials**, for an average duration of 4 hours per day. Of those reporting exposure to biological materials, 66% reported exposure to animal urine, 58% reported exposure to animal faeces, 53% were exposed to animal blood (e.g. calving and lambing), and 22% reported exposure to animal flesh (e.g. home kill).
- Almost every participant reported that their employer provides **PPE**. The reported provision and use for gloves (92% and 91%), goggles or protective glasses (87% and 86%), apron/protective clothing (85%), and filter cartridge respirators (60% and 57%) was high.
- The prevalence of reporting a not at all or mildly **stressful** job was higher for the agricultural workers (60%) compared to the general population.
- The prevalence of reporting **time demand** pressure either often or all the time was generally low (<16%), with the exception of 24% reporting that that they are unable to take enough breaks often or all the time.
- More than 80% of workers reported all of the **workplace control** items either often or all the time, including deciding when to take breaks and having some say in what work, and how the job, is done.
- **Bullying** was reported by 10% of the sample, with 6% reporting that bullying occurs rarely and 4% reporting that bullying sometimes occurs. Only 7% of workers reported that their

employer provides counselling services and 16% reported that their employer has anti-bullying and anti-stress policies.

- The majority of participants (>82%) agreed or strongly agreed with all of the items about **co-worker support** and having the **resources** needed to do their job. The proportion of agricultural workers who agreed or strongly agreed with the items about **supervisor support** ranged from 46%to 64%.

Previous New Zealand studies on workplace exposures for agricultural workers

Several NZ studies have examined occupational exposure in farmers, including surveys of self-reported chemical use and stress, and studies involving measurements of pesticides, noise, inhalable dust, vibration, and ultraviolet radiation (UVR).

A small number of surveys have examined the prevalence of self-reported chemical use in NZ farmers. In a nationwide cross-sectional survey of the respiratory health of randomly selected farmers (n=1706), 72% reported herbicide use, 67% reported pesticides (livestock dips), 56% reported use of cleaning solutions, 61% reported fertiliser use, and 17% report use of formalin dip[29]. Another cross-sectional survey (n=586) examined chemical use in farmers and found that 20% reported use of organophosphates, 54% reported glyphosate use, and 16% reported phenoxy herbicide use. Pastoral farmers reported the highest prevalences for all three chemical types[30] and overall, the reported use of PPE while applying pesticides was generally low. Self-reported stress was also examined in a cross-sectional survey of a stratified random sample of NZ farmers (n=1015). The most stressful items that were reported were increased work load at peak times, dealing with ACC, bad weather, and complying with health and safety legislation[31].

Recently two studies in which urine metabolites of commonly used pesticides were measured were conducted by CPHR, one in pesticide applicators (which was used as a sampling frame for the current survey) and one in farmers' and general population children (results not yet available). Several NZ studies have measured noise and inhalable dust levels in farmers. Exposure to noise was measured on 60 Southland farms[32] and ranged between 84.8 to 86.8 dB(A). Reported compliance with hearing protection was higher than that actually observed. Another study measured exposure to noise and inhalable dust in a random sample of Southland farmers. Median inhalable dust levels ranged from 0.5mg/m^3 for mixed farmers (n=19) to 1.7mg/m^3 for arable farmers (n=9), and 10% of participants had levels >5mg/m^3. Thirty-five percent of farmers were exposed to daily noise levels above 85 dB(A) and of these farmers, only 14% reported hearing protection use[33].

In the current survey, only 14% reported use of vibrating tools a quarter of the time or more. However, a previous study[34, 35] among 130 farmers and rural workers in South Otago found that measurements of full-day whole-body vibration and mechanical shock exposures were strongly associated with a 12-month prevalence of neck pain[35].

The majority of the agricultural workers in the current survey reported exposure to direct sunlight for an average of 5 hours per day. Hammond et al[21] measured UVR in a study that included 16 horticulture workers over five consecutive days in January-March 2007. The geometric mean total daily UVR was 5.32 standard erythemal doses (SED) and all of the workers had mean daily UVR exposure above recommended occupational exposure limits.

LIMITATIONS

Representativeness

An exposure survey in 700 workers from specific occupational groups will not tell us about the prevalence of occupational risk factors in the general NZ workforce. However, the report from Part One of this proposal provides this information and the exposure information generated from Part Two provides detailed information for specific occupational groups.

Due to the nature of the recruitment method, we do not have full information on the source population and are therefore unable to calculate response rates in order to assess the representativeness of the survey samples. The sample size of 100 in each group meant that it was difficult to attain representative, nationwide samples. The majority of the participants were recruited from the North Island; however it is unlikely that working conditions are vastly different between the North and South Islands.

The nature of the information collected

One of the biggest limitations of the current survey was the relatively crude exposure assessment. It is practically impossible to assess the level and intensity of exposure objectively using a questionnaire. Because the exposures were self-reported, the responses to most questions were inevitably subjective, for example 'lifting' could refer to a wide range of different weights and movements. In addition, many hazardous agents may not be recognisable to participants, for example they may be able to report the colour or smell of a certain substance but may not be aware of its specific name or chemical properties, or in the case of collision repair workers, the formulations of the solvents that are regularly used. Nonetheless, the prevalence of certain occupational risk factors reported in Part One (which used the same questionnaire) were similar to estimates of self-reported exposure from overseas workforce surveys.

The workforce survey collected information on a wide range of exposures and control measures. A balance was required between the detail of the information collected and the practical length of the questionnaire, so some of the exposures included in the questionnaire were assessed using a single question rather than a multi-item scale. For example, our assessment of job stress was based on a single question compared to previous studies of work-related stress, many of which have used Karasek's job content questionnaire[7]. In addition, we did not collect information on the frequency and duration of PPE use and for which tasks PPE was worn. The recent study of collision repair

workers by Keer et al[19] found that workers who reported *frequent* use of gloves and respirators were significantly less likely to report symptoms of neurotoxicity.

