Hand Arm Vibration Syndrome (HAVS) Standard

Unitas
Stoke-on-Trent Ltd.

Contents

1 Introduction 3
2 Scope 3
2.1 Further guidance 3
3 Process 4
4 Unitas requirements 5
4.1 Reducing Hand Arm Vibration 5
4.1.1 Understanding Hand Arm Vibration 5
4.1.2 Identifying those most at risk from Vibration 5
4.1.3 Exposure Prohibition: 6
4.1.4 Typical examples of vibration levels in construction tools 6
4.1.5 Planning the Work and reducing Exposure levels 6
4.1.6 Tool Selection and Reduction 7
4.1.7 Planned Maintenance 8
4.2 Exposure Monitoring 8
4.2.1 Exposure Action Value (EAV): 10
4.2.2 Exposure Limit Value (ELV): 10
4.3 Health surveillance 10
4.3.1 Heath Surveillance Communication and information 11
4.3.2 Employee Annual HAVS Screening: 11
4.3.3 Health surveillance referrals 11
4.4 Diagnosis of HAVS 12
4.4.1 Diagnosis of HAVS (stage 1): 12
4.4.2 Diagnosis of HAVS (stage 2): 13
4.4.3 Diagnosis of HAVS (stage 3): 13
4.4.4 14
Incident reporting 14

1 Introduction

The purpose of this Standard is to provide a process that applies to any work activity that has the potential to expose employees/ supply chain (contractors) to Hand Arm Vibration Syndrome (HAVS) and to ensure such work is performed at an acceptable level as defined by the Control of Vibration at Work Regulations 2005, supported by Health and Safety Executive (HSE) Guidance.

Unitas have implemented processes to protect employees from the risks of Hand Arm Vibration Syndrome (HAVS) which can be caused by exposure to vibration. These processes include:

- Assessing the risks from vibration exposure;
- Eliminate or reduce vibration exposure;
- Exposure time recording
- Taking into account vibration risks when purchasing or hiring equipment;
- Providing training and information for employees on the risks from vibration and the measures in place to reduce these;
- Exposure monitoring
- Providing health surveillance for employees likely to be regularly exposed to vibration.

The risk assessment form (SHEMS-FOR-GR-070) shall identify risk and any need for health surveillance, in order to verify the effectiveness of controls implemented as a result of the Risk Assessment & Impact Management Standard (SHEMS-STD-GR-014) and Safe Systems of Work (SSW)

Provide guidance for identifying any health related issues and the control of the use of vibrating equipment within the working environment. The Standard also determines how Unitas completes exposure monitoring, assesses, controls and reviews work involving HAVS.

Workers who are regularly exposed to high levels of vibration may suffer from several kinds of injury, including impaired blood circulation and damage to the nerves and muscles of the fingers, hands and arms. Collectively the injuries are known as “Hand-arm Vibration Syndrome” (HAVS) with the most common condition being “Vibration White Finger (VWF)”.

2 Scope

The scope of the SHEMS covers all persons, workplaces and operations in our business

Unitas SHEMS (SHEMS-STD-GR-003) provides guidance and signposting for the compliance, implementation, monitoring, audit and review of our systems, demonstrating continual improvement and achievement of the business objectives.

