



NZOHNA

NEW ZEALAND OCCUPATIONAL HEALTH NURSES ASSOCIATION

**Position Statement on Accelerated Silicosis Clinical
Pathway in New Zealand – July 2020**

Introduction – NZOHNA response to Accelerated Silicosis Clinical Pathway Proposition – June 2020

What is Accelerated Silicosis?

Accelerated Silicosis (AS) results from the inhalation of very high concentrations of silica dust. It develops in a pattern similar to that of simple silicosis, except the time from initial exposure to the onset of disease is shorter and the progression to complicated silicosis is more rapid.

How does it affect people?

Silicosis affects the lungs by damaging the lining of lung air sacs, resulting in fibrosis (scarring) of the lungs leading to progressive loss of lung function. This form of fibrosis is incurable and may progress after exposure has stopped. Persons with advanced silicosis suffer severe shortness of breath and may suffer complications including respiratory failure and death. The rate of change in lung function deterioration for workers with accelerated silicosis is on average 10 times faster than the normal age-related deterioration, within 10 years of exposure. Progression of silicosis can continue to occur even after exposure to respirable silica has been discontinued. The prevalence of Progressive Massive Fibrosis (PMF) has been estimated in Australia to be as high as 30% of exposed workers, many of them young people. There is no effective treatment, meaning that prevention is the best option – morally, ethically, economically. The speed with which AS occurs requires quick action to avert an \$11 billion financial cost in NZ and an immeasurable social harm.

What is the extent of the problem in NZ?

Based on what we know now, once we account for persons who have been exposed and have left the workforce and extrapolate on this, in the worst case there may be as many as 560 persons with undiagnosed AS in New Zealand who need to be identified and given the ability to make an informed decision about reducing their exposure to Respirable Crystalline Silica (RCS) to zero by leaving the engineered stone industry as soon as it is practicable to do so. Unfortunately, within this group, there may be up to 180 exposed or previously exposed workers in New Zealand right now with a terminal, irreversible form of AS.

In the best-case scenario, these numbers would be ~275 with AS and ~90 with an irreversible, progressive terminal diagnosis. If each is a young worker, this would amount to over \$11 billion in financial costs to New Zealand.

Engineered stone is imported into New Zealand and is popular with consumers. It is likely that demand for it will continue to increase, adding to exposure levels as the building industry begins to escalate in activity.

Proposed Pathway (June 29th, 2020)

The 'go hard, go early' response that New Zealand employed for protecting its population in the face of Covid-19 resulted in a solid, positive outcome compared with other countries. We believe that the same strategy must be employed in response to Accelerated Silicosis. The New Zealand Dust Disease Taskforce (NZ-DDT), with WorkSafe, developed a clinical pathway that quickly and comprehensively identified and cared for exposed workers and their families. We note that the pathway has recently been radically altered in favour of a GP-led approach.

It is of the utmost importance that we, as a country, do whatever is possible to limit and reduce the harm that AS can cause. We believe that the recently released Clinical Pathway will result in processing and time delays, and suboptimal care for workers, leading to continuing exposure for those with early AS development and increasing the risk of developing PMF. The social, individual, industry and political consequences of failing to address the most significant occupational health crisis New Zealand has faced in the past 80 years with insufficient knowledge, skills and resources is undesirable, particularly given the lessons learned from our experience with Asbestos in the previous century, an experience that has left us a legacy of over 80 years that is still palpable today.

Learning from Australia

The lessons from the previous failures of the respiratory health monitoring system in the Queensland coal mining industry and the recommendations made in the Monash review to improve this system need to be taken into account to ensure implementation of a national scheme which raises the standard of prevention and health monitoring in artificial stonework to an acceptable level. Such respiratory surveillance should be acknowledged as a key monitoring function undertaken alongside dust prevention measures if an expected outcome of zero cases new of severe disease is to be achieved. We see funding for this work is a necessity. If that cannot be achieved, then substituting Engineered Stone with a safer product must be explored.

NZOHNA proposal: Specialist Occupational Health Service with Direct PCBU Interface

NZOHNA's position is that the Australian recommendations are not adequately addressed in the Clinical Pathway tool proposed to the NZ-DDT on the 29th of June 2020. We believe that significant improvements must be made to the process with increased involvement of Occupational Health Professionals in the case-finding process and in the initial and on-going health monitoring processes. We also believe that this can be most efficiently achieved by funding an Occupational Health Service that can directly interface with the PCBUs at their own premises.

The table on the next page identifies the opportunities for improvement that we can see in the most recently proposed Clinical Pathway.

Occupational Health Nurses (OHNs) have been practicing in New Zealand for over 60 years. As specialist health professionals who interact with workplaces and employees on a daily basis, we believe that by lending our skills, knowledge and experience to this crisis, we can contribute significantly to having the best possible outcome.

We propose that a dedicated team of Occupational Health Nurse Dust Disease Specialists (OHNDDS) is selected, formed, and funded to undertake the assessment and data collection that is required by the secondary health system (hospitals), to expedite progress through the pathway. The cost for this process has been estimated at \$290,000.

We stand ready, with plans, with resolve, with integrity and with capacity to mobilise to meet this epidemic, and to support workers who have been exposed to RCS toward the best outcome we can achieve for them. What we seek is adequate resourcing to get our work underway.

David Browning

NZOHNA Executive Member

NZOHNA Representative NZ-Dust Disease Taskforce



Concerns and Solutions Identified by NZOHNA in the June 29th Clinical Pathway Model

Issue#	Our Concern:	Our Solution:
1	There is no consideration for Occupational Health Monitoring to identify risk outside of the pathway	OHNDDS can accomplish this function by performing Health Monitoring at the workplace
2	That there will be inadequate time made available at GP appointments to collect the required amount and quality of previous exposure history.	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
3	That there may not be enough time in the GP appointment to provide the initial health related education re pathway, disease, effects and progression.	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
4	There may be 5 or more weeks of additional waiting times for employees accessing GP services	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
5	Lack of continuity of care with GPs may result in a poor outcome for exposed workers	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace with a small group of well trained, peer reviewed Health Professionals practicing consistently
6	Costs of visiting GPs will be a barrier to access	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
7	Some people will not visit a GP at all out of fear, false beliefs and misinformation	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
8	OHNs and Occupational Medicine Specialists are already trained and experienced to perform the functions that GPs are being asked to accommodate in addition to their normal workloads	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace with a small group of well trained, peer reviewed Health Professionals practicing consistently
9	Previous work-based health monitoring records will not always be readily available to GPs, they may not know how to access them and the thought of accessing these may not even occur to them	OHNDDS are well aware of the importance of this information, and have the ability to access, collate and forward this information on to clinicians in an appropriate format
10	It will be preferable for the initial clinical decision maker (GP) to have access to previous exposure monitoring results prior to the initial visit from the exposed worker.	OHNDDS are accomplished navigators of the Occupational Health System and can easily accommodate this function into their service, providing clinicians with the information required to make sound judgements
11	Most small employers do not engage with formal EAP services, and access to these services may not be readily available through the workplace	OHNDDS are accomplished navigators of the Occupational Health System, and can research and direct exposed workers to the right services according to their assessed need
12	With no Occupational Health Professional visiting the workplace, there will be incorrect interpretations of conditions, culture, roles and functions that are occurring in that workplace, leading to uninformed clinical decision making, re-work and lost time	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
13	It will often take the entire initial appointment time for a General Practitioner (having not seen the workplace) to reach the required level of understanding of the workplace alone to make a referring decision, let alone undertake any other assessment	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
14	The best method for ascertaining quality information about exposure and occupational	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace

	history will be obtained at the workplace, where interpreter skills can be easily obtained	
15	GPs are not experts in workplace assessments, and will have to take extra time or be forced to collect inadequate data if time limits are restricted due to their caseload	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
16	There will not be enough time in a GP appointment to fully explore and understand the level of exposure to permit entry into the clinical pathway for all employees who meet the threshold	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
17	There will be no, or significantly delayed, assessment for signs of not coping, stress levels, depression and anxiety (mental wellbeing)	OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace
18	Access to adequate EAP and mental health support services at the workplace for families, individuals and the workplace as a whole need to be explored and funded	That consideration be given to nationally funding mental health support services. Otherwise OHNDDS are skilled navigators and communicators of health services, and can direct employees and PCBUs to these as necessary
19	Evaluation of the understanding and effectiveness of the respiratory conservation efforts in the workplace by the employee will not be assessed, and will lead to continuing exposure to dangerous levels of RCS	OHNDDS have the knowledge and skills to implement effective Respiratory Conservation Programmes to the required AS/NZ standards in partnership with PCBUs
20	GPs have different levels of understanding of workplaces than OHNs, and it is perceived that many will need to upskill in order to perform this assessment to the depth that is needed to make sound clinical decisions regarding progression into the clinical pathway	OHNDDS already possess in depth knowledge of workplace culture, practices and role exposures and how to assess and document these
21	There is a high likelihood that standardisation/continuity of initial assessment across the whole GP profession to undertake the most important initial examination which determines entry to the pathway performed fully, consistently and correctly completed across the entire country will not be achieved within the designated time period	OHNDDS already possess and practise these skills on a daily basis in their normal work
22	Exposed workers with AS will not progress into the clinical pathway as they should	OHNDDS will, through having access directly to the workplace, be in a position to provide education and knowledge required for the exposed employees to make a fully informed decision about entry into the pathway, expected outcomes and timeframes
23	All workers in the engineered stone industry, past and present, have potential for unacceptable exposure and should be captured in a confidential register	OHNDDS are skilled in health exposure assessment, and can put forward valid exposed employees who sit marginally outside of the case finding pathway entry criteria along with appropriate supporting clinical findings
24	Facilitation of early visitation of occupational health professionals will provide a holistic view of the workplace and the exposures, and assist other Health Professionals in the pathway make informed clinical decisions	OHNDDS are available to the workplace and are able to direct exposed employees into the pathway, and through communication with, be in a position, through communication and co-ordination, to maximise efficient engagement with Public, Primary and Secondary Health services, avoiding overload of those services.
25	Obtaining Occupational Medicine recommendations and advice on mitigating exposure and managing exposure risks as soon as possible after entry into the pathway is fundamental in reducing harm of AS	OHNDDS will be able to provide guidance that supports the inspectorate guidance on control mitigation directly to the PCBU and its employees as a function of the site visits to support maximum harm reduction

26	Opportunities to explore and assess for exposure and related issues to persons other than the exposed worker have not been addressed by the most recently proposed pathway	OHNDDS can easily incorporate these investigations into their practice and incorporate these people through supported intervention with their informed consent
27	That a register is maintained of all exposed workers, not only those who are diagnosed with AS, to allow for monitoring and contact into the future	OHNDDS can collect this information and store this in a confidential & secure manner in accordance with relevant privacy and disclosure regulations until a national register is available
28	That fear (real or not) of the regulator will inhibit free communication and may impede entry into the pathway for some exposed workers.	OHNs are trusted medical professionals. By having direct access to workplaces, meeting PCBUs and exposed workers on their own terms in a culturally safe, private manner, we find that these barriers can often be easily negotiated and broken down
29	General Practitioners will not have direct access to PCBUs to ascertain contact details of those exposed workers who have left the PCBU, and this function would require additional administration time in contact tracing	OHNs are well placed nationally to find previously exposed workers who have now left the industry and will have direct contact with PCBUs
30	All exposed workers should have funded access to quality health monitoring in relation to silicosis throughout at least a 30 year period beyond their initial exposure to engineered stone fabrication and RCS.	OHNs, as custodians of secure health information collected from employees, have systems in place to ensure continuity of record keeping and care, and understand well the obligations under the relevant legislation
31	A similar 12 month delay could occur with any similar emerging occupational health crisis	By maintaining good quality controls, feedback process and constant refinement (using nursing process) OHNDDS will be able to create a robust model for case finding and care that can be modified and adapted to future events with minimal resource

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Accelerated Silicosis - Summary of the Issue

Engineered Stone has been in NZ since 2003.

Engineered stone contains very high levels of quartz (silica/silicates) bound by resin; at levels much higher than those found in traditional stone products - >90% compared to 3% in marble and 30% in granite. Since 2007, this material has become very popular for kitchen and bathroom benchtops and hence there has been rapid expansion in the New Zealand market due to its strength, stain resistance and heat tolerance. Modern, high-speed mechanical processes can generate very high levels of respirable crystalline silica. Dry cutting engineered stone for just 30 minutes can expose an operator to over 400 times the current New Zealand Workplace Exposure Standard (WES) 8-hour exposure limit of 0.05 mg/m³.



New Zealand 8 hour shift limit of Respirable Crystal Silica—you are at risk if you breath in more than this over an 8 hour period

WorkSafe NZ has been advocating for wet cutting and other dust reducing measures for workers working with engineered stone over the last 12 months. Prior to this, there have not been strong guidelines in place and much of the work with engineered stone has not been closely monitored due to its previously unknown health effects on the worker as a new manufacturing component.

As there are no other health effects at the end use, no degradation of particles, this product is unable to be classified as a hazardous waste as Asbestos was. Asbestos is listed as a category of controlled waste under Annex I of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal [1992].

The use of this product has directly been attributed to Accelerated Silicosis in stone workers, a disease process that can occur within 1-10 years of exposure.

Accelerated Silicosis Disease

Silicosis is a preventable occupational lung disease (a pneumoconiosis) and is one of the diseases caused by inhalation of very fine silica dust.

Silicosis affects the lungs by damaging the lining of lung air sacs. It is a form of fibrosis (scarring) of the lungs resulting in progressive loss of lung function. This form of fibrosis is incurable and may progress after exposure has stopped. Persons with advanced silicosis suffer severe shortness of breath and may suffer complications including respiratory failure and death. In the early detectable stages the person does not manifest symptoms, and specialist assessment is required. [1]

Once diagnosed with silicosis, the patient must avoid all sources of occupational exposure. [2]

Accelerated Silicosis from working engineered stone was first described in 2009 in Spain followed by cases in Italy, Israel and the USA.

Workers exposed to engineered stone dust have an increased risk of developing the following occupational diseases:

Lungs

- Silicosis – acute, accelerated, chronic, Progressive massive fibrosis (PMF)
- Lung cancer
- Chronic obstructive pulmonary disease
- Tuberculosis

Kidneys

- Renal disease

Autoimmune

- Scleroderma
- Rheumatoid arthritis
- SLE
- Sarcoidosis

Table lifted from Safe Work Australia [3]

The rate of change in lung function deterioration for workers with accelerated silicosis is on average 10 times faster than the normal age-related deterioration. Progression of silicosis can continue to occur even after exposure to respirable silica has been discontinued.

Treatment for Accelerated Silicosis

At present there is no known treatment which will arrest the progression of the disease. Progression may vary between individuals for reasons not yet understood. Some workers may eventually need a lung transplant. [4]

On average in New Zealand 24 lung transplants are completed every year. No New Zealand figures are publicly available at this time, but NSW government puts the average cost in their hospital for a lung transplant at AUD\$134,6000 [5]. The average life expectancy in New Zealand after a lung transplant is only five years, with 60% of recipients surviving at that length of time. [6]

If 50,000 lost work disability-adjusted life years (DALYs) translates into a social cost of at least \$2 billion each year [7], and potentially a 30 year old unable to work if diagnosed with PMF could lose 35 DALYs, then supposedly this social cost burden would be \$40,000 per annum, or \$1.4 million over their lifetime.

Pulmonary Fibrosis News states that, in the US, the average life expectancy of patients with pulmonary fibrosis is three to five years after diagnosis [8]. The prognosis for pulmonary fibrosis patients will differ depending on their age, overall health, lifestyle choices, and severity of the disease when diagnosed. Older age generally means a worse prognosis. Women usually have a better prognosis than men, but the reasons for this difference are unknown.

The cost of an early death in New Zealand as estimated by NOHSAC [9], is \$184,216 per year of premature death.

The Australian Experience

The index case in Australia was first recognised in 2016 and a case series published in January 2018. Since then an increasing number of young men working with engineered stone to produce and install benchtops have been diagnosed with accelerated silicosis. The onset occurs within 10 years of first exposure.

Since August 2018, over 600 workers from the engineered stone bench-top fabrication industry in Queensland have entered a health screening program, similar to the process NZ is implementing.

As of February 2019, 99 confirmed cases of silicosis associated with engineered stone benchtop work had been identified in Queensland, Australia [10]. The true prevalence of silicosis is likely to be much higher than that reported in the literature. WorkCover Queensland (Australia) performed a random screening programme with just 10 stone benchtop fabrication workplaces and identified 36 workers with silicosis— one-third of the screened workforce. Half of those diagnosed with silicosis had PMF [11]

Most cases are still being assessed. The youngest known to the authors is aged 24. Approximately 30% manifest advanced disease (PMF) [12]; all with minimal or no symptoms at the time of diagnosis. Due to an uncertain denominator, the true prevalence remains difficult to ascertain, but a crude prevalence of complicated silicosis (PMF and accelerated silicosis) in the high-risk group of workers fabricating engineered stone in Queensland, has also been observed at 30%. [13]

The Australian Government has committed \$5 million to support their Taskforce and related measures. These include establishing a National Dust Diseases Register, and new research to support understanding, prevention and treatment of preventable occupational dust diseases. [14]

New Zealand Situation

WorkSafe have identified 113 PCBUs employing 530 people working with engineered stone. We have no reason to expect the New Zealand rates to be any different from the Queensland experience given that we have a similar population size.

	Number of PCBUs	Number of workers exposed	Average number of workers exposed (1dp)
Whangarei	3	11	3.7
Albany	13	51	3.9
Auckland Central	14	62	4.4
Manukau	28	109	3.9
Tauranga	7	43	6.1
Central North Island	14	75	5.4
Napier & Gisborne	6	18	3
New Plymouth	2	6	3
Wellington	6	40	6.7
Nelson	2	8	4
Christchurch	13	88	6.8
Otago/Southland	5	19	3.8
New Zealand Total	113	530	4.7

Table 1 Worksafe New Zealand - PCBU and exposed worker numbers – June 2020

First known NZ cases reviewed so far have found that 53% showed evidence of Accelerated Silicosis. Among these evidence cases, 42% were possible, 35% probable and 21% were definite cases.

This means New Zealand may have up to 280 people currently working within the engineered stone industry waiting to be diagnosed with Accelerated Silicosis according to these first findings, or around 190 if the incidence rate is similar to Queensland.

Around 1/3rd of those with Accelerated Silicosis (AS) are expected to potentially have an irreversible, terminal form of Silicosis, with a life expectancy of less than a decade.

We expect that the number of potentially exposed workers to be double the numbers discovered so far by WorkSafe NZ and estimate 1100. This is due to the transient nature of the low-skilled engineered stone workforce who have been exposed and have left the workforce over the past 17 years.

Once we account for persons who have been exposed and have left the workforce and extrapolate what we know so far, in the worst case there may be up to 560 persons with undiagnosed AS in New Zealand who need to be identified and given the ability to make an informed decision about reducing their exposure to RCS to zero by leaving the industry **as soon as possible**.

Unfortunately, within this group, there may be up to 120 exposed or previously exposed workers in New Zealand right now with a terminal, irreversible form of AS. It is of the utmost importance that we do whatever is possible to limit and reduce the harm that AS can cause.

In the best-case scenario, these numbers would be ~275 with AS and ~90 with an irreversible, progressive terminal diagnosis. Even these cases will result in billions spent to support workers and their families.

The New Zealand Dust Diseases Taskforce (NZ-DDT)

The New Zealand Dust Disease Taskforce was assembled in June 2019 to:

1. Work together to reduce the incidence of workers developing accelerated silicosis
2. Provide a co-ordinated and evidence-based approach to the surveillance, monitoring, assessment, diagnostics, and intervention of people with suspected and actual accelerated silicosis.
3. Building the quality of New Zealand's understanding of, and response to accelerated silicosis- now and in the long term
4. To increase the early detection of those New Zealanders who have Accelerated Silicosis

By:

- Sharing information and learning together
- Co-ordinate our efforts across agencies and parts of the system
- Keep the focus on the outcome of reducing the impact of accelerated silicosis
- Responding to the pace of accelerated silicosis as rapidly and effectively as possible with the intent of working in the best approach for the affected workers of New Zealand

The Dust Disease Taskforce has met on a 2 monthly basis and has, amongst other things, worked toward establishing a Clinical Pathway for the case-finding and diagnosis of accelerated silicosis amongst workers in the engineered stone industry.

Best Health Outcomes Expected from the Case Finding Process in New Zealand

Discover the 30% of exposed workers who have developed any sign of Accelerated Silicosis

Identify the further 30% who have or are likely to develop PMF

Assist all of the cohort found with any sign of AS in retiring or undertaking other occupations that prevent all further silica exposures

Register and ensure on-going, high quality, consistent health monitoring engagement continues for, those who remain in the industry

New Zealand Occupational Health Nurses Functions as NZOHNA Members

Occupational Health Nurses (OHNs) are Specialised Registered and Enrolled Nurses who provide services to employees and PCBUs. OHNs have been practicing in New Zealand for over 60 years and operate as primary health providers under a number of principles.

Prevention

We aim to prevent harm occurring to employees, and in preventing employees work being affected by their health through health monitoring and education.

Effect of Health on Work and Effect of Work on Health.

This creed spreads to the wider community and to families of employees, as well as to other stakeholders including the employer themselves. We believe that no-one should have their health effected by their work.

Protection

We assist PCBUs to meet their obligations under legislation and regulation by providing advice on operational functions such as advice on personal protective equipment use, storage, fit testing and selection. We help employers reduce costs with downtime due to injury and illness and assist with implementing programmes which reduce ACC levies and other medical and insurance costs.

Promotion

We promote wellbeing for employees to help maintain engagement and higher functioning at work through engaging with employees, seeking to understand their needs and exceeding their abilities through understanding, education and work with employees toward meeting or exceeding their expectations and goals of their own health.

Navigation

The New Zealand health system can be complex and foreboding to navigate. Increasing resource demands, accessibility and affordability limitations on clients are limiting employees General Practitioners (GPs) reviews. GPs having only 10 minutes or less to spend with their patients at each appointment. We sympathise with employees and employers who face large invoices for professional occupational and other medical specialist opinions and treatments. Our clients are sometimes overwhelmed with the prospect of understanding and working through systems like ACC and Public Health, and sometimes give up or make no attempt to seek help at all.

OHNs support users of health systems with advice, informed consent, correspondence, referrals, moral support and interpretation of results and expectations. OHNs work closely with a workers' treating doctors by advising on rehabilitation management to facilitate early return to work and minimise disability. We assist with obtaining the right advice from health professionals for successful return to work planning, seeking an opinion on an occupational illness with the right testing and questions for medical providers, linking the employee with the right health service or breaking barriers to healthcare by advocating and negotiating on behalf of the employee. We specialise in bringing our skills, our services, our occupational health care, skills and knowledge directly to the workplace. Every day.

Specialised Knowledge, Experience and Practice

Our close working relationships with Aotearoa's workforce enables us to provide evidence-based advice to comprehensively address workers' needs. OHNs are skilled in interview techniques, assessment, and effective communication. OHNs quickly orientate their practice toward the culture and norms of diverse workplaces and through appreciation of these can apply tailored interventions. We have to be able to make the link between work and health effects to achieve the desired outcomes for our clients, whether they are employees or

employers. OHNs are ‘workplace nurses’ with clinical knowledge and skill in assessing the health of workers, using a holistic approach considering both work, lifestyle and other factors. We are trained in workplace assessments to identify hazards to worker health, undertake workplace health risk assessments and advise on ways to reduce health and injury risks to workers. We help design workplace health surveillance programs to detect health problems in workers at an early stage and provide advice on appropriate action.

OHNs advocate best practice in work organisation and health promotion in the workplace as crucial aspects of an integrated approach to better worker health. We are knowledgeable about occupational health and safety legislation and provide independent advice to workers and employers about their roles and responsibilities as well as on other medicolegal issues.

OHNs have specialist knowledge in adapting work to the aging worker and those with disabilities to achieve a safe, accommodating, meaningful and productive work environment for all working age adults. We understand the specific needs of workers, employers, trade unions, government, insurers, regulators and concerned community groups and provide independent, evidence-based advice to them for managing health risks in the workplace and environment.

