

Working at Height, Noise & Vibration

Charles Boyd

Health and Safety Manager

Land and Environmental Services

Glasgow City Council



Introduction

Overview of the management of work at height, noise and vibration risks within a Local Authority.

Discuss challenges to effective service delivery;

The 2005 Regulations

The Work at Height Regulations

Effective from the 6th April 2005

Control of Vibration at Work Regulations 2005

Effective from the 6th April 2005

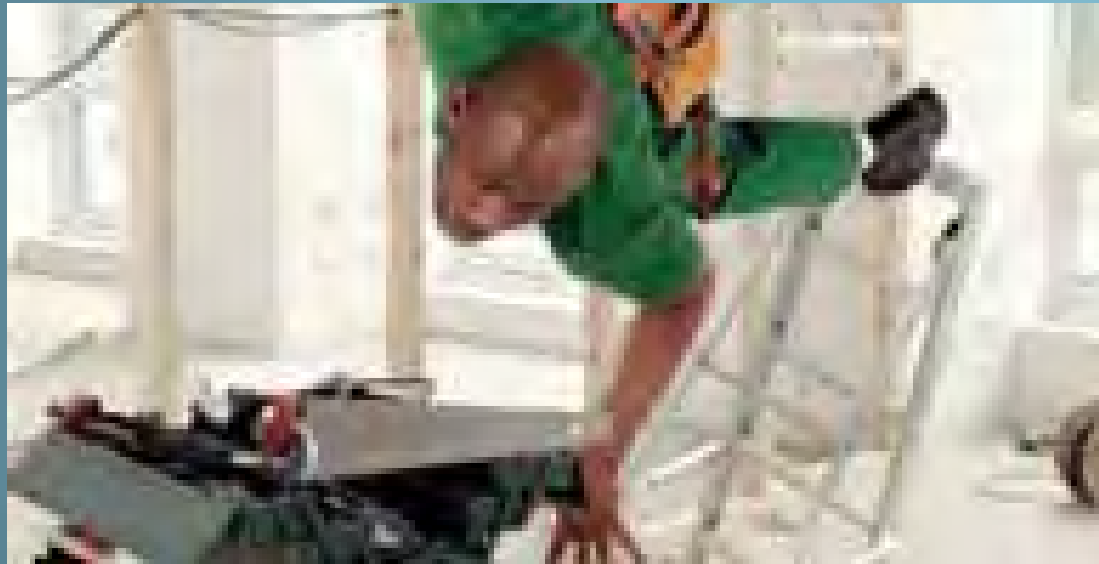
Control of Noise at Work Regulations 2005

Effective from the 6th April 2006

The philosophy behind the three Regulations are similar

Working at Height

Last year **45 workers died** following a fall from height and **3750 were seriously injured**.