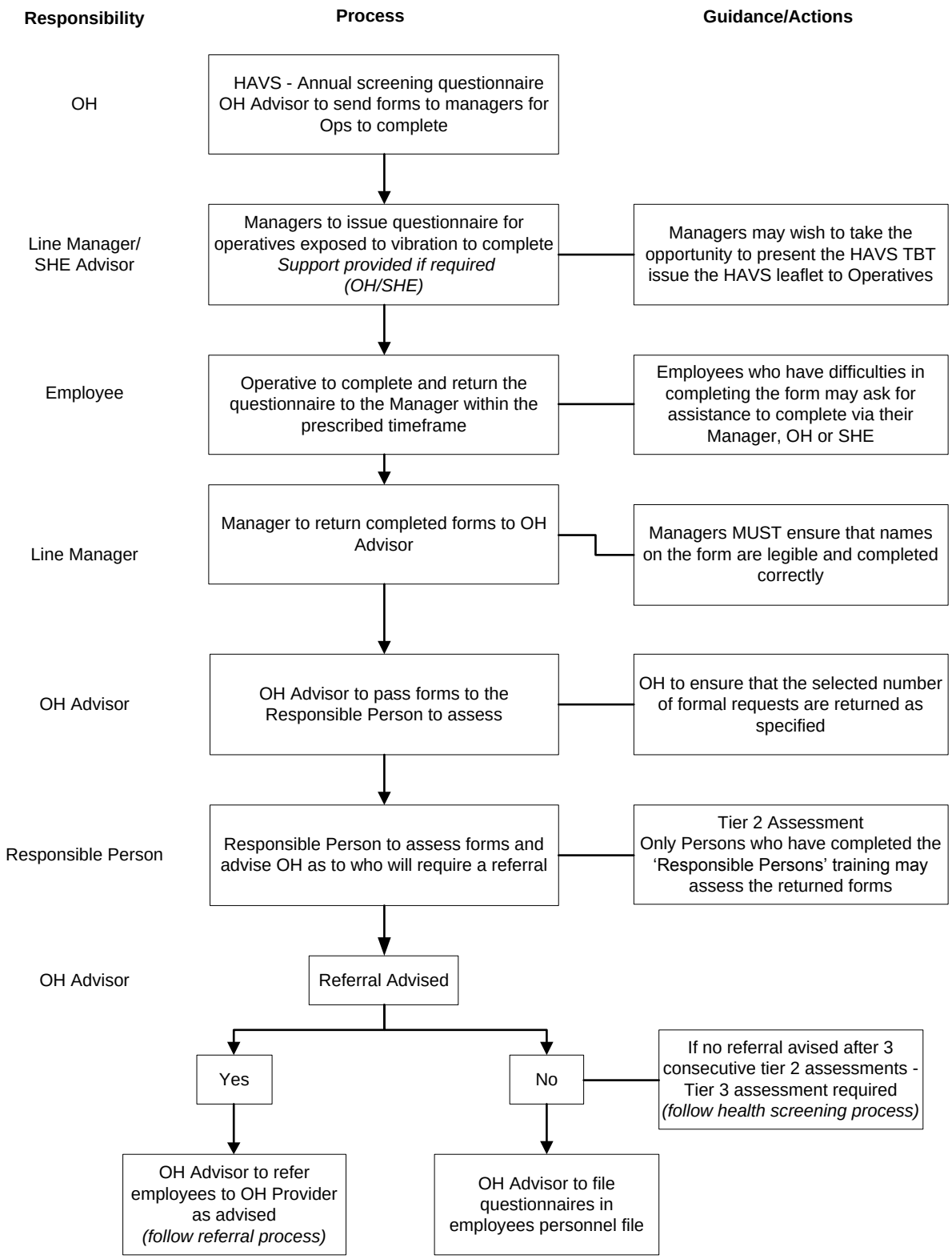
2.1 Further guidance

Further information on Hand-Arm Vibration can be obtained from the following:

- Control the Risk from Hand-Arm Vibration (HSE Guidance - INDG Series 175).
- Control of Vibration at Work Regulations 2005 (HSE Guidance – Legal Series L140

3 Process

Process for dealing with HAVS Tier 2 Assessments



4 Unitas requirements

4.1 Reducing Hand Arm Vibration

4.1.1 Understanding Hand Arm Vibration

Hand-arm vibration is transmitted from a work activity into someone's hands and arms. This occurs when:

- Operating hand-held power tools, e.g. Kango and power drills;
- Using hand-guided equipment, e.g. a vibrating compactor; or
- Holding materials being processed by a machine.