SUMMARY

The current survey in seven occupational groups examined a wide range of exposures including dust/chemical factors, organisational factors, biomechanical demands, biological exposure, wet work, sunlight exposure, loud noise, as well as psychosocial working conditions. The findings for the main exposure groups are summarised below.

Dust exposure was reported by more than 90% of collision repair (body filler/paint dust), construction workers (construction and wood dust), and sawmill workers (wood dust). More than half of these groups also reported exposure to smoke or fumes, with collision repair workers in particular reporting a high prevalence of exposure (81%). The majority of collision repair workers reported solvent exposure and just under two-thirds of agricultural and sawmill workers reported exposure to oils and solvents. Pesticide exposure (herbicides in particular) was reported by the majority of agricultural workers and more than half of sawmill workers. The use of cleaning products was common in the hospitality group.

The prevalences of the majority of biomechanical demands were high for nurses, collision repair, construction, and hospitality workers, whereas the prevalences of certain biomechanical demands were high for clerical, sawmill, and agricultural workers. The majority of nurses, collision repair, construction, sawmill, and agricultural workers reported working in hot/warm or cold/damp environments at least a quarter of the time. Two-thirds of hospitality workers reported working in a hot/warm environment and almost half of the nurses reported exposure to environmental tobacco smoke.

Agricultural, construction, and sawmill workers reported the highest average number of hours worked per week (>46 hours). More than half of agricultural and sawmill workers also reported working irregular hours and 37% of agricultural workers reported working more than 55 hours per week.

Around two-thirds of community-based nurses and agricultural workers reported exposure to biological materials for an average duration of almost 4 hours per day. Of the exposed nurses, 94% reported exposure to urine and over 60% reported exposure to blood/blood from wounds, faeces, and unspecified body fluids. Of the exposed agricultural workers, 66% reported exposure to animal urine, 58% reported exposure to animal faeces, and 53% were exposed to animal blood.

The majority (92%) of sawmill workers reported exposure to loud noise for an average of 7.4 hours per day. Three quarters of collision repair and construction workers reported exposure to loud noise for average durations of 3.9 hours and 4.5 hours, respectively. Exposure to loud noise was also reported by 67% of agricultural workers for an average of 2.4 hours per day. More than 80% of the workers from these groups reported the provision and use of ear muffs.

Hospitality workers reported washing their hands on average 26 times per day and just over half reported wet work exposure. The community-based nurses reported washing their hands on average 11 times per day, with 37% reporting wet work exposure, and collision repair workers reported washing their hands 9 times per day with 40% reporting wet work exposure. The average durations of wet work ranged from 2.3-2.5 hours per day, which is a risk factor for contact dermatitis. More than half of collision repair workers reported that they use thinners or another solvent to clean their hands/other body parts. The majority of workers reported that their employers provide PPE for wet work, with the provision and use of gloves being the most common.

More than 60% of sawmill, construction, and agricultural workers reported working outside at least a quarter of the time. Exposure to direct sunlight was reported by 95% of agricultural workers for an average of 5.1 hours per day. Construction workers also reported a high prevalence of direct sunlight exposure (81%) for an average of 6.6 hours per day, whereas a lower proportion (43%) of sawmill workers were exposed to direct sunlight for an average duration of 4.2 hours per day.

Community-based nurses reported the highest prevalence of bullying (58%), with 11% reporting that bullying occurs often or all the time at their workplace. Of those that reported bullying, 50% reported that it was by patient(s), 66% reported it was by co-worker(s), and 31% reported that it was by a supervisor. Around one quarter of clerical and hospitality workers reported that they have experienced bullying at their workplace and 13% reported that this occurs at least sometimes. For the remaining groups, bullying was reported by around one-fifth of workers (with less than 8% reporting that bullying sometimes occurs), except for a lower proportion (10%) in the agricultural workers. Half of the nurses reported that they have experienced violence at their workplace and 22% reported that this occurs at least sometimes. Nearly one-third of clerical workers reported that they have experienced violence at work, with 10% reporting that this had occurred at least sometimes. Almost one-third of nurses also reported that they have been sexually harassed, of whom 12% reported that this occurs at least sometimes.

Time demand appears to be an important psychosocial hazard for the community-based nurses. In particular, 52% reported that they are unable to take enough breaks and 41% reported that they have to neglect tasks because they have too much to do either often or all of the time. Fifty-eight percent of hospitality workers and about one-third of collision repair, construction, and sawmill workers reported that they have to work very fast either often or all the time. Around one quarter of hospitality and agricultural workers felt that they are unable to take enough breaks either often or all the time.

More than 62% of collision repair, clerical, and agricultural workers reported all of the workplace control items often or all the time. Only around half of hospitality, construction, sawmill workers, and nurses reported that they can decide when to take a break either often or all the time and less than half of nurses and construction workers reported that they have some say in what work they do.

The majority of workers (>90%) agreed or strongly agreed with all of the items about co-worker support and having the information and equipment needed to do their job. The prevalences of agreement with items about supervisor support were higher for clerical, collision repair, and construction workers compared to the other groups. A quarter of construction workers reported that they were worried about losing their job.

The prevalence of reporting a very or extremely stressful job (26%) was higher for community-based nurses compared to the general NZ working population, whereas more than half of the remaining occupational groups reported that their job was not at all or mildly stressful. The majority (87%) of nurses reported that their employer provides counselling services and 68% reported that their employer has anti-bullying and anti-stress policies. The majority of sawmill workers also reported that these services and policies were available at their work. For the remaining groups, less than half reported that their employer provides counselling services and has anti-bullying and anti-stress policies.