OHNs are skilled in and collaborate with each other through our incorporated society in reviewing the latest medical and scientific evidence to ensure best practice in occupational and environmental health. We design and undertake education and training about workplace and environmental health risks and preventive programs.

Occupational Health Nurses are ideally placed to bridge the gaps between the workplace and the wider health service. We see our skills and knowledge as being essential to the effective management of the accelerated silicosis epidemic that looms large in New Zealand, and are confident that we will be an integral part of the success of the program that the dust diseases taskforce is advocating for.

OHNs advocate the RACP [Health Benefits of Good Work campaign](#), as it is in the best interests of workers, employers and the community.

Respiratory Conservation Programmes

OHNs perform many beneficial services and programmes in an attempt to promote and maintain employee health. One of these is assisting PCBUs and employees to implement respiratory conservation programmes.

Best practice and a requirement of AS/NZS 1715:2009 is to have a documented respiratory protection programme to ensure consistency, communicate and record expectations in regard to the use of respiratory protection, and to provide guidance. The standard contains requirements for program administration, worksite-specific procedures, respirator selection, employee training, fit testing, medical evaluation, and respirator use, cleaning, maintenance, and repair.

Such a programme would typically include:

- Appointment of a programme administrator
- Appropriate selection of RPE based on the nature of the assessed health risks
- Health screening of users of RPE to ensure suitability
- Training
- Issue of RPE
- Fitting of equipment (including appropriate fit testing)
- Conditions on when and where wearing of RPE is required
- Maintenance of RPE (including filter replacement schedule)
- Disposal of contaminated equipment
- Record keeping
- Program evaluation

OHNs specialise in coaching and mentoring business owners and employees to meet these standards and requirements. Successful implementation of these programmes requires experience, communication skills and adequate time resource capacity from both the PCBU and the programme coaches/OHNs.

Health Monitoring

National and international guidelines for the management of Accelerated Silicosis have a common theme in their guidance for pre-employment, during employment and exit employment health assessments.

The overall objectives of health surveillance in those exposed to respirable crystalline silica (RCS) are to:

- detect ill-health effects at an early stage; provide an opinion on fitness to work with RCS;
- provide data to help employers evaluate health risks so they can introduce better controls to improve worker protection;
- highlight lapses in workplace control measures, therefore providing invaluable feedback to the risk assessment; and
- give an opportunity for workers to discuss any health concerns relating to RCS exposure.

Initial discussions about a health monitoring program should include:

- possible health effects from exposure to crystalline silica
- how to recognise and report symptoms, and
- what is involved in the health monitoring program, for example the frequency of testing and the tests that may be needed, and
- recording any previous workplace or non-occupational exposure to silica.

Safe Work Australia Recommendations for Health Monitoring

At Pre-employment

Initial discussions about a health monitoring program should include [3]:

- possible health effects from exposure to crystalline silica
- how to recognise and report symptoms, and
- what is involved in the health monitoring program, for example the frequency of testing and the tests that may be needed, and
- recording any previous workplace or non-occupational exposure to silica.

An initial physical examination by the registered medical practitioner should place emphasis on the respiratory system, including baseline spirometry. The spirometry should be performed as a baseline and annually in accordance with appropriate quality guidelines, so that it may be used later for comparison.

A baseline chest X-ray should also be performed before a worker starts work in a crystalline silica process. [3]

During exposure to a crystalline silica process

Workers should undergo a medical examination annually. The medical examination should include:

- collection of demographic, medical and occupational history
- records of personal exposure
- physical examination

- standardised respiratory questionnaire and pulmonary function tests in accordance with appropriate quality guidelines, and
- chest X-Ray full posterior-anterior (PA) view (as indicated, see below).

The WHS Regulations prescribe an X-ray as a minimum, but another type of health monitoring may be undertaken where the registered medical practitioner considers it is equal or better. For high risk occupations and industries, such as the composite stone industry, a high-resolution computed tomography (HRCT) should be considered. X-rays are less sensitive in detecting accelerated silicosis.

At a minimum, if not HRCTs, annual X-rays should be considered for high risk occupations and industries, such as the composite stone industry.

- HRCT - If the worker's role involves a very high level of silica exposure (such as composite stone countertops) or a high level of silica exposure for over three years, then high resolution computed tomography HRCT should be used as a replacement or adjunct to X-ray
- DLCO - there may be a need to conduct more rigorous respiratory function testing. For example, incorporating measurement of the diffusing capacity of the lungs for carbon monoxide

Final medical examination

A final medical examination should be carried out when an employee exits the industry by the registered medical practitioner and may include:

- medical history
- physical examination
- spirometry
- referral for another chest X-ray or CT [3]

The clinical pathway (June 20th, 2020) points exposed workers toward the General Practitioners for initial and on-going health monitoring, including spirometry.

Issues with Performing Quality Spirometry in Primary Health

Alvarez et al [2], when discussing assessing for general/historic silicosis, promotes: "Spirometry is to be performed at the time of diagnosis and at check-ups for the evaluation of possible functional deterioration"

Recent studies have observed poor spirometry technique and interpretation in primary health and general practice settings in New Zealand, Australia and worldwide, namely implicating inadequate training, repeatability (the main quality measure of testing), interpretation and reporting.

The 2016 Monash Review of Respiratory Component of the Coal Mine Workers' Health Scheme [15] looked at spirometry performed by General Practitioners (62%) and Occupational Medicine Clinics (38%) in Australia. The majority were undertaken by GPs Registered (or practice) Nurses (77%). Less than half of the spirometry results evaluated for this review had been accurately interpreted and reported. Another 130 of the results submitted were essentially unable to be evaluated, including 4 that were illegible photocopies; 102 were of a quality too poor for interpretation (not repeatable).

The RACP submission to the Australian Dust Disease Taskforce [16] noted: "The lessons from the previous failures of the respiratory health monitoring system in the Queensland coal mining industry and the recommendations in the Monash review to improve this system need to be taken into account to ensure a national scheme which raises the standard of health monitoring in engineered stone works to an acceptable level. Such respiratory surveillance should be acknowledged as a key monitoring rather than a dust prevention measure, with an expected outcome of zero cases of severe disease."

David Robiony-Rogers, in his research review of Spirometry Education for New Zealand Health Professionals [17] notes “The need for formal training in the performance and interpretation of spirometry for primary care is required. Issues with the quality of spirometry performed by primary care practitioners has been demonstrated, however, Schermer concluded that spirometry testing in primary care is justifiable provided there is sufficient training of practice staff.”

NZOHNA is aware of disparities in adequate spirometry assessment and interpretation, and we currently developing best practice guidelines and reviewing the quality and frequency of spirometry training and update refresher guidance for our members. Realisation and understanding of the Accelerated Silicosis issue has accelerated our development of these comprehensive guidelines which are now almost completed and ready for promotion to our wider membership as part of our on-going peer review process and quality standard professional development. It will, however, take some time to roll out these improved processes to our 350 members.

We believe that, for now, limiting the performance of Spirometry to OHNs with demonstrated excellence in this task, in line with contemporary and recent guidelines, is important. Establishing a small group of OHN Dust Disease Specialists with proven experience and competence will achieve this and produce quality results which can be used as a solid baseline reference spirometry for all workers potentially exposed to RCS in the engineered stone industry.

Some workers diagnosed with AS have presented initially with no respiratory symptoms and with relatively normal spirometry results. This means that spirometry has been largely dismissed as a measurement for exposure to respirable crystalline silica (RSC). We appreciate that as a result, spirometry may not be useful as a diagnostic tool for this purpose. However, we remain concerned that exposed workers who do not meet the initial case finding triage or screening criteria may still go on to develop acute and chronic silicosis. Spirometry will remain a crucial indicator for the presence or early development of these forms of silicosis. Obtaining a repeatable, quality spirometry result is fundamental to any on-going health monitoring programme.

Kaufman discovered that nasopharyngeal exposure to silica particles significantly increased airway resistance temporarily [18]. However, there does not appear to be additional studies undertaken in humans to adequately assess any acute inflammatory effect on the bronchi and/or bronchioles in relation to short term silica dust exposures in relation to RSC. It appears that most spirometry testing in Australia and elsewhere performed in relation to AS has been undertaken in laboratories or medical practitioners office away from the workplace with a extended time periods between acute (daily work) exposure and the spirometry testing time.

In a study measuring spirometry on foundry workers in relation to silica exposure pre and post shift, Zarei et al [19] found that, after an 8 hour exposure to silica dust at a mean level of 0.25 mg/m³, “*The association of lung function parameters with exposures to silica dust was determined after adjusting for exposures to formaldehyde, and triethylamine... and revealed that there were significant associations between exposure to silica dust and FVC values before shift (P=0.034; β=-0.301) and after shift (P=0.023; β=-0.317). There were significant associations between exposure to silica dust and FEV₁ values only after shift (P=0.038; β=-0.295).*”

There is evidence that shows that there may be discernible differences in FEV₁ readings immediately post exposure for silica due to acute, short term inflammation of the airway tissues. This health measure can be used to ascertain likelihood of controls success for individuals and detect individuals who have a higher than normal sensitivity to RSC. Further research is required to understand this better, but there is real merit in undertaking spirometry during work time exposure provided a suitable quality baseline without confounding exposure has been undertaken as a comparison for the individuals, particularly due to the lack of evidence denying acute short term airway irritation and the ability to detect this.

Our Concern:

Spirometry must be undertaken at the workplace during routine work. It is a significant adjunct to ascertain effectiveness of control measures, individuals personal sensitivities and therefore of great

assistance in assessing over all long term risk through the detection of acute effect in the short term during or immediately after exposure to RCS in the workplace.

We believe that quality, consistent, best practice spirometry has a place in this programme, and should be undertaken as soon as possible with the least barriers to access, during the period of anticipated exposure to RSC, preferably in the workplace. It is a relatively non-invasive procedure that is well tolerated by employees.

The NZ- Dust Disease Taskforce Clinical Pathway For Accelerated Silicosis Case Finding

A clinical pathway has been developed to describe the facilitate movement through the internal public health system. The latest version is included in [Appendix One](#) of this document. The initial version of the pathway is included in [Appendix Two](#), along with subsequent updated versions in the following appendices.

Initial clinical pathways endorsed and put forward by the Occupational Health professionals was based on best practice observed overseas. It attempted to consider the nature of Occupational Health by addressing potential roadblocks and logistical issues with informing, monitoring and case finding.

The interface with the PCBU and its employees was planned to be undertaken by Occupational Medicine Specialist Physicians and Occupational Health Nurses, being the historical health providers for this cohort. This is reflected in the Australian experience and recommendations:

- RACP, AFOEM, and the TSANZ: Engaging of appropriately qualified and experienced medical personnel to provide strategic and operational advice concerning logistic and organisational responses to the epidemic [16].

The pathway has since evolved to focus on entry via an assessment with General Practitioners with Occupational Medicine only becoming involved after a number of criteria has been met.

NZOHNA Challenges to the WorkSafe Proposed Clinical Pathway - June 29th

The WorkSafe June 29th clinical pathway is inwardly focused and appears to have evolved to mainly (only) take into account the information required for ACC to form a diagnosis and cover costs for that process only. Its linear and non-holistic view fails to take into account assessment and care before, alongside and after the movement through the public health system.

Despite this being designated as best practice by a number of authorities, there is no mention or consideration of other occupational health monitoring recommendations such as:

- pre-employment
- complimentary care, (for persons not deemed to have met the pathway entry criteria due to their exposure levels)
- exit employment
- care/support for persons who choose not to present, or unable to present due to time/cost/fear/trust barriers at GP clinic. This needs to be undertaken at the workplace.

Our Concern:

- **There is no consideration for Occupational Health Monitoring to identify risk outside of the pathway**

Our Solution:

- **OHNDDS can accomplish this function by performing Health Monitoring at the workplace**

Pathway Step 1

A. Identify potential exposed person and encourage to visit GP

“A person at risk of developing accelerated silicosis from more than 12 months of work with engineered stone benchtops in the last three years should be encouraged to visit their GP to be assessed. The person may initiate the visit or be encouraged by family, a workmate, their employer or a member of a profession or relevant organisation (e.g. a WorkSafe Inspector, occupational health nurse or union). It is helpful if the person brings any relevant health monitoring records from work to the appointment.”

Barriers to Accessing Primary Health – General Practitioners

Appointment Lengths

Numerous barriers already exist for New Zealanders in accessing primary health care. The Association of Salaried Medical Specialists (ASMS) released a research brief on barriers to access to primary health care in 2019 [20], stating:

“Multi-morbidity is one of the biggest challenges facing health systems internationally as multiple disease care, not single disease care, becomes the norm in an aging society. A qualitative study of multi-morbidity clinical decision-making in New Zealand primary care, involving interviews with GPs and practice nurses, found the complexity of patients’ multiple conditions caused difficulty in managing care based on number of items on the patients’ agenda to be addressed in the time available. “All [GP and nurse] participants reported that lack of time ... was an issue in terms of not only addressing a multimorbid patient’s health needs, but also in communicating, prioritising, agreeing plans and endeavouring to get the patient engaged in self-management.” Similarly, a qualitative study involving interviews with New Zealand GPs about their use of ‘Green Prescriptions’ found “time constraints within the consultation was the only main theme that emerged regarding the barriers GPs perceived to Green Prescription use”

The complexity of understanding the effect of health on work and work on health adds to the time burden when consulting with General Practitioners. Unravelling this complexity and addressing the client in a holistic manner will take far more time than the constraints impinging on completing a green prescription.

The NZOHNA Accelerated Silicosis Project Group (NASPG) has trialled the use of the adapted Monash Questionnaire for Accelerated Silicosis (Appendix Eight –Silica Exposure Questionnaire) and found that, when used with a healthy person with minimal exposure to silica, that it took approximately 30 minutes to complete.

General Practitioners are under strain due to the current Covid 19 pandemic. Patients have demonstrated anxiety about visiting general practices in this time, and also feel averse to burdening GPs with chronic complaints when they are busy dealing with backlogs created during the lockdown restrictions. These are further barriers to accessing GPs.

Our concern:

- **That there will be inadequate time made available at GP appointments to collect the required amount and quality of previous exposure history.**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**
- **That there may not be enough time in the GP appointment to provide the initial health related education re pathway, disease, effects and progression.**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

Delays in Accessing GP Appointments

In the proposed pathway, it is expected that exposed workers will need to attend up to 5 GP visits. We have concern around the availability of access to GP clinics in a timely manner.

Table 4: Appointment availability, by DHB

Survey question: When you ring to make an appointment, how quickly do you usually get to see...	Timeframe	DHB Mean	Lowest DHB	Highest DHB
your usual GP?	Same or next working day	37%	14%	57%
	Within a week	86%	47%	97%
	Over a week	14%	53%	4%
another GP at your clinic?	Same or next working day	65%	21%	79%
	Within a week	95%	60%	98%
	Over a week	5%	40%	2%
a nurse at your clinic?	Same or next working day	70%	44%	80%
	Within a week	98%	88%	100%
	Over a week	2%	12%	< 1%

Table 2 2020 survey on patient wait times to see their GP

This table shows that there may be a cumulative wait of over 5 weeks waiting for appointments in the worse-performing DHBs for 53% of employees referred through this pathway [21].

Our Concern:

- **There may be 5 or more weeks of additional waiting times for employees accessing GP services**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

Continuity of Care with General Practitioners

It is possible that there will be a loss of continuity in care with the need to access GP services multiple times. It is becoming more uncommon in New Zealand now that a patient will not see the same GP at every visit. On top of this, locum services are heavily relied upon in the NZ GP context. The pressure to offer increased access, the loss of personalised GP lists, the multiplicity of different providers (including new online GP services), the increased workload facing an overstretched workforce, and growing numbers of healthcare professionals working less than full time have all contributed.

Continuity of care is the single most important factor in delivering safe, cost-effective, and high-quality care, with fewer errors. Any anxiety, particularly when an undesirable diagnostic outcome is possible, is magnified when a level of rapport through continuity cannot be established. This in turn becomes another barrier to accessing the health service in this way.

Our Concern:

- **Lack of continuity of care with GPs may result in a poor outcome for exposed workers**

Our Solution:

- **OHNDSS can overcome this deficiency by performing Health Monitoring in the workplace with a small group of well trained, peer reviewed Health Professionals practicing consistently**

Cost as a Barrier to accessing GP Services

In 2017, the right honourable David Clark MP stated that over half a million people did not visit their GP solely because of the cost. Considering that it is likely that exposed workers will be in full time employment, many will be visiting their GP in the weekend and incurring extra charges. Many GPs charge an ACC surcharge or gap charge, meaning the cost of a single GP visit in New Zealand, even with ACC support, can be as much as \$80 per visit for non-registered patients. Some of these visits, particularly the initial visit, could require a double booking to allow enough time to be properly assessed. For 5 visits this could be over \$700.

Our Concern:

- **Costs of visiting GPs will be a barrier to access**

Our Solution:

- **OHNDSS can overcome this deficiency by performing Health Monitoring in the workplace**

No Incentive or Motivation to Visit GP

If there is no health profession available to exposed workers to discuss their choices, potential outcomes, fears and concerns, some will choose not to proceed to seeing a GP at all, preferring to remain in denial. OHNs see this issue all the time, and again, are experts in assisting employees with navigating health services. We understand the barriers, real or imagined, that people put in between themselves and seeking health care, and believe strongly in allowing employees to make informed decisions and choices about their health care.

Our Concern:

- **Some people will not visit a GP at all out of fear, false beliefs and misinformation**

Our Solution:

- **OHNDSS can overcome this deficiency by performing Health Monitoring in the workplace**

Limited Time to Prepare General Practitioners

GPs only have 2 weeks to digest and give feedback to the NZ-DDT prior to the early September 2020 start date when the WorkSafeNZ Inspectorate plan to undertake their second round of PCBU visits, where they will begin to encourage exposed workers to access entry to the clinical pathway through their GP.

Our Concern:

- **OHNs and Occupational Medicine Specialists are already trained and experienced to perform the functions that GPs are being asked to accommodate in addition to their normal workloads**

Our Solution:

- **OHNDSS can overcome this deficiency by performing Health Monitoring in the workplace with a small group of well trained, peer reviewed Health Professionals practicing consistently**

Access to Previous Health Monitoring Data

PCBUs may hold reports indicating results of previous health exposure monitoring, but not the detail that will be required to assess exposure and prior symptoms that is outlined in the respiratory questionnaires and full spirometry results previously obtained by OHNs.

OHNs do offer employees copies of their results, but the vast majority of employees decline this and prefer that the OHN maintains custody of them.

The GPs may not be aware of how these records can be accessed and by whom without undertaking relatively time-consuming administrative work. If appropriate consent is not obtained at the first visit, this process can take even longer and become frustrating for the GP. Occupational Health Nurses deal with this issue of records being held in a variety of formats (paper and electronic, or hybrids of both) and are able to access these in an efficient manner.

If the exposed worker does not or cannot obtain these prior to the initial GP visit, there will be delays and barriers in decision making regarding progression into the pathway, in turn creating more barriers to accessing the pathway itself.

Our Concern:

- **Previous work-based health monitoring records will not always be readily available to GPs, they may not know how to access them and the thought of accessing these may not even occur to them**

Our Solution:

- **OHNDSS are well aware of the importance of this information, and have the ability to access, collate and forward this information on to clinicians in an appropriate format**

Our Concern:

- **It will be preferable for the initial clinical decision maker (GP) to have access to previous exposure monitoring results prior to the initial visit from the exposed worker.**

Our Solution:

- **OHNDSS are accomplished navigators of the Occupational Health System and can easily accommodate this function into their service, providing clinicians with the information required to make sound judgements**

Our Concern:

- **Most small employers do not engage with formal EAP services, and access to these services may not be readily available through the workplace**

Our Solution:

- **OHNDDS are accomplished navigators of the Occupational Health System, and can research and direct exposed workers to the right services according to their assessed need**

Pathway Step 2

B. GP / Medical Practitioner visit and initial assessment

1. *The person discusses health and/or exposure concerns with GP.*

Occupational and Non-Occupational Exposure History

The initial Monash Questionnaire proposed for the New Zealand Dust Disease Taskforce is based on best evidence practice in Australia and has been implemented in each of their territories as a result, with good effect.

The Royal Australian and New Zealand College of Radiologists (RANZCR) “supports raising general awareness amongst community and hospital health care providers of the importance of including information about occupational and non-occupational exposures associated with an increased risk for lung disease in the clinical details provided on referrals for imaging.” [22]

The Royal Australasian College of Physicians, in conjunction with including the Australasian Faculty of Occupational and Environmental Medicine and the Thoracic Society of Australia & New Zealand, released a joint submission to the National Dust Disease Taskforce (Australia) [16]. In here they are recommending that the development of a nationally endorsed, consistently applied, exposure history questionnaire occurs.

A questionnaire was developed for Australian clinicians assessing for AS, was further developed for the New Zealand environment and proposed to the NZ Dust Diseases Taskforce. It is included in this document on page 64, Appendix Eight –Silica Exposure Questionnaire.

We consider this to be a best practice approach and acknowledge that significant knowledge and understanding of occupational health issues has been incorporated into it. It is meant to be used in its entirety, and under the supervision of a qualified occupational medical specialist.

The questionnaire has been split into 3 parts to fit the proposed clinical pathway process:

- 1) A downloadable form with a simplified occupational history section for the employee to complete on their own and bring to the GP
- 2) A section on the clinical assessments for the GP to undertake in the initial clinical visit
- 3) A fuller section on occupational exposure history for the ACC case manager to complete with the exposed worker over telephone with interpreter support where necessary.

Assessing exposure concerns in a holistic way from a health perspective requires a fundamental understanding of the physical aspects of the workplace, the culture and the nature of the work being undertaken there. This process requires specialist understanding of workplaces. As far as we are aware, there will be no workplace visits undertaken by the GPs. It takes time to clearly articulate the roles and functions that an individual performs in their workplace. There may be inadequacies in this data collection, particularly if the exposed worker/patient has not prepared to explain this.

OHNs are specialists in assisting employees navigate the health system and obtain desired and acceptable outcomes in relation to their work. OHNs are skilled in bridging the knowledge and understanding gaps that exist between primary and secondary health professionals perception of a workplace and the reality in relation to the actual exposure, injury or illness that exists there, allowing the practitioner to take these into account when making care decisions with their patients. We are the interpreters, the eyes and ears of the primary health services.

We know that there will be gaps in the data collected and the data that is needed to make clinical and referring decisions due to the sheer amount of work we do in facilitating this need on a daily basis. OHNs have templates and checklists to use when assessing workplace culture, physical conditions, roles and tasks to quickly assess and interpret these into 'clinical' language that can be quickly and easily understood by clinicians.

Our Concern:

- **With no Occupational Health Professional visiting the workplace, there will be incorrect interpretations of conditions, culture, roles and functions that are occurring in that workplace, leading to uninformed clinical decision making, re-work and lost time**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

Our Concern:

- **It will often take the entire initial appointment time for a General Practitioner (having not seen the workplace) to reach the required level of understanding of the workplace alone to make a referring decision, let alone undertake any other assessment**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

Where language barriers exist within a workplace, there is almost always a person who can communicate and interpret for that employee. Using a person with knowledge and experience in the industry, the workplace and knowledge and understanding of the hazards and controls in place will result in higher quality data being obtained, more efficient communication of work related concepts and does not add cost to the process.

Demonstration of concepts by face to face meetings in the workplace is one of the most effective way of communication. This cannot be achieved remotely or by telephone.

Our Concern:

- **The best method for ascertaining quality information about exposure and occupational history will be obtained at the workplace, where interpreter skills can be easily obtained**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

Asking exposed workers from the same workplace to attend multiple GPs, with no health-related referral or documentation to explain the workplace context to accompany them, will result in separate GPs duplicating work of their colleagues. This process will waste time of GPs and place more burden on our primary health system. OHNs already understand how and have the tools to undertake and communicate exactly these types of assessment in an efficient manner that will be cheaper for the finding authorities and provide more consistency and a higher level of data quality.

