

BOLSOVER DISTRICT COUNCIL
Control of Hand Arm Vibration Risk
Policy
June 2010

CONTROLLED

This Policy addresses the following Corporate Aims



Bolsover District Council Equality Policy Statement

- Bolsover District Council is committed to equalities as an employer and in all the services provided to all sections of the community.
- The Council believes that no person should be treated unfairly and is committed to eliminate all forms of discrimination in compliance with its Equality Policy.
- The Council also has due regard to eliminate racial discrimination and to proactively promote equality of opportunity and good relations between persons of different racial groups when performing its functions.

This document is available in large print or on audiotape from any of our Contact Centres. If you need any help to read these documents please do not hesitate to contact our Equality Improvement Officer on 01246 242407.

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CONTROL SHEET

Details of Document	Comments / Confirmation
Title	Control of Vibration at Work Policy
Document type – i.e. draft or final version	Final
Location of Policy	Human Resources & Intranet
Author of Policy	Health and Safety Officer
Member route for Approval & Cabinet Member concerned	People and Performance Portfolio Holder, Safety Committee
Reviewed by Director of Strategy	13 th December 2007
Date Risk Assessment completed	30 th November 2007
Date Equality Impact Assessment approved	November 2007
Partnership Involvement (if applicable)	Nil
Policy Approved by	Council
Date Approved	12 th March 2008
Policy Review Date	May 2010
Date forwarded to CSPD (to include on Intranet and Internet if applicable to the public)	

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1. SCOPE AND INTRODUCTION

Hand-Arm Vibration Syndrome or **HAVS** is a condition that has the potential to affect any worker who uses powered hand-held or hand-guided tools as a major part of their job. Workers whose hands are regularly exposed to high vibration may suffer from several effects to the hands and arm, including impaired blood circulation and damage to the nerves and muscles. It is felt as a tingling or numbness in the fingers or where finger blanching occurs. There are other names for the condition: 'vibration white finger', 'dead finger' and Secondary Raynaud's Syndrome.

The affects are cumulative and as time passes the attacks may involve considerable pain and loss of manual dexterity, resulting in clumsiness and reduced grip strength. In severe cases, blood circulation may be permanently impaired and fingers may take on a blue-black appearance.

As indicated above, the primary cause of HAVS is work involving holding vibrating tools or workpieces. The risk depends on the magnitude of the vibration and how long an individual is exposed to it. Other aspects that can have an affect are the grip, push and other forces used to guide and apply vibrating tools or workpieces, the pattern of exposure, how much of the hand is exposed to the vibration, temperature, smoking and individual susceptibility.

2. LEGISLATION

- The Health and Safety at Work Act 1974
- Management of Health and Safety at Work Regulations 1999.
- The Control of Vibration at Work Regulations 2005.

2.1 Duties of Employers

At any exposure level (exposure levels are explained in Section 5.1)

Assess vibration risks to health and safety
Eliminate vibration risk at source, or reduce to lowest reasonably practicable level
Provide information and training for employees on vibration risks and control measures

If the Exposure Action Value (EAV) 2.5m/s^2 is likely to be exceeded

Reduce exposure to the lowest practicable level
Provide health surveillance – available through Human Resources

At or Beyond The Exposure Limit Value (ELV) 5m/s^2

Ensure employees are not exposed above the ELV
If they are, take immediate action to prevent recurrence

3. POLICY

Bolsover District Council will put in place measures to protect employees from the risks of Hand Arm Vibration Syndrome (HAVS). Measures will include:

- Assessing the risks from vibration exposure.
- Managing the risks by reducing and controlling vibration exposure.
- Taking into account vibration risks when purchasing or hiring equipment.
- Maintaining equipment
- Providing instruction information training and supervision for employees on the risks from vibration and the measures in place to reduce these.
- Providing health surveillance for those working with vibrating tools.

This policy does not cover the risks arising from Whole Body Vibration.