More than 95% of workers in all of the groups except for the clerical workers reported that their employer provides PPE. Collision repair, construction, and agricultural workers reported high prevalences of the provision and use of gloves and goggles/protective glasses, and a high proportion of collision repair workers reported use of filter cartridge respirators. Gloves were provided for approximately 90% of nurses and hospitality workers; however, only about three quarters used gloves.

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APPENDICES

Workplace Exposures Questionnaire

Subject ID #: **DO** ☐☐☐☐☐

Full name: ☐

Address: ☐

Today's date: ☐ Day ☐ Month ☐ Year

Phone number: ( )

E-mail: ☐

Date of Birth: ☐ Day ☐ Month ☐ Year

Gender:
1 ☐ Male
2 ☐ Female

To which ethnic group or groups do you belong?

Pakeha ☐ European/ ☐ Māori ☐ Pacific Island ☐ Other ☐

Specify: ☐

What is your residency status?

New Zealand citizen ☐ Permanent resident ☐ On a working holiday/ Student/Temporary visa ☐

Other ☐

Specify: ☐

Section A - Your current or most recent job

I will now ask you some questions about **your current job.**

1.	What year did you start and finish this job? Interviewer note: If the respondent still works in this job, please write down CURRENT for end-year. From _____ *(year)* To _____ *(year)*
2.	How many **hours per week** do you work in this job? (on average): _____ *(hours per week)*
3.	How many **days per week** do you work in this job? (on average): _____ *(days per week)*
4.	Do you regularly work **outside 8-5 o'clock** for this job? ☐ Yes ⟶ *please specify:* _____ ☐ No
5.	What is the **main activity** of the company or organisation you work for? (for example: what was produced, what service was provided) _____ _____ _____
6.	What **department** do you work in? _____ _____
7.	What is **your job title?** _____ _____

8. Please **describe your specific job** in detail:

Interviewer note: Try to go through each point e.g.: what do you do, how do you do it etc. If no response, ask respondent to describe a **typical working day**.

What do you do?
How do you do it?
What **materials** do you use?
What **tools** or **machinery** do you use?
What type of **process** is it?

_____

_____

_____

_____

_____

_____

_____

9. In the last 4 weeks, did you work for pay, profit or income for at least 3 hours between midnight and 5am?

☐ Yes

☐ No **GO TO Q11**

10. In the last 4 weeks, what is the total number of nights that you worked for at least 3 hours between midnight and 5am?

_____ Nights in last 4 weeks

11. In the environment where you work are any of the following present?

Interviewer note: Please list all. If you tick any of these boxes, please complete Q12, otherwise go to Q13.

Interviewer: "I realise that some of the exposures may not be relevant to your situation; however, I will quickly go through the list".

☐ 1 **Dust:** e.g. coal, metal, wood, grain, textile fibres, or insulation material

☐ 2 **Smoke** or **fume:** e.g. combustion products, engine emission, metal fume

☐ 3 **Gas:** e.g. combustion gases, refrigerant

☐ 4 **Oils** and **solvents:** e.g. lubricants, cutting oils, degreasers, thinners

☐ 5 **Acids** or **alkalis**

☐ 6 **Fungicides, Insecticides, Herbicides** or **Timber Preservatives**

☐ 7 **Other chemical products** e.g. dyes, inks, adhesives etc.

12.	Please state the names of the substances you are exposed to, how many weeks per year and hours per day you are exposed, and the source of the substance. Interviewer note: Please specify the number from the list in Q11. in the boxes below.

Name/s of Substance		Weeks per year exposed	Hours per day exposed	Source of Substance
	(Please specify number)			

13. Has your employer provided health and safety training?

☐ Yes

☐ No **GO TO Q17**

14. Have you attended a health and safety training session in the last 12 months?

☐ Yes

☐ No

15. Was the training relevant and useful to your work?

☐ Yes

☐ No

16. Do you have any further comments about health and safety training at your workplace?

_____

_____

17. How often does this job involve any of these situations?

Interviewer note: Please list each situation. Please ask for an estimation of the part of working time this occurs.

		All of the time	¾	½	¼	Never	%
a)	Awkward or tiring positions	☐	☐	☐	☐	☐	
b)	Awkward grip or hand movements	☐	☐	☐	☐	☐	
c)	Lifting	☐	☐	☐	☐	☐	
d)	Carrying out repetitive tasks	☐	☐	☐	☐	☐	
e)	Working at very high speed	☐	☐	☐	☐	☐	
f)	Working to tight deadlines	☐	☐	☐	☐	☐	
g)	Boring work	☐	☐	☐	☐	☐	
h)	Working in cold / damp environment	☐	☐	☐	☐	☐	
i)	Working in an (unpleasant) hot / warm environment	☐	☐	☐	☐	☐	
j)	Standing (still)	☐	☐	☐	☐	☐	
k)	Sitting	☐	☐	☐	☐	☐	
l)	Tools that vibrate	☐	☐	☐	☐	☐	
m)	Working outside	☐	☐	☐	☐	☐	
n)	Loud noise	☐	☐	☐	☐	☐	

Section B – Exposures & Control Measures

The next section will ask about more detailed **workplace exposures** and **control measures,** such as **personal protective equipment** or **PPE.** I apologise for any overlap with the PPE questions**.**

18. **If more than 'never' for question 17(l) *'tools that vibrate'***, does your employer do any of the following to prevent health problems caused by working with **vibrating equipment or in vehicles that vibrate**?

If the answer to Q17(l) was '*never*', GO TO Q19

Interviewer note: Multiple responses allowed. Do not prompt for other responses but record if the respondent provides information voluntarily.