OHNS are not under the same time pressures as GPs when they visit a workplace and interview/assess an employee. They do not have patients waiting outside the door to see them creating pressure to hurry through the appointment. When this process is undertaken in the workplace, employees waiting can continue working until the OHN is ready to see them. It is a very efficient method of deploying health services which does not

put pressure on the employee to ‘get everything out’ in a limited amount of time. Being in their own workplace puts them at ease as they are in familiar surroundings. This helps to remove another layer of psychological barrier, allowing for information to flow in an informal manner freely. This in turn results in high quality, comprehensive data collection— data that is needed for clinicians to make fully informed care decisions.

Our Concern:

- **GPs are not experts in workplace assessments, and will have to take extra time or be forced to collect inadequate data if time limits are restricted due to their caseload**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

2. *If the accelerated silicosis exposure threshold is met, GP completes initial assessment with the person. If health concerns, GP assesses as per usual process.*

Exposure threshold for entry into the pathway is: The employee has had more than six months of work with engineered stone benchtops in the last ten years

To be complete, exposure must include at least an understanding of the following industries:

- excavation, earth moving and drilling plant operations
- clay and stone processing machine operations
- paving and surfacing
- mining and mineral ore treating processes
- construction labouring activities
- brick, concrete or stone cutting, especially using dry methods
- abrasive blasting—blasting agent containing >1% crystalline silica
- foundry casting

Do GPs have an understanding of how control measures are implemented, hierarchy of controls, local exhaust ventilation, wet handling methods of product, cleaning and disposal practices of dried slurry, an understanding of different types of RPE and the issues with fit and compliance (shaving, comfort, heat, availability, proper storage, filter change regime) to make an informed decision re exposures to silica dusts?

This type of assessment is well within the scope and practice of Occupational Health Professionals.

Our Concern:

- **There will not be enough time in a GP appointment to fully explore and understand the level of exposure to permit entry into the clinical pathway for all employees who meet the threshold**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

3. *Obtain the persons consent to agreed actions. Consider any psychological support needs (e.g. workplace employee assistance programme where available), complete initial physical examination*

Psychological support:

There will be no person visiting the workplace who can assess against the K10 stress questions (or alternative basic psychological assessments) that were included in the original Silicosis Questionnaire. There may not be time for the GP to go through these with the exposed worker at their initial appointment, and even so, those who do not present will not be assessed.

Will this cohort miss the assessment for psychological impact and the necessary referral and guidance?

Our Concern:

- **There will be no, or significantly delayed, assessment for signs of not coping, stress levels, depression and anxiety (mental wellbeing)**

Our Solution:

- **OHNDDS can overcome this deficiency by performing Health Monitoring in the workplace**

A requirement of the Person Conducting a Business or Undertaking (PCBU) under the Health and Safety at Work Act is to ensure safety to all at work and monitor health for known risk exposures, specifically;

The PCBU has the 'primary duty of care' to ensure the safety of workers and anyone affected by its work.

The PCBU must (as far as reasonably practicable):

- Provide and maintain a workplace that is without risks to health and safety.
- Provide and maintain safe plant and structures and safe systems of work.
- Ensure the safe use, handling and storage of plant, structures and substances.
- Provide adequate facilities for the welfare of workers.
- Provide information, training, instruction, or supervision that is necessary to protect all persons from risks to their health and safety arising from work.
- Monitor the health of workers and the conditions at the workplace for the purpose of preventing injury or illness.

Extracted from: Primary Duty of Care First Edition, April 2016 WorkSafe. Sitesafe.org.nz

Many small PCBUs do not provide EAP services to their employees due to cost being a limited factor when considering practicability. Considering the potential significant mental health impacts that going through an extended period of diagnostic process (Clinical Pathway), an experienced health navigator is required at this step to help PCBUs identify appropriate psychological and mental health & wellbeing support services. Consideration should be given to funding a national service with the capacity to address this specific issue as and when it arises.

There are many likely triggers in this process for stress and anxiety at home, including potentially having to seek alternative employment in the post Covid-19 environment, family at home coping with a newly diagnosed unwell family member, the stress of waiting, sometimes for months, to progress through pathway, anxiety about symptoms..

Alveraz et al [2] "A diagnosis of silicosis has a profound impact on the social and working life of a patient, since, unlike other diseases, it rules out any chance of continuing to work in jobs with a risk of silica exposure irrespective of functional involvement"

This must be addressed for many reasons. The health and wellbeing of the individual must be maintained. Stress and anxiety could cause withdrawal from the pathway. Unchecked, these issues will grow to burden the primary and secondary health systems.

Support for others in and surrounding the workplace should be considered also. There is potential for family issues in going through grief and change processes. Support for the PCBU as a whole is important, including the employer and managers. We can imagine if the work these people asked their staff to undertake over the last 10 years has the potential to lead to significant disability or death, that this will also create significant mental burden for these people.

Our Concern:

- **Access to adequate EAP and mental health support services at the workplace for families, individuals and the workplace as a whole need to be explored and funded**

Our Solution:

- **That consideration be given to nationally funding mental health support services. Otherwise OHNDDS are skilled navigators and communicators of health services, and can direct employees and PCBUs to these as necessary**

Complete Initial Physical Examination:

There are a number of best evidence medical examinations and discussion points that are required to make a sound clinical decision on progression into the clinical pathway.

Of particular note, there is no allowance within the pathway to assess and discuss proper respiratory protective equipment (RPE) use, storage and cleaning, or whether any form of respiratory conservation programme is implemented or evaluated from an occupational medical point of view.

As OHNs, we see unsafe use and poor understanding of RPE across many industries. If this is not addressed as soon as possible in the medical assessment process, there is risk of continuing contamination and elevated exposure to RSC to the employees, even if Exposure Monitoring shows that the WES limits have been achieved.

Proper assessment of the RPE used must include an assessment of the employees understanding of at least:

- Appropriate selection of RPE based on the nature of the assessed health risks
- Health screening of users of RPE to ensure suitability
- Training
- Issue of RPE
- Fitting of equipment (including appropriate fit testing)
- Conditions on when and where wearing of RPE is required
- Maintenance of RPE (including filter replacement schedule)
- Disposal of contaminated equipment
- Record keeping
- Program evaluation

We are not satisfied that these issues will be evaluated at all in this process. This discussion process alone may take 15-20 minutes and we do not see that GPs will always have the knowledge and skills, let alone the time, to undertake this type of assessment. Again, this is a basic function for Occupational Health Professionals.

Our Concern:

- **Evaluation of the understanding and effectiveness of the respiratory conservation efforts in the workplace by the employee will not be assessed, and will lead to continuing exposure to dangerous levels of RCS**

Our Solution:

- **OHNDDS have the knowledge and skills to implement effective Respiratory Conservation Programmes to the required AS/NZ standards in partnership with PCBU's**

Adequate Physical Examination should include at least assessment of:

- 1) Height
- 2) Weight
- 3) BMI
- 4) Blood Pressure
- 5) Heart Sounds
- 6) Pulse rate and Peripheral Pulses
- 7) Absence of evidence of cardiac failure/oedema
- 8) Chest Expansion

Examination for and Questions about:

- 9) Arthritis / Painful Swollen Joints
- 10) Anxiety/ Depression
- 11) Auto immune conditions (such as lupus or scleroderma)
- 12) Kidney or Bladder Problems
- 13) Neurological Problems
- 14) Heart Problems
- 15) Skin Problem
- 16) Tuberculosis
- 17) Headaches/Dizziness
- 18) Irritations to mucosal membranes ENT
- 19) Respiratory disorders
- 20) Confounding COPD exposures – Welding, flour etc
- 21) Have you had any test or seen any specialist?
- 22) Clean Shaven
- 23) Normal Dentition
- 24) Normal Face Shape
- 25) Clinical features of Raynaud's
- 26) Clinical features of scleroderma
- 27) Clinical features of small joint arthritis
- 28) Satisfactory personal hygiene (for example nail biting, frequency of hand washing)
- 29) Respiratory Questionnaire
- 30) History of Past Illness (important for imaging reporting)
- 31) Previous Chest Trauma
- 32) Basic stress/anxiety assessment
- 33) Complete Exposure History (required for pathway entry decision)
- 34) Smoking evaluation (important for imaging reporting)
- 35) Smoking Cessation opportunities and advice

It is well known that the methodology of interview when completing respiratory questionnaires can influence the responses given by the subject. Adequate training and experience must be given to persons performing these (and other) questionnaires requiring subjective answers. Full instructions included in appendix 10, and a stand-alone Respiratory Questionnaire example is given in Appendix 9

Similarly understanding the work people undertake and how the controls are managed (or mis-managed) in workplaces is of high importance when making decisions on the quality of the data collected, its usefulness and the need to investigate further. Woods and Yates [18] note

“Diagnosis of a work-related condition requires a detailed understanding of any exposures and their health effects, usually conducted by an occupational physician or others with expertise (e.g. occupational nurses or hygienists).”

We have real concerns that all of these interview and assessments can be achieved to a high quality in a standard appointment with the GP. We do not believe that they could even be covered in a double appointment. Even if the employee has completed a questionnaire for these items prior to the appointment, they will all need to be thoroughly re-visited as we know, from many years of experience, that employees do not always understand the reasoning behind and therefore the intent of the questions. This leads to improper or inadequate answers that always need to be individually challenged.

There is no other opportunity to undertake these examinations and questions to occur prior to a decision being made as to whether the employee may progress through the pathway, as the same step requires a clinical decision to be made regarding ACC claim lodgement.

Exceptions to pathway entry may need to be flagged if any of the above anomalies or other significant RCS exposure events are identified in the exposure history. They are all necessary to properly understand the potential for developing Silicosis.

Our Concern:

- **GPs have different levels of understanding of workplaces than OHNs, and it is perceived that many will need to upskill in order to perform this assessment to the depth that is needed to make sound clinical decisions regarding progression into the clinical pathway**

Our Solution:

- **OHNDDS already possess in depth knowledge of workplace culture, practices and role exposures and how to assess and document these**

There are over 2,000 General Practitioners practicing in New Zealand. There are only 500 - 1000 potentially exposed workers. Some GPs may never see an exposed worker, other may only see 1 present at their clinic. We believe that taking the time and effort to read and upskill to address the emerging accelerated silicosis issue, IE perform the above examination and questioning to the degree required, as a huge barrier to GPs – why put the time resource, which is already constrained, into training/learning/upskilling for AS assessment if the chances of seeing an exposed worker are small?

Our Concern:

- **There is a high likelihood that standardisation/continuity of initial assessment across the whole GP profession to undertake the most important initial examination which determines entry to the pathway performed fully, consistently and correctly completed across the entire country will not be achieved within the designated time period**

Our Solution:

- **OHNDDS already possess and practise these skills on a daily basis in their normal work**

4. Lodge ACC claim if evidence that exposure threshold is met

There is a good chance, that if exposure levels are not fully assessed, that this will be the end of the claim for the exposed workers even if they meet the thresholds.

If exposure threshold is not met, or ACC claim is denied:

Person advised to talk to employer, union or see WorkSafe website about any workplace concerns.

Understanding workplace exposures is not straight forward. We believe that clinic assessment time and inadequate levels of knowledge of workplace routines, cultures and practices will create situations where people who have AS will not be put forward for further investigations.

This in turn will lead to persons remaining undiagnosed, and ignorant of their health status. There will be persons who will not be able to make informed decisions about continuing exposure and the health effect of this, and that this will lead to increased morbidity and mortality from the condition. The unnecessary disability and loss of life that is being risked is untenable.

These people will return to work, and to the continued unacceptable exposure levels.

Any disease present will progress in relation the accumulating lung burden.

It is up to the PCBU to arrange for appropriate health monitoring under the HSW act. The GP has not been asked to undertake any baseline spirometry or other testing relevant to AS diagnosis at this point. For those who have not had any full respiratory questionnaire and spirometry undertaken previously in the workplace, there will be no baseline to measure against in the future.

It may be several months to a year or more before adequate Occupational Health assessments are made for these people.

This is unacceptable.

Our Concern:

- **Exposed workers with AS will not progress into the clinical pathway as they should**

Our Solution:

- **OHNDSS will, through having access directly to the workplace, be in a position to provide education and knowledge required for the exposed employees to make a fully informed decision about entry into the pathway, expected outcomes and timeframes**

We believe that all persons who work with Engineered Stone should be put onto an exposure register because they are going back to work in an industry where there is always potential for exposure to RSC. The transient nature of workers in low skilled employment means that tracking them will be difficult for follow up.

Our Concern:

- **All workers in the engineered stone industry, past and present, have potential for unacceptable exposure and should be captured in a confidential register**

Our Solution:

- **OHNDSS are skilled in health exposure assessment, and can put forward valid exposed employees who sit marginally outside of the case finding pathway entry criteria along with appropriate supporting clinical findings**

Pathway Step 3

C. ACC initial assessment

1. Review case.
2. Contact the person to discuss their claim. Obtain relevant work and non-work exposure history using the questionnaire from the person.

If this is not collected thoroughly before the GP visit, we fail to see how the exposed worker even makes it to this step. The GP may not progress if exposure history is incomplete.

3. Confirm accelerated silicosis exposure threshold is met. Check consent.
4. Issue cover decision or request GP to make a further appointment with client and provide authorisation for silica investigations.

A second visit to the GP. There are enough barriers to the initial visit let alone a second visit. What if consent is not given to enter the pathway at this point? – how will these persons be followed up, re-assessed and given other opportunities to re-engage after taking time to consider their decision not to consent.

Pathway Step 4

D. GP / Medical Practitioner visit and follow up assessment

1. Complete follow up clinical examination with the person (including desktop spirometry). If health concerns, GP assesses as per usual process.

As discussed earlier (Issues with Performing Quality Spirometry in Primary Health, Page 17), there are identified quality control issues with some spirometry undertaken in primary health settings in New Zealand.

Pathway Step 6

F. Occupational Medicine assessment (as needed)

2. Full history and examination of the person.

This needs to be completed for every potentially exposed worker, not only for those who have made it to this step. This will be the first time that full history and appropriate AS specific examinations have been made by an Occupational Health Professional.

Radiology Requirement for a Complete Occupational and Exposure History

It is difficult to understand why this step is so far down the pathway, especially as this information will be required for the diffusing capacity of the lungs for carbon monoxide (DLCO) and high-resolution computed tomography (HRCT)/Chest X-Ray report writers in order to fully understanding the imagery they have undertaken, and therefore formulate informed opinions. The Royal Australian and New Zealand College of Radiologists, in their October 2019 report in AS, note that chest x-ray and referral without occupational history is likely to result in false negative interpretations [22]

Our Concern:

- **Facilitation of early visitation of occupational health professionals will provide a holistic view of the workplace and the exposures, and assist other Health Professionals in the pathway make informed clinical decisions**

Our Solution:

- **OHNDDS are available to the workplace and are able to direct exposed employees into the pathway, and through communication with, be in a position, through communication and co-ordination, to maximise efficient engagement with Public, Primary and Secondary Health services, avoiding overload of those services.**

- 2) *Occupational Medicine or other relevant clinician provides feedback to WorkSafe on employers needing further support and advice to effectively manage risks to workers from working with engineered stone benchtops.*

This step may be several weeks or months into the process for many exposed workers. Decisions and recommendations made by Occupational Health Professionals on effective risk management should be facilitated to occur in the primary steps of this process. It is inexcusable that these recommendations are held back this far and that this decision will allow for potentially months of unacceptable exposure to RCS, in turn potentially exacerbating morbidity and potentially mortality rates.

Our Concern:

- **Obtaining Occupational Medicine recommendations and advice on mitigating exposure and managing exposure risks as soon as possible after entry into the pathway is fundamental in reducing harm of AS**

Our Solution:

- **OHNDDS will be able to provide guidance that supports the inspectorate guidance on control mitigation directly to the PCBU and its employees as a function of the site visits to support maximum harm reduction**

Additional Issues Outside of the WorkSafe Proposed Pathway

Incidental or Indirect Exposure

We do not see how this pathway processes the exposure to other persons operating in the work environment, or even how this will be addressed within the chosen case entry definitions and criteria. For example, how well are office staff, visitors, cleaners, managers isolated from dust and slurry. Who will interview these people and assess their potential exposure and mental wellbeing from an occupational medical perspective?

Our Concern:

- **Opportunities to explore and assess for exposure and related issues to persons other than the exposed worker have not been addressed by the most recently proposed pathway**

Our Solution:

- **OHNDDS can easily incorporate these investigations into their practice and incorporate these people through supported intervention with their informed consent**

Workers Who Choose Not to or Cannot Engage with the Pathway

Exposed workers may choose not to or otherwise be prevented from engaging with the clinical pathway process. This does not mean that they should be excluded from assessment and making an informed decision on their choices.

There does not appear to be a robust method for ensuring ongoing contact, monitoring and care for employees with latent disease who pass initial screening, other than to be followed up by GPs. We see accounting for this as an Occupational Health Professional role.

A national register of exposed workers will need to be maintained for this. At present, we understand that Monash University will undertake custody and maintenance of a register to identify exposed workers who progress through the pathway, but this will miss those who, for whatever reason, do not or can not enter the pathway at all.

Exposed workers who do not meet the initial requirements for entry (progression past first GP visit) will not be identified and therefore may not be contactable at a later date to engage in further opportunities to continue to monitor their health in relation to AS or other forms of silicosis that may occur as a result of lesser exposure burdens.

Our Concern:

- **That a register is maintained of all exposed workers, not only those who are diagnosed with AS, to allow for monitoring and contact into the future**

Our Solution:

- **OHNDDS can collect this information and store this in a confidential & secure manner in accordance with relevant privacy and disclosure regulations until a national register is available**

When approached by the regulator, PCBUs may have fears of doing something wrong that can result in prosecution. This can lead to poor communication, becoming mis-informed and not understanding the issues.

We see the need for a no-blame communication function to be in place where PCBUs can freely discuss their concerns and issues. OHNs are in the position of being a trusted profession that PCBUs feel that they can confide with in confidence. This means that communication has a higher chance of occurring freely and without

bias or discrimination, allowing occupational health staff to become a sounding board and a conduit for relevant information to flow back to the regulator.

There is risk that employers who are fearful of WorkSafe may take inaction due to risk of prosecution or misunderstanding the intent of project. There is also risk that the PCBUs may not put forward or encourage employees into the pathway, or at worst may even discourage them in some cases, due to fear of reprisals.

The only way to mitigate this is with a well-informed occupational health professional to act in an advocating role between the PCBU and the regulator. This is further mitigated by conveying understanding through information and education delivered with understanding, sensitivity and compassion.

Our Concern:

- **That fear (real or not) of the regulator will inhibit free communication and may impede entry into the pathway for some exposed workers.**

Our Solution:

- **OHNs are trusted medical professionals. By having direct access to workplaces, meeting PCBUs and exposed workers on their own terms in a culturally safe, private manner, we find that these barriers can often be easily negotiated and broken down**

Exposed Workers No Longer in the Industry

We appreciate that the current focus is on identifying and assessing those currently in the engineered stone industry. However, we would like to acknowledge that further work needs to occur to identify those who have left the industry for whatever reason.

As found, their PCBU will not be required to fund their health monitoring under the present legislation. OHNs are in a good space to find these people as they work with other non-associated PCBUs nationally performing health monitoring. Questionnaires can be readily altered to include RCS exposure questions to identify previously exposed workers and appropriately refer them into the pathway.

Our Concern:

- **General Practitioners will not have direct access to PCBUs to ascertain contact details of those exposed workers who have left the PCBU, and this function would require additional administration time in contact tracing**

Our Solution:

- **OHNs are well placed nationally to find previously exposed workers who have now left the industry and will have direct contact with PCBUs**

Quality of health monitoring and spirometry is maintained and barriers to access for these services must continue to be avoided. This should be undertaken for persons who do not meet initial pathway entry criteria, or those who exit the pathway process before, during or after pathway/case finding process is over. Silicosis can have a 30-year progression and we believe that monitoring for exposed workers should continue in some form regardless of their initial pathway experience.

Changing employment to another employer outside of the engineered stone industry raises questions around who is responsible for the cost of health monitoring. Regardless of who is accountable, we believe that exposed workers should be entitled to on-going health surveillance relative to the expected disease timeline at no cost to themselves.

Our Concern:

- **All exposed workers should have funded access to quality health monitoring in relation to silicosis throughout at least a 30 year period beyond their initial exposure to engineered stone fabrication and RCS.**

Our Solution:

- **OHNs, as custodians of secure health information collected from employees, have systems in place to ensure continuity of record keeping and care, and understand well the obligations under the relevant legislation**

Future/Emerging Dust Disease Issues

We are slowly becoming aware of other new occupational dust exposures that can have a significant health impact. Erionite and Titanium Dioxide are emerging lung hazards and may result in serious conditions similar to AS. We wish to acknowledge that a similar solution set as the one proposed in this document can be readily adapted to apply to these as and if required once the implications become understood and warrant this level of intervention.

Our Concern:

- **A similar 12 month delay could occur with any similar emerging occupational health crisis**

Our Solution:

- **By maintaining good quality controls, feedback process and constant refinement (using nursing process) OHNDDS will be able to create a robust model for case finding and care that can be modified and adapted to future events with minimal resource**

Timeframes for Action

WorkSafe beginning their promotion of the AS clinical pathway to PCBUs in a second round of visits in early September.

Consequence of delays

Health Sector Resources Required if we Fail or Delay

In Australia, many of these workers have been diagnosed with a rapidly progressive form of this disease which leads to early death or lung transplantation. This creates an additional demand on limited and expensive health resources.

The average social cost due to loss of life/permanent disability in New Zealand is \$ 4,865,300 per injury.

The average per year cost of loss of life/permanent disability is \$184,216 per year = NZ social burden cost of premature death. If a death occurs at 35 years of age, 30 years of lost working life creates a societal burden cost of \$5,526,480.00 (\$5.5M)

With 220 – 560 people potentially waiting to be diagnosed with AS in New Zealand, we only have to prevent one significant exposure case early with a gold standard process to cover the costs this project.

Data and Records Management

National Registers

A national register has been established in conjunction with Monash University in Australia to record all exposed workers who have been diagnosed with Accelerated Silicosis.

However, there is no register in place to track movement, and therefore ensure on-going assessment, of all exposed workers. As any exposure above the Workplace Exposure limit of 0.05mg/m³ of respirable crystalline silica may contribute to an accumulating lung burden and therefore potentially future development of silicosis, thought must be given to the establishment of a register for all past, present and future workers in the engineered stone industry.

As part of the admission to this register, appropriate medical assessment, including baseline measurement and observations, should be undertaken to allow for comparison with annual or other health monitoring.

Occupational Health Records – Project Meerkat

Cost of a solution (Cority as example) to collect and store OH data related to the AS situation in NZ~

Annual SaaS User licence inclusive 67 Full Access Medical Users, 2 Admin User, ~1000 employee/patient User and 20 – 30 Specialist User

\$305,264.00

Implementation of COTS solution inclusive, training, configuration, creation of workflow and template plus reports

\$301,400.00

Proposed Solutions from NZOHNA

Solution 1 – OHNDDS

8 OHNDDS group trained and upskilled in a 2 day workshop in collaboration with Occupational Hygienists, Worksafe Inspectorate, Occupational Physicians, Public Health experts and other allied Occupational Health and Safety Professionals.

Meet all identified exposed employees at their workplace systematically throughout the country, ensuring high quality control over testing and data collection, consistent messaging and thorough assessment.

Entry Criteria for OHNDDS Group

NZOHNA proposes that the following minimum level of competency or expected level of skill and knowledge be demonstrated in order to qualify for the OHNDDS programme.