Regular and frequent exposure to hand-arm vibration can lead to permanent ill health, likely to occur when contact with a vibrating tool or work piece is a regular part of someone's job. Occasional or low-level exposure is unlikely to cause ill health. The effects of Hand arm Vibration can mean that even the simplest of jobs (tying shoelaces, buttoning clothes) can be almost impossible to accomplish unaided.

The Control of Vibration at Work Regulations 2005 requires Unitas to take specific action when the daily vibration exposure reaches a certain action value. The values are given as A(B) this is the average (A) exposure over an eight-hour day and takes into account the magnitude of the vibration and how long you are exposed to it.

Exposure Action Value (EAV):
The EAV is a daily amount of vibration exposure above which site management are required to take action to control exposure. The greater the exposure level, the greater the risk and the more action site management will need to take to reduce the risk. For hard-arm vibration the EAV is a daily exposure of 2.5 m/s 2A(8) averaged over a day.

Exposure Limit Value (ELV):
The ELV is the maximum amount of vibration an employee may be exposed to on any single day. It represents a high risk above which employees should not be exposed. The only exception to this is for occasional (e.g. emergency work) where the ELV is exceeded on one day, but exposure is at or close to zero for the rest of the week. For hand-arm vibration the ELV is a daily exposure of 5 m/s2 A(B). It represents a high risk above which employees should not be exposed.

4.1.2 Identifying those most at risk from Vibration

Work Groups at risk from hand-arm vibration would include our employees who work with hand-held or hand-guided power-tools and machines, such as:

- concrete breakers, pokers and compactors;
- sanders, grinders and disc cutters;
- hammer drills;
- chipping hammers;
- chainsaws; and
- scabblers or needle guns.

4.1.3 Exposure Prohibition:

Employees engaged in a suitable health surveillance programme and diagnosed with HAVS symptoms in severity stages (2 “late” or 3) **will be prohibited** from using vibrating tools/equipment

4.1.4 Typical examples of vibration levels in construction tools

Road breakers	▪ Typical ▪ Modern tool designs, good operating conditions and trained operators ▪ Worst tools & operating conditions	12 m/s2 5 m/s2 20 m/s2
Demolition hammers	▪ Modern tools ▪ Typical ▪ Worst tools	8 m/s2 15 m/s2 25 m/s2
Hammer drills/combi hammers	▪ Typical ▪ Best tools & operating conditions ▪ Worst tools& operating conditions	9 m/s2 6 m/s2 25 m/s2
Angle grinders	▪ Modern vibration –reduced designs ▪ Other types	4 m/s2 8 m/s2
Clay spades/jigger picks	▪ typical	16 m/s2
Pneumatic stone working hammers	▪ Vibration reduced hammers ▪ Sleeved chisels ▪ Older tools, conventional chisels	8-12 m/s2 8-12 m/s2 30 m/s2
Chainsaws	▪ Typical	6 m/s2
Sanders	▪ Typical	7-10 m/s2

4.1.5 Planning the Work and reducing Exposure levels

When planning the work, site/ project management will identify the types of tools particular to them which generate harmful levels of vibration. Each project must produce a specific inventory of the power tools in use, within which they will identify the supplier, the equipment, the level of vibration, an ‘early warning’ assessment of the duration of safe use and service/repair status. It is recommended the service is completed as same time as PAT requirement.

Site/ project management will adopt the risk management controls from Risk Assessment Standard (SHEMS-STD-GR-014) when assessing the risk and introducing controls to reduce the risk and consider alternative methods to those, which conventionally employ hand held vibrating power tools E.g.