4. RESPONSIBILITIES

4.1 Chief Executive Officer

The Chief Executive Officer is responsible for ensuring that there are effective measures in operation to protect employees from the effects Hand Arm Vibration.

4.2 Senior Management Team

Directors are accountable to the Chief Executive Officer for the operations and activities carried out within their areas of responsibility and for ensuring that effective arrangements are in place to prevent or control exposure to Hand Arm Vibration. Specifically they will ensure:

- Compliance with the Council's Hand Arm Vibration Policy and Guidance within their area of responsibility.
- Employees in their area are aware of, accept and carry out their responsibilities under the policy.

4.3 Heads of Service

Heads of Service are accountable to their Director for ensuring that the Hand Arm Vibration Policy is complied with in their Service Area. Additionally they will ensure:

- That the Vibration Regulations are implemented within their area of responsibility
- Adequate resources are available to manage hand arm vibration issues
- Risk assessments are carried out where required and recorded in a register.

- There is an assessment based safe system of work for the purchase, hiring, maintenance and use of vibrating tools and equipment.
- Employees who may be exposed Hand Arm Vibration are subject to appropriate health surveillance to monitor any effects on their health. Employees at risk will be surveyed by the occupational health provider on appointment; employees at risk will be reviewed regularly by the occupational health provider.
- Employees have appropriate comprehensible information, instruction, supervision and training in the use of equipment plant and tools, and that any additional training needs are identified.
- Reasonable adaptations are made to work equipment, procedures and processes to meet the needs of disabled employees.
- Maintain an inventory of vibrating tools used within their service area.
- Employees are given adequate competency training in the use of new equipment.
- Maintain, and regularly review records of assessments, keep records of manufacturers' information.

4.4 Managers and Team Leaders

Are accountable to their Head of Service Director for ensuring that the Hand Arm Vibration Policy is complied with in their area of responsibility. Additionally they will:

- Understand the scope and content of the Vibration Regulations and Council Policy where this is relevant to work in their area, and to undertake any necessary training.
- Ensure vibration factors are taken into account when hiring or purchasing new equipment.
- Ensure vibration risk assessments have been undertaken for any relevant equipment in their area.
- Ensure local control measures for tools, tasks etc. are in place and operating effectively.
- Ensure employees understand and use local procedures designed to protect their safety – that employees have appropriate information and personal protective equipment and clothing, (as determined by the risk assessment).
- Bring to the attention of their line manager / Head of Service hand arm vibration issues of which they are aware, including non-compliance with this policy.
- Ensure all equipment is adequately maintained.
- Ensure that reports of defects / damage to equipment or clothing and deficiencies in any control measure are investigated and appropriate remedial measures are taken.
- Ensure employees comply with the requirements of the occupational health surveillance programme

4.5 All Employees

All employees at **all** levels have a responsibility to take care of their own and others health and safety. Employees will:

- Use all equipment in accordance with instruction.
- Report any defects or difficulties with vibrating equipment
- Cooperate with any programme of health surveillance which is identified as necessary following risk assessment.
- Report any symptoms of hand arm vibration to their line manager, to enable appropriate occupational health support to be provided.
- Report any unsafe working practices to their line manager
- **Use the HSE points system and instructions given to manage their own exposure to vibration.**

4.6 Head of Human Resources & Payroll

- Ensure There are adequate policies and procedures in place to govern the safe use of vibrating tools
- Ensure there is an adequate occupational health surveillance programme in place to identify those who may have symptoms of Hand Arm Vibration Syndrome and related conditions.

4.7 Health and Safety Officer

The Health and Safety Officer in Human Resources will assist managers and employees in carrying out their roles under this policy by:

- Review and update policies governing the control of hand arm vibration at not less than two year intervals
- Assist with vibration risk assessment
- Advise on vibration control measures
- Advise whether health surveillance is appropriate
- Assist in the provision of training
- Audit compliance with this policy and the underpinning regulations

GUIDANCE ON THE POLICY

5.0 EXPOSURE LIMITS - Exposure Limit Value and Exposure Action Value

The Regulations define two types of exposure limit.