Experience in Practice - Occupational Health

- Current practicing certificate as an RN or EN, valid in New Zealand
- Demonstrates level 2 (proficient level of practice) as defined by the NZOHNA knowledge and skills framework as an established Occupational Health Nurse
- Over 5 years practicing as a clinical OHN within the last 10 years
- Holds or is working towards a recordable OHN postgraduate qualification or on pathway to NZQA level 8 and/or
- Demonstrates developed skills in the field of occupational health and safety practice including risk assessment.
- Has a strong current knowledge of key issues, evidence in the field and is establishing an in- depth knowledge of occupational health and safety

Refer to Appendix Eleven – NZOHNA Skills and Knowledge as Applicable to OHNDDS

Competent in Respiratory Care

- Meets relevant competencies as outlined by the respiratory knowledge and skills framework for all registered nurses in New Zealand.
- Displays competent nursing knowledge of respiratory physiology, pathology, respiratory assessment and health promotion
- Proficient level of knowledge crystalline silica exposure and associated diseases

Refer to Appendix Twelve – Adult Respiratory Nursing Knowledge and Skills Framework as Applicable to OHNDDS

Competent in Spirometry

Provides evidence of the following:

- Initial spirometry training with a recognised provider and refreshers at least every 3 years following.
- Frequent spirometry assessments as part of an individual's routine nursing practice
- 10 competent spirometry print outs from a variety of dates peer reviewed

NZOHNA Membership

- Must be a current member of NZOHNA

Other (non-clinical) Requirements

- ACC Registered Service Provider preferred
- Current Indemnity Insurance
- Laptop with independent internet connection (not WiFi reliant)
- Current NZ drivers' licence
- Ability to attend 2-day training workshop
- Moderate data entry skills (spreadsheet, online form)

Travel Availability:

- Must be available for project work at least 2 days per week, negotiable but preferred
- Must be available to travel/fly nationally
- Must be available to stay overnight up to 2 nights per week for regional visits
- Permission or self-directed ability for release from current work, caseload or workplace

Equipment Requirement

Equipment requirements - must be able to supply:

- Spirometer (preferred compatibility - ndd Easy On, Easy One) - Any others that can accept GLI tables
- Can print spirometry results on A4 paper or save as PDF without need for scanner/copier access
- 3L Calibration Syringe and Spiro connection desirable
- Stethoscope
- Blood Pressure cuffs - various adult range of sizes
- Calibrated Scales
- Tape Measure

Initial non-clinical Preparation Phase

1 day education session/workshop for group of 8 specialised Dust Disease Specialist OHNs (OHNDSSs)

Training Workshop Content:

- Introduction to AS
- Undertaking the standardised Health Hazard Risk Checklist and Assessment
- Understanding Occ Hygiene Reports and Recommendations in relation to AS
- Short Spirometry Technique Refresher & Peer Review
- Requirements for Occ Physicians
- Exposed Worker Questionnaire
- Regional Teams & Resource – Occupational Physicians, Occupational Hygienists
- Assessing RPE + Self Check
- Worksafe - Collab Workshop Presentation
- AS Background
- NZOHS - Collab Workshop Presentation
- Mental Health + Family
- Spirometry Requirements for this project

Data Resource Development

- Develop resources – standardise data recording
- Secure encrypted on-line form data collection
- Standardise reporting templates

PCBU Initial Visit Phase

An OHNDDS visits each PCBU and

- provides a short education seminar – AS and introduce the pathway – 1 hour
- perform hazard ID walkthrough – 30 minutes
- Assess and assist with specific control and mitigation advice

Clinical Phase

OHNDDS group visits PCBUS and undertakes the following:

- Interview/triage employees
- Establish their relevant occupational history
- Complete respiratory questionnaire, including an Occupational History and an Exposure Assessment for those occupational roles
- Document confounders - smoking, asthma, relevant hobbies, previous illnesses
- Note any symptoms
- Complete perceived stress scale
- Assess breathing character, chest expansion, air entry
- Assess current respirator use, storage and appropriateness
- Record BP, heart sounds, peripheral pulses, oedema
- Assess for signs of Reynauds, Scleroderma and Arthritis
- Establish whether the clinical pathway entry exposure criteria is met
- Perform a baseline OH spirometry
- Order initial investigations (Bloods, Urine, CXR/CT, Formal Laboratory Pulmonary Function Testing DLCO) as appropriate under standing order
- Gather previous OHN health monitoring if available
- Gather previous OH reports if available
- Put paperwork and report together
- Refer on to GP, Occ Med, Resp Physicians, lab with appropriate documentation/reports

Review Phase

- Undertake daily, then weekly reviews of the programme delivery, refine as necessary to maintain consistency in data collection and quality control of assessments

Ongoing Care and Peripheral Care Phase

- On-going workplace hazard & risk assessment (audits)
- Give advice on control options
- Education of the workforce on AS, the pathway, Occupational Hygienists roles, respirator use, AS hygiene and precautions
- Referral as required for OT or EAP/Mental Health support for employer, worker and family

- Navigating to other health and safety services/contractors as required
- Follow up on entry to and movement through the pathway
- Follow up hazard assessments, monitoring spirometry etc for those who are discharged from the pathway pre-diagnosis (criteria not met)
- Find exposed persons no longer in the industry through changes in assessment processes across the profession
- Conduct Pre-employment medicals for those entering the engineered stone industry, including a baseline chest x-ray under directions/standing order of an Occupational Medicine specialist
- Conduct Exit employments for those leaving the industry, including an exit monitoring chest x-ray under directions/standing order of an Occupational Medicine specialist

Initial cost estimates to undertake this phase for the exposed workers identified in the initial WorkSafe PCBU and exposed workers identification, according to the approximate geographical spread:

\$289,360

Solution 2

Similar programme entry criteria and roll out as described in solution one, except train/educate ~30 – 40 OHNS in regional groups to undertake the programme.

There are smaller travel costs, but compromises to quality control and control of message consistency with a larger, geographically widespread group.

Timeframe would be condensed. Could be a good long term second stage to tackle lung diseases in the future, if combined lessons learned from Solution 1 are collated and introduced to wider groups creating a widespread quality OHNDDS specialist resource pool.

NOT RECOMMENDED FOR PHASE 1 ROLLOUT DUE TO QUALITY CONTROL

Solution 3

Roll out national on-line or in-person workshops to all OHNs in New Zealand.

Assemble promotion material, run short webinar and promote to existing NZOHNA members and ask our members to approach PCBUs, with the understanding that PCBUs fund this programme, including an employee assistance programme individually.

Pros – cheap to implement

Cons – no quality control or consistency, inability to manage ‘issues’ with the knowledge or programme requirements. Gaps remain in the system. The depth of knowledge and skill to get this right, first time, or to meet initial competency criteria may not be present in large enough numbers within the OHN workforce at present. Assessing for initial competency will be resource intensive and may cost more than managing a group of 8 OHNDDS as described in Solution 1.

**NOT RECOMMENDED DUE TO QUALITY CONTROL LOSS AND ENTRY CRITERIA ASSESSMENT
RESOURCING REQUIREMENTS**

Solution 4

Leave the process as is and support where we can with no funding or dedicated programmes

NOT RECOMMENDED

Business case and financials

Funding for other projects such as musculoskeletal injury prevention has been successfully managed through HASANZ. This model would also serve to bring in the occupational health expertise required to identify, support, manage and put prevention in place for New Zealanders and migrant workers exposed to silica, and at risk for Accelerated Silicosis.

WorkSafe requested help and advice from occupational health providers who have worked for over 12 months, unpaid for their services, to assist WorkSafe to develop a comprehensive, pathway based on the Australian experience. It appears that WorkSafe has now dismissed this expert advice and disregarded the Australian experience in favour of a pathway which will be difficult for workers to access and which will miss a large proportion of workers exposed to silica.

The sooner cases can be identified, the quicker the exposures can be reduced. The Australian and New Zealand Institute of Insurance and Finance states that the claims costs associated with Accelerated Silicosis are significantly higher than asbestos-related disease. This is because the ages of those affected are younger than those with asbestos-related disease and affected people require ongoing support when they can no longer work. If eligible for undergoing lung transplant, this is expensive and requires ongoing costs.

If the worker dies, they often have younger families which require support for longer time frames. Taken purely from a financial cost, an investment now to reduce exposures and treat early will have a large return. <https://anziif.com/members-centre/the-journal-articles/volume-42/issue-3/silicosis>

Looking at claim costs, leaving a dependent child could mean payments of 80% of the deceased parent's wage. Taking only that into account, an accelerated silicosis case could easily cost more than \$500,000. If New Zealand has the same rate of cases as seen in Australia, then if New Zealand delays and allows 50 cases and claims to occur, costs can put the burden at over \$25 million. An investment now into a proper, professional clinical pathway has the potential to save millions. Putting the ethical drivers aside, this alone is a compelling return on investment.

Costing of Proposed Solution from Allied Health Disciplines

Solution With Occupational Medicine, Fit testing and Hygiene Support

\$1,043,460

Includes support for OHNs, Occupational Physicians, Occupational Hygienists, project management, travel for 113 PCBU's, and 530 exposed workers as outlined below.

OHNDDS

As outlined in Solution 1

\$289,360

Occupational Medicine Spend

Initial visit post OHNDDS, to review initial findings and lab results, second follow up visit

\$238,500

(@ \$450 per exposed worker)

Occupational Hygienist Spend

Perform post control survey to ensure controls adequacy

\$452,000

(@ \$4,000 per survey)

Quantitative Fit Test per Employee

Ensure respirator fit, bearing in mind ~ 35% of people will not fit a medium sized half face respirator

\$63,600

(@\$90 per person, plus GST, travel and reporting time)

Appendix One – NZ DDT Clinical Pathway June 2020

Accelerated Silicosis Clinical Pathway

**Draft for discussion
30 June 2020**

Accelerated silicosis is an emerging occupational disease risk caused by exposure to significant concentrations of respirable crystalline silica from unsafe work with engineered stone benchtops. It is an aggressive form of silica-related disease that can develop over a short period of time (1-10 years). It is distinct from chronic silicosis, which is not uncommon, and rarely becomes progressive.

A. Identify potential exposed person and encourage GP visit

A person at risk of developing accelerated silicosis from more than 12 months of work with engineered stone benchtops in the last three years should be encouraged to visit their GP to be assessed. The person may initiate the visit or be encouraged by family, a workmate, their employer or a member of a profession or relevant organisation (e.g. a WorkSafe Inspector, occupational health nurse or union). It is helpful if the person brings any relevant health monitoring records from work to the appointment.



B. GP / Medical Practitioner visit and initial assessment

1. The person discusses health and/or exposure concerns with GP.
2. If the accelerated silicosis exposure threshold is met, GP completes initial assessment with the person. If health concerns, GP assesses as per usual process.
3. Obtain the persons consent to agreed actions. Consider any psychological support needs (e.g. workplace employee assistance programme where available), complete initial physical examination
4. Lodge ACC claim if evidence that exposure threshold is met



C. ACC initial assessment

1. Review case.
2. Contact the person to discuss their claim. Obtain relevant work and non-work exposure history using the questionnaire from the person.
3. Confirm accelerated silicosis exposure threshold is met. Check consent.
4. Issue cover decision or request GP to make a further appointment with client and provide authorisation for silica investigations.



D. GP / Medical Practitioner visit and follow up assessment

1. Complete follow up clinical examination with the person (including desktop spirometry). If health concerns, GP assesses as per usual process.
2. Obtain the persons consent to agreed actions. Consider any psychological support needs (e.g. workplace EAP where available)
3. Order silica-exposure investigations requested by ACC: chest x-ray, HRCT silicosis protocol (private radiology provider) and autoimmune screen bloods/urine (local community lab)



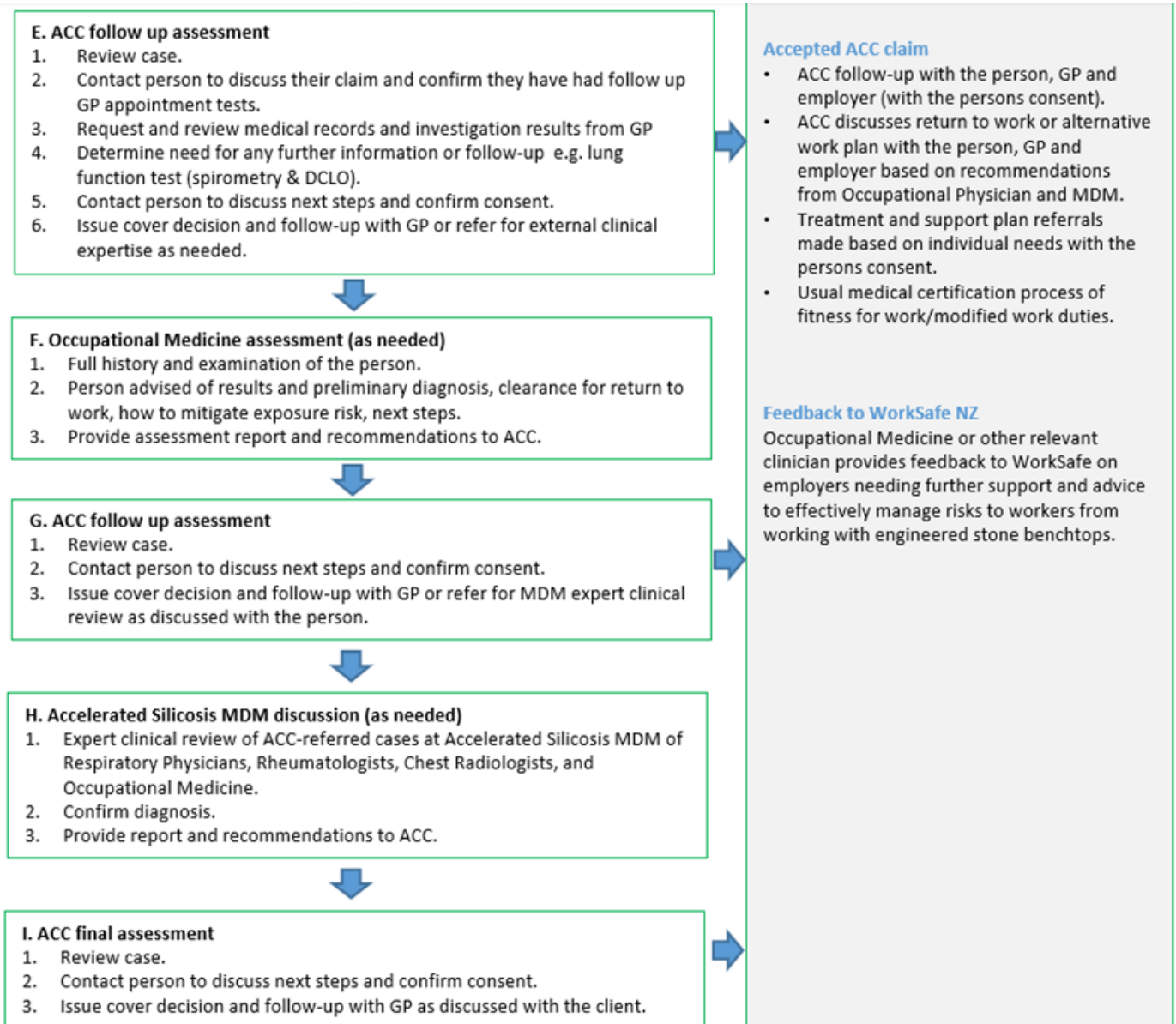
Person plan and follow-up

Non-ACC health issues / ACC claim declined

- ACC provides reports to GP with the persons consent.
- GP manages patient follow-up of any non-ACC health issues as needed.
- Person advised to talk to employer, union or see WorkSafe website about any workplace concerns.
- Person advised to contact GP about any further health concerns.

Possible/probable silicosis

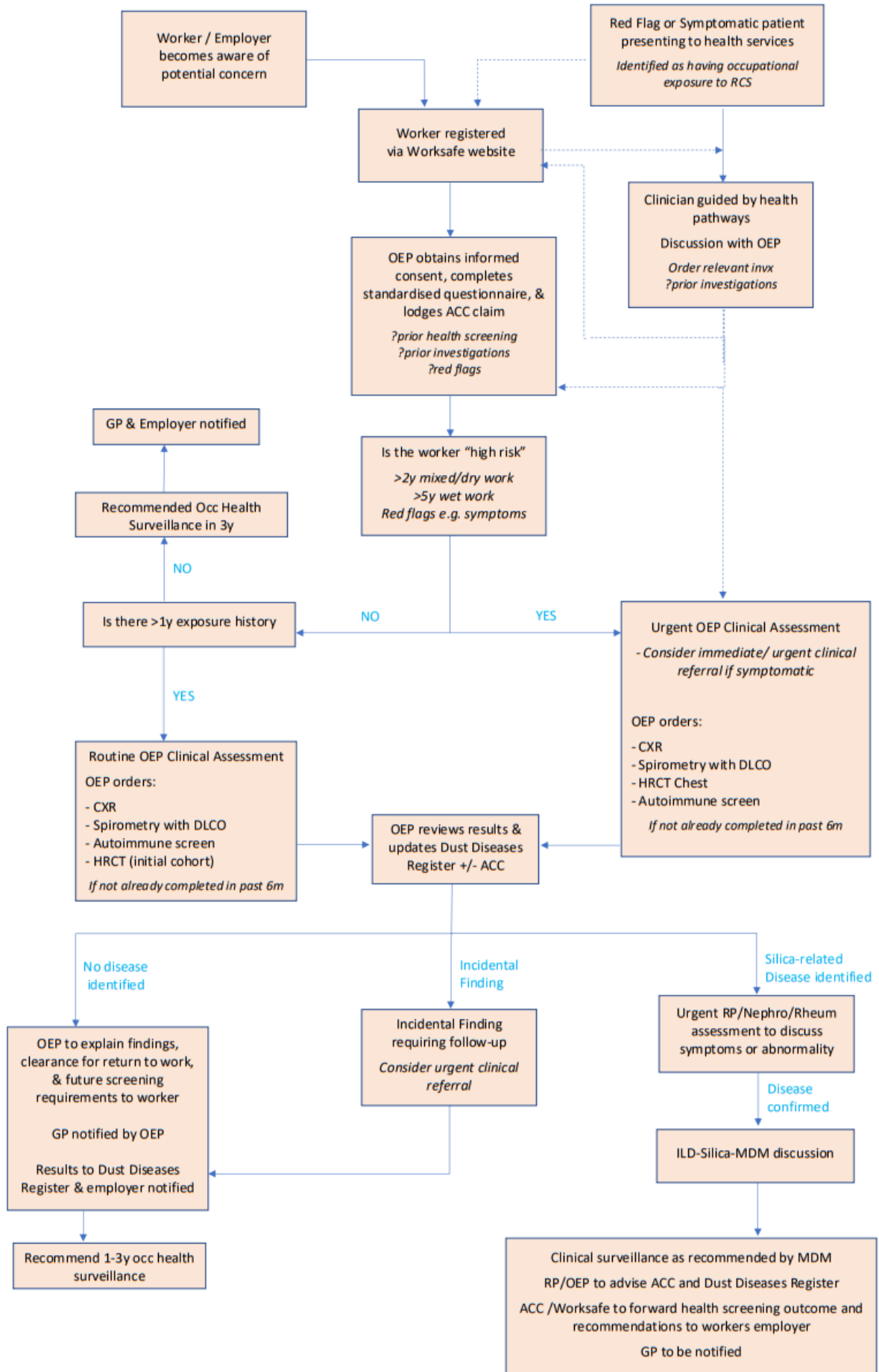
- ACC provides reports to GP (with the persons consent) and authorises payment for recommended follow-up investigations on case-by-case basis.
- ACC discusses return to work plan with the person, GP and employer (with client consent) based on recommendations from occupational physician and MDM.
- GP manages the persons follow-up as needed (ACC-funded referral or publicly funded health system).



Key:

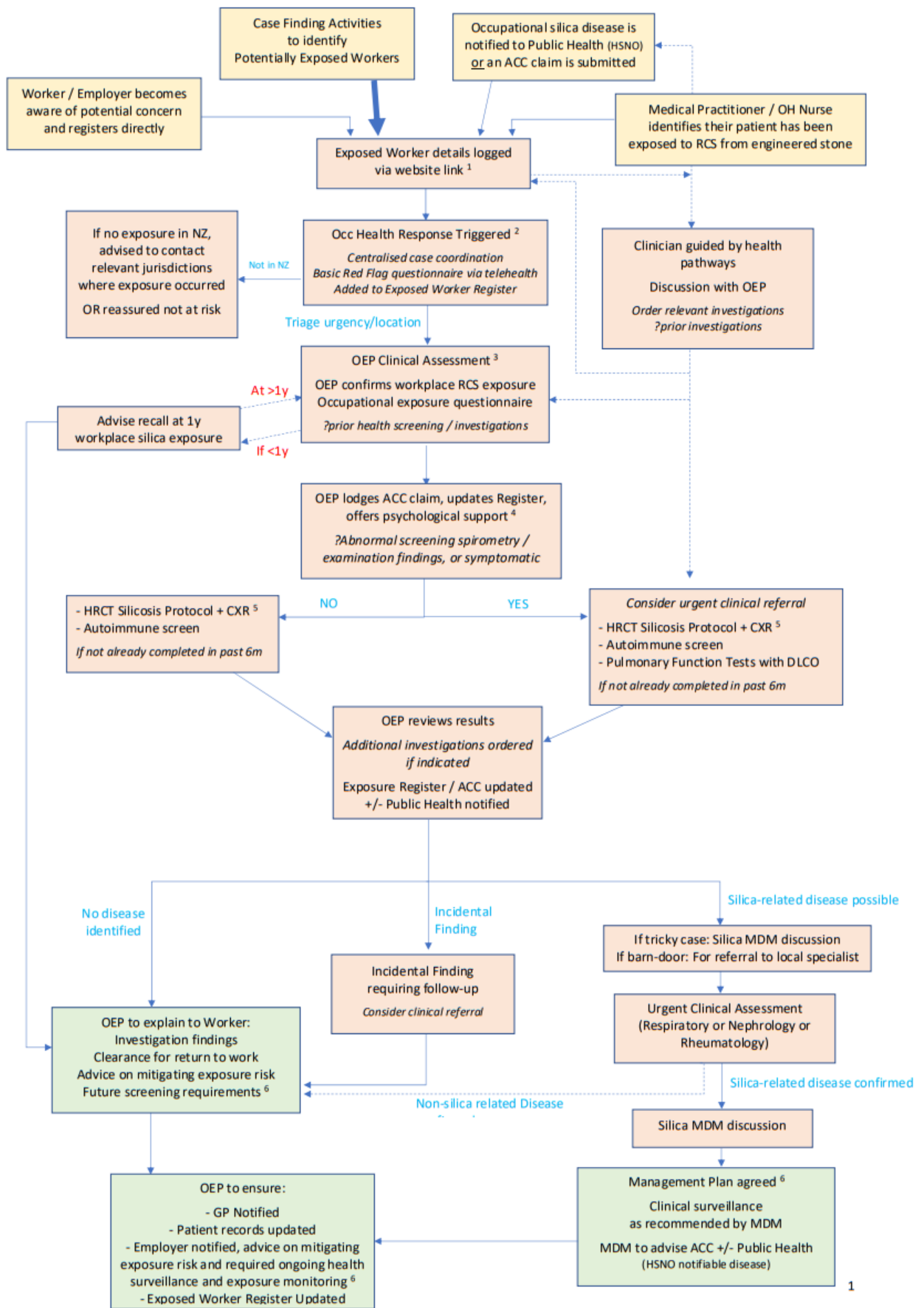
DCLO Pulmonary function tests with diffusing capacity of the lung for carbon monoxide.
 Person: worker, patient, client depending on the pathway stage and terminology

Appendix Two – Initial NZ DDT Clinical Pathway July 2019



Appendix Three –NZ DDT Clinical Pathway November 2019

DRAFT - NZ SILICA-EXPOSED WORKER CASE FINDING CLINICAL PATHWAY - DRAFT



Notes from Silica Exposed Worker Case Finding Clinical Pathway Flow Chart:**1) Website link:**

- Link provided from all appropriate websites e.g. ACC, WorkSafe, RACP, ANZSOM
- TBD who will host the website (ACC vs WorkSafe vs MoH)
- Could be associated with helpline support (e.g. via NTS – includes nursing advice and psychology/counselling support if distressed)

2) Occupational Health Response: Dust Diseases Occupational Health Team**- Centralised Occupational Health Team:**

- o Overall responsibility for ensuring registered workers pathway follows agreed practice
- o Key contact point for queries
- o Supporting and advising local clinicians
- o Ensuring worker information is collected
- o Overseeing results and referrals
- o Ensuring clinical information is added to the electronic health record of the individual
- o Working with the holder(s) of the Exposed Worker data register(s)

- Lead Occupational Physician:

- o Leading the NZ Accelerated Silicosis response and OH Team
- o Contact point for doctors
- o Co-ordination with agencies, clinicians and DHBs
- o If AM, media spokesperson for taskforce

- Occupational Health Nurse:

- o Providing leadership for process administration
- o Contact point and clinical support to local OHN and other clinicians
- o Basic red flag questionnaire via telehealth (as required)
- o Escalating to Lead OP as required
- o Ensure data gathered for exposed worker register

- Administrator:

- o ACC claim/funding oversight
- o Data entry
- o Recall oversight
- o Ensuring worker/employers/government/agency/clinicians updated with results as appropriate

3) OEP Clinical Assessment:

- Informed consent

- Occupational Exposure Questionnaire:
 - o Standardised occupational history and clinical examination
 - o Draft NZ form: based off the “Worksafe Victoria-Monash University Stone Mason Crystalline Silica Health Surveillance Medical Assessment Form” (see appendix)
 - o cc to Dust Diseases OH Team via email
- Lodge ACC claim (if not previously completed)
 - o “Workplace Silica Exposure – engineered stone worker – possible Gradual Process Injury”
 - o Read code “Z...” until further notice.