Activity or Process	Alternative Method
Tunnelling by hand by Clay spade or jigger pick	Mechanised tunnelling methods, eliminate hand digging.
Breaking concrete asphalt with hand operated breakers e.g. highways/utilities repairs Demolition using hand =held hammers/breakers	Plan construction work (e.g. casting in ducts, detail box out) to minimise breaking through new concrete /masonry. Use alternative method/equipment as appropriate; ▪ Machine mounted hydraulic breakers ▪ Floor saws ▪ Directional drilling/pipe jacking to avoid trenching ▪ Hydraulic crushers, hydraulic bursters ▪ Diamond core drilling, diamond wire cutting

	▪ Hydro demolition (UHP water jetting)
Pile cropping using hand held hammers/breakers	Pile head removal using **hand operated breakers is not acceptable** Use alternative as appropriate; ▪ Design pile spacing and pile rebar for mechanical cropping ▪ Elliott method ▪ Recipieux method ▪ Suspended hydraulic pile cropper ▪ Alternatives as above to hand operated breakers
Scabbling using; ▪ Needle scalers ▪ Hammer type scabblers ▪ Pole type scabblers	Specify finished that do not require scrabbling. (Some finishes can be designed into shuttering using special moulds or chemical retardants and water jetting). Surface preparation to ensure a good concrete bond. Alternative methods; ▪ Grit blasting (wet or dry) ▪ Use of chemical retarders and pressure washing ▪ Cast in proprietary joint formers e.g. mesh formwork ▪ UHP water blasting
Wall chasing using hand held breakers	In new buildings, specify built in ducting In existing buildings, consider over coating existing plaster and building in the ducts
Drilling masonry/concrete using; Hammer drills or combihammers	Design and plan to avoid unnecessary drilling. Use where appropriate; ▪ Jig mounted drilling ▪ Diamond core drilling ▪ Cast in anchors and channels for wall fixings ▪ Use of direct fastening tools

If the alternative methods above have not eliminated the use of vibrational tools, the Site/ Project manager will need to further control the exposure by assessing the task and eliminating the cumulative health issue.

Hand Protection - gloves, are not considered an effective solo control. However cold temperatures do have an adverse effect on VWF therefore operatives must be provided with good quality gloves to keep their hands warm and blood circulating.

Risk Assessments shall be reviewed every two years as a minimum in accordance with Risk Management Standard (SHEMS-STD-GR-014), or earlier if circumstances change, or there is a change in vibration exposure.

4.1.6 Tool Selection and Reduction

Site/ Project Management, when purchasing or hiring power tools, will specify that they require the tool that minimises vibration exposure for the task duration. (Equipment that is unsuitable, too small or not powerful enough is likely to take much longer to complete the task and could over expose employees to vibration.)

Site Management will stipulate that they require the “Vibration Magnitude Level information generated by the tool (in metres/sec^2). The information provided by the suppliers should wherever practicable be based on “field tests” and not on laboratory tests.

Measures to reduce risks from vibration exposure may include:

- Replacing tools and equipment with alternatives which produce lower magnitudes of vibration
- Ensuring work activities are designed to take into account ergonomic principles, and to encourage good posture
- Ensuring all equipment is properly maintained taking into account usage age of equipment in line with replacement of equipment guidance.
- Reducing time exposed to vibration e.g. regular breaks, job rotation etc.

4.1.7 Planned Maintenance

It is important to minimise the vibration transmitted by power tools by ensuring that they are properly maintained. Site Management must therefore ensure that power tools are received from the supplier in good order and that a maintenance programme is implemented by the owner of the equipment in line with any manufacturer's information.

4.2 Exposure Monitoring

Observe employee and their tasks to make an informal assessment of risk; find out what tools being used and for how long.

Find any information or manufacturers data to indicate likely HAV emission levels from your tasks, tools or machinery.

Use HAV calculator; http://www.hse.gov.uk/vibration/hav/vibrationcalc.htm see *figure 1below.* Quantify exposure by taking measurements; do on tool assessment of actual emission values for each piece of kit; proprietary systems such as those manufactured by Reactec could be used – further advice to be sought from your Business SHE Advisor.