The **Exposure Action Value** (EAV) is the level of daily exposure to vibration, which if exceeded requires certain actions to reduce exposure.

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APPENDIX III

The **Exposure Limit Value** (ELV) is the maximum amount of vibration an employee may be exposed to on any single day.

It is important that we do not 'work to' the ELV of 5m/s^2 as an acceptable maximum. We will work to the EAV as the normal maximum.

The vibration level produced by equipment is usually assessed by measuring the acceleration level in m/s^2 (metres per second squared).

The Regulations set an Exposure Action Value (EAV) of 2.5m/s^2 over 8 hours (A8) and an Exposure Limit Value (ELV) of 5m/s^2 over 8 hours (A8).

It is the aim of the Council to minimise the risk of HAVS to employees by keeping exposure to vibration as low as is reasonably practicable and where the 2.5m/s^2 is exceeded, control measures will be put in place to reduce it.

The vibration dose received by the worker over a typical working day depends on the duration of exposure as well as the vibration magnitude.

To allow different exposure patterns to be compared they are adjusted (or normalised) to a standard reference period of 8 hours, similar to the approach taken for noise levels. The Control of Vibration at Work Regulations 2005 describe how an exposure normalised to 8 hours, A(8), can be calculated. The table below gives the average vibration levels over a working day and the times to reach the exposure levels.

Vibration Magnitude (m/s^2)	2.5	3.5	5	7	10	14	20
Time to reach Exposure Action Value (in hrs)	8	4	2	1	$\frac{1}{2}$	$\frac{1}{4}$	8 mins
Time to reach Exposure Limit Value (in hrs)	>24	16	8	4	2	1	$\frac{1}{2}$

Exposure Action Value = 2.5m/s^2 per 8hr working day

Exposure Limit Value = 5m/s^2 per 8hr working day

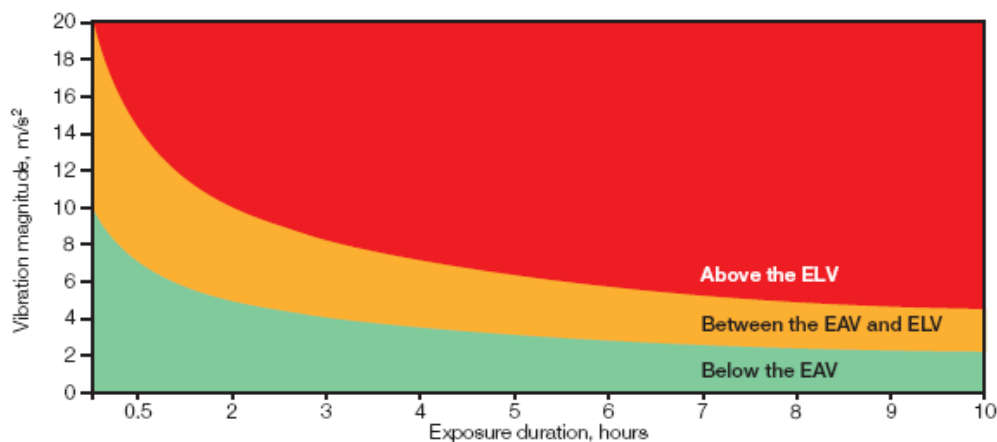
For example, a hand held blower with a vibration level of 7m/s^2 would result in exposure of the operator to the equivalent of the EAV in just one hour, therefore greater use than this would require reasonably practicable exposure reduction measures to be taken.

However, the diversity of work that an individual may be involved in can cause difficulty in accurately assessing exposure because a number of different tools are being used in any one day for variable lengths of time. It should be possible to estimate a cumulative exposure by summing up the typical exposure pattern from the range of equipment used.

