

TOPIC INSPECTION PACK

HAND-ARM VIBRATION

APPENDIX F

Industry-specific good practice

This appendix to the [Hand-arm Vibration Topic Inspection Pack](#) contains information on industry-specific good practice, in the form of established alternative working methods to avoid/reduce use of vibrating equipment and expectations on management of risks where use of vibrating equipment is unavoidable, for the following industry sectors:

- Construction;
- Foundries; and
- Heavy Fabrication.

This information also appeared as annexes to OM 2006/07.

Further tables, in a similar format, will be added in due course for other industries. This is expected to include:

- General engineering;
- Estate management (to include agriculture/forestry and grounds maintenance);
- Stone masonry;
- Cast stone;
- Utilities;
- Motor vehicle manufacturer and repair; and
- Mines and quarries.

Foundries Table 1: Established alternative processes to avoid/reduce use of vibrating equipment

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
Knock-off, cut-off and fettling castings using:					
Large angle grinders	4 (best)	3 h	12 h	<p>Eliminate or reduce the need for manual knock-off/cut-off or fettling using, where appropriate:</p> <ul style="list-style-type: none"> • good foundry practice and investment casting (lost wax) or lost foam casting techniques to improve casting precision • design castings to minimise fettling (number of joint lines etc.) • decrease ingate/feeder size and reduce cut-off time • design castings suitable for direct machining • challenge inappropriate customer specifications for high standard of finish <p>Substitute alternatives to manual fettling using, for example:</p> <ul style="list-style-type: none"> • robot fettling machines • automated grinding and manipulators • semi-automatic cut off • cropping machines • jig-mounting for grinder or castings 	<p>Hand-arm vibration in foundries (FIAC 2001)</p> <p>Example: eliminate fettling by improving casting quality.</p> <p>Example: machining as a substitute for fettling.</p> <p>Example: automatic fettling</p> <p>Example: jigs for hands free grinding</p> <p>Example: semi-automatic cut-off</p> <p>Example: isolated cut-off machine</p> <p>Example: hydraulic cropping</p>
Large straight grinders	8 (the rest)	45 m	3 h		
Chipping hammers	-	-	-		
Pedestal grinders	10 (best)	30 m	2 h		
	18 (typical)	10 m	40 m		
	10 (typical)	30 m	2 h		

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
				Design casting and runner systems should allow for these methods. Note: These methods for elimination and substitution will usually be reasonably practicable for large production runs; some may also be appropriate in jobbing foundries.	
Knocking off ceramic mould shells with chipping hammer:	18 (typical)	10 m	40 m	Hands-free alternative processes: <ul style="list-style-type: none"> • Frame-mounted breaker 	Example: shell knockout 1 Example: shell knockout 2
Furnace/cupola descaling/lining removal with breaker or chipping hammer	8 (lowest) 15 (typical) 25 (highest)	45 m 15 m 5 m	3 h 1 h 20 m	Eliminate the use of hand-operated tools: <ul style="list-style-type: none"> • water-cooled cupola without lining (for capacity >9 tonnes/hr) • hydraulic lining “push-out” for furnace lining • hydraulic machine-mounted breaker; Reduce the frequency of lining renewal or slag chipping by: <ul style="list-style-type: none"> • Maximising life of lining through good cupola operating practice • Reduce build-up of slag by control of impurities 	Foundries Information Sheet 11 Example: hydraulic push-out Example: ladle slag chipping

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
Ramming moulds with: sand rammers	10 (lowest)	30 m	2 h	In jobbing foundries, where hand-ramming of moulds cannot be eliminated, the risk can be controlled by; <ul style="list-style-type: none"> • mounting an electric hammer in a frame on a balancing rig • mounting a pneumatic rammer in a semi-rigid balancing arm (See HSE guidance for the cast stone industry)	Information Sheet MISC493
	50 (highest)	1 m	5 m		
electric demolition hammers	15 (typical)	15 m	1 h		

Note 1: The vibration magnitudes, and associated 'trigger times' to exceed Action Value/Limit Value, are indicative only and will vary depending on equipment type and conditions of use.