Unitas has adopted the Health and Safety Executive's exposure points system (http://www.hse.gov.uk/vibration/hav/index.htm) where exposures for different combinations of vibration magnitude and exposure times are converted into exposure points instead of using the more complex values in m/s² A(8).

- Exposure points change simply with time i.e. twice the exposure time, twice the number of points;
- Exposure points can be easily added together, for example where a worker is exposed to two or more different sources of vibration in a day.

Using the ready reckoner

1. Find the vibration magnitude (level) for the tool or process (or the nearest value) on the grey scale on the left of the table.
2. Find the exposure time (or the nearest value) on the grey scale across the bottom of the table.
3. Find the value in the table that lines up with the magnitude and time. The illustration shows how it works for a magnitude of 5 m/s2 and an exposure time of 3 hours: in this case the exposure corresponds to 150 points.

4. Compare the points value with the exposure action and limit values (100 and 400 points respectively). In this example the score of 150 points lies above the exposure action value.

The colour of the square containing the exposure points value tells you whether the exposure exceeds, or is likely to exceed, the exposure action or limit value:

	Above limit value
	Likely to be above limit value
	Above action value
	Likely to be above action value
	Below action value

5.If a worker is exposed to more than one tool or process during the day, repeat steps 1 – 3 for each one, add the points, and compare the total with the exposure action value (100) and the exposure limit value (400).