The following table lists some indicative vibration levels for typical equipment.

Examples of Equipment	Typical Vibration Levels (in m/s^2)
Hedgecutter	6.3
Flymo mower	3.0
Chainsaw	3.5-5.5
Blower (hand-held)	7.5
Kango hammer	4-15 (depending on power/size)

Chart to show how vibration levels and time of use affect the level of exposure, with the vibration level of the tool (M/S^2) plotted against the duration of exposure (hours).



From INDG 175

Our aim is to keep exposure below the EAV level

6. GUIDANCE ON CONTROLLING VIBRATION EXPOSURE

6.1 Risk Assessment - When to Assess

Vibration risk assessment is required if employees work with

- hand held tools (e.g. drills, breakers, sanders, chain saws, hedge trimmers)
- hand guided tools (such as pedestrian lawn mowers, buffers)
- materials held against a vibrating object (e.g. use of a grinder, timber being guided through a band saw).

6.2 Risk Assessment - What to Assess

Risk Assessment will require:

Assessment of the vibration from each piece of equipment used. This will require an inventory of vibrating tools and equipment to be compiled.

- Rank equipment in terms of hazard contribution, i.e. the level of vibration and how much they are used.
- Discuss with employees whether they have noticed any particular problems with certain types of equipment or individual machines.
- Calculation of vibration exposure for individuals, taking into account equipment used and length of time in use ('trigger time').
- Data sources can include the manufacturer or websites which have measured vibration levels of equipment in real use, these include:

<http://www.operc.com/pages/havtecllogin.asp> (registration required)
<http://www.ispesl.it/vibrationDatabase/lineguida.asp?lang=en>

- Check the workload of individuals who use vibration tools and at least estimate the exposure they may be receiving.
- The Health and Safety Executive have produced a 'calculator' which will enable conversion of working times and vibration magnitudes into an overall exposure factor. It will also enable the summation of exposures if more than one piece of equipment is used.

<http://www.hse.gov.uk/vibration/hav/vibrationcalc.htm>

- Identification of other risk factors, for example work in cold or wet environments increases the health risks from vibration exposure.
- Consideration of individuals health conditions
- Consideration of individual's posture and technique i.e. 'leaning' on a drill for example will increase the level of vibration experienced.

Assessments will include an action plan which documents the measures already in place to reduce the risk from vibration exposure and any further measures planned.

Assessments will be reviewed every two years

An assessment must be carried out for each new piece of equipment or process.

The Vibration Exposure Calculator can be found in Appendix 1

The Assessment Record sheet can be found in Appendix 2

6.3 Reducing Risk from Vibration Exposure

Measures should be put in place to reduce vibration exposure to as low a level as is reasonably practicable – even if vibration levels are below the Exposure Action Value (EAV), consideration should be given as to whether further reduction is practical.

6.4 Measures to reduce risks from vibration exposure may include:

- Assess whether a task may be achieved a different way.
- Minimise the need for operations and tools that expose workers to hazardous vibration.
- Minimise the forces needed to control tools.
- Replacing tools and equipment with alternatives which produce lower magnitudes of vibration.
- Providing suitable training and information for all those exposed to vibration.
- Equipment will be maintained in line with manufacturers recommendations and instruction manuals – tool logs will include servicing/maintenance or disposal dates as appropriate.
- A representative selection of tools will be checked annually to verify vibration information.
- Consider the maintenance of the equipment and whether there is likely to be deterioration in anti-vibration mountings, etc. Ageing and/or poorly maintained equipment is likely to give worse levels of vibration.
- Reduce exposure times, e.g. by breaking up activities to minimise prolonged exposure.
- Ensuring work activities are designed to take into account ergonomic principles, and to encourage good posture ensuring all equipment is properly maintained reducing time exposed to vibration e.g. regular breaks, job rotation etc. providing suitable clothing to protect employees from cold and damp.
- It is important that operators are able to maintain good blood circulation; gloves can be helpful although alone they are not the solution to a vibration problem.
- Heated handles, warm, weatherproof clothing, heating pads are amongst the other aids that can be considered.