Note 2: Changes of process to eliminate or reduce vibration may introduce other hazards to safety or health or safety (e.g. chemical, fume, spatter, noise, dust) which must be addressed and managed.

Foundries Table 2: Management of HAV risks where use of vibrating equipment is unavoidable

Issue	Expectation	Further information (links on HSE website)
Selection of work equipment	<p>Tool selection can make a substantial difference to the vibration level (see Table 1, column 2) but the tool must be suitable for the task and used correctly.</p> <p>Employers should demonstrate a sound procurement policy for power tools and hand-guided machines, showing they have considered the following:</p> <ul style="list-style-type: none"> • There is no reasonably practicable alternative method with no (or less) vibration exposure (see Table 1) • Equipment is generally suitable for the job (safety, size, power, efficiency, ergonomics, cost, user acceptability, etc.) • Reduced vibration designs are selected provided the tools are otherwise suitable (e.g. grinders with automatic spindle balancing) • Declared vibration emission is not high compared with competing machines of similar capacity to do the job • Information on likely vibration emission in use (e.g. from manufacturer, hire company, databases) • Available information from the manufacturer or elsewhere on control of vibration risks through: <ul style="list-style-type: none"> • maintenance of tools and accessories (e.g. servicing grinders, sharpening chisels) • selection of consumables (e.g. suitable grit size and hardness of abrasive wheels, pitch of teeth on rotary files/burrs) • correct operation and operator training (see below) • maximum daily 'trigger times' or maximum daily work done with the tool • etc. 	<p>Selecting equipment</p> <p>Employers' leaflet on HAV</p> <p>Foundries Information Sheet 12</p> <p>Hand-arm vibration in foundries (FIAC 2001)</p>

Issue	Expectation	Further information (links on HSE website)
Limiting daily exposure time	<p>Restricting exposure time (“finger-on-trigger” time) may be required to bring exposures below the Limit Value, even after all reasonably practicable measures to reduce vibration levels are in place.</p> <p>Maximum times can be determined using the exposure points system or supplier’s “traffic lights” tool categories, but these should be derived from sound “real use” vibration emission values.</p> <p>Note: Employers tend to ask “How long can we use this tool?” The exposure must be reduced to the <u>lowest level that is reasonably practicable</u> (Reg 6(2)), so the Limit Value should not be used as a target, if a lower exposure is reasonably practicable.</p>	<p>Reduce the period of exposure</p> <p>Exposure points system and ready reckoner</p>
Other risk controls	<p>Control of HAVS risk by means other than reducing vibration exposure:</p> <ul style="list-style-type: none"> • Ergonomic aids such as tensioners or balancers to support weight of tool and reduce forces applied by operator • Pedestal grinders: mount the work rest independently of the machine, to reduce transmission of vibration • Suitable workplace temperature or provision of warm clothing and gloves • Regular breaks from work involving vibration and encourage operators to exercise fingers 	<p>Gloves and warm clothing</p> <p>Other measures</p> <p>Example: pedestal grinder</p> <p>Employees’ leaflet on HAV</p>
Information, instruction and training	<p>Employees at risk from vibration should have received information on:</p> <ul style="list-style-type: none"> • the risks from HAV and how to help reduce them (see above) • the importance of correct operation and maintenance of equipment • arrangements for health surveillance and their duty to cooperate. <p>Look for evidence that tools are being used correctly, as recommended by the manufacturer. This may require operators to receive specified training – are operators and their supervisors aware of the need? For example, if an unsuitable abrasive is used, operators may resort to “bumping” the grinder against the casting; this can result in distortion of the wheel and increased vibration, and there is also a risk of wheel breakage.</p>	<p>Employees’ leaflet on HAV</p> <p>Information and training</p> <p>Hand-arm vibration in foundries (FIAC 2001)</p>

Issue	Expectation	Further information (links on HSE website)
Health surveillance	<p>Required where the Action Value is likely to be exceeded. Expect to see, as a minimum:</p> <ul style="list-style-type: none"> • use of a periodic health screening questionnaire – ideally annually and for new employees • arrangements for referral of relevant cases to an occupational health provider with HAVS expertise for diagnosis and on-going monitoring • arrangements to receive medical advice on management of affected employees • arrangements for RIDDOR reporting of HAVS cases • arrangements to receive grouped information on employees' health to demonstrate effectiveness of controls 	<p>Employers' leaflet on HAV</p> <p>Health surveillance guidance</p>