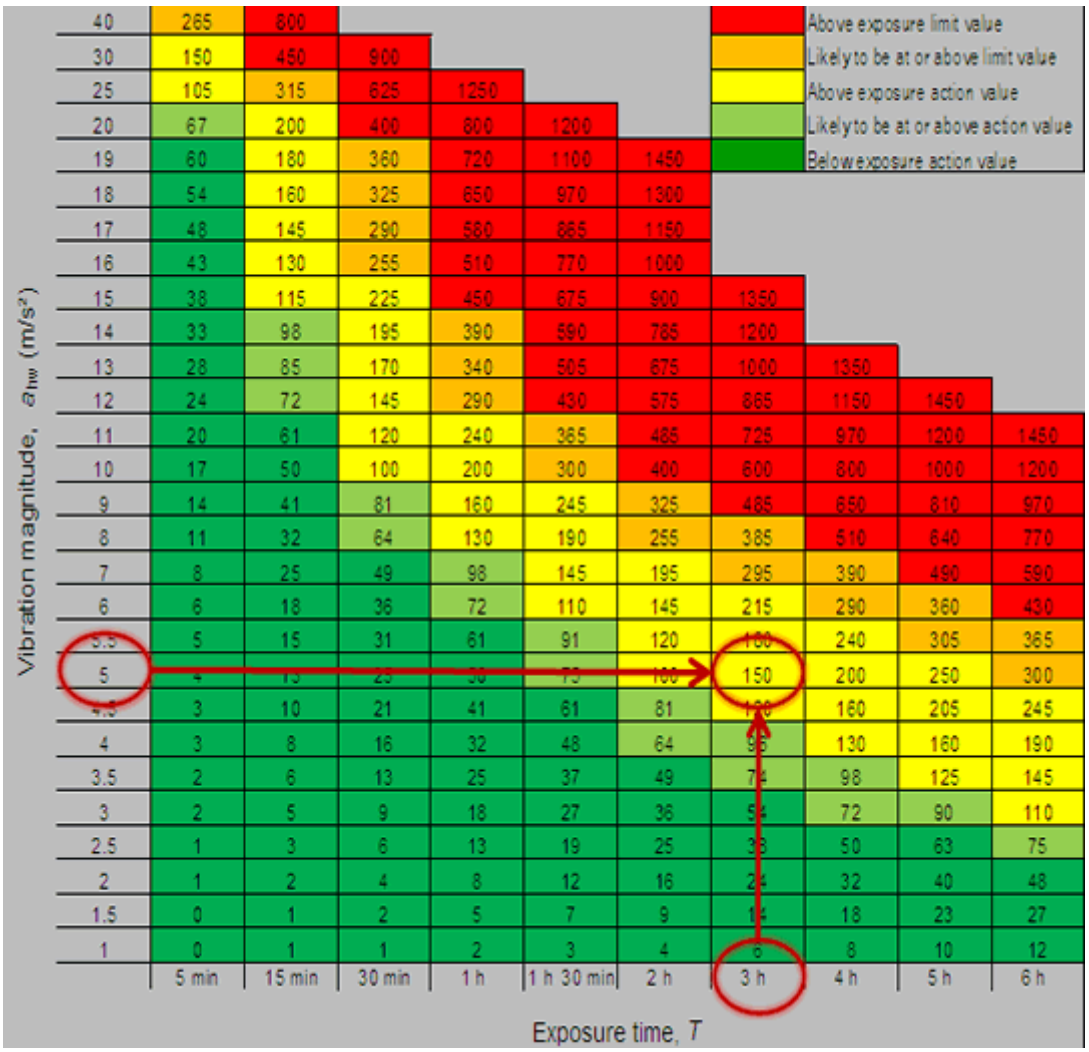


Figure 1; HSE HAVS exposure chart

4.2.1 Exposure Action Value (EAV) 2.5 m/s 2A(8):

The EAV is a daily amount of vibration exposure above which site management are required to take action to control exposure. The greater the exposure level, the greater the risk and the more action site management will need to take to reduce the risk.

Employees likely to be regularly exposed in excess of the daily EAV of 100 HSE points must be engaged in a suitable health surveillance programme (refer to Unitas OH supplier).

- Unitas adopted EAV standard for employees (direct, subcontract or agency) engaged in a suitable health surveillance programme and either medically referred for diagnosis or diagnosed with HAVS symptoms in severity stages (1-2 “early”) using the Stockholm Workshop scales is 75 HSE points.
- Unitas adopted EAV standard for employees (direct, subcontract or agency) engaged in a suitable health surveillance programme and assessed as having no symptoms suggestive of HAVS, or relevant medical history is 100 HSE points.

4.2.2 Exposure Limit Value (ELV) 5 m/s2 A(B):

The ELV is the maximum amount of vibration an employee may be exposed to on any single day. It represents a high risk above which employees should not be exposed. The only exception to this is for occasional (e.g. emergency work) where the ELV is exceeded on one day, but exposure is at or close to zero for the rest of the week. For hand-arm vibration the ELV is a daily exposure of 5 m/s2 A(B). It represents a high risk above which employees should not be exposed

- Unitas adopted ELV standard for employees (direct, subcontract or agency) engaged in a suitable health surveillance programme and either medically referred for diagnosis or diagnosed with HAVS symptoms in severity stages (1-2 “early”) using the Stockholm Workshop scales is 100 HSE points.
- Unitas adopted ELV standard for employees (direct, subcontract or agency) engaged in a suitable health surveillance programme and assessed as having no symptoms suggestive of HAVS, or relevant medical history is 400 HSE points.

4.3 Health surveillance

Health surveillance must be carried out for employees who are regularly exposed to vibration above the exposure action value (2.5. m/s^2)

Unitas’ OH Provider will provide health surveillance including HAVS screening and checks to those employees who;

- are likely to be regularly exposed above 100 HSE points or otherwise continue to be at risk
- are likely to be occasionally exposed above the exposure action value where the risk assessment identifies that the frequency and severity of exposure may pose a risk to health.
- have a diagnosis of HAVS (even when exposed below the exposure action value)

Health surveillance will also be offered to those exposed below the EAV if they are at increased risk e.g. if they report a pre-existing diagnosis of HAVS or any other condition of the hands, arms, wrists or shoulders, or any condition which affects circulation or nerve conduction such as diabetes, carpal tunnel syndrome etc.