Provide gloves	☐	*If yes, do you use it?* ☐
Provide vibration dampeners	☐	*If yes, do you use it?* ☐
Provide vibration absorbing seats	☐	*If yes, do you use it?* ☐
Provide training	☐	*If yes, do you use it?* ☐
Other *please specify* _____	☐	*If yes, do you use it?* ☐
Nothing	☐	
Don't Know	☐	
Refused	☐	

19. **If more than 'never' to 17(n) *'loud noise'*,** how long do you work in **loud noise** on a typical day? **By loud noise, I mean noise so loud that you would have to raise your voice to be heard to speak to people who are at one arm's length away from you.**

If the answer to Q17(n) was '*never*', GO TO Q21

Interviewer note: The respondent can answer in typical daily exposure or average weekly exposure. Please specify which one.

_____ *hours in a typical day* **OR** _____ *hours over a typical week*

☐ Don't Know

☐ Refused

20. Does your employer do any of the following to prevent hearing being damaged by **loud noise?**

Interviewer note: Multiple responses allowed. Do not prompt for other responses but record if the respondent provides information voluntarily.

Provide ear muffs	☐	*If yes, do you use it?* ☐
Provide ear plugs	☐	*If yes, do you use it?* ☐
Provide training	☐	*If yes, do you use it?* ☐
Rotate jobs	☐	*If yes, do you use it?* ☐
Place noisy equipment in an isolated room	☐	*If yes, do you use it?* ☐
Purchase quieter machinery whenever possible	☐	
Other *please specify* _____	☐	*If yes, do you use it?* ☐
Nothing	☐	
Don't Know	☐	
Refused	☐	

21. On a typical day at work, do you work in **direct sunlight,** with or without protective lotions or clothing?

- ☐ Yes
- ☐ No **GO TO Q24**

22. If yes, how long do you work in **direct sunlight** on a typical day?

Interviewer note: The respondent can answer in typical daily exposure or average weekly exposure. Please specify which one.

	In Summer:	In Winter:
Hours in typical day **OR**	_____ *hours*	_____ *hours*
Hours over a typical week	_____ *hours*	_____ *hours*
	☐ Don't know	☐ Don't know
	☐ Refused	☐ Refused

23. Does your employer do any of the following to prevent health problems caused by exposure to **direct sunlight or sunburn?**

Interviewer note: Multiple responses allowed. Do not prompt for other responses but record if the respondent provides information voluntarily.

Provide sunscreen	☐	*If yes, do you use it?* ☐
Provide protective clothing	☐	*If yes, do you use it?* ☐
Provide hat	☐	*If yes, do you use it?* ☐
Provide sunglasses	☐	*If yes, do you use it?* ☐
Reorganise work outside peak UV hours	☐	*If yes, do you use it?* ☐
Other *please specify* _____	☐	*If yes, do you use it?* ☐
Nothing	☐	
Don't Know	☐	
Refused	☐	

24. On a typical day at work, do you work in places where there are **biological materials, such as blood, urine, animal flesh or laboratory cultures?**

- ☐ Yes
- ☐ No **GO TO Q27**

25. If yes, how long do you work in these places on a typical day?

Interviewer note: The respondent can answer in typical daily exposure or average weekly exposure. Please specify which one.

_____ *hours in a typical day* **OR** _____ *hours over a typical week*

- ☐ Don't Know
- ☐ Refused

26. What are the main types of biological materials at your workplace?

_____

_____

_____

☐ Don't Know

☐ Refused

27. On a typical day at work, how many times do you wash your hands with water, including when using the bathroom?

Interviewer note: Record number of times washed hands either with or without soap.

_____ *number of times*

☐ Don't Know

☐ Refused

28. On a typical day at work, excluding time spent hand-washing, how long do you have your hands immersed in or covered by any liquid (including water) with or without gloves?

Interviewer note: The respondent can answer in typical daily exposure or average weekly exposure. Please specify which one.

_____ *hours in a typical day* **OR** _____ *hours over a typical week*

☐ Don't Know

☐ Refused

28a Do you ever use thinners/another solvent to clean your hands/other body parts?

☐ No, never

☐ Yes *(Please specify which solvent you use)*_____

If **YES**, How often?

☐ Seldom

☐ Sometimes

☐ Often

☐ Very often

29. What liquids do you typically have your hands covered by?

Interviewer note: Record verbatim, for example glue, oil, lard, petrol etc.

If respondent had their hands in water ask: 'what substances if any did you use while you were working in water last week?'

_____

_____

_____

_____

☐ Nothing

☐ Don't Know

☐ Refused

30. Does your employer do any of the following to prevent health problems caused by exposure to **<u>water or other liquids</u>?**

Interviewer note: Multiple responses allowed. Do not prompt for other responses but record if the respondent provides information voluntarily.

Provide gloves	☐	*If yes, do you use it?*	☐
Provide barrier cream	☐	*If yes, do you use it?*	☐
Provide moisturiser	☐	*If yes, do you use it?*	☐
Provide labelling and warning signs	☐	*If yes, do you use it?*	☐
Limit the time you have your hands in water or other liquids	☐	*If yes, do you use it?*	☐
Provide training	☐	*If yes, do you use it?*	☐
Other *please specify* _____	☐	*If yes, do you use it?*	☐
Nothing	☐		
Don't Know	☐		
Refused	☐		

Section C – General Personal Protective Equipment (PPE)

31.	Does your employer provide any *other* PPE at work? ☐ Yes ☐ No – **GO TO SECTION D**

Does your employer **PROVIDE** any of the following protective equipment: Interviewer note: It 'yes', please go across, if 'no', please continue down.	If yes, do you **USE** the protective equipment?	If yes, for which tasks:
Goggles or protective glasses ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Footwear ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Apron/protective clothing (i.e. a spray suit) ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Simple dust mask ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Filter cartridge respirator ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Air Supplied Respirator or SCBA ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Gloves ☐ Yes ☐ No ☐ Don't know	☐ Yes ☐ No	
Other: *Specify:*_____	☐ Yes ☐ No	

Section D – Psychosocial Hazards

32.	In general, how do you find your current job? Interviewer: Please list all ☐ Not at all stressful ☐ Mildly stressful ☐ Moderately stressful ☐ Very stressful ☐ Extremely stressful

33. I now am going to read out some ways people might feel at work. Generally speaking, please tell me if this describes your current workplace never, rarely, sometimes, often, or all the time.