Steel fabrication/shipyards Table 1: Established alternative processes to avoid/reduce use of vibrating equipment

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
Manual cutting of steel plate and re-working to correct component profile using: angle grinders straight grinders chipping hammers (rarely) Nibbling machine (hand-fed type)	4 (lowest) 8 (highest) 6 (typical) 15 (highest) 18 (typical) 10 (typical)	3 h 45 m 1½ h 15 m 10 m 30 m	12 h 3 h 5½ h 1 h 40 m 2 h	<p>Expect to see accurate pre-prep, cutting components to correct size, with a minimum of “green” . <i>“Measure twice, cut once.”</i> Significant exposures from re-work using grinders etc. should be challenged.</p> <p>Select suitable modern, precision processes for cutting out, as appropriate:</p> <ul style="list-style-type: none"> • CNC oxy-fuel flame cutting • CNC machining • laser profiling (up to approx 5 mm plate thickness) • abrasive water jet cutting (up to 150 mm thickness) – cold process with no heat distortion • submerged plasma cutting • submerged spark erosion (electrical discharge machining) <p>Note: improving accuracy and minimising manual reworking is also usually cost-effective.</p>	<p>BMT “Noise Reduction in Shipyards” booklet</p> <p>Example: machining</p> <p>Example: laser cutting</p> <p>Plasma cutting</p>
Weld preparation and finishing using tools as above	As above	As above	As above	<ul style="list-style-type: none"> • Apply bevelled edges for welding while cutting out to avoid unnecessary grinding • Use single sided welding (with a suitable backing material) to 	Noise reduction in the ship repair industry – research report 1992

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
				avoid routine back gouging associated with double sided welding (resulting distortion can be managed with “strongbacks”, heat line straightening, etc.)	Control of noise in heavy fabrication SIM 03/1001/14
Removing fairing aids, lifting lugs, etc. using grinders (see above)	As above	As above	As above	<p>Design fairing and lifting processes to avoid temporary welded aids which must be removed by grinding.</p> <ul style="list-style-type: none"> • Use magnetic, vacuum or screw clamps and anchors instead of welded fairing aids • Bolt fairing aids to welded studs which require less grinding to remove • Design welded lifting lugs that can be left in place • Use lifting clamps instead of welded lifting lugs • Use bolted lugs or shackles instead of welded lifting lugs 	<p>BMT “Noise Reduction in Shipyards” Booklets 1 and 2</p> <p>Noise reduction in the ship repair industry – research report 1992</p>

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
Surface preparation using: needle scalers	5 (lowest)	2 h	8 h	Cleaning steel surfaces and preparing for painting. Use of scaling tools should be minimised (small and awkward areas only) and modern vibration-reduced tools should be used. Where reasonably practicable an appropriate alternative process should be used, for example: <ul style="list-style-type: none"> • shot blasting • abrasive vacuum blasting • ultra high pressure water jetting • dry ice pellet blasting (non-abrasive, "clean" method) • ice blasting (wet) 	Noise reduction in the ship repair industry – research report 1992 Control of noise in heavy fabrication SIM 03/1001/14 Example: abrasive blasters
scaling hammers	18 (highest)	10 m	35 m		
(piston type)	10 (lowest)	30 m	2 h		
deck planers, leaf-type scalers, peening tools	40 (highest)	2 m	7 m		
	15 (typical)	15 m	1 h		

Note 1: The vibration magnitudes, and associated 'trigger times' to exceed Action Value/Limit Value, are indicative only and will vary depending on equipment type and conditions of use.

Note 2: Changes of process to eliminate or reduce vibration may introduce other hazards to safety or health or safety (e.g. chemical, fume, spatter, noise, dust) which must be addressed and managed.

Note 3: For shipyards, HSE policy since 1998 has been to serve IN for action plan/control where no progress has been made; PN for old design chipping or scaling tools used for more than 1 hour.