Further suggestions on how risk reduction may be achieved are given in the publications listed Section 10.

7. HEALTH SURVEILLANCE AND OCCUPATIONAL HEALTH ISSUES

Exposure to vibration carries a risk of health effects, this is most likely with exposure above the EAV of 2.5 m/s^2 , but may occur at lower exposures.

Hand Arm Vibration Syndrome (HAVS) covers a number of different conditions; one or more may be present in an affected individual.

- Vascular disorders (affecting circulation)– commonly ‘blanching’ of the fingers (especially on exposure to cold or to vibration), often followed by blueness/redness as rewarming occurs
- Neurological disorders – including numbness, tingling of the fingers, reduced strength, reduced sensitivity and loss of dexterity
- Musculoskeletal symptoms such as joint pain and stiffness, reduced strength and dexterity and carpal tunnel syndrome

Symptom severity worsens with continued exposure and may be disabling and irreversible.

Health surveillance will be carried out for employees who are regularly exposed to vibration above the exposure action value (2.5 m/s^2) or 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 or employment. This will usually be by questionnaire, with face to face follow-up where required.
- Annual assessment. This will usually be by questionnaire.
- Review with Occupational Health professional. This will be arranged if a questionnaire reveals symptoms; if an individual reports symptoms between health surveillance questionnaires, and at regular intervals determined by the Occupational Health Provider.
- **Reviews with the occupational health professional will take place a three year intervals for all ‘vibration-exposed’ employees**
- Health surveillance will be carried and confidential records maintained by the Councils Occupational Health Provider.

8. TRAINING AND INFORMATION

All employees who are exposed to vibration must be given training to include:

- The health effects of hand arm vibration;
- Sources of hand arm vibration;
- Whether they are at risk, and if so whether the risk is high (above the ELV), medium (above the EAV) or low;
- The risk factors (e.g. the levels of vibration, daily exposure duration, regularity of exposure over weeks, months and years);
- How to recognise and report symptoms;
- The need for health surveillance, how it can help them remain fit for work, how you plan to provide it, how you plan to use the results and the confidentiality of the results;

- Ways to minimise risk including:
 - Changes to working practices to reduce vibration exposure;
 - Correct selection, use and maintenance of equipment;
 - Correct techniques for equipment use, how to reduce grip force etc;
 - Maintenance of good blood circulation at work by keeping warm and massaging fingers and, if possible, cutting down on smoking.
 - Control of trigger time by task rotation, appropriate breaks for use of vibrating equipment.
- Awareness of other health problems that can influence the likelihood of HAVS, such as low temperatures, smoking etc.
- Who to report problems to.

New starters should be made aware of the risks of vibration prior to first exposure, or at least within the first week of employment.

In addition, all employees should be given appropriate training in the use of equipment. This should include periodic supervised practice to identify work practices which may increase risk such as poor postures, gripping equipment too tightly etc. **This will include competency training for new equipment.**

Training must be given in a format that is comprehensible to the employee; this for example may involve providing information in a language other than English.

9. REFERENCES AND FURTHER READING

Hand Arm Vibration - The Control of Vibration at Work Regulations, 2005.

L140 HSE Books

Hand arm vibration Advice for employees (indg296 rev1)

<http://www.hse.gov.uk/vibration/hav/indg296.htm>

Hand Arm vibration at work – HSE pages

<http://www.hse.gov.uk/vibration/hav/index.htm>

Management of Health and Safety at Work Regulations

www.hse.gov.uk/vibration

There is an HSE leaflet on HAVS which is a good general information source for employees. Reference IND(G) (rev1) 126L Health risks from hand-arm vibration for employees and the self-employed (HSE 2002).