4) Psychological / Counselling support:

- Australian colleagues have advised that workers have high levels of distress and anxiety when they become aware of the potential risk of silica-related lung disease, requiring early psychological support for the worker and their families

5) Investigations:

- Template forms are provided (see Appendix).
- HRCT Whole Chest + Expiratory HRCT (silicosis screening protocol): Based on the Australian experience, HRCT is required for all exposed workers as CXR is normal in up to half of workers with confirmed silicosis in Queensland
- CXR AP + lateral
- Blood tests and urine as per form
- Spirometry + DLCO to be performed in accredited laboratories only, which may be organised via the centralised Occupational Health team: this should be ordered for symptomatic patients, those with abnormal screening spirometry, those with abnormal clinical examination, and those with abnormal initial investigations.

6) Monitoring & Surveillance Recommendations:

- The Occupational Health team or Interstitial Lung Disease multidisciplinary team (with added members from Occupational Medicine for these cases) will recommend follow-up including monitoring, health surveillance, and any further referrals or assessment required. Standards are being developed in conjunction with international colleagues.

Background Information

Crystalline Silica

Silicon dioxide is the major mineral found naturally in rocks and soils as non-crystalline or crystalline (free) silica. Natural forms include quartz, cristobalite, tridymite and Tripoli.

Airborne crystalline silica dust particles are respirable, which means they are small enough to be breathed deep into the lungs. They can bioaccumulate in the lungs and cause damage to the respiratory system, kidneys and autoimmune system.

Crystalline silica is found in aggregates, mortar, concrete and stone. The most common form of crystalline silica is quartz, found naturally in sands. Granite contains 25-40% quartz, sandstones 67%, and shales 22%. Engineered stone benchtops may contain up to 90% silica. Non-occupational exposure to silica dust can occur from natural sand sources or around industrial sites that process silica-containing materials.

Under Health and Safety at Work (HSAW) Regulations, exposure to respirable crystalline silica (RCS) must be carefully assessed and managed to reduce the health risks to acceptable levels. There is an emerging epidemic of accelerated lung disease identified among workers dry cutting engineered stone used in benchtops. In Queensland Australia, active assessment of exposed workers has found that 25% of workers who thought they were well before being assessed have silicosis, with a third of these cases demonstrating PMF (pulmonary massive fibrosis) or other signs of advance disease. Work practices are similar in New Zealand, so prevalence of silica-related disease in our workers is likely to be similar.

Workers in the following industries or who work with the following materials are most at risk of being exposed to RCS dust:

- kitchen benchtop manufacturing, finishing and fitting (natural and engineered stone)
- construction: concrete, stone, bricks, mortar, clay, fibre cement products
- manufacturing of concrete, bricks and tiles
- concrete drilling, cutting, grinding, fettling, mixing, handling, dry shovelling
- monumental masonry work, pottery making
- foundries including casting, mineral ore treating processes
- mining, quarrying, abrasive blasting
- roading, excavation, earth moving, drilling, tunnelling
- hydraulic fracturing of gas and oil wells

Health Effects from Respirable Crystalline Silica (RCS)

Silica exposure may result in health effects in the lungs, kidneys and autoimmune system. Other respiratory hazards like smoking interact with silica exposure to increase the risk of lung disease.

Target organ	Potential Effect of Respirable Crystalline Silica Exposure
Lungs	- Silicosis: acute, accelerated, chronic, progressive massive fibrosis
	- Lung cancer
	- Chronic obstructive pulmonary disease
	- Tuberculosis
Kidneys	- Renal disease
Autoimmune	- Scleroderma
	- Rheumatoid arthritis
	- Systemic Lupus Erythematosus
	- Sarcoidosis

Silicosis is a type of pneumoconiosis that occurs when large amount of crystalline silica leads to a build-up of connective tissue causing scarring in the lungs. Silicosis is irreversible and progressive. Severe forms can result in poor gas exchange, difficulty breathing, and death.

- Acute silicosis occurs after a short exposure to very high levels of silica (e.g. after exposure in confined spaces where respiratory protection is not worn). The alveolar spaces fill with a lipid and proteinaceous exudate causing rapidly progressive dyspnoea and death, usually within months of onset. Pulmonary function will usually show a primarily restrictive pattern with gas exchange abnormalities.
- Until the recent case finding activities in stonemasons, accelerated silicosis was rarely seen. It develops within 2-5 years with intense exposure to RCS. Lung function testing and CXR may not be abnormal in the early stages (47% of Queensland workers with Accelerated Silicosis or PMF had normal CXR). Evidence can be detected on high-resolution thin-slice CT scans.
- Simple chronic silicosis is the most common pattern seen, with many <1cm rounded opacities throughout the lung fields especially the upper lobes. Hilar lymphadenopathy and calcification may be present. Pulmonary function is usually preserved.
- Progressive massive fibrosis results as silicosis progresses and individual nodules enlarge and form larger masses of >1cm diameter. Lung function testing will be abnormal.

COPD develops as PMF nodules fibrose or from lower level exposure to silica over a sustained period. Lung function testing will be abnormal.

Tuberculosis is more common in workers with silicosis.

Autoimmune diseases and renal disease such as glomerulonephritis are more common in workers exposed to RCS.

RCS has been classified as a Group 1 carcinogen by IARC. There is strong evidence that both pulmonary fibrosis and exposure to RCS increases the risk of lung cancer.

HSAW Health Monitoring Requirements for Employers

- 1) Before starting work in a crystalline silica process:
 - a. Health monitoring program to educate workers on health risks, effects of cigarette smoking, how to recognise and report symptoms, and the program testing requirements
 - b. Health screening prior to starting work so that previous silica exposure can be recorded and baseline examination and tests are obtained so that changes to the worker's health can be detected
- 2) Health surveillance during exposure to crystalline silica:
 - a. The PCBU has a duty to ensure annual health monitoring of potentially exposed workers with an appropriate registered medical practitioner, including required investigations
 - b. All health monitoring must be performed in accordance with appropriate quality guidelines and interpreted by a qualified specialised medical practitioner
 - c. Environmental and personal monitoring results should be provided to the medical practitioner to inform the frequency of health monitoring activities
 - d. Currently an annual occupational exposure history, medical and respiratory history, physical examination and pulmonary function tests are required. CXR frequency should be determined by exposure levels (i.e. every 5 years for low risk up to annually for very high risk)

- e. Any concerns should result in more frequent review and/or referral to a respiratory physician with expertise in dust diseases (or other relevant medical specialist)
- 3) Workplace exposure standard (WES):
 - a. Currently the WES for all forms of crystalline silica is 0.1 mg/m³ for an 8-hour time weighted average
 - b. The WES is currently under review and may be lowered
 - c. Health monitoring is likely to be required if the results of air monitoring indicate frequent or potentially high exposure (e.g. at or above half of TWA)
- 4) Removal from work:
 - a. Where the results of a medical assessment indicates the worker has symptoms or signs relating to exposure to crystalline silica, the registered medical practitioner should consider recommending the worker be removed from work processes that cause ongoing exposure to RCS
 - b. The clinician should inform the worker and advise the PCBU:
 - i. The worker should be removed from work with crystalline silica
 - ii. The PCBU should review control measures and carry out recommended remedial action
- 5) Return to work:
 - a. The worker should only be returned to work when they are assessed by the registered medical practitioner as medically fit. The worker and PCBU should be advised.
- 6) When terminating work in a crystalline silica process:
 - a. A final medical examination should be completed including history, examination, pulmonary function tests and CXR
 - b. Recommendations for any ongoing monitoring requirements and work restrictions should be advised to the worker and their GP
 - c. The PCBU should be advised of the health monitoring report and any requirements for remedial measures, medical counselling of the worker, and any ongoing requirements for ongoing assessment or treatment of the worker

Case finding in high-risk workplaces

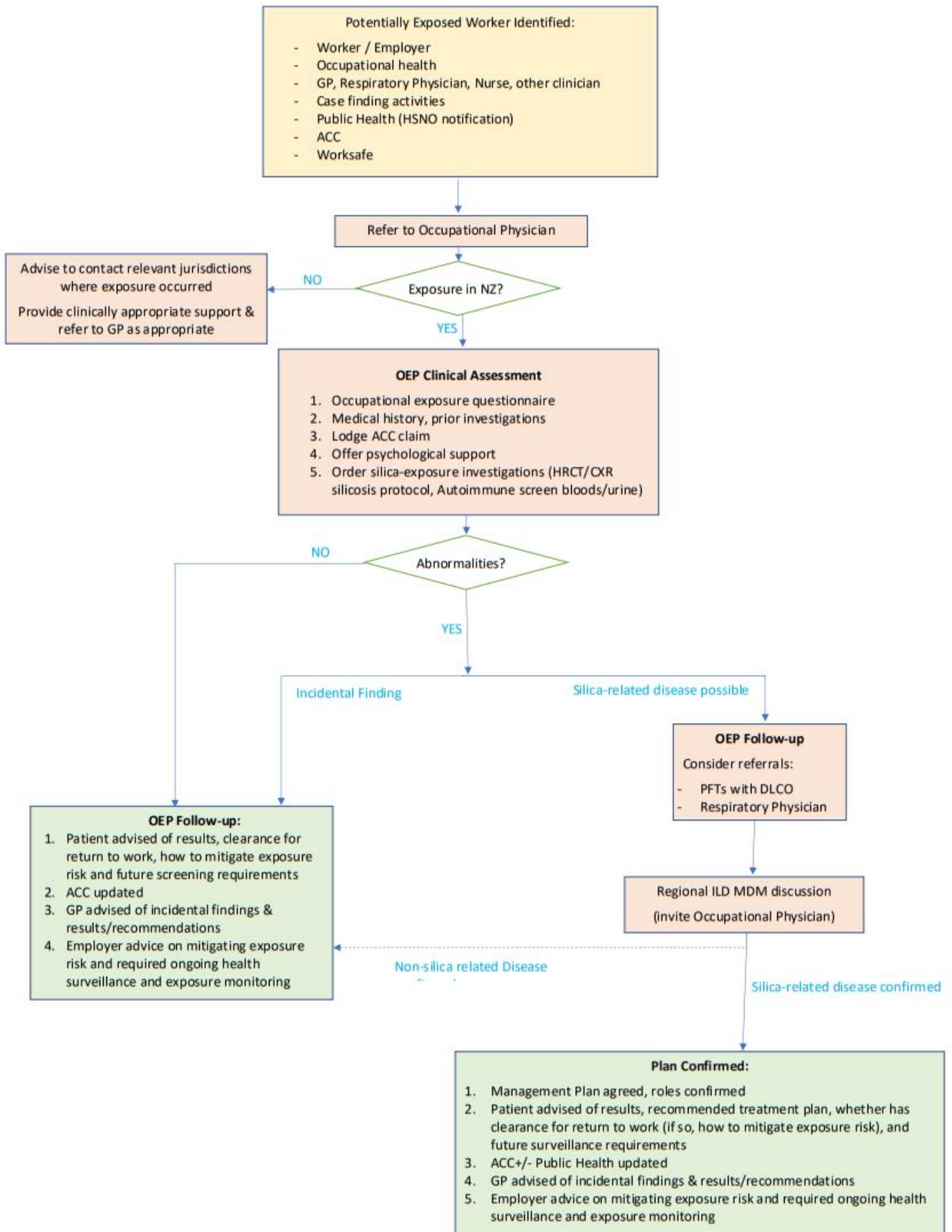
With the recent international findings of accelerated disease in high-risk workers, particularly those working with engineered stone, it is clear that more detailed assessment is required to identify cases in these workplaces. This is due to mounting evidence of the international underestimation of the risk from crystalline silica, the finding that standard health and safety measures have not protected many exposed workers, and that standard surveillance investigations (CXR and pulmonary function testing) have been normal in the presence of significant lung disease in almost half of affected workers.

Therefore additional case finding activities and more rigorous history, examination, investigations and ongoing surveillance are required.

Case finding activities stand in addition to routine health surveillance.

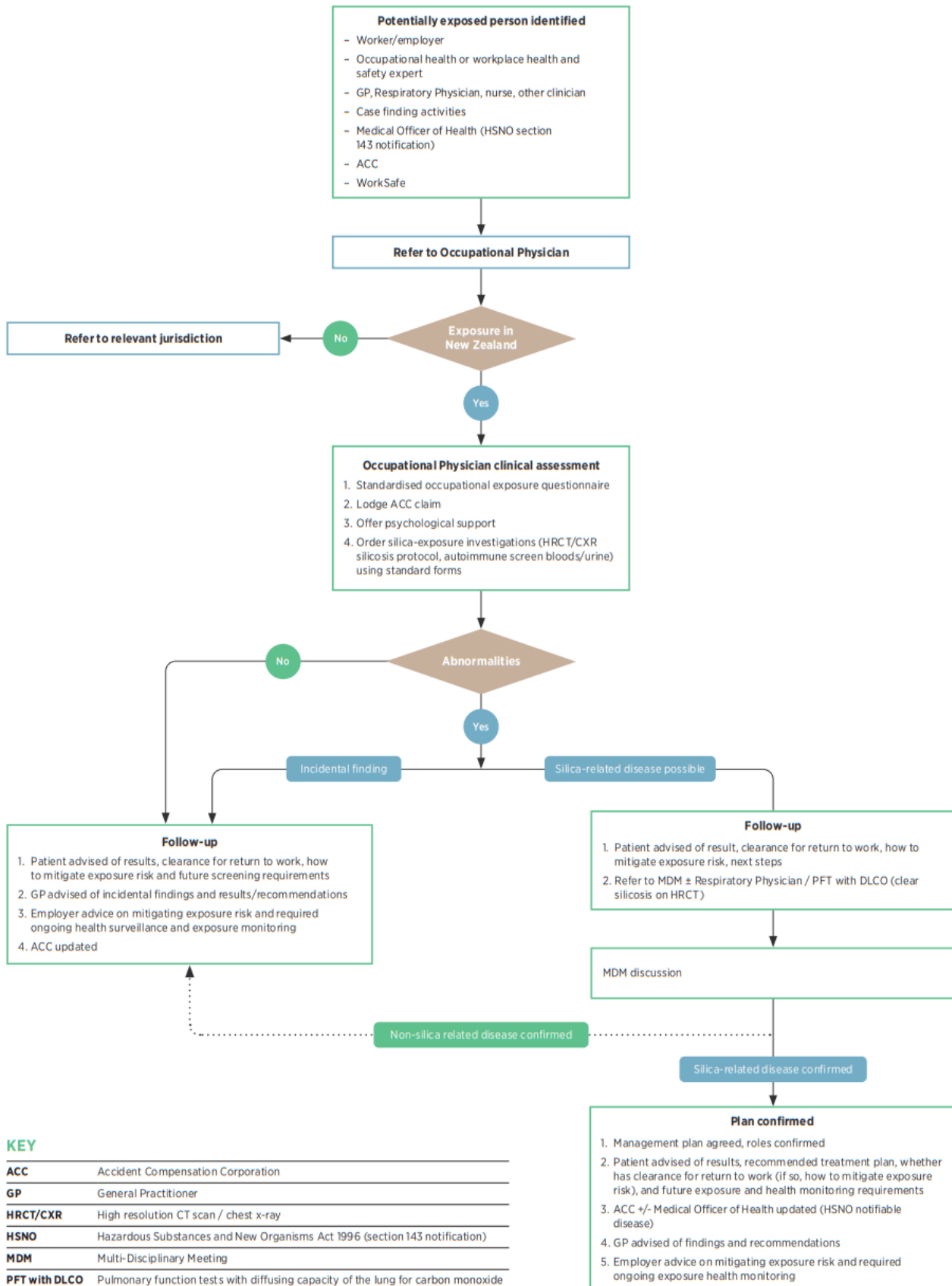
Appendix Four –NZ DDT Clinical Pathway December 2019

DRAFT - NZ SILICA-EXPOSED WORKER CASE FINDING CLINICAL PATHWAY – DRAFT vDEC19



Appendix Five –NZ DDT Clinical Pathway March 2020

Clinical pathway for those who have been exposed to silica

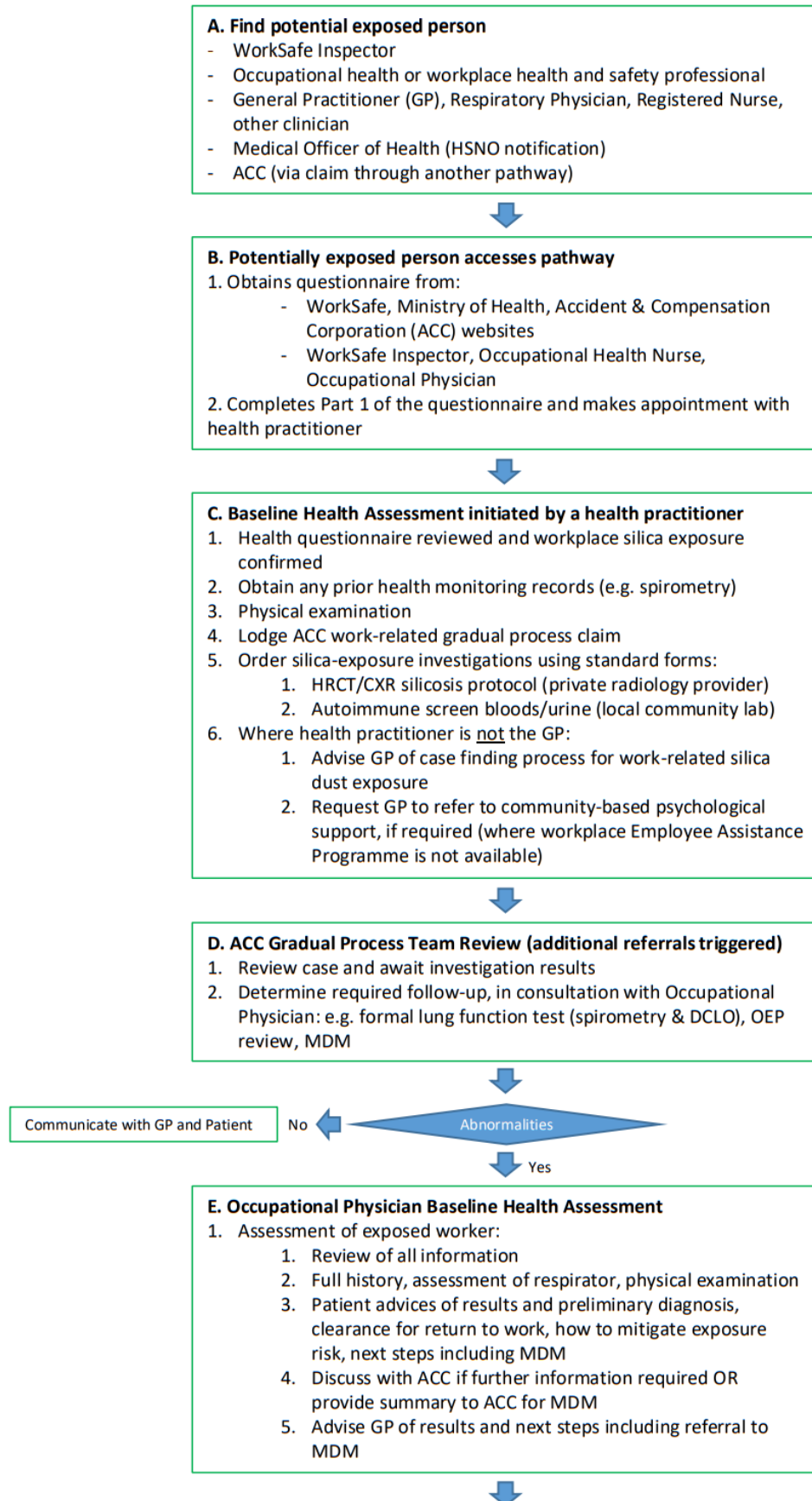


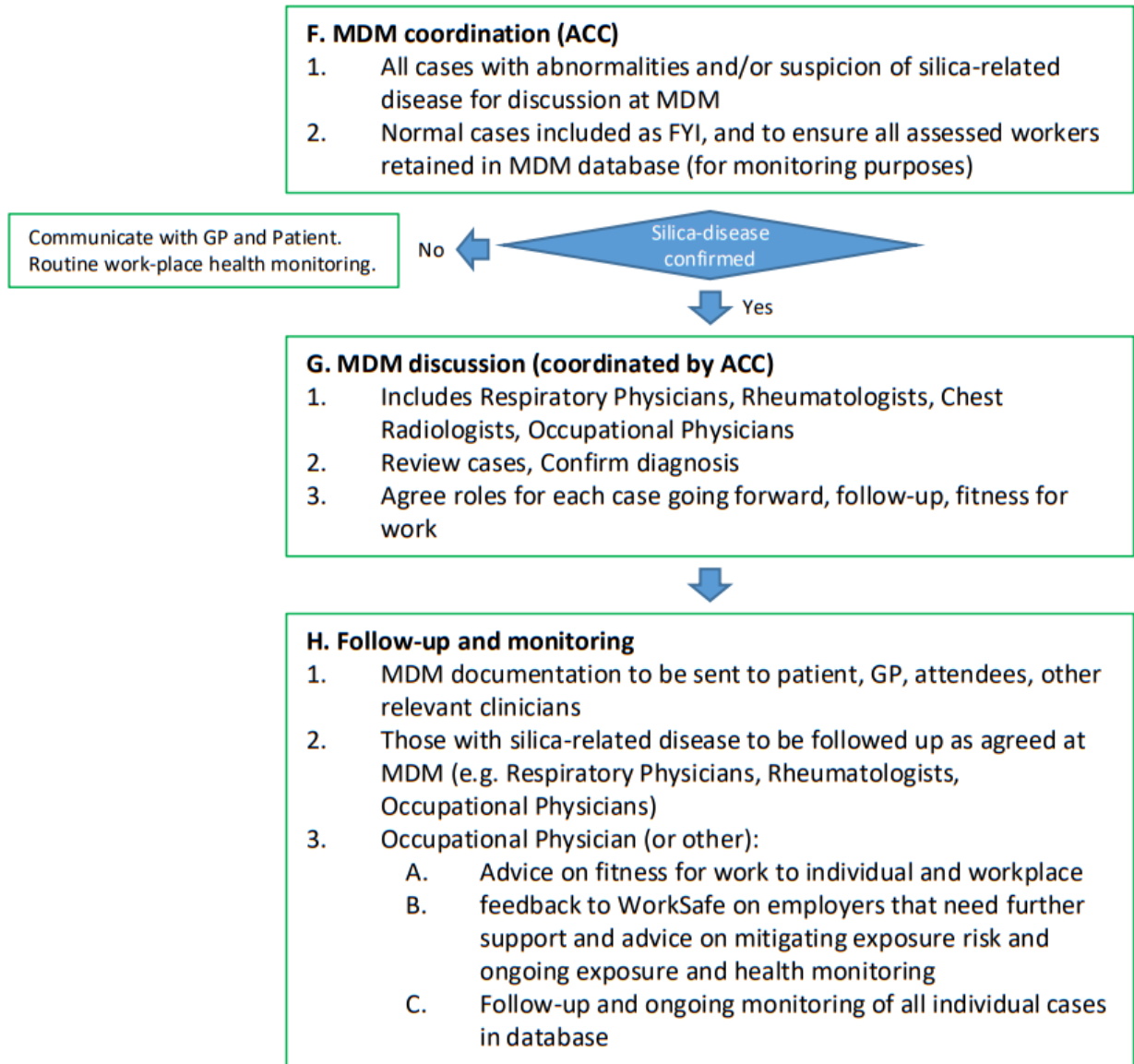
KEY

ACC	Accident Compensation Corporation
GP	General Practitioner
HRCT/CXR	High resolution CT scan/ chest x-ray
HSNO	Hazardous Substances and New Organisms Act 1996 (section 143 notification)
MDM	Multi-Disciplinary Meeting
PFT with DLCO	Pulmonary function tests with diffusing capacity of the lung for carbon monoxide

Appendix Six –NZ DDT Clinical Pathway June 2020

Clinical Pathway for those who have been exposed to silica





Key

HRCT/CXR	High resolution CT scan / chest x-ray
HSNO	Hazardous Substances and New Organisms Act 1996 (section 143 notification)
DLCO	Pulmonary function tests with diffusing capacity of the lung for carbon monoxide

Appendix Seven – Hazard and Risk Checklist

Hygiene and Housekeeping

Good personal hygiene and housekeeping practices support engineering and other risk controls by preventing re-suspension and spread of dust from surfaces or contaminated clothing. The key requirements are:

Changing Facilities

These should be in line with national requirements. Suitable changing facilities should be provided when PPE is used or where outdoor clothing could become contaminated with substances hazardous to health e.g. RCS. Suitable storage for any PPE is also required.