Steel fabrication/shipyards Table 2: Management of HAV risks where use of vibrating equipment is unavoidable

Issue	Expectation	Further information (links on HSE website)
<p>Selection of work equipment</p>	<p>Tool selection can make a substantial difference to the vibration level (see Table 1, column 2) but the tool must be suitable for the task and used correctly.</p> <p>Employers should demonstrate a sound procurement policy for power tools and hand-guided machines, showing they have considered the following:</p> <ul style="list-style-type: none"> • There is no reasonably practicable alternative method with no (or less) vibration exposure (see Table 1) • Equipment is generally suitable for the job (safety, size, power, efficiency, ergonomics, cost, user acceptability, etc.) • Reduced vibration designs are selected provided the tools are otherwise suitable (e.g. grinders with automatic spindle balancing) • Declared vibration emission is not high compared with competing machines of similar capacity to do the job • Information on likely vibration emission in use (e.g. from manufacturer, hire company, databases) • Available information from the manufacturer or elsewhere on control of vibration risks through: <ul style="list-style-type: none"> • maintenance (e.g. servicing grinders, sharpening drills and chisels) • selection of consumables (abrasive discs, chisels, drills, etc.) • correct operation and operator training (see below) • maximum daily 'trigger times' or maximum daily work done with the tool • etc. 	<p>Selecting equipment</p> <p>Employers' leaflet on HAV</p>

Issue	Expectation	Further information (links on HSE website)
Limiting daily exposure time	<p>Restricting exposure time (“finger-on-trigger” time) may be required to bring exposures below the Limit Value, even after all reasonably practicable measures to reduce vibration levels are in place.</p> <p>Maximum times can be determined using the exposure points system or supplier’s “traffic lights” tool categories, but these should be derived from sound “real use” vibration emission values.</p> <p>Note: Employers tend to ask “How long can we use this tool?” The exposure must be reduced to the <u>lowest level that is reasonably practicable</u> (Reg 6(2)), so the Limit Value should not be used as a target, if a lower exposure is reasonably practicable.</p>	<p>Reduce the period of exposure</p> <p>Exposure points system and ready reckoner</p>
Other risk controls	<p>Control of HAVS risk by means other than reducing vibration exposure:</p> <ul style="list-style-type: none"> • Ergonomic aids such as tensioners or balancers to support weight of tool and reduce forces applied by operator • Suitable workplace temperature or provision of warm clothing and gloves • Regular breaks from work involving vibration and encourage operators to exercise fingers 	<p>Gloves and warm clothing</p> <p>Other measures</p> <p>Employees’ leaflet on HAV</p>
Information, instruction and training	<p>Employees at risk from vibration should have received information on:</p> <ul style="list-style-type: none"> • the risks from HAV and how to help reduce them (see above) • the importance of correct operation and maintenance of equipment • arrangements for health surveillance and their duty to cooperate. <p>Look for evidence that tools are being used correctly, as recommended by the manufacturer. This may require operators to receive specified training – are operators and their supervisors aware of the need? For example, percussive tools with suspension systems designed to absorb vibration must be used correctly, and with appropriate force, or the potential reduction in vibration will not be achieved.</p>	<p>Employees’ leaflet on HAV</p> <p>Information and training</p>

Issue	Expectation	Further information (links on HSE website)
Health surveillance	<p>Required where the Action Value is likely to be exceeded. Expect to see, as a minimum:</p> <ul style="list-style-type: none"> • use of a periodic health screening questionnaire – ideally annually and for new employees • arrangements for referral of relevant cases to an occupational health provider with HAVS expertise for diagnosis and on-going monitoring • arrangements to receive medical advice on management of affected employees • arrangements for RIDDOR reporting of HAVS cases • arrangements to receive grouped information on employees' health to demonstrate effectiveness of controls 	<p>Employers' leaflet on HAV</p> <p>Health surveillance guidance</p>

Construction Table 1: Established alternative processes to avoid/reduce use of vibrating equipment