Health surveillance will involve:

- Initial assessment prior to or very soon after first exposure. This will usually be by questionnaire, with face to face follow-up where required.

- Annual assessment. This will usually be by questionnaire
- Face to face review. This will be arranged if a questionnaire reveals symptoms; if an Individual reports symptoms between health surveillance questionnaires; Or every 3 years otherwise.

All completed forms **shall** be sent to Occupational Health. Health surveillance will be carried out by an Occupational Health partner. All individual records will be held in confidence.
Where appropriate, a summary of results for groups of employees will be reported back to the manager to indicate the effectiveness of vibration control.

Unitas will provide training and information for employees on the risks from vibration and the specific control measures to reduce these.

Unitas provide a range of Occupational health and well-being services through a hybrid of external and internal Occupational health practitioners(OHP), who, in addition to providing an advisory HAVS service, will also conduct medical screening, examinations, health surveillance and retention of employee occupational health records.

4.3.1 Heath Surveillance Communication and information

Various guidance, presentations and tool box talks are available for both managers and employees to understand why we do Occupational health management from exposure monitoring to medicals. We will need these from group For further information check the Unitas SHEMS Standards and guidance including;
SHEMS-STD-GR-081 DSE assessments
SHEMS-FOR-GR-091 DSE Self-Assessment
SHEMS-STD-GR-082 OH (Exposure) Monitoring
SHEMS-STD-GR-083 Occupational Health Surveillance
SHEMS-GUI-GR-083 Why we do OH(Powerpoint)
SHEMS-STD-GR-084 HAVS
SHEMS-STD-GR-086 Drugs and Alcohol

4.3.2 Employee Annual HAVS Screening:

As part of Unitas's routine annual health surveillance programme, the Occupational Health Provider shall send a HAVS-Annual Screening Questionnaire (SHEMS-FOR-GR-028) to monitor the potential health effects to all employees who are at risk but have not reported any symptoms suggestive of HAVS. All individuals in receipt must complete the questionnaire and returned in confidence to the Unitas SHE team and forwarded to the Occupational Health provider.

Symptom severity worsens with continued exposure and may be disabling and irreversible. In certain circumstances. HAVS is reportable under the Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations (RIDDOR).

4.3.3 Health Surveillance Referrals

Prior to any referrals to the OH Department, line management shall complete and submit the 'Management Referral form' via Unitas HR documents and sent to email: occupational.health@Unitas.co.uk

If any medical condition is declared or discovered that requires further investigation, the OHP may request a new employee to sign a consent form allowing them to speak to the individual's general practitioner for further information.

A completed questionnaire which raises suggestive symptoms of HAVS will result in a call from Unitas's OH providers to discuss relevant questionnaire answers. There will then either be a Fitness to Work confirmation issued or a Medical Referral for a more detailed clinical assessment.

Any worker diagnosed as suffering from HAVS will receive advice about their medical condition and the likelihood of disease progression with continued exposure, from the OHSP. The advice will vary according to the severity of the disease.

4.4 Diagnosis of HAVS

Where the risk assessment has demonstrated a need for health surveillance, then the tiered approach to HAVS (L140, HSE) should be followed.

4.4.1 Diagnosis of HAVS (stage 1):

Initial / baseline assessment

Health surveillance programmes need to include an initial assessment for any newly exposed workers before they begin exposure to HAVS and repeated again after six months. Early assessment of newly-exposed workers is recommended, as susceptible individuals can develop symptoms in 6 months or less.

This is so a baseline is available from which to judge the results of routine health surveillance. The baseline assessment forms Tier 1.

New employees, or those changing jobs, who will be exposed for the first time, should be given suitable information about the hazards of HAV (for example, the HSE pocket card) Hand-arm vibration: Advice for employees), preferably before they give information related to their medical status. This will help to alert the employee to the potential health consequences of failing to report symptoms of HAVS.