Laundry – at work or at home, cleaning vehicles, boots, jackets, raincoats (pockets fill with slurry that dries during wet cutting)

Uncontaminated areas for eating and drinking

Workers should not eat, drink or smoke in areas contaminated by hazardous substances.

Washing Facilities

Washbasins which are large enough to wash face, hands and forearms.

Warm water, mild skin cleansers and soft paper towels for drying; avoid abrasive cleaners.

Pre-work creams/barriers to aid washing of dirt from skin and after work creams/moisturisers to replace skin oils.

Provision of showers where removal of heavy dust contamination is needed, e.g. demolition activities.

Cleaning

Vacuum equipment with at least dust class M used for dry dust, or wet cleaning methods. ? Hepa Filters

Workers should not clean up with a dry brush or using compressed air.

Potential exposure to visitors, neighbours, office staff, others not directly involved

Disposing of dried slurry

Car Hygiene

Pockets and folds in clothing

Air Movement

LEV

Effectiveness of Controls for Wet Cutting

RPE and Respiratory Conservation

Previous OHN Health Monitoring

Shift Length

Spring and Non-Routine Cleaning

Spring Cleaning operations – disturbing dried slurry, accumulation of dries slurry as dust

Cutting to fit at building/installation site (off site)

Fit Testing for RPE

Heat Stress Assessments – Questionnaire and/or temp/BP monitoring

Cleaning of LEV (local exhaust ventilation) and vacuum cleaners, cleaning dry slurry end of day, end of week

Bags of dried inhalable silica waste – to landfill, contractors, storage and spillage

Accumulation of dust on ceiling spaces, stairways, cupboards, assessing for and dealing with this

Practices of dry cutting on building sites to fix poorly measured fittings

Designate cutting area further from where paving stones are laid to minimise dust and noise exposure to other workers

Use wet methods to clean up and finish laying stones

Check and repair water connections and hoses

Collect slurry in a pan under the saw for disposal

Implement maintenance schedule for equipment and PPE

Provide PPE and RPE training for workers

Review type of dust masks required for tasks

Review clean shaven policy

Replace old and faulty goggles

Provide hearing protection to workers nearby cutting area

PPE for safety (steel-toe boots, protective work wear, hard hats, gloves)

water to suppress dust

collection and disposal of wastewater

Collection of dust – building

Collection of dust – clothing, folds, hair

Donning, Doffing RPE and other PPE

Wet RPE filters – increased breathing resistance & body temperature heating

Comfort and movement assessment when all PPE is worn

Heat Hygiene

Pavers/Installation

Cutting is done close to where pavers are laid

Are hoses leaking or attachments broken

slurry is not collected

sand is dry swept

goggles to protect worker's eyes

Age of PPE RPE

Noise Reduction & Surveys

Hearing protection (ear plugs) for loud power tools, functioning in wet – hygiene kits available

workers nearby cutting don't have ear plugs

Dust Exposure Monitoring (Occupational Hygiene)

dust control action plan

changing control measures and work practices

worker training

further air monitoring

health monitoring

Exposure Monitoring is undertaken:

at least once a year if you work with silica containing products

if a worker becomes unwell or if a health monitoring report recommends you review your control measures

if your work practices or the types of tools used change, for example you use a new tool more often, and if new control measures are implemented or you change your control measures for example if you install an isolation booth or ventilation, or apply a new shift rotation.

Basic Safety Systems in Place

1. Does a risk assessment need to be carried out?
2. Has it been decided who should carry out the risk assessment?
3. Have all the hazardous chemicals in the workplace been identified?

Has a hazardous chemical register been produced?

4. Has information about the hazardous chemicals been gathered? (refer to labels, SDS, placards and relevant Australian Standards for the type of hazardous chemical)

Q. 5–9 should be answered for each hazardous chemical or each process

where hazardous chemicals are used in the workplace

5. Have you checked other records associated with the hazardous chemical?

(consider previous assessments, monitoring records, injury or incident records, induction training, task-specific training etc)

If 'Yes', are there any hazardous chemical risks previously assessed as 'high' or as 'significant risk'? Specify the risk(s).

6. Does the chemical have health hazards? (consider potential acute/chronic health effects and likely route of entry)

7. Does the hazardous chemical have physical hazards?

8. Does the hazardous chemical have an exposure standard? (refer to the Workplace Exposure Standards for Airborne Contaminants)

9. Do workers using the hazardous chemical require health monitoring? (refer to Part 7.1, Division 6 and Schedule 14 of the WHS Regulations)

If 'Yes', air monitoring may be required.

Managing risks of hazardous chemicals in the workplace

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Questions Yes No

10. Are workers, or can workers be potentially, exposed to hazardous chemicals at the workplace, including by-products and waste?

For each hazardous chemical or group of hazardous chemicals in the work unit, find out:

- Is the substance released or emitted into the work area?
- Are persons exposed to the chemical?
- How much are the persons exposed to and for how long? Air monitoring may be required to determine exposure.
- Are there any risks associated with the storage and transport of the chemical?

11. Are control measures currently in the workplace well maintained and effective in controlling the hazards?

If 'No', take appropriate action.

12. What are the conclusions about risk? Only answer 'Yes' to one conclusion.

- Conclusion 1: Risks are not significant
- Conclusion 2: Risks are significant but effectively controlled

If you answer Yes to conclusion 1 or 2, go to Q.14.

- Conclusion 3: Risks are significant and not adequately controlled
- Conclusion 4: Uncertain about risks

If you answer 'Yes' to conclusion 3 or 4, go to Q.13.

13. Have actions resulting from conclusion about risks been identified?

- Seek expert advice
- Requires appropriate control measure
- Requires induction training
- Requires ongoing monitoring
- Requires health monitoring
- Requires emergency procedures and first aid

14. Has the assessment been recorded?

Engineering Controls

Do not permit uncontrolled dry cutting, grinding or polishing of natural or engineered stone bench tops.

Use wet cutting and grinding methods. Wet spray must be controlled to prevent it becoming airborne. Spray can be controlled by using guards, plastic flaps and brush guarding. Wet waste and contaminated surfaces must be managed.

Use local exhaust ventilation (LEV) on cutting or grinding equipment. The LEV should:

Be part of the equipment design

Be fitted to the individual equipment where dust is generated

Include an H or M class dust collector or vacuum

Use designed hoods or extraction machines.

Cleaning and maintenance of LEV fitted equipment must not expose workers to RCS.

Where practicable, install whole of workplace ventilation such as extraction systems in addition to wet methods and LEV.

Keep the workplace clean using low pressure water, wet wiping or H or M class vacuums. Dry sweeping methods or compressed air must not be used. The cleaning must include all areas where silica dust can settle, eg storerooms and yards.

Isolation

Isolate processes and workers where RCS is generated or handled.

Provide physical barriers between different work processes and work areas.

Substitution

Choose materials with a low percentage crystalline silica content.

Choose routers and water jet cutters instead of powered hand tools.

Administrative Controls

Ensure risks associated with dusty clothing are managed such as by:

Using aprons and rubber safety boots to prevent slurry contacting clothing;

Removing or vacuuming dusty clothing before entering break rooms or office areas;

Laundering work clothing at work, or transporting damp in a plastic bag or bucket if laundering at home;

Using disposable overalls and disposing of them at the workplace at the end of each shift;

Showering at the workplace and changing into clean clothes before going home.

RPE

Unless a workplace has undertaken air monitoring to demonstrate there is no residual risk from RCS, (which research shows is unlikely), an RPE program that complies with Australian/New Zealand Standard AS/NZS 1715 must be implemented..

The program must include:

provision of suitable, comfortable RPE

fit testing where applicable

a maintenance and repair regime

provision of information, training and guidance to workers.

RPE must be reasonably comfortable for the wearer. Consider providing workers with powered air purifying respirators, which are cooler to wear, given the physical demands of the task and potential for a hot and humid work environment.

Workers must wear the RPE whenever they are conducting dust generating processes. Beards and facial stubble prevent the wearer from obtaining a good seal between their face and a respirator. Therefore workers who are required to wear RPE such as close fitting respirators or face masks must be clean shaven.

Filters should not be of a paper type, and should not reduce in airflow function when damp or wet, as will occur with wet cutting operations

Information for Workers

Workers must be given information, training and instruction with regard to:

the risks associated with the work and exposure to RCS

the control measures at the workplace

correct use and maintenance of control measures, including RPE

health surveillance requirements.

Employers must consult with their safety and health representatives (where applicable) and other workers about minimising the risks associated with RCS.

Employers must provide workers with health surveillance if there is risk to a worker's health as a result of exposure to RCS.

General

Workers can also be exposed to RCS from wet grinding and polishing processes, poor cleaning practices, including dry sweeping of dust, the use of compressed air, using non-H or M class HEPA filtered vacuum cleaners or by allowing dust to build up within the workplace.

Workers may not be aware of the hazards and appropriate controls.

Respirators may not be selected or used appropriately.

Appendix Eight –Silica Exposure Questionnaire

HEALTH SURVEILLANCE MEDICAL ASSESSMENT

Respirable crystalline silica

This health monitoring report is a confidential health record and must not be disclosed to another person except in accordance with the Health and safety at Work Act (HSAW) regulation or with the consent of the worker. It should be completed by an Occupational Physician, or under the oversight of a named Occupational Physician.

Name:	NHI:
Date: DD / MM / YEAR	ACC:

There are three sections:

Part one

Work and Health Questionnaire: To be completed by the worker to the best of their ability, prior to the appointment. This section will be reviewed with the examining doctor during the appointment. This section may contain confidential health information and should be retained by the examining doctor.

Part two

Examination and Investigations: To be completed by the examining doctor and/or clinical staff. This section should be noted and full results retained with the file. Please bring your PPE to the examination.

Part three

Report to PCBU: A copy of this summary section only (containing required health and safety information for action) should be forwarded to the person conducting business or undertaking (PCBU) (that is, employer).

Your information

A copy of this report, investigations and specialist assessments will be held by the New Zealand Dust Diseases Occupational team and entered into your personal health record. It will be provided to ACC as part of your exposure claim.

The long term progression of health effects and the recommended health surveillance for workers exposed to Respirable Crystalline Silica from new building materials is currently unknown. We are working closely with Australia's Dust Disease Taskforce to ensure New Zealand workers receive appropriate support. We request your consent to provide your health information to approved and secure Australasian exposed worker and/or disease registers/databases **in accordance with privacy of health information regulations and legislation in New Zealand**. The primary purpose is to inform the development of appropriate guidelines for health surveillance and to determine safe exposure limits. A secondary purpose may be to trigger future health surveillance assessments for you.

Assessing doctor's name:
Organisation name:
Contact number:

Consent

I am aware of the purpose of this assessment. I have read the information provided. I understand that the personal and health information collected will be used by the Occupational Health team to assess relevant health and workplace exposure issues. I understand this assessment will become part of my personal health record, and will be provided to ACC and approved secured registers as outlined here.

Signature:
Date: DD / MM / YEAR

Respirable crystalline silica

Part one

Photo ID sighted: Yes No

Personal details

Full name:

Address: (include postcode)

Email:

Mobile:

Date of birth: DD / MM / YEAR

Country of birth:

Gender: Male Female Other

GP name:

GP practice:

GP phone:

Employer: (company)

Worksite address:

Current job title:

Company contact person: (name)

Mobile:

Language spoken:

Preferred contact method: Mobile Text Email

Employment history in stone benchtop industry

Year started work in the stone benchtop industry: DD / MM / YEAR

Are you still working in the stone benchtop industry? Yes No

If 'No', what year did you finish work: DD / MM / YEAR

How many different workplaces/employers have you had in the stone benchtop industry:

Did you have any exposure to silica overseas? Yes No

Total number of years exposed to silica at work:

Artificial stone is also known as engineered, agglomerated or reconstituted stone, quartz conglomerate, Caesarstone, EssaStone, Silestone, Smartstone.

On the following pages, **starting with your most recent job** we would like to know more about your work in the stone benchtop industry and use of artificial stone.

If you have worked at more than one company, please also complete details for the **three other longest places of employment** in the stone benchtop industry. Leave blank if not relevant.

Please complete all the sections in **Part one** (unless labelled for doctor to complete).

Respirable crystalline silica

COMPANY ONE

Company name:

Country: NZ Other:

Job title:

Start date: DD / MM / YEAR

End date: (if applicable) DD / MM / YEAR

Number of years:

Days per week: Hours per week:

Number of people in organisation:
 <10 10-50 50-250 Over 250

Do you work with:
 only artificial stone only natural stone both

If both, what proportion of the time is spent with artificial stone:
 less than 50% over 50%

What proportion of time have **you spent doing dry work** (without use of water) since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

What proportion of time have **you spent near someone else doing dry work** since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

If you have used water dust suppression, is it: (select all that apply)
 hand-operated direct machine spray
 sheet wetting other:

How is the wet spray slurry controlled: (select all that apply)
 guards/flaps collected in sealed container
 enclosed cutting/processing collected in a tray none
 regular ??? other:

Is there special ventilation that sucks dust away: Yes No

If 'Yes', is the ventilation: (select all that apply)
 on the tools at the bench in the ceiling
 open window/door other:

What sort of respirator (mask) do you usually wear at work: (select all that apply)
 none
 paper/disposal: (type)
 half face: (filter type)
 full face: (filter type)
 full face and air supplied: (filter type)

What proportion of time when you or your colleagues are generating dust do you wear a respirator:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

Have you had a 'fit test' for your mask: Yes No

What do you do in this job: (select all that apply)

Task	Estimate percentage of time in a typical week undertaking this task	Doctor's comment
<input type="radio"/> Shaping (eg with powered hand tools)		
<input type="radio"/> Sawing (eg with bridge saw)		
<input type="radio"/> Using CNC machine		
<input type="radio"/> Polishing/finishing		
<input type="radio"/> General labouring		
<input type="radio"/> Maintenance		
<input type="radio"/> Cleaning the tools, surfaces and/or work space		
<input type="radio"/> Onsite Installing		
<input type="radio"/> Other (eg template maker, manager, supervisor, office worker) (provide details)		

Respirable crystalline silica

COMPANY TWO

Company name:

Country: NZ Other:

Job title:

Start date: DD / MM / YEAR

End date: (if applicable) DD / MM / YEAR

Number of years:

Days per week: Hours per week:

Number of people in organisation:
 <10 10-50 50-250 Over 250

Do you work with:
 only artificial stone only natural stone both

If both, what proportion of the time is spent with artificial stone:
 less than 50% over 50%

What proportion of time have **you spent doing dry work** (without use of water) since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

What proportion of time have **you spent near someone else doing dry work** since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

If you have used water dust suppression, is it: (select all that apply)
 hand-operated direct machine spray
 sheet wetting other:

How is the wet spray slurry controlled: (select all that apply)
 guards/flaps collected in sealed container
 enclosed cutting/processing collected in a tray none
 regular ??? other:

Is there special ventilation that sucks dust away: Yes No

If 'Yes', is the ventilation: (select all that apply)
 on the tools at the bench in the ceiling
 open window/door other:

What sort of respirator (mask) do you usually wear at work: (select all that apply)
 none
 paper/disposal: (type)
 half face: (filter type)
 full face: (filter type)
 full face and air supplied: (filter type)

What proportion of time when you or your colleagues are generating dust do you wear a respirator:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

Have you had a 'fit test' for your mask: Yes No

What do you do in this job: (select all that apply)

Task	Estimate percentage of time in a typical week undertaking this task	Doctor's comment
<input type="radio"/> Shaping (eg with powered hand tools)		
<input type="radio"/> Sawing (eg with bridge saw)		
<input type="radio"/> Using CNC machine		
<input type="radio"/> Polishing/finishing		
<input type="radio"/> General labouring		
<input type="radio"/> Maintenance		
<input type="radio"/> Cleaning the tools, surfaces and/or work space		
<input type="radio"/> Onsite Installing		
<input type="radio"/> Other (eg template maker, manager, supervisor, office worker) (provide details)		

Respirable crystalline silica

COMPANY THREE

Company name:

Country: NZ Other:

Job title:

Start date: DD / MM / YEAR

End date: (if applicable) DD / MM / YEAR

Number of years:

Days per week: Hours per week:

Number of people in organisation:
 <10 10-50 50-250 Over 250

Do you work with:
 only artificial stone only natural stone both

If both, what proportion of the time is spent with artificial stone:
 less than 50% over 50%

What proportion of time have **you spent doing dry work** (without use of water) since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

What proportion of time have **you spent near someone else doing dry work** since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

If you have used water dust suppression, is it: (select all that apply)
 hand-operated direct machine spray
 sheet wetting other:

How is the wet spray slurry controlled: (select all that apply)
 guards/flaps collected in sealed container
 enclosed cutting/processing collected in a tray none
 regular ??? other:

Is there special ventilation that sucks dust away: Yes No

If 'Yes', is the ventilation: (select all that apply)
 on the tools at the bench in the ceiling
 open window/door other:

What sort of respirator (mask) do you usually wear at work: (select all that apply)
 none
 paper/disposal: (type)
 half face: (filter type)
 full face: (filter type)
 full face and air supplied: (filter type)

What proportion of time when you or your colleagues are generating dust do you wear a respirator:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

Have you had a 'fit test' for your mask: Yes No

What do you do in this job: (select all that apply)

Task	Estimate percentage of time in a typical week undertaking this task	Doctor's comment
<input type="radio"/> Shaping (eg with powered hand tools)		
<input type="radio"/> Sawing (eg with bridge saw)		
<input type="radio"/> Using CNC machine		
<input type="radio"/> Polishing/finishing		
<input type="radio"/> General labouring		
<input type="radio"/> Maintenance		
<input type="radio"/> Cleaning the tools, surfaces and/or work space		
<input type="radio"/> Onsite Installing		
<input type="radio"/> Other (eg template maker, manager, supervisor, office worker) (provide details)		

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COMPANY FOUR

Company name:

Country: NZ Other:

Job title:

Start date: DD / MM / YEAR

End date: (if applicable) DD / MM / YEAR

Number of years:

Days per week: Hours per week:

Number of people in organisation:
 <10 10-50 50-250 Over 250

Do you work with:
 only artificial stone only natural stone both

If both, what proportion of the time is spent with artificial stone:
 less than 50% over 50%

What proportion of time have **you spent doing dry work** (without use of water) since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

What proportion of time have **you spent near someone else doing dry work** since starting this job:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

If you have used water dust suppression, is it: (select all that apply)
 hand-operated direct machine spray
 sheet wetting other:

How is the wet spray slurry controlled: (select all that apply)
 guards/flaps collected in sealed container
 enclosed cutting/processing collected in a tray none
 regular ??? other:

Is there special ventilation that sucks dust away: Yes No
 If 'Yes', is the ventilation: (select all that apply)
 on the tools at the bench in the ceiling
 open window/door other:

What sort of respirator (mask) do you usually wear at work: (select all that apply)
 none
 paper/disposal: (type)
 half face: (filter type)
 full face: (filter type)
 full face and air supplied: (filter type)

What proportion of time when you or your colleagues are generating dust do you wear a respirator:
 never rarely 1-10% sometimes 10-25%
 frequently 25-50% very frequently 50-100%
 always 100%

Have you had a 'fit test' for your mask: Yes No

What do you do in this job: (select all that apply)

Task	Estimate percentage of time in a typical week undertaking this task	Doctor's comment
<input type="radio"/> Shaping (eg with powered hand tools)		
<input type="radio"/> Sawing (eg with bridge saw)		
<input type="radio"/> Using CNC machine		
<input type="radio"/> Polishing/finishing		
<input type="radio"/> General labouring		
<input type="radio"/> Maintenance		
<input type="radio"/> Cleaning the tools, surfaces and/or work space		
<input type="radio"/> Onsite Installing		
<input type="radio"/> Other (eg template maker, manager, supervisor, office worker) (provide details)		

Other silica associated work

We would like to know if you have ever worked or are currently working in any other workplaces with possible silica exposure?

Example jobs include other benchtop companies (only if **not** listed previously), mining, quarry work, abrasive blasting, excavation, building and road construction, tunneling and excavation.