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
<u>Tunnelling</u> by hand with clay spade or jigger pick.	16 (typical)	10 m	45 m	Mechanised tunnelling methods, to eliminate hand digging. This is expected for all but the smallest tunnelling jobs.	British Tunnelling Society code of practice on hand-arm vibration Tunnelling and Pipejacking: Guidance for Designers
<u>Breaking</u> concrete, asphalt, etc. with hand-operated breakers in ground work, road maintenance, etc.	5 (lowest)	2 h	8 h	Plan construction work (e.g. casting-in ducts, detail box-outs) to minimise breaking through new concrete/masonry. Use alternative method/equipment as appropriate: <ul style="list-style-type: none"> • 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) 	Construction Industry Council guidance Example: mounted breaker Example: directional drilling Example: crushing concrete Example: Bursting concrete Example: diamond wire cutting Example: water jetting Codes of Practice from the Waterjetting Association
	12 (typical)	20 m	90 min		
	20 (highest)	10 m	30 min		
<u>Demolition</u> of concrete/masonry using hand-held hammers/breakers	8 (lowest)	45 m	3 h		
	15 (typical)	15 m	1 h		
	25 (highest)	5 m	20 m		

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
Pile cropping using hand-held hammers/breakers	8 (lowest) 15 (typical) 25 (highest)	45 m 15 m 5 m	3 h 1 h 20 m	<p>Pile cap removal using hand-operated breakers is not acceptable. Use alternative method as appropriate:</p> <ul style="list-style-type: none"> • Elliott method • Recipieux method • suspended hydraulic pile cropper • the above alternatives to hand-operated breakers, especially machine-mounted breakers • design pile spacing and pile re-bar for mechanised cropping <p>Note: some dressing using hand-operated tools may still be required.</p>	<p>Pile cropping. A review of current practice (HSE Inspector information leaflet, Aug 02)</p> <p>Information from Loughborough University</p>
<p>Scabbling using:</p> <p>needle scalars</p> <p>hammer type scabblers</p> <p>pole type scabblers</p>	<p>5 (lowest) 18 (highest) 40 (highest) 10 (lowest) 40 (highest)</p>	<p>2 h 10 m 2 m 30 m 2 m</p>	<p>8 h 40 m 8 m 2 h 8 m</p>	<p>Scabbling purely for architectural aesthetic effect is not acceptable. Specify finishes that do not require scabbling. (Some finishes can be designed into shuttering using special moulds or chemical retardants and water jetting.)</p> <p>Surface preparation to ensure a good concrete bond. Use alternative methods where technically appropriate:</p> <ul style="list-style-type: none"> • grit blasting (wet or dry) • use of chemical retarders and pressure washing • cast in proprietary joint formers e.g. mesh formwork • UHP water blasting (refer to CoP for safety guidance) 	<p>Example: grit blasting</p> <p>Example: paint-on retarder</p> <p>Example: special formwork</p> <p>Codes of Practice from the Waterjetting Association</p>

ACTIVITY OR PROCESS	Example vibration magnitude (m/s ²)	Corresponding time to reach:		Alternative methods	Further information (links on HSE website)
		Action Value	Limit Value		
<u>Wall chasing</u> using hand-held breakers	8 (lowest) 15 (typical) 25 (highest)	45 m 15 m 5 m	3 h 1 h 20 m	<ul style="list-style-type: none"> in new buildings, specify built-in ducting in existing buildings, consider overcoating existing plaster and building in the ducts 	Construction Industry Council guidance
<u>Drilling</u> masonry/concrete using: electric hammer drills or “combihammers”	6 (lowest) 9 (typical) 25 (highest)	1½ h 40 m 5 m	5½ h 2½ h 20 m	Design and plan to avoid unnecessary drilling. Use, where appropriate: <ul style="list-style-type: none"> jig-mounted drilling diamond core drilling (clamped in rig) cast-in anchors and channels for wall fixings instead of drill-and-fix types use of direct fastening tools 	

Note 1: The vibration magnitudes, and associated ‘trigger times’ to exceed Action Value/Limit Value, are indicative only and will vary depending on equipment type and conditions of use.