	Never	Rarely	Sometimes	Often	All the time	Don't know	Refused
I am pressured to work long hours.	☐	☐	☐	☐	☐	☐	☐
I have unachievable deadlines.	☐	☐	☐	☐	☐	☐	☐
I have to work very fast.	☐	☐	☐	☐	☐	☐	☐
I am unable to take enough breaks.	☐	☐	☐	☐	☐	☐	☐
I have to neglect some tasks because I have too much to do.	☐	☐	☐	☐	☐	☐	☐
It's hard for me to juggle work requests from different people.	☐	☐	☐	☐	☐	☐	☐
I have to keep track of more than one thing at a time.	☐	☐	☐	☐	☐	☐	☐
My work needs my undivided attention.	☐	☐	☐	☐	☐	☐	☐
I can decide when to take a break.	☐	☐	☐	☐	☐	☐	☐
I have some say in what work I do.	☐	☐	☐	☐	☐	☐	☐
I have some say in how I get the job done.	☐	☐	☐	☐	☐	☐	☐
I was sexually harassed.	☐	☐	☐	☐	☐	☐	☐
I have experienced violence	☐	☐	☐	☐	☐	☐	☐
I was bullied.	☐	☐	☐	☐	☐	☐	☐

34. You mentioned that you have experienced **bullying or harassment** at work. Was the person who did this your supervisor, a co-worker, a customer or patient, someone who worked for you or someone else?

Interviewer note: Multiple responses allowed.

- ☐ Supervisor
- ☐ Co-worker/s
- ☐ Customer
- ☐ Patient
- ☐ Patient's family member
- ☐ Someone who worked for you
- ☐ Other *please specify* _____
- ☐ Don't Know
- ☐ Refuse to disclose

35. Do you have any concerns about the previous question?

- ☐ Yes *(Interviewer: Please refer respondent to the WorkSafe bullying prevention toolbox)*
- ☐ No

36. Could you please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know	Refused
I get the help and support I need from my fellow workers.	☐	☐	☐	☐	☐	☐	☐
My fellow workers respect me.	☐	☐	☐	☐	☐	☐	☐
My fellow workers are willing to listen to my work related problems.	☐	☐	☐	☐	☐	☐	☐
I have some say over the way I work.	☐	☐	☐	☐	☐	☐	☐
I am worried about losing my job.	☐	☐	☐	☐	☐	☐	☐
I can talk to my supervisor about something that has upset me at work.	☐	☐	☐	☐	☐	☐	☐
My supervisor encourages me at work.	☐	☐	☐	☐	☐	☐	☐
My supervisor supports me through emotionally demanding work.	☐	☐	☐	☐	☐	☐	☐
I have the information I need to do my job.	☐	☐	☐	☐	☐	☐	☐
I have the equipment I need to do my job.	☐	☐	☐	☐	☐	☐	☐

37. Does your employer provide any of the following to prevent people from becoming too <u>stressed</u> at work?

Interviewer note: Multiple responses accepted. Do not prompt for other responses but record if the respondent provides information voluntarily.

- ☐ Have anti-stress and anti-bullying policies
- ☐ Provide training on how to manage stress
- ☐ Provide counselling services
- ☐ Other *please specify* _____
- ☐ Don't Know
- ☐ Refuse to disclose

Section E – You and your household

38.	Have you ever smoked tobacco? ☐ Yes ☐ No **GO TO Q44**
39.	What do/did you smoke? Interviewer note: Please list all. ☐ Cigars ☐ Cigarettes ☐ Pipe ☐ Other *please specify* _____
40.	In what year did you start smoking?: _____
41.	Do you still smoke? ☐ Yes **GO TO Q43** ☐ No
42.	What year did you stop smoking?: _____
43.	How many do/did you smoke per day?: _____
44.	How tall are you (in cm)? _____ *cm*
45.	How much do you weigh (in kg)? _____ *kg*
46.	What is your highest level of education? ☐ High school or less ☐ Trade certificate/diploma ☐ Bachelor degree or higher
47.	How many people in your household are in each of the following age-groups (*excluding yourself*)? 0-5 years _____ 19-24 years _____ 6-12 years _____ 25-60 years _____ 13-18 years _____ 60+ years _____
48.	How many of these people need looking after by you *(excluding yourself)*? _____ *number of people*

Section F – Respiratory Symptoms

49.	Have you had wheezing or whistling in your chest at any time in the past 12 months? ☐ Yes ☐ No
50.	Have you been woken by an attack of shortness of breath at any time in the past 12 months? ☐ Yes ☐ No
51.	Have you ever had asthma? ☐ Yes ☐ No **GO TO Q56**
52.	Was the diagnosis confirmed by a doctor? ☐ Yes ☐ No
53.	How old were you when you had your first attack of asthma? _____ *years*
54.	Have you had an attack of asthma in the last 12 months? ☐ Yes ☐ No
55.	Are you currently taking any medicine (including inhalers, aerosols or tablets) for asthma? ☐ Yes ☐ No
56.	Do you cough almost daily for at least part of the year? ☐ Yes ☐ No **GO TO Q58**