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JOB TITLE	INDUSTRY	START DATE END DATE	NUMBER OF YEARS	STONE TYPE	PROPORTION OF TIME WITH DRY WORK	VENTILATION PRESENT	RESPIRATORY PROTECTION
(eg stone cutter, kitchen installer, mason, labourer, miner)	(eg stone benchtop, construction, manufacturing, mining, quarrying)				(select if work with stone)	(select if present)	(select if provided)
		DD / MM / YEAR to DD / MM / YEAR		<input type="radio"/> no stone <input type="radio"/> only artificial <input type="radio"/> >50% artificial <input type="radio"/> <50% artificial <input type="radio"/> only natural	<input type="radio"/> 0% <input type="radio"/> 25-49% <input type="radio"/> 1-9% <input type="radio"/> 50-99% <input type="radio"/> 10-24% <input type="radio"/> 100%	<input type="radio"/> on tools <input type="radio"/> bench <input type="radio"/> ceiling <input type="radio"/> open doors <input type="radio"/> n/a	<input type="radio"/> paper <input type="radio"/> non-air supplied <input type="radio"/> air supplied
		DD / MM / YEAR to DD / MM / YEAR		<input type="radio"/> no stone <input type="radio"/> only artificial <input type="radio"/> >50% artificial <input type="radio"/> <50% artificial <input type="radio"/> only natural	<input type="radio"/> 0% <input type="radio"/> 25-49% <input type="radio"/> 1-9% <input type="radio"/> 50-99% <input type="radio"/> 10-24% <input type="radio"/> 100%	<input type="radio"/> on tools <input type="radio"/> bench <input type="radio"/> ceiling <input type="radio"/> open doors <input type="radio"/> n/a	<input type="radio"/> paper <input type="radio"/> non-air supplied <input type="radio"/> air supplied
		DD / MM / YEAR to DD / MM / YEAR		<input type="radio"/> no stone <input type="radio"/> only artificial <input type="radio"/> >50% artificial <input type="radio"/> <50% artificial <input type="radio"/> only natural	<input type="radio"/> 0% <input type="radio"/> 25-49% <input type="radio"/> 1-9% <input type="radio"/> 50-99% <input type="radio"/> 10-24% <input type="radio"/> 100%	<input type="radio"/> on tools <input type="radio"/> bench <input type="radio"/> ceiling <input type="radio"/> open doors <input type="radio"/> n/a	<input type="radio"/> paper <input type="radio"/> non-air supplied <input type="radio"/> air supplied
		DD / MM / YEAR to DD / MM / YEAR		<input type="radio"/> no stone <input type="radio"/> only artificial <input type="radio"/> >50% artificial <input type="radio"/> <50% artificial <input type="radio"/> only natural	<input type="radio"/> 0% <input type="radio"/> 25-49% <input type="radio"/> 1-9% <input type="radio"/> 50-99% <input type="radio"/> 10-24% <input type="radio"/> 100%	<input type="radio"/> on tools <input type="radio"/> bench <input type="radio"/> ceiling <input type="radio"/> open doors <input type="radio"/> n/a	<input type="radio"/> paper <input type="radio"/> non-air supplied <input type="radio"/> air supplied
		DD / MM / YEAR to DD / MM / YEAR		<input type="radio"/> no stone <input type="radio"/> only artificial <input type="radio"/> >50% artificial <input type="radio"/> <50% artificial <input type="radio"/> only natural	<input type="radio"/> 0% <input type="radio"/> 25-49% <input type="radio"/> 1-9% <input type="radio"/> 50-99% <input type="radio"/> 10-24% <input type="radio"/> 100%	<input type="radio"/> on tools <input type="radio"/> bench <input type="radio"/> ceiling <input type="radio"/> open doors <input type="radio"/> n/a	<input type="radio"/> paper <input type="radio"/> non-air supplied <input type="radio"/> air supplied

Doctor's comments:

Respirable crystalline silica

Non-occupational history

Do you have any hobbies which involve exposure to dust: (eg pottery, stone work, surfboards, fiberglass) Yes No

If 'Yes', please specify your hobbies in further detail:

Doctor **must** provide comments for any 'Yes' responses and clarify duration and length of exposure:

Respiratory symptom questionnaire

BREATHLESSNESS AND WHEEZING

1. During the last month have you troubled by shortness of breath when hurrying on level ground or walking up a slight hill? Yes No

If 'Yes', do you get short of breath:

- get short of breath walking with people your own age on level ground Yes No
- stop for breath walking at your own pace on level ground Yes No

2. If you run or climb stairs fast, do you ever:

- cough Yes No
- wheeze Yes No
- get tight in the chest Yes No

3. Is your sleep ever broken by:

- wheeze Yes No
- difficulty breathing Yes No

4. Do you ever wake up in the morning (or from your sleep if a shift worker) with:

- wheeze Yes No
- difficulty breathing Yes No

5. Do you ever wheeze if you are in a:

- smokey room Yes No
- very dusty place Yes No

6. If 'Yes' to Q3, Q4, or Q5, are your symptoms better:

- at weekends (or equivalent if shift worker) Yes No
- when you are on holiday Yes No

If 'Yes', please record details of any occupational exposure to respiratory hazards in doctors comments: (eg isocyanates, wood dust, aluminum pot room or asbestos)

COUGH

7. Do you usually cough first thing in the morning? Yes No

8. Do you usually cough during the day? Yes No

9. If 'Yes' to Q7 or Q8, do you cough like this on most days for as much as three months each year? Yes No

PHLEGM

10. Do you usually bring up phlegm from your chest first thing in the morning in winter? Yes No

11. Do you usually bring up any phlegm from your chest during the day, at night, or in winter? Yes No

12. If 'Yes' to Q10 or Q11, do you bring up phlegm like this on most days for as much as three months each year? Yes No

PERIODS OF COUGH AND PHLEGM

13. In the past three years, have you had a period of (increased) cough and phlegm lasting for three weeks or more? Yes No

14. If 'Yes' to Q13, have you had more than one such episode? Yes No

CHEST ILLNESSES

15. During the past three years, have you had any chest illness that has kept you from your usual activities for as much as a week? Yes No

16. If 'Yes' to Q15, did you bring up more phlegm than usual in any of these illnesses? Yes No

17. If 'Yes' to Q16, have you had more than one illness like this in the past three years? Yes No

PAST ILLNESSES

18. Have you ever had, or been told that you have had any of the following?

- any injury or operation affecting your chest Yes No
- heart problems Yes No
- bronchitis Yes No
- pneumonia Yes No
- pleurisy Yes No
- asthma Yes No
- other chest trouble Yes No
- hay fever Yes No

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SMOKING

1. Do you smoke? Yes Ex-smoker Never
 If 'Yes' or 'Ex-smoker', on average how many per day:
 How many years:

2. Ex-smokers, how long ago did you stop smoking:

3. What do/did you smoke?

- manufactured cigarettes Yes No
- roll-your-own cigarettes with filter Yes No
- roll-your-own cigarettes without filter Yes No
- other forms of tobacco Yes No

4. Do you vape? Yes Ex-vaper Never
 If 'Yes', what do you vape:

5. How often do you vape:

6. For ex-vapers, how long ago did you stop vaping:

DOCTOR TO COMPLETE

Brief smoking/vaping cessation advice given Yes No

Other medical history

Do you have or been told that you have:

OTHER MEDICAL HISTORY		Doctor's comment
1. Arthritis/painful swollen joints	<input type="radio"/> Yes <input type="radio"/> No	
2. Anxiety/depression	<input type="radio"/> Yes <input type="radio"/> No	
3. Auto immune conditions (such as lupus or scleroderma)	<input type="radio"/> Yes <input type="radio"/> No	
4. Kidney or bladder problems	<input type="radio"/> Yes <input type="radio"/> No	
5. Neurological problems	<input type="radio"/> Yes <input type="radio"/> No	
6. Heart problems	<input type="radio"/> Yes <input type="radio"/> No	
7. Skin problem	<input type="radio"/> Yes <input type="radio"/> No	
8. Tuberculosis	<input type="radio"/> Yes <input type="radio"/> No	
9. Have you had any test or seen any specialist?	<input type="radio"/> Yes <input type="radio"/> No	
If yes to Q9, please provide details:		

Respirable crystalline silica

Perceived stress scale

<p>Note: The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.</p>	FOR EACH QUESTION CHOOSE ONE FROM THE FOLLOWING ALTERNATIVES				
	0 Never	1 Almost never	2 Sometimes	3 Fairly often	4 Very often
1. In the last month, how often have you been upset because of something that happened unexpectedly?					
2. In the last month, how often have you felt that you were unable to control the important things in your life?					
3. In the last month, how often have you felt nervous and stressed?					
4. In the last month, how often have you felt confident about your ability to handle your personal problems?					
5. In the last month, how often have you felt that things were going your way?					
6. In the last month, how often have you found that you could not cope with all the things that you had to do?					
7. In the last month, how often have you been able to control irritations in your life?					
8. In the last month, how often have you felt that you were on top of things?					
9. In the last month, how often have you been angered because of things that happened that were outside of your control?					
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					
Doctor to determine worker's PSS score by following these directions:					

Doctor to complete

Add up the scores for each item to get a total.

Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress.

Scores ranging from 0–13 would be considered low stress.

Scores ranging from 14–26 would be considered moderate stress.

Scores ranging from 27–40 would be considered high perceived stress

Total score:

Doctor's comment:

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DOCTOR TO COMPLETE

Part 2: Examination

MEASUREMENT

1. Height (without shoes)	cm	2. Weight	kg	3. BMI
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RESPIRATORY

		Doctor's comment
1. Breathing normal and regular in character	<input type="radio"/> Yes <input type="radio"/> No	
2. Chest Expansion, normal	<input type="radio"/> Yes <input type="radio"/> No	
3. Auscultation normal	<input type="radio"/> Yes <input type="radio"/> No	

RESPIRATOR FIT

			Doctor's comment
1. Clean Shaven	<input type="radio"/> Yes <input type="radio"/> No		
2. Normal Dentition	<input type="radio"/> Yes <input type="radio"/> No		
3. Normal face shape	<input type="radio"/> Yes <input type="radio"/> No		
4. RPE in good repair	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Not seen	
5. Seal check RPE	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Not seen	
6. Formal Fit check completed	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Not seen	
7. Discussion regarding RPE/facial hair/completed	<input type="radio"/> Yes <input type="radio"/> No		
	<input type="radio"/> Yes <input type="radio"/> No		
	<input type="radio"/> Yes <input type="radio"/> No		
	<input type="radio"/> Yes <input type="radio"/> No		

CARDIOVASCULAR

		Doctor's comment
1. BP Normal	<input type="radio"/> Yes <input type="radio"/> No	
2. Heart Sound Normal	<input type="radio"/> Yes <input type="radio"/> No	
3. Pulse and peripheral pulses normal	<input type="radio"/> Yes <input type="radio"/> No	
4. Absence of evidence of cardiac failure/oedema	<input type="radio"/> Yes <input type="radio"/> No	

OTHERS

		Doctor's comment
1. No clinical features of Raynaud's	<input type="radio"/> Yes <input type="radio"/> No	
2. No clinical features of scleroderma	<input type="radio"/> Yes <input type="radio"/> No	
3. No clinical features of small joint arthritis	<input type="radio"/> Yes <input type="radio"/> No	

Respirable crystalline silica

DOCTOR TO COMPLETE

ACTION TAKEN ON THE DAY OF EXAMINATION

		Date ordered	Date completed
1. ACC claim submitted: (number)	<input type="radio"/> Yes <input type="radio"/> No		
2. Discussion regarding RPE/ facial hair/ smoking completed	<input type="radio"/> Yes <input type="radio"/> No		
3. Blood/urine screening tests ordered (using standard form)	<input type="radio"/> Yes <input type="radio"/> No		
4. CXR/CT chest ordered (using standard form)	<input type="radio"/> Yes <input type="radio"/> No		
5. Formal pulmonary function tests ordered	<input type="radio"/> Yes <input type="radio"/> No		
6. Respiratory physician referral	<input type="radio"/> Yes <input type="radio"/> No		
7. Added to National Silica MDM review	<input type="radio"/> Yes <input type="radio"/> No		
8. Advised patient to seek GP review for	<input type="radio"/> Yes <input type="radio"/> No		
Others:			

FOLLOW UP ACTIONS

1. Blood/ Urine result reviewed: Normal	<input type="radio"/> Yes <input type="radio"/> No	Comments:
2. CXR/CT results reviewed: Normal	<input type="radio"/> Yes <input type="radio"/> No	Comments:
3. PFT's results reviewed: Normal	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A initially	Comments:
4. Respiratory physician result reviewed	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A initially	Comments:
5. Additional actions taken:	<input type="radio"/> Yes <input type="radio"/> No	Comments:
a. Formal pulmonary function tests	<input type="radio"/> Yes <input type="radio"/> No	
b. Respiratory physician referral	<input type="radio"/> Yes <input type="radio"/> No	
c. Other	<input type="radio"/> Yes <input type="radio"/> No	
d. Results provided to patient	<input type="radio"/> Yes <input type="radio"/> No	
e. Results provided to ACC	<input type="radio"/> Yes <input type="radio"/> No	
The services of an interpreter were used to assist with gathering information for this medical		<input type="radio"/> Yes <input type="radio"/> No

Respirable crystalline silica

DOCTOR TO COMPLETE

Part 3: Report to PCBU

Employer/PCBU details:

Employee details:

HEALTH SURVEILLANCE COMPLETED

		Date	Findings normal
1. Occupational physician assesment	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No
2. Blood/urine screening tests	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No
3. CXR/CT chest	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No
4. Formal lung function test	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No
5. Respiratory physician assessment	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No
6. National Silica MDM review	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No
7. Others	<input type="radio"/> Yes <input type="radio"/> No	DD / MM / YEAR	<input type="radio"/> Yes <input type="radio"/> No

Comments:

Note: This information has been provided to ACC and WorkSafe as appropriate

WORK RECOMMENDATION FOR THIS EMPLOYEE

1. This employee is is not permitted to work in roles with exposure to silica dust.

2. Ongoing health surveillance and monitoring requirements for this employee (PCBU responsibility)

The NZ Dust Diseases Taskforce is currently working with International colleagues to confirm ongoing health surveillance and monitoring requirements. In the interim, you should discuss monitoring and surveillance requirements directly with the occupational physician.

Additional comments:

MONITORING RECOMMENDATIONS FOR YOUR PCBU/WORKSITE(S) (PCBU RESPONSIBILITY)

3. As per recommendations from WorkSafe and NZ Dust Diseases Taskforce

Additional comments:

Doctor's name:

Contact details:

Signature:

Date: DD / MM / YEAR

Appendix Nine – Respiratory Questionnaire Isolated

ATTACHMENT A

Respiratory function examination

Standardised respiratory symptoms questionnaire

The below questionnaire must be administered in accordance with the [instructions](#) approved by the British Medical Research Council's Committee on Environment and Occupational Health.

The actual wording of each question must be used.

Tick the YES or NO column, or enter other codes as indicated in boxes.

When in doubt record as NO.

Preamble

I am going to ask you some questions, mainly about your chest. I'd like you to answer YES or NO whenever possible.

QUESTIONS	YES	NO
Cough		
1 Do you usually cough first thing in the morning in the winter?		
2 Do you usually cough during the day – or at night – in the winter?		
If 'Yes' to 1 or 2 ask the follow-up question		
3 Do you cough like this on most days for as much as three months each year?		
Phlegm		
4 Do you usually bring up any phlegm from your chest first thing in the morning in winter?		
5 Do you usually bring up any phlegm from your chest during the day – or night – in winter?		
If 'Yes' to 4 or 5 ask the follow-up question		
6 Do you bring up phlegm like this on most days for as much as three months each year?		
Periods of cough and phlegm		
7 In the past three years have you had a period of (increased) cough and phlegm lasting for three weeks or more?		
If 'Yes' ask the follow-up question		
8 Have you had more than one such period?		
Breathlessness		
<i>If the worker is disabled from walking by any condition other than heart or lung disease, omit question 9 and enter YES here.</i>		

Respiratory Function Assessment (Cont)

QUESTIONS	YES	NO
9 Are you troubled by shortness of breath when hurrying on level ground or walking up a slight hill?		
<i>If 'Yes' ask the follow-up question</i>		
10 Do you get short of breath walking with other people of your own age on level ground?		
<i>If 'Yes' ask the follow-up question</i>		
11 Do you have to stop for breathe when walking at your own pace on level ground?		
<i>Wheezing</i>		
12 Have you had attacks of wheezing or whistling in your chest at any time in the last 12 months?		
13 Have you ever had attacks of shortness of breath with wheezing?		
<i>If 'Yes' ask the follow-up question</i>		
14 Is/was your breathing absolutely normal between attacks?		
15 Have you at any time in the last 12 months been woken at night by an attack of shortness of breath?		
<i>Chest illnesses</i>		
16 During the past three years have you had any chest illness that has kept you from your usual activities for as much as a week?		
<i>If 'Yes' ask the follow-up question</i>		
17 Did you bring up more phlegm than usual in any of these illnesses?		
<i>If 'Yes' ask the follow-up question</i>		
18 Have you had more than one illness like this in the past three years?		

Respiratory Function Assessment (Cont)

QUESTIONS	YES	NO
Past illnesses		
19 Have you ever had, or been told that you have had:		
a) An injury affecting your chest?		
b) Heart trouble?		
c) Bronchitis?		
d) Pneumonia?		
e) Pleurisy?		
f) Pulmonary tuberculosis?		
g) Bronchial asthma?		
h) Other chest trouble?		
i) Hay fever?		
Tobacco smoking		
20 Do you smoke?		
If 'No' ask the follow-up question		
21 Have you ever smoked as much as one cigarette a day (or one cigar a week or 28 grams of tobacco a month) for as long as a year?		
If 'No' to questions 20 and 21, omit remaining questions on smoking.		
22 Do (did) you inhale the smoke?		
If 'Yes' ask the follow-up question		
23 Would you say you inhaled the smoke slightly (= 1), moderately (= 2), or deeply (= 3)?		
24 How old were you when you started smoking regularly?		
25 Do (did) you smoke manufactured cigarettes?		
If 'Yes' ask the follow-up question		
26 How many do (did) you usually smoke per day on weekdays?		
27 How many per day at weekends?		
28 Do (did) you usually smoke plain (= 1) or filter tip (= 2) cigarettes?		
29 What brands do (did) you usually smoke?		
30 Do (did) you smoke hand-rolled cigarettes?		

Respiratory Function Assessment (Cont)

QUESTIONS	YES	NO
<i>If 'Yes' ask the follow-up question</i>		
31 How much tobacco do (did) you usually smoke per week in this way (in grams)?		
32 Do (did) you put filters in these cigarettes?		
33 Do (did) you smoke a pipe?		
<i>If 'Yes' ask the follow-up question</i>		
34 How much pipe tobacco do (did) you usually smoke per day (in grams)?		
35 Do (did) you smoke small cigars?		
<i>If 'Yes' ask the follow-up question</i>		
36 How many of these do (did) you usually smoke per day?		
37 Do (did) you smoke cigars?		
<i>If 'Yes' ask the follow-up question</i>		
38 How many of these do (did) you usually smoke per week?		
<i>For present smokers</i>		
39 Have you been cutting down your smoking over the past year?		
<i>For ex-smokers</i>		
40 When did you give up smoking altogether? (<i>what year</i>)		
<i>Comments /notes</i>		

Appendix Ten – Respiratory Questionnaire Instructions

Instructions to Interviewers

The diagnosis of chronic bronchitis and other respiratory disorders during life is at present largely based on symptoms, together with other features of the clinical history, X-rays and/or lung function tests. It is well known, however, that the symptoms to which an individual admits may be influenced to some extent by the exact phrasing of the questions and by the person who asks them. To overcome some of these difficulties, this questionnaire provides a set of standard questions for enquiring about the presence or absence of common respiratory symptoms. The aim in completing it is to elicit the facts and to avoid bias due to different techniques of questioning. Provision is made for the inclusion of some basic ventilatory capacity measurements, but additional tests may be incorporated as appropriate to each investigation.

Training

Before embarking on a survey, the questionnaire and instructions should be studied and any difficulties discussed. Interviewers should apply the questionnaire to 10 or more subjects (such as hospital patients) who have at least some chest symptoms (since no difficulty arises with subjects who answer all questions with a confident 'no'). These interviews should be either witnessed by an experienced colleague or, better tape-recorded so that any mistakes or doubtful points can be corrected and clarified at leisure afterwards. Tape-recordings of a series of interviews based on the questionnaire are available and should be listened to if possible. These tapes are designed to illustrate difficulties arising in the interpretation of answers to the standard questionnaire during field surveys, A series of interviews is also provided which a potential interviewer can use to compare their own ratings of the responses given with those of the group of British workers responsible for the production of the tapes.

General instructions

Before starting to ask questions an interviewer should instruct subjects to answer simply 'yes' or 'no' to the questions. The actual printed wording should be used for each question. In most cases this should lead to a simple 'yes' or 'no' answer, which should be accepted and recorded. Occasionally the subject will express doubt about the meaning of the question or the appropriate reply, When this happens further probing will be needed. Repetition of the question is usually sufficient. Some guidance for dealing with the commoner difficulties is given below. When, after a brief explanation, doubt remains about whether the answer is 'yes' or 'no', the answer should be recorded as 'no'.

Recording the replies to the questions

Most of the questions are of the 'yes' or 'no' type and replies to these questions may be coded directly in the tick boxes provided.

Comments on individual items

Ethnic group: This should be defined in a way that is appropriate for the study, as reporting of respiratory symptoms depends to some extent on cultural and ethnic background.

Occupation and industry: Details of occupation that need to be recorded may vary with each survey and should be determined by those planning the survey before interviewing begins.

Cough and phlegm:

Question 1

Count a cough with first smoke or on first going out of doors. Exclude clearing the throat or a single cough.

Question 4

Count phlegm with first smoke or on first going out of doors. Exclude phlegm from the nose, count phlegm swallowed. In those parts of the world where respiratory symptoms are most common at some other time of the year, the appropriate word should be substituted for 'winter'. Where there is no seasonal variation in respiratory symptoms the word 'winter' should be omitted. When night shift workers are interviewed, the words 'on getting up' should be used instead of 'first thing in the morning' in questions 1 and 4.

With regard to coughing during the day, in question 2, an 'occasional' cough may be considered normal and the answer should then be recorded as 'no'. It is impossible to define the limits of 'occasional' accurately, but to provide a rough guide it is suggested that single coughs of a frequency of less than six per day are 'occasional'.

On the other hand, in question 5, 'occasional' phlegm production from the chest is considered abnormal if it occurs twice or more per day. The interviewer may use any suitable word that accords with local usage provided that it distinguishes phlegm from the chest or throat from pure nasal discharge.

Some subjects admit to bringing up phlegm without admitting to coughing. This should be accepted without changing the replies to the questions about cough. A claim that phlegm is coughed from the chest but swallowed counts as a positive reply.

In questions 1, 2, 4 and 5 the word 'usually' should be emphasized. If one of the first two questions about cough (1-2) or one of those on phlegm (4-5) is answered clearly 'yes', questions 3 and 6 should be asked as confirmatory questions, and they should be asked at the point at which they are printed in the questionnaire (as in Example 1, questions 4 and 5).

Example 1

Q4 Interviewer: Do you usually bring up any phlegm from your chest first thing in the morning in the winter?

Subject: Yes.

Q5 Interviewer: Do you usually bring up any phlegm from your chest during the day, or at night, in the winter?

Subject: Yes, but only a little bit.

Q6 Interviewer: Do you bring up phlegm like this on most days for as much as three months each year?

Subject: No, not as often as that.

The interviewer should record these answers as follows:

Question 4: Yes, Question 5: Yes, Question 6: No.

If, however, a doubtful answer to question 1 or 2 or to question 4 or 5 is obtained (eg 'yes, sometimes') question 3 or 6 should be asked immediately as a probing question. If the answer to the probing question is 'no' the answer to the basic question should be recorded as if it had been 'no'. If a subsequent question in the same set receives a definite 'yes' the probing question should be repeated (see Example 2),

Example 2

Q1 Interviewer: Do you usually cough first thing in the morning in the winter?

Subject: Yes, sometimes.

Q3 Interviewer: Do you cough like this on most days for as much as three months each year?

Subject: Oh no, not most days.

Q2 Interviewer: Do you usually cough during the day, or at night, in the winter?

Subject: Well from time to time.

Interviewer: Do you cough as much as six times a day?

Subject: Yes, more than that [I'd say.

Q3 Interviewer: Do you cough like this on most days for as much as three months each year?

Subject: Weil, not every day.

Interviewer: More often than not?

Subject: Yes, I'd say so.

The interviewer should record these answers as follows:

Question 1: No, Question 2: Yes, Question 3: Yes.

In question 7a the word 'increased' should be used only for subjects who have already admitted to some habitual cough and phlegm.

Breathlessness:

In order to increase uniformity between surveys carried out at different seasons, it is suggested that the question on breathlessness should refer to the time of the year when breathlessness is at its worst.

'Hurrying' implies walking quickly. If the subject is disabled from walking by any condition other than heart or lung disease this should be recorded.

Wheezing: If this question is not understood, vocal demonstration of wheezing by the interviewer is often helpful. No distinction is made between those who only wheeze during the day and those who only wheeze at night. The word 'asthma' should not be used.

Chest illnesses: Asking about 'usual activities' is designed to avoid biases which are known to arise from sickness benefit considerations if subjects are asked about illnesses interfering with their work.

Smoking: Questions on smoking are essential in any study on respiratory symptoms, yet the reliability of answers has diminished over time. People are more likely to deny that they smoke than in the past and also to underestimate the amount smoked.

With the change in cigarette types it is important also to know the tar and nicotine yields of the product. Since subjects are unreliable in reporting such details, investigators should attempt to collect an empty cigarette pack from the smoker in order to identify the brand positively and thence to obtain tar/nicotine yields from published lists. Although a question on inhaling is retained, this too is not reliably answered. The actual uptake of smoke components is determined by the individual's smoking pattern as well as by the amount and type of product smoked, and investigators are encouraged to use an objective method of assessment, eg there is a simple test for nicotine metabolites in urine samples (Ellard et al., Thorax 1985, 40, 351-357), and other tests based on blood or saliva samples are available.