Tier 1, also provides an opportunity to educate workers about measures under an employee's control that will help to reduce the risks from transmission of vibration.

As a minimum requirement, initial pre-exposure assessment are to be carried out using a self-administered questionnaire that includes questions about the person's medical history and is to be returned in confidence to occupational health.

Employees with no symptoms suggestive of HAVS, or relevant medical history, should be considered fit for work with exposure to HAV.

Occupational health will see those with possible symptoms of HAVS for further assessment and will then decide whether the person is fit to work with HAV exposure.

It is recommended that individuals who suffer from certain relevant vascular or neurological disorders affecting the hand or arm e.g., Reynaud's disease, carpal tunnel syndrome, are not exposed to vibration at work.

The Initial assessment questionnaire, and where necessary clinical assessment by occupational health, will identify these individuals.

If exposure is adequately controlled, it may be possible to prevent workers with HAVS stage 1 from progressing to HAVS stage 2. At the onset of symptoms of HAVS stage 1, appropriate steps will be taken by site management to review the risk assessment and ensure that the maximum daily vibration exposure is reduced to a level not exceeding 100 HSE points. Health surveillance monitoring for the individual may need to take place more frequently depending on the advice of the OHP if there is concern about progression of the disease

4.4.2 Diagnosis of HAVS (stage 2):

Stage 2 is broad, ranging from relatively minor symptoms (Stage 2 “early”) to those with persistent loss of perception (Stage 2 “late”). If an employee is diagnosed as having HAVS stage 2 symptoms, the aim is to prevent HAVS stage 3 developing because this is a more severe form of the disease associated with significant loss of function and disability. At the onset of symptoms of HAVS stage 2 “early”, appropriate steps will be taken by site management to review the risk assessment and ensure that the maximum daily vibration exposure is reduced to a level not exceeding 100 HSE points. The OHP will start to consider whether the employee is unfit to continue with exposure as soon as there is evidence that symptoms are progressing within HAVS stage 2.

If an employee is diagnosed as having HAVS stage 2 “late” symptoms, the employee will receive written confirmation from the Business Unit SHE Director prohibiting the employee from those activities which involve the use of vibration power tools and equipment.

Administration of a Routine Questionnaire (Annually)

Within the health surveillance programme, an annual questionnaire for HAVS should be completed by the employee and returned to Occupational health (Tier 2).

Where any questionnaires indicate possible symptoms, then these individuals will be seen by Occupational Health for a Tier3 HAVS assessment.

It is recommended that every third year (whether symptoms have been reported or not) that the employee should be assessed by a qualified person (nurse or doctor) (Tier 3).

All individuals who are reporting symptoms should be seen by a qualified person for assessment of their condition (Tier 3 and 4)

4.4.3 Diagnosis of HAVS (stage 3):

Any positive findings should lead to referral to an appropriately qualified doctor so that a diagnosis of HAVS can be confirmed or excluded (Tier 4).

If an employee is diagnosed as having HAVS stage 3 symptoms, the employee will receive written confirmation from the SHE Director prohibiting the employee from those activities which involve the use of vibration power tools and equipment.

Tier 4 / Tier 5 Standardised tests (In Consultation with Occupational Health)
Provision should be made for referral for standardised tests if considered appropriate on the advice of the doctor (Tier 5).
When an initial diagnosis of HAVS has been made **(at any stage)** the employer should be advised of this fact with the employee’s consent and this must then be reported as a case of disease for the purposes of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995.

4.4.4 Incident reporting

All incidences of HAVS being diagnosed shall be reported within the Incident and Near Miss database refer to SHEMS Incident and Near Miss Standard (SHEMS-STD-GR-011) and Investigation completed as per Incident Investigation (SHEMS-STD-GR-011).

The SHE Manager shall make the appropriate RIDDOR notification to the HSE (HAVS stage 3).