57.	Do you cough up phlegm almost daily for at least part of the year? ☐ Yes ☐ No
58.	In the past 12 months, how often have you been unable to work because of respiratory symptoms, i.e. cough, phlegm, wheezing/whistling or shortness of breath? ☐ Never ☐ 1-7 days ☐ 8-30 days ☐ At least 31 days ☐ Don't know
59.	Have you ever had eczema (or atopic dermatitis)? ☐ Yes ☐ No **GO TO SECTION G**
60.	Was the diagnosis confirmed by a doctor? ☐ Yes ☐ No

Section G – Sleep Patterns

61. How many hours sleep do you usually get on a day off (counting naps as well)? _____ *hours*

62. How often do you get enough sleep?

- ☐ Never
- ☐ Rarely
- ☐ Often
- ☐ Always

63. How often do you wake up feeling refreshed?

- ☐ Never
- ☐ Rarely
- ☐ Often
- ☐ Always

64. How likely are you to doze off or fall asleep in the following situations?
Please choose one answer for each of the following:

		Would never doze	Slight chance	Moderate chance	High chance
a)	Sitting and reading	☐	☐	☐	☐
b)	Watching TV	☐	☐	☐	☐
c)	Sitting inactive in a public place (e.g. theatre, meeting)	☐	☐	☐	☐
d)	Lying down in the afternoon when circumstances permit	☐	☐	☐	☐
e)	Sitting and talking to someone	☐	☐	☐	☐
f)	Sitting quietly after a lunch <u>without</u> alcohol	☐	☐	☐	☐
g)	In a car, while stopped for a few minutes in traffic	☐	☐	☐	☐

65. Do you consider that you have a sleep problem?

- ☐ Yes
- ☐ No **GO TO SECTION H**

66.	How long have you had a sleep problem? ☐ Less than 4 weeks ☐ 1-6 months ☐ More than 6 months *Please state any additional comments below* _____ _____ _____ _____ _____

Section H – Muscle and joint aches

***Interviewer note**: Please complete this question by starting with the list of body parts (Q1). If any is 'yes', complete all other questions (Q2-Q4) for this body part, then continue with the list of body parts (Q1).*

MUSCLE AND JOINT ACHES AND PAINS

PLEASE ANSWER ALL THE QUESTIONS, EVEN IF YOU HAVE NEVER HAD ANY TROUBLE IN ANY PARTS OF THE BODY.

	Q1 Have you at any time during the last 12 months **had any trouble** (such as aches, pains, discomfort, numbness) in your:	Q2 During the last 12 months, have you been **prevented from carrying out normal activities** (e.g. housework, hobbies, gardening) because of this trouble?	Q3 During the last 12 months have you been **absent from work** because of this trouble in your:	Q4 How often **do you get**, or **have you had** this trouble during the last 12 months?
Neck	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Shoulders	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Arms (upper and lower)	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Elbows	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Wrists/Hands	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Upper back	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Lower back (small of back)	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Hips/Thighs/Buttocks	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Knees	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6
Ankles/Feet	No ☐1 Yes ☐2	No ☐1 Yes ☐2	No ☐1 Yes ☐2	Daily ☐1, one or more times a week ☐2, a month ☐3, a year ☐4, one episode of trouble only ☐5, Never ☐6

Section I – Additional Comments

Do you have any general comments about your work environment?

THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU!

Appendix 2: NHEWS Occupational distribution within industry group

Table A2.1: Occupational distribution: Health & Community Services (n=956)	
Occupation	**%**
Nurse	23
Childcare worker	9
Carer	9
Office worker	8
Community services/social worker	7
Medical industry worker	7
Manager/director	5
Note: All others below 5%	

Table A2.2: Occupational distribution: Manufacturing (n=714)	
Occupation	**%**
Labourer/process worker	12
Manager/director	10
Machine operator	10
Office worker	8
Metal industry worker	7
Manufacturing worker	7
Engineer	5
Note: All others below 5%	

Table A2.3: Occupational distribution: Construction (n=655)	
Occupation	**%**
Construction worker/industry	42
Manager/director	7
Electrician	7
Labourer/process worker	5
Machine operator	5
Note: All others below 5%	

Table A2.4: Occupational distribution: Accommodation, Cafes & Restaurants (n=91)	
Occupation	**%**
Caterer/cook	22
Bar tender/waiter	13
Manager/director	11
Cleaner/housekeeper	9
Assistant Various	8
Kitchen hand	7
Office worker	5
Note: All others below 5%	

Table A2.5: Occupational distribution: Finance & Insurance (n=94)	
Occupation	%
Accountant/financial advisor	30
Manager/director	18
Banking	10
Officer/various	9
Customer service	7
Office worker	5
Note: All others below 5%	

Table A2.6: Occupational distribution: Agriculture, Forestry & Fishing (n=317)	
Occupation	%
Farmer/farm hand	53
Manager/director	6
Labourer/process worker	5
Horticulturist/agriculturist	5
Note: All others below 5%	

Appendix 3: NHEWS Psychosocial Working Conditions

Table A3.1: Psychosocial working conditions – Part 1: Health & Community Services (n=956)						
	Never	Rarely	Sometimes	Often	All the time	Often/All the time
	%	%	%	%	%	%
Time Demand in the Workplace						
I am pressured to work long hours.	54	17	18	6	5	11
I have unachievable deadlines.	39	22	27	7	4	11
I have to work very fast.	13	13	36	23	16	39
I am unable to take enough breaks.	42	19	20	10	8	18
I have to neglect some tasks because I have too much to do.	23	17	40	14	6	20
It's hard for me to juggle work requests from different people.	32	19	35	10	4	14
Cognitive Demand in the Workplace						
I have to keep track of more than one thing at a time.	4	2	14	29	51	80
My work needs my undivided attention.	3	1	11	27	58	85
Workplace Control						
I can decide when to take a break.	18	8	21	21	32	53
I have some say in what work I do.	12	8	24	30	26	56
I have some say in how I get the job done.	3	3	18	38	38	76
Bullying and Harassment						
I was sexually harassed.	95	3	2	0	0	0
I was bullied.	79	8	10	2	0	2
Source: NHEWS Survey: 2008 Results						