Those who smoke cigarettes must also be asked about other forms of smoking. 'Small' cigars are those which are the same size as cigarettes: all cigars larger than cigarettes should be classified as 'other'. Amounts of tobacco (for pipe smoking) or hand-rolled cigarettes should be recorded in units appropriate for each study: the form is laid out for grams (1 ounce = 28 g). Specific enquiry is made about smoking

habits at weekends because some people smoke more or less at these times than during the week, and if necessary, allowance should be made for this when assessing the weekly consumption.

An ex-smoker is defined as anyone who has smoked as much as one cigarette per day (or one large cigar per week or an ounce (= 28g) of tobacco per month) for as long as a year and who at the time of the interview had not smoked for 6 months or more.

Ventilatory capacity: The exact procedure to be adopted varies with the type of instrument used, and training sessions are required before embarking on a survey.

Spirometric readings may include the forced expiratory volume in one second (FEV1) and the forced vital capacity (FVC) from a number of successive blows. The recommended procedure is to obtain and report five technically satisfactory blows from each subject, then using the three highest FEV's and the three highest FVC's (not necessarily from the same blows) for the calculation of mean values, though other criteria may be adopted providing they are specified and adhered to within any given series of studies.

Conventions for measuring and recording height and weight should be established carefully: eg height may be recorded without shoes, to the nearest cm below, and weight with light clothing to the nearest 1/10th kg below.

Appendix Eleven – NZOHNA Skills and Knowledge as Applicable to OHNDDS

Appendix A

Comprehensive Guide: Occupational Health Nurse Competencies

Abbreviations OH: Occupational Health, OSH: Occupational Safety & Health

Note: Some listed competencies may not be part of the individual OHN practice. This list is a guide only so not limited to the included OHN focus points.

Areas of competencies	Beginner (not included on K&SF)	Level 1 Competent	Level 2- Proficient	Level 3- Expert
Description of levels	<ul style="list-style-type: none"> Included for reference only New graduates not routinely employed in this area Broad experienced RN Less than 6 months of orientation in occupational Health 	<ul style="list-style-type: none"> Is a developing OHN Registered Nurse who has worked in the speciality of occupational health for more than 6 months continuous FTE Has a strong current knowledge of key issues/evidence in the OH field and has a foundational knowledge of OHS Where required, has supervised (or access to) support by an appropriate OH&Safety practitioner. Can demonstrate training on a OH competency pathway Demonstrates basic competence and safe practice in the occupational health field of nursing practice If applicable, Individual assessment for progression linked with performance review 	<ul style="list-style-type: none"> Is an established OHN Previous OH and safety experience in healthcare industry. Holds or working towards a recordable OHN post graduate qualification, or on pathway to NZQA level 8. Demonstrates developed skills in the field of occupational health & safety practice. Some coaching/guidance and support is required with developing skills in mentoring others If applicable, progression linked with performance review 	<ul style="list-style-type: none"> Is an acknowledged leader in Occupational health that guides, leads and influences others Demonstrates expertise in the field of occupational health & safety practice. Requires minimal coaching /guidance Supports and provides mentorship to others either within or outside their organisation Has tacit knowledge of key issues/ evidence in the OH&S field Is promoting occupational health at a national/international level Links services & policy development to organisation’s needs
Stage of practice	<ul style="list-style-type: none"> Undergoing orientation programme to serve with organisations Provides safe, basic occupational health practice with supervision 	<ul style="list-style-type: none"> Continues to develop skills and knowledge transferring to specific healthcare specialty Functions comfortably as a clinician, a coordinator and beginner case manager 	<ul style="list-style-type: none"> Sophisticated clinical and management skills in health care setting Continues to develop advanced skills, knowledge and culture required in the OSH environment 	<ul style="list-style-type: none"> Leadership and coaching development Has developed advanced skills knowledge in OSH focusing in leadership, developing policy and consulting at a high level

Areas of competencies	Beginner (<i>not included on K&SF</i>)	Level 1 Competent	Level 2- Proficient	Level 3- Expert
Maori Culture enrichment	<ul style="list-style-type: none"> • Able to state the guiding values and cultural components form the Maori health strategy which is aligned with values. • Have clear understanding of the referral process to Maori Health Services. 	<ul style="list-style-type: none"> • Apply and demonstrate in OSH practice the guiding values and cultural components when caring for Maori 	<ul style="list-style-type: none"> • Show the use of a cultural component in written reflection on practice development when caring for Maori 	<ul style="list-style-type: none"> • Within the reflection on practice, analyse the differences this process has made for Maori in the clinical setting
Regulatory/Legislative	<ul style="list-style-type: none"> • Orientate to legislation and regulations which affects practice, workers, workplace and environment 	<ul style="list-style-type: none"> • Demonstrates understanding with legislation and regulation • Keeps up to date with legislative changes • Monitors legislative activities that impacts on OSH workers, worksite and environment 	<ul style="list-style-type: none"> • Engages in the management of the impact of legislation for practice, workers worksite and environment for the business 	<ul style="list-style-type: none"> • Influences legislation and regulatory public policy relating to practice, workers, worksite and environment for healthcare industry
Clinical primary care	<ul style="list-style-type: none"> • Corporate orientation • OSH familiarization to be completed early on, e.g. within 10 weeks • Fire/ CPR/ back care • Basic event, and attendance, management and supervision • Implement nursing care process (clinic work) • Able to refer and follow up to appropriate providers (i.e. supervision) • Understanding risk/hazard management process • Orientating to the OSH record-keeping system. • Understanding of standing orders • Basic first aid • Basic counselling • Referral process orientation, safe way of working • Basic Pre-employment screening 	<ul style="list-style-type: none"> • Vaccinator certificate • Event, & attendance, management • Worksite assessment process • Advice to generic service/client regarding Hazard Management • Audiometry/Lung function testing • Complex pre-employment • Uses and documents the OSH process in care management. • Assesses, diagnoses and treats clients consistent with appropriate standards and laws • Counsels clients on reduction of risks associated with occupation and environment, and hazards • Uses and maintains an accurate, complete record-keeping system, while maintaining confidentiality 	<ul style="list-style-type: none"> • Develops and evaluates clinical practice guidelines, collaborating with other occupational health & safety professionals 	<ul style="list-style-type: none"> • Vaccinator programme coordinator. • Mentoring and facilitating OH professionals for clinical and professional development • Develops policy and procedures for clinical practice

Areas of competencies	Beginner (<i>not included on K&SF</i>)	Level 1 Competent	Level 2- Proficient	Level 3- Expert
Workforce, workplace and environment	<ul style="list-style-type: none"> • Orientated to significant risks, hazards and organization • Orientated to the screening and surveillance programmes of the organisation • Oriented to worksite assessment 	<ul style="list-style-type: none"> • Coordinates screening and surveillance programmes for services • Ability to interpret the programmes and results • Knowledge of referral process and collaboration with other team members for on-going appropriate investigation and referral to external agencies • Able to work with individual workplaces to access the needs of the surveillance in the relation to workplace hazards 	<ul style="list-style-type: none"> • Ability to analyse risk associated with workplace hazards, trend analysis • Ability to develop, manage and evaluate population- risk reduction health surveillance program complying with relevant legislation 	<ul style="list-style-type: none"> • Functions as OSH expert in relation to Healthcare specific industry liaising with agencies as appropriate • On-going advancement of knowledge and legislative requirements • Works independently in all areas of planning/assessment and monitoring of significant hazard advice
Rehabilitation and case management	<ul style="list-style-type: none"> • Undertakes departmental orientation • Demonstrates familiarity with legislation • Demonstrates familiarity with what resources are available and how to access them • Management of rehabilitation and case management under supervision • Carries out basic rehabilitation/ case management processes as instructed by preceptor • Aware of need for confidentiality • Aware of desired outcome 	<ul style="list-style-type: none"> • Identifies the need for rehabilitation case management intervention • Able to conduct a case management needs assessment • Uses and evaluates available healthcare resources to achieve optimal healthcare outcome • Collaboration with the client and others to use a multi-disciplinary approach • Maintains accurate confidential record-keeping system 	<ul style="list-style-type: none"> • Develops rehabilitation case management programme • Manages / coordinates rehabilitation / case manager programme • Conducts review of current research and other literature • Uses appropriate research findings in the development of policies procedures and guidelines • Defines jointly with management the goals and scope of organisation's rehabilitation and case management programme 	<ul style="list-style-type: none"> • Functions as an expert to internal, external agencies re: case management / rehabilitation in healthcare specialty • Design integrated, illness management systems – analyse trends, on-going development of programmes. • Function as a specialist consultant for rehabilitation and case management systems on individual cases • Develops and conducts educational programmes to enhance the use of rehabilitation and case management by healthcare providers, managers and clients
Management and clinical leadership	<ul style="list-style-type: none"> • Orientation to organisation services and personnel • Attends corporate orientation • Ability to work within the organisation • Ability to manage own time effectively 	<ul style="list-style-type: none"> • Identifies the organisational structure, culture and climate • Collaborates with multi-disciplinary team to foster the provision of effective OSH programmes and services • Uses an ethical decision making framework in all activities • Participates in formulating plans and goals regarding service development 	<ul style="list-style-type: none"> • Participates in the learning culture of the organisation • Takes a leadership role, providing coaching and support • Participates in decisions for the acquisition of the resources for services. • Demonstrates effective communication and interpersonal skills within the organisation • Participation in learning and development to understand best practice and evidence-based practice. 	<ul style="list-style-type: none"> • Involvement in strategic planning for OSH for the organisation, plus services specific areas • Provides advice on scope and focus of OSH programmes for the organisation • Practices 'best practice' in human resource management i.e. coaching, change, professional development, advanced communication and interpersonal skills

Areas of competencies	Beginner (<i>not included on K&SF</i>)	Level 1 Competent	Level 2- Proficient	Level 3- Expert
Health promotion and disease prevention	<ul style="list-style-type: none"> Orientation to the needs of the health promotion and disease prevention in the healthcare environment 	<ul style="list-style-type: none"> Identify the needs for health promotion and disease prevention of workers within the healthcare environment Collaborate with other professionals to target and plan services Promotes OSH programmes and services 	<ul style="list-style-type: none"> Develops health promotion and disease prevention programmes for services by critically evaluating and applying research findings into the programme design Collaborate with management for the implementation of identified programmes Conducts trend analysis targeting health promotion and disease prevention Assists and advises management to develop health promotion programmes which have been identified through trend analysis and research 	<ul style="list-style-type: none"> Provides advice on OSH promotion within the organisation Provides operational direction for health promotion by developing policies/procedures Liaison with other healthcare and affiliated industries
OSH education and training	<ul style="list-style-type: none"> Orientation to OSH services existing education programmes 	<ul style="list-style-type: none"> Implements OSH training for groups, individual. Able to review and evaluate Uses adult learning concepts Maintains records 	<ul style="list-style-type: none"> Develops and evaluates OSH education and training programmes and services Communicates with organisation regarding needs, then reviews outcomes and effectiveness 	<ul style="list-style-type: none"> Serves as an expert with ability to advise regarding specific healthcare training to other affiliated organisations Mentor/preceptor Identifies and reviews programme's effectiveness Involved in appropriate policy development
Teamwork	<ul style="list-style-type: none"> Is learning to interrelate effectively with the various multi-disciplinary team members Receives guidance about making referrals and knows when to seek assistance Is collaborative and cooperative 	<ul style="list-style-type: none"> Interrelates effectively with the various multi-disciplinary team members Makes referrals and knows when to seek assistance 	<ul style="list-style-type: none"> Helps identify need for team input to meet the needs of the client Is effective, positive team member Assists others with their work as appropriate 	<ul style="list-style-type: none"> Calm, confident manner Good working relationships Coordinates the team input confidently Good defusing skills
Quality and research	<ul style="list-style-type: none"> Uses 'best practice' essential to improving quality of service 	<p>Able to:</p> <ul style="list-style-type: none"> Identify resources that describe relevant research findings and able to apply them to practice i.e. journal club/ conference/ other education. Identify researchable problems 	<p>Able to:</p> <ul style="list-style-type: none"> Identify needs for research of practice issues Enhance research skills Assist or conduct research communicate research findings 	<p>Able to:</p> <ul style="list-style-type: none"> Initiate participation in research related to field as appropriate Liaise with appropriate agencies Build and validate the scientific knowledge base

Areas of competencies	Beginner (<i>not included on K&SF</i>)	Level 1 Competent	Level 2- Proficient	Level 3- Expert
Professionalism and professional development	<ul style="list-style-type: none"> • Registered nurse with current practicing certificate and up-to-date portfolio • Supports a research based discipline • Knowledge of organisational values • Belongs to professional .association • Practices within an ethical framework 	<ul style="list-style-type: none"> • Develops and implements a lifelong learning plan, including strategies for academic education, continuing professional education and certificates as appropriate • Maintains up to date professional knowledge of specific industry • Regular performance appraisals with agreed goals • Practice reflects organisational values 	<ul style="list-style-type: none"> • Assumes leadership role within the work environment • Act as role model, mentor, and educator. • Involved in policy development and review 	<ul style="list-style-type: none"> • Advances profession and collaborates with other professionals • Keeps practice of OSH services up to date, keeping within the framework • Assumes leadership role • Works alongside relevant agencies to address specific industry OSH nursing • Undertakes post registration education an advanced practice
<i>Technology management</i>	<p>Has reasonable knowledge and understanding of computer technology, including:</p> <ul style="list-style-type: none"> • Outlook • Windows • Internet • Basic word processing 	<ul style="list-style-type: none"> • Intermediate word processing skills 	<ul style="list-style-type: none"> • Word processing • Excel as required • Power point as required 	<ul style="list-style-type: none"> • Resources for staff

Appendix Twelve – Adult Respiratory Nursing Knowledge and Skills Framework as Applicable to OHNDDS

Definitions of Terms

(These definitions are a guide for knowledge and skills in respiratory nursing. Select those relevant to your area of practice)

<p>Pulmonary Anatomy and Physiology</p> <ul style="list-style-type: none"> <input type="checkbox"/> Alveolar sacs <input type="checkbox"/> Normal respiratory breathing cycle <input type="checkbox"/> Pulmonary tree <input type="checkbox"/> Upper respiratory tract 	<p>Core Respiratory Conditions</p> <ul style="list-style-type: none"> <input type="checkbox"/> Asthma <input type="checkbox"/> Bronchiectasis <input type="checkbox"/> Bronchitis <input type="checkbox"/> Chronic Obstructive Pulmonary Disease (COPD) <input type="checkbox"/> Emphysema <input type="checkbox"/> Pneumonia 	<p>Other Respiratory Conditions</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bronchiolitis <input type="checkbox"/> Cystic Fibrosis <input type="checkbox"/> Interstitial Lung Disease <input type="checkbox"/> Lung cancer <input type="checkbox"/> Pleural effusion <input type="checkbox"/> Pneumothorax <input type="checkbox"/> Pulmonary embolism <input type="checkbox"/> Tuberculosis 	<p>Relevant Co-morbidities</p> <ul style="list-style-type: none"> <input type="checkbox"/> Anxiety, panic & depression <input type="checkbox"/> Breathing pattern disorder <input type="checkbox"/> Cardiac disease <input type="checkbox"/> Cerebrovascular disease <input type="checkbox"/> Diabetes <input type="checkbox"/> Gastro-oesophageal reflux <input type="checkbox"/> Osteoporosis <input type="checkbox"/> Renal disease <input type="checkbox"/> Sleep disordered breathing <input type="checkbox"/> Upper airways disease <input type="checkbox"/> Cognitive impairment 	<p>Health History</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cognitive/Psychosocial factors <input type="checkbox"/> Family/Social/Housing history <input type="checkbox"/> Functional capacity <input type="checkbox"/> Medications & allergies <input type="checkbox"/> Nutritional status <input type="checkbox"/> Occupational history <input type="checkbox"/> Respiratory/Medical history <input type="checkbox"/> Sleep patterns <input type="checkbox"/> Smoking status <input type="checkbox"/> Social supports <input type="checkbox"/> Symptom history <input type="checkbox"/> Chest discomfort/Pain/Dyspnoea
<p>Physical Assessment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Accessory muscle use <input type="checkbox"/> Blood pressure <input type="checkbox"/> Breathing pattern <input type="checkbox"/> Heart rate <input type="checkbox"/> Pulse oximetry <input type="checkbox"/> Normal/abnormal breath sounds <input type="checkbox"/> Respiratory rate <input type="checkbox"/> Sputum <input type="checkbox"/> Weight/Height/BMI 		<p>Respiratory Medications</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inhaled Corticosteroids <input type="checkbox"/> Leukotriene Receptor Antagonists <input type="checkbox"/> Short/Long-acting Anticholinergic <input type="checkbox"/> Short/Long-acting Beta agonists <input type="checkbox"/> Methylxanthines <input type="checkbox"/> Oral steroids <input type="checkbox"/> Oxygen 	<p>Other Medications</p> <ul style="list-style-type: none"> <input type="checkbox"/> Antibiotics <input type="checkbox"/> Antihistamines <input type="checkbox"/> Immunotherapy <input type="checkbox"/> Intra nasal sprays <input type="checkbox"/> Pseudo-ephedrine <input type="checkbox"/> Smoking cessation medication <input type="checkbox"/> Vaccines <input type="checkbox"/> Morphine <input type="checkbox"/> Anxiolytics 	<p>Over-The Counter/ Complementary Medications</p> <ul style="list-style-type: none"> <input type="checkbox"/> Alternative therapies (including St John’s Wort) <input type="checkbox"/> Antihistamines <input type="checkbox"/> Intra-nasal sprays <input type="checkbox"/> Mucolytics <input type="checkbox"/> Non-steroidal anti-inflammatory <input type="checkbox"/> Rongoa <input type="checkbox"/> NRT
<p>Common Diagnostic Tests</p> <ul style="list-style-type: none"> <input type="checkbox"/> Serial peak flow <input type="checkbox"/> Spirometry (Pre/Post) <input type="checkbox"/> Pulse oximetry/Arterial/Venous blood gas <input type="checkbox"/> CRP/D Dimer/proBNP <input type="checkbox"/> Electrolytes/Renal function <input type="checkbox"/> Haematology profile <input type="checkbox"/> HbA1C/Iron studies <input type="checkbox"/> Liver function <input type="checkbox"/> Quantiferon <input type="checkbox"/> Sputum culture <input type="checkbox"/> Thyroid function <input type="checkbox"/> Chest x-ray 	<p>Other Diagnostic Tests</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bone densitometry <input type="checkbox"/> CT and High resolution CT <input type="checkbox"/> ECG <input type="checkbox"/> Full Pulmonary Function Testing <input type="checkbox"/> Sleep studies <input type="checkbox"/> Walking tests (6 minute walk test, shuttle) 	<p>Assessment Tools</p> <ul style="list-style-type: none"> <input type="checkbox"/> Asthma Control Test (ACT) <input type="checkbox"/> Breathlessness scores <input type="checkbox"/> COPD Assessment Test (CAT) <input type="checkbox"/> Cognitive testing <input type="checkbox"/> Depression/Anxiety Assessment <input type="checkbox"/> Tests <input type="checkbox"/> Peak flow <input type="checkbox"/> Pneumonia scores <input type="checkbox"/> Quality of Life scores <input type="checkbox"/> Sleep Disorder Risk Assessments <input type="checkbox"/> Spirometry 	<p>Evidence Based Guidelines</p> <ul style="list-style-type: none"> <input type="checkbox"/> Advanced Care Planning <input type="checkbox"/> Asthma and Peak flow <input type="checkbox"/> Bronchiectasis <input type="checkbox"/> Chronic cough <input type="checkbox"/> COPD <input type="checkbox"/> Pneumonia <input type="checkbox"/> Pulmonary Rehabilitation <input type="checkbox"/> Oxygen therapy <input type="checkbox"/> Sleep Apnoea <input type="checkbox"/> Smoking Cessation & NRT <input type="checkbox"/> Spirometry <input type="checkbox"/> Tuberculosis 	

Terms in italics refer to headings in the 'Definitions of Terms' Table, page 13

Competent (ALL Nurses)

Objective	Knowledge/Skill (NCNZ Domain)	Met	Not Met	Initial/ Date
Aspect of Care: Physiology and Pathophysiology	Demonstrate knowledge of <i>Pulmonary Anatomy and Physiology</i> (1,2)			
	Discuss the pathophysiology, and causes associated with <i>Core Respiratory Conditions</i> (1,2)			
	Discuss the causes, signs and symptoms associated with <i>Core Respiratory Conditions</i> (1,2)			
Aspect of Care: Respiratory Assessment of the stable and acute patient, including investigations	Demonstrate an awareness of <i>Evidence Based Guidelines for Core Respiratory Conditions</i> (1,2,3,4)			
	Undertake a comprehensive <i>Health History</i> using an appropriate nursing assessment framework, and identify risk factors associated with <i>Core Respiratory Conditions</i> (1,2,3,4)			
	Demonstrate awareness of patients' individual needs, including cognition, developmental stage and cultural affiliation. Demonstrate knowledge of Maori Models of Health or others as appropriate (1,2,3,4)			
	Assess the knowledge base, health literacy and self-management capabilities of the client/whanau/family regarding their condition, perspective of diagnosis, and signs and symptoms as part of a <i>Comprehensive Health History</i> (1,2,3,4)			
	Discuss management options for environmental factors affecting <i>Core Respiratory Conditions</i> (1,2,3,4)			
	Demonstrate an understanding of <i>Relevant Co-morbidities</i> and their impact on <i>Core Respiratory Conditions</i> (1,2,3,4)			
	Demonstrate ability to undertake a competent <i>Physical Assessment</i> . Understand potential causes of abnormal findings (1,2,3,4)			
	Demonstrate competent <i>Physical Assessment</i> skills to identify signs of respiratory distress in <i>Core Respiratory Conditions</i> , taking into account the patient's usual stable state (1,2,3,4)			
	Demonstrate appropriate nursing intervention and prescribed treatment for the respiratory patient in acute respiratory distress, assess response and consult with wider health team as appropriate (1,2,3,4)			
Discuss the role of spirometry in assessment, diagnosis and health monitoring and describe referral process. Discuss the limitations of spirometry (1,2,4)				

Objective	Knowledge/Skill (NCNZ Domain)	Met	Not Met	Initial/ Date
Aspect of Care: Health Promotion	If spirometry is part of the practice setting, discuss quality framework (infection control, calibration), and demonstrate ability to perform a spirometry test with a client as per <i>Evidence Based Guidelines</i> , including identifying factors contributing to poor test quality (1,2,4)			
	Understand the different purposes of peak flow recordings (including peak flow diaries for diagnosis, monitoring and action plans; pre/post peak flows; measuring response to treatment), and normal variation as per <i>Evidence-Based Guidelines</i> (1,2,4)			
	Demonstrate correct peak flow technique, and recognise poor effort and technique (1,2,4)			
	Discuss clinical rationale for <i>Common Diagnostic Tests and Assessment Tools</i> (1,2,4)			
	Demonstrate an understanding of the role of pulse oximetry, its uses, limitations and common errors (1,2)			
	Demonstrate understanding of the implications of Blood Gas results for oxygen prescription (1,2)			
	Demonstrate an understanding of the relationship between <i>Core Respiratory Conditions</i> and sleep (1,2)			
	Understand relationship between smoking behaviour (including marijuana and other illegal substances) and respiratory disease, and the beneficial effects of cessation (1,2)			
	Discuss prevalence and patterns of smoking exposure in New Zealand, including among Maori and Pacific people (1,2)			
	Discuss importance of determining and documenting smoking status for all patients and families (1,2)			
	Discuss strategies to support quit attempts, including referral to support services as appropriate (1,2)			
	Undertake formal smoking cessation training program (1,2)			
	Discuss the role of spirometry in health screening (1,2)			
	Discuss the indications and contra-indications for the annual influenza and other vaccines in those with <i>Core Respiratory Conditions</i> (1,2)			
Understand the impact of environmental exposure including housing, home/work environment and socio-economic factors on those with <i>Core Respiratory Conditions</i> (1)				

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