Note 2: changes of process to eliminate or reduce vibration may introduce other hazards to health (e.g. noise, dust) or safety which must be addressed and managed (e.g. hazards associated with lifting operations in some mechanised methods for pile cap removal).

Construction Table 2: Management of HAV risks where use of vibrating equipment is unavoidable

Issue	Expectation	Further information (links on HSE website)
Selection of work equipment	<p>Tool selection can make a substantial difference to the vibration level (see Table 1, column 2) but the tool must be suitable for the task and used correctly.</p> <p>Employers should demonstrate a sound procurement policy for power tools and hand-guided machines, showing they have considered the following:</p> <ul style="list-style-type: none"> • There is no reasonably practicable alternative method with no (or less) vibration exposure (see Table 1) • Equipment is generally suitable for the job (safety, size, power, efficiency, ergonomics, cost, user acceptability, etc.) • Reduced vibration designs are selected provided the tools are otherwise suitable (e.g. breakers with handle suspension) • Declared vibration emission is not high compared with competing machines of similar capacity to do the job • Information on likely vibration emission in use (e.g. from manufacturer, hire company, databases) • Available information from the manufacturer on control of vibration risks through recommendations for: <ul style="list-style-type: none"> • maintenance (e.g. sharpening chisels) • selection of consumables (chisels, drills, abrasive discs, etc.) • correct operation and operator training (see below) • maximum daily 'trigger times' or maximum daily work done with the tool • etc. 	<p>Selecting equipment</p> <p>Employers' leaflet on HAV</p>

Issue	Expectation	Further information (links on HSE website)
Limiting daily exposure time	<p>Restricting the exposure time (“finger-on-trigger” time) may be required to bring exposures below the Limit Value, even after all reasonably practicable measures to reduce vibration levels are in place.</p> <p>Maximum times can be determined using the exposure points system or supplier’s “traffic lights” tool categories, but these should be derived from sound “real use” vibration emission values.</p> <p>Note: Employers tend to ask “How long can we use this tool?” The exposure must be reduced to the <u>lowest level that is reasonably practicable</u> (Reg 6(2)), so the Limit Value should not be used as a target, if a lower exposure is reasonably practicable.</p>	<p>Reduce the period of exposure</p> <p>Exposure points system and ready reckoner</p>
Other risk controls	<p>Control of HAVS risk by means other than reducing vibration exposure:</p> <ul style="list-style-type: none"> • Ergonomic aids to support weight of tool and reduce the grip and other forces applied by the operator • Suitable workplace temperature or provision of appropriate warm clothing and gloves • Regular breaks from work involving vibration and encourage operators to exercise fingers 	<p>Gloves and warm clothing</p> <p>Other measures</p> <p>Employees’ leaflet on HAV</p>
Information, instruction and training	<p>Employees at risk from vibration should have received information on:</p> <ul style="list-style-type: none"> • the risks from HAV and how to help reduce them • arrangements for health surveillance and their duty to cooperate. <p>Look for evidence that tools are being used correctly, as recommended by the manufacturer. This may require operators to receive specified training: are the operators and their supervisors aware of the need? In particular, breakers with suspended (sprung) handles must be used correctly, and with appropriate downward force, or the potential reduction in vibration (e.g. from 20 to 5 m/s²) will not be achieved.</p>	<p>Employees’ leaflet on HAV</p> <p>Information and training</p> <p>Example: training provided by breaker manufacturer</p>

Issue	Expectation	Further information (links on HSE website)
Health surveillance	<p>Required where the Action Value is likely to be exceeded. Expect to see, as a minimum:</p> <ul style="list-style-type: none"> • use of a periodic health screening questionnaire – ideally annually and for new employees • arrangements for referral of relevant cases to an occupational health provider with HAVS expertise for diagnosis and on-going monitoring • arrangements to receive medical advice on management of affected employees • arrangements for RIDDOR reporting of HAVS cases • arrangements to receive grouped information on employees' health to demonstrate effectiveness of controls (although this may not be meaningful for casual/short-term workers) <p>In construction, short-term employment presents difficulties for managing health surveillance; cooperation between employers should be encouraged.</p>	<p>Employers' leaflet on HAV</p> <p>Health surveillance guidance</p>