Table A3.2: Psychosocial working conditions – Part 2: Health & Community Services (n=956)						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Disagree/strongly disagree
	%	%	%	%	%	%
Co-Worker Support & Job Insecurity						
I get the help and support I need from my fellow workers.	34	54	5	4	1	5
My fellow workers respect me.	39	55	3	2	1	3
My fellow workers are willing to listen to my work related problems.	32	57	4	4	1	5
I am worried about losing my job.	2	7	2	39	50	89
Workplace Control						
I have some say over the way I work.	33	58	2	7	1	8
Supervisor Support						
I can talk to my supervisor about something that has upset me at work.	35	49	5	8	2	10
My supervisor encourages me at work.	31	48	8	8	4	12
My supervisor supports me through emotionally demanding work.	29	47	8	11	4	15
I have the information I need to do my job.	34	58	4	4	1	5
I have the equipment I need to do my job.	33	55	3	7	2	9

Table A3.3: Psychosocial working conditions – Part 1: Manufacturing (n=714)						
	Never	Rarely	Sometimes	Often	All the time	Often/All the time
	%	%	%	%	%	%
Time Demand in the Workplace						
I am pressured to work long hours.	58	16	16	5	4	9
I have unachievable deadlines.	45	19	25	6	4	10
I have to work very fast.	20	12	35	19	13	32
I am unable to take enough breaks.	62	19	11	4	4	8
I have to neglect some tasks because I have too much to do.	34	15	34	11	5	16
It's hard for me to juggle work requests from different people.	45	16	27	8	4	12
Cognitive Demand in the Workplace						
I have to keep track of more than one thing at a time.	8	4	20	28	40	68
My work needs my undivided attention.	6	2	18	28	45	73
Workplace Control						
I can decide when to take a break.	20	4	14	17	45	62
I have some say in what work I do.	15	6	26	23	30	53
I have some say in how I get the job done.	7	4	20	29	41	70
Bullying and Harassment						
I was sexually harassed.	99	1	0	0	0	0
I was bullied.	88	5	5	1	1	2
Source: NHEWS Survey: 2008 Results						

Table A3.4: Psychosocial working conditions – Part 2: Manufacturing (n=714)						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Disagree/strongly disagree
	%	%	%	%	%	%
Co-Worker Support & Job Insecurity						
I get the help and support I need from my fellow workers.	29	60	5	5	1	6
My fellow workers respect me.	29	62	4	2	1	3
My fellow workers are willing to listen to my work related problems.	28	56	5	7	3	10
I am worried about losing my job.	6	10	4	40	40	80
Workplace Control						
I have some say over the way I work.	35	55	2	6	3	9
Supervisor Support						
I can talk to my supervisor about something that has upset me at work.	31	55	4	6	4	10
My supervisor encourages me at work.	24	50	8	11	6	17
My supervisor supports me through emotionally demanding work.	23	47	10	13	5	18
I have the information I need to do my job.	28	57	4	9	2	11
I have the equipment I need to do my job.	31	56	4	7	2	9

Table A3.5: Psychosocial working conditions – Part 1: Construction (n=655)						
	Never	Rarely	Sometimes	Often	All the time	Often/All the time
	%	%	%	%	%	%
Time Demand in the Workplace						
I am pressured to work long hours.	48	17	19	9	7	16
I have unachievable deadlines.	44	21	23	8	4	12
I have to work very fast.	21	12	35	20	12	32
I am unable to take enough breaks.	56	17	14	6	6	12
I have to neglect some tasks because I have too much to do.	35	18	32	10	4	14
It's hard for me to juggle work requests from different people.	35	18	32	11	5	16
Cognitive Demand in the Workplace						
I have to keep track of more than one thing at a time.	6	3	18	33	40	73
My work needs my undivided attention.	5	3	13	32	47	79
Workplace Control						
I can decide when to take a break.	10	4	14	18	54	72
I have some say in what work I do.	7	4	20	25	44	69
I have some say in how I get the job done.	2	1	15	30	52	82
Bullying and Harassment						
I was sexually harassed.	98	1	0	0	0	0
I was bullied.	90	5	4	0	1	1
Source: NHEWS Survey: 2008 Results						

Table A3.6: Psychosocial working conditions – Part 2: Construction (n=655)						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Disagree/strongly disagree
	%	%	%	%	%	%
Co-Worker Support & Job Insecurity						
I get the help and support I need from my fellow workers.	31	56	8	3	1	4
My fellow workers respect me.	33	58	6	2	0	2
My fellow workers are willing to listen to my work related problems.	26	59	8	5	1	6
I am worried about losing my job.	2	7	3	38	49	87
Workplace Control						
I have some say over the way I work.	42	53	2	2	1	3
Supervisor Support						
I can talk to my supervisor about something that has upset me at work.	35	53	4	5	2	7
My supervisor encourages me at work.	25	54	9	8	2	10
My supervisor supports me through emotionally demanding work.	22	53	10	9	3	12
I have the information I need to do my job.	31	56	5	6	2	8
I have the equipment I need to do my job.	33	53	5	8	1	9