Appendix 1 - Vibration Calculator / Ready Reckoner

The table below is a 'ready reckoner' for calculating daily vibration exposures. All you need is the vibration magnitude (level) and exposure time.

The exposures for different combinations of vibration magnitude and exposure time are given in exposure points instead of values in m/s² A(8). You may find the exposure points easier to work with than the A(8) values:

- exposure points change simply with time: twice the exposure time, twice the number of points;
- exposure points can be added together, for example where a worker is exposed to two or more different sources of vibration in a day;
- the exposure action value (2.5 m/s² A(8)) is equal to 100 points;
- the exposure limit value (5 m/s² A(8)) is equal to 400 points;






We will work to the exposure action value of 2.5ms²

Vibration magnitude m/s ²	40	800									
	30	450	900								
	25	315	625	1250							
	20	200	400	800							
	19	180	360	720	1450						
	18	160	325	650	1300						
	17	145	290	580	1150						
	16	130	255	510	1000						
	15	115	225	450	900	1350					
	14	98	195	390	785	1200					
	13	85	170	340	675	1000	1350				
	12	72	145	290	575	865	1150	1450			
	11	61	120	240	485	725	970	1200	1450		
	10	50	100	200	400	600	800	1000	1200		
	9	41	81	160	325	485	650	810	970	1300	
	8	32	64	130	255	385	510	640	770	1000	1200
7	25	49	98	195	295	390	490	590	785	865	
6	18	36	72	145	215	290	360	430	575	720	
5.5	15	30	61	120	180	240	305	365	485	605	
5	13	25	50	100	150	200	250	300	400	500	
4.5	10	20	41	81	120	160	205	245	325	405	
4	8	16	32	64	96	130	160	190	255	320	
3.5	6	12	25	49	74	98	125	145	195	245	
3	5	9	18	36	54	72	90	110	145	180	
2.5	3	6	13	25	38	50	63	75	100	125	
2	2	4	8	16	24	32	40	48	64	80	
1.5	1	2	5	9	14	18	23	27	36	45	
1	1	1	2	4	6	8	10	12	16	20	
		15 m	30 m	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h
		Daily exposure time									

Source: Health and Safety Executive

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 **and is too high as a daily 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).

Appendix 2 - Vibration Record Sheet

Recording the vibration exposure of employees –

to be completed by the employee and signed off by the employee’s manager.

Employee Name..... Date

Job Title

Completed by (employee’s name)

For each piece of equipment used by the employee record below;

- a. The **exact** make and model of the tool
- b. The amount of time the employee is exposed to the vibration (e.g. **actual trigger time**, with the equipment switched on and used or held

	Name of tool, process or equipment	Vibration magnitude m/s ²	Exposure duration		
			hours	minutes	seconds
Equipment or process 1					
Equipment or process 2					
Equipment or process 3					
Equipment or process 4					
Equipment or process 5					
Equipment or process 6					
Equipment or process 7					

- This is not a ‘time and motion’ exercise to see how fast you are working.
- We are measuring how much exposure everyone has to hand arm vibration.
- Count only the time you use or hold an operating tool, not clean up time, travel time etc.
- Do not round up or round down or estimate time, measure it with a watch or timer.
- Record times straight away or you may forget.
- Refer to the Control of Vibration at Work Policy for actions required once the above information has been calculated.

Once exposure information has been collected for each item of equipment used, it can now be input into the HSE Vibration calculator at www.hse.gov.uk/vibration/hav/calcnst.htm to establish the number of exposure points;

Information will be given to you on your own particular level of exposure after the survey is completed, or immediately if you are at a high risk.

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APPENDIX III

Vibration Continuation Sheet					
Equipment or process	Name of tool, process or equipment	Vibration magnitude m/s ²	Exposure duration		
			hours	minutes	seconds
8					
9					
10					
11					
12					
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14					
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