Table A3.7: Psychosocial working conditions – Part 1: Accommodation, Cafes & Restaurants (n=91)						
	Never	Rarely	Sometimes	Often	All the time	Often/All the time
	%	%	%	%	%	%
Time Demand in the Workplace						
I am pressured to work long hours.	64	10	14	5	7	12
I have unachievable deadlines.	53	12	22	8	5	13
I have to work very fast.	12	4	24	27	32	59
I am unable to take enough breaks.	51	11	19	9	10	19
I have to neglect some tasks because I have too much to do.	30	19	33	12	7	19
It's hard for me to juggle work requests from different people.	46	13	31	5	4	9
Cognitive Demand in the Workplace						
I have to keep track of more than one thing at a time.	8	1	11	38	42	80
My work needs my undivided attention.	8	5	23	15	48	63
Workplace Control						
I can decide when to take a break.	24	7	22	10	35	45
I have some say in what work I do.	15	4	30	23	27	50
I have some say in how I get the job done.	5	1	31	26	36	62
Bullying and Harassment						
I was sexually harassed.	97	1	1	0	1	1
I was bullied.	84	2	10	4	0	4
Source: NHEWS Survey: 2008 Results						

Table A3.8: Psychosocial working conditions – Part 2: Accommodation, Cafes & Restaurants (n=91)						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Disagree/strongly disagree
	%	%	%	%	%	%
Co-Worker Support & Job Insecurity						
I get the help and support I need from my fellow workers.	30	53	5	10	2	12
My fellow workers respect me.	30	60	4	4	1	5
My fellow workers are willing to listen to my work related problems.	27	58	3	9	1	10
I am worried about losing my job.	4	9	3	42	42	84
Workplace Control						
I have some say over the way I work.	23	60	5	8	3	11
Supervisor Support						
I can talk to my supervisor about something that has upset me at work.	29	56	2	9	2	11
My supervisor encourages me at work.	20	51	7	18	2	20
My supervisor supports me through emotionally demanding work.	21	45	10	18	4	22
I have the information I need to do my job.	27	65	2	6	0	6
I have the equipment I need to do my job.	29	55	9	5	2	7

Table A3.9: Psychosocial working conditions – Part 1: Finance & Insurance (n=94)						
	Never	Rarely	Sometimes	Often	All the time	Often/All the time
	%	%	%	%	%	%
Time Demand in the Workplace						
I am pressured to work long hours.	50	19	20	7	3	10
I have unachievable deadlines.	35	28	30	7	0	7
I have to work very fast.	13	11	38	19	19	38
I am unable to take enough breaks.	51	24	13	10	2	12
I have to neglect some tasks because I have too much to do.	26	19	38	14	3	17
It's hard for me to juggle work requests from different people.	41	14	28	16	1	17
Cognitive Demand in the Workplace						
I have to keep track of more than one thing at a time.	1	3	9	32	55	87
My work needs my undivided attention.	4	3	15	31	47	78
Workplace Control						
I can decide when to take a break.	6	3	7	18	65	83
I have some say in what work I do.	5	10	27	35	23	58
I have some say in how I get the job done.	2	3	20	33	41	74
Bullying and Harassment						
I was sexually harassed.	97	3	0	0	0	0
I was bullied.	84	7	7	1	0	1
Source: NHEWS Survey: 2008 Results						

Table A3.10: Psychosocial working conditions – Part 2: Finance & Insurance (n=94)						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Disagree/strongly disagree
	%	%	%	%	%	%
Co-Worker Support & Job Insecurity						
I get the help and support I need from my fellow workers.	30	61	3	6	0	6
My fellow workers respect me.	37	53	5	3	0	3
My fellow workers are willing to listen to my work related problems.	35	60	4	1	0	1
I am worried about losing my job.	4	6	5	30	54	84
Workplace Control						
I have some say over the way I work.	36	60	1	2	1	3
Supervisor Support						
I can talk to my supervisor about something that has upset me at work.	38	48	2	7	3	10
My supervisor encourages me at work.	42	36	8	12	2	14
My supervisor supports me through emotionally demanding work.	33	44	6	14	2	16
I have the information I need to do my job.	29	62	5	3	1	4
I have the equipment I need to do my job.	43	55	0	2	0	2

Table A3.11: Psychosocial working conditions – Part 1: Agriculture, Forestry & Fishing (n=317)						
	Never	Rarely	Sometimes	Often	All the time	Often/All the time
	%	%	%	%	%	%
Time Demand in the Workplace						
I am pressured to work long hours.	50	13	20	9	8	17
I have unachievable deadlines.	52	19	19	5	4	9
I have to work very fast.	26	14	36	12	14	26
I am unable to take enough breaks.	63	13	13	5	5	10
I have to neglect some tasks because I have too much to do.	31	16	35	12	7	19
It's hard for me to juggle work requests from different people.	51	14	24	7	3	10
Cognitive Demand in the Workplace						
I have to keep track of more than one thing at a time.	9	5	24	26	35	61
My work needs my undivided attention.	4	6	17	32	40	72
Workplace Control						
I can decide when to take a break.	8	3	11	19	58	77
I have some say in what work I do.	7	4	15	23	52	75
I have some say in how I get the job done.	3	2	12	28	55	83
Bullying and Harassment						
I was sexually harassed.	98	1	0	0	0	0
I was bullied.	91	2	5	1	1	2
Source: NHEWS Survey: 2008 Results						

Table A3.12: Psychosocial working conditions – Part 2: Agriculture, Forestry & Fishing (n=317)						
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Disagree/strongly disagree
	%	%	%	%	%	%
Co-Worker Support & Job Insecurity						
I get the help and support I need from my fellow workers.	33	50	8	4	1	5
My fellow workers respect me.	31	55	9	1	1	2
My fellow workers are willing to listen to my work related problems.	30	52	8	5	2	7
I am worried about losing my job.	2	8	2	36	51	87
Workplace Control						
I have some say over the way I work.	41	52	1	3	3	6
Supervisor Support						
I can talk to my supervisor about something that has upset me at work.	35	47	3	11	4	15
My supervisor encourages me at work.	31	48	8	8	4	12
My supervisor supports me through emotionally demanding work.	26	46	8	15	4	19
I have the information I need to do my job.	35	58	3	4	0	4
I have the equipment I need to do my job.	35	56	2	5	1	6