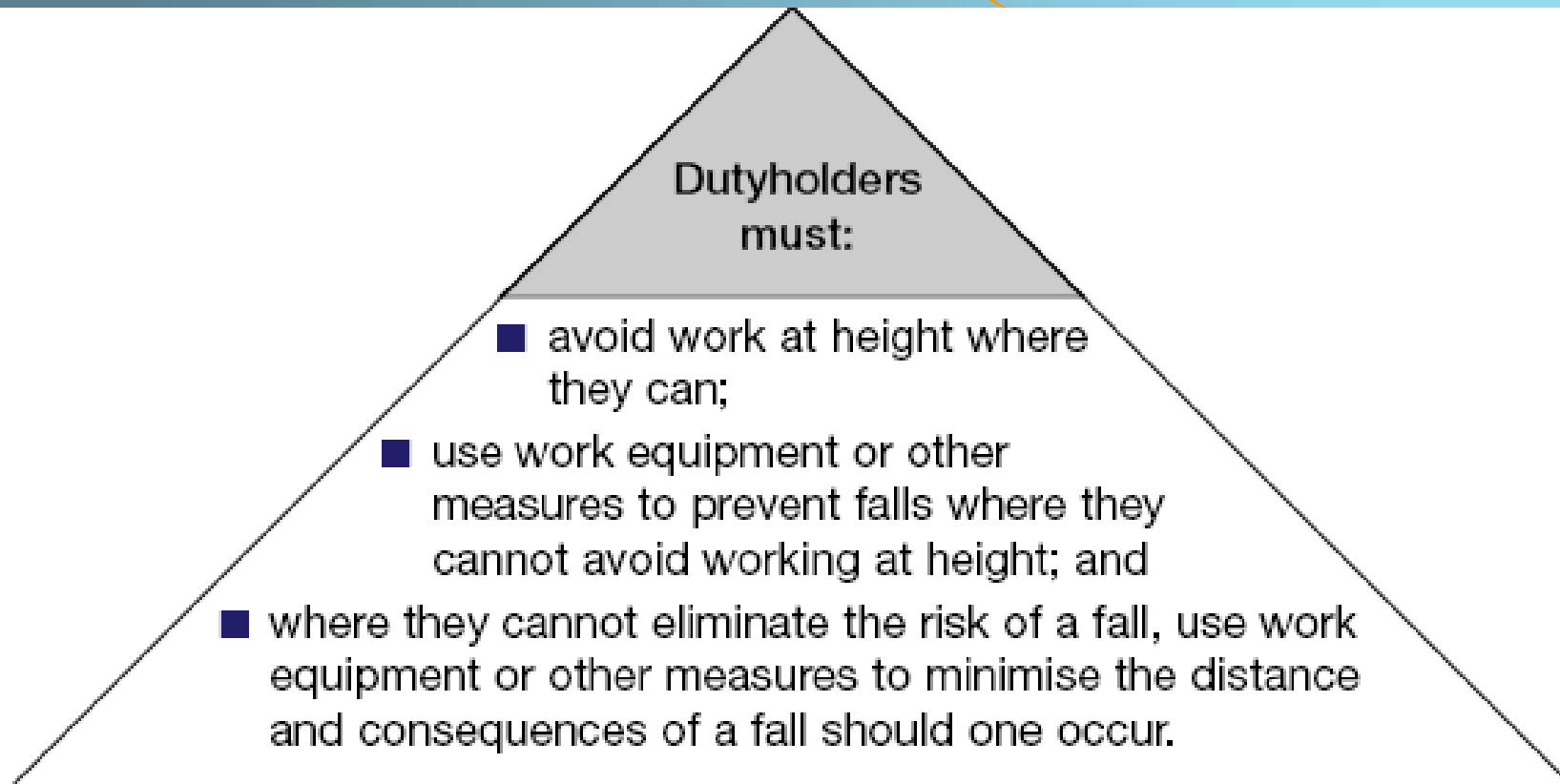
Working at Height

Overriding principle

Regulation 6(3)

You must do everything reasonably practicable to prevent anyone falling.

Work at Height



Dutyholders' responsibilities

Challenges to Service Delivery

Compliance:

- Existing equipment – ladders, step ladders, zip up scaffold – training and education.
- Changing procedures – use of MEWPs
- Vehicle fleet – access to bodies of tippers
- Use of energy efficient bulbs
- Hinged lighting Columns
- Long term – design out work at height

Noise and Vibration

Up to 25% of workforce will
either have to cease work
with vibrating tools or be
restricted in their use

Noise and Vibration

Overview of the management of noise and vibration risks within a Local Authority.

- Measurement of time of exposure – daily exposure issues
- How to ensure that service delivery is maximised

Managing the Control of Noise and Vibration

Identify where there is a Risk due to noise /vibration

Decide who might be harmed

Evaluate risks and develop a plan for control

Record the findings

Review

Identify where there is a Risk- Noise

Not Complex

Noisy Industry?

Use noisy tools for 30mins+? Are there impact noises?

Do you need to shout to be heard over 1 m away?

2m away?

Is there intrusive noise 6h+ per day? – Talk to Employees

Use of personal stereo / I-pod/ MP3 players

Identify where there is a Risk- **Vibration**

Again, Not Complex

Industry where known to be associated with HAV/WBV

High risk process ?

Manufacturers/suppliers/ hirers warn of risk?

Have any employees been affected by vibration?

Decide who might be harmed

Noise

Look at operators and processes

Those with hearing damage

Visitors, contractors

Vibration

Those who operate tools

Drivers/Passengers (WBV)

Evaluate risks and develop a plan for control

Conduct an assessment of exposure

Information on magnitude

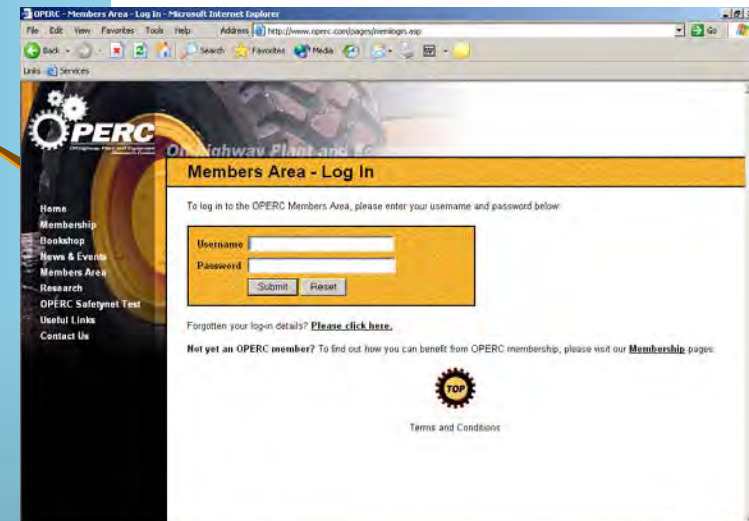
Exposure Time

Evaluate risks and develop a plan for control

Information on magnitude

- Manufacturers Data / Hire Company
- HSE
- Trade/ industry associations
- Measure the actual tool

Exposure Time



Evaluate risks and develop a plan for control

Conduct an assessment of exposure

Information on magnitude

- Manufacturers Data
- HSE
- Trade/ industry associations
- Measure the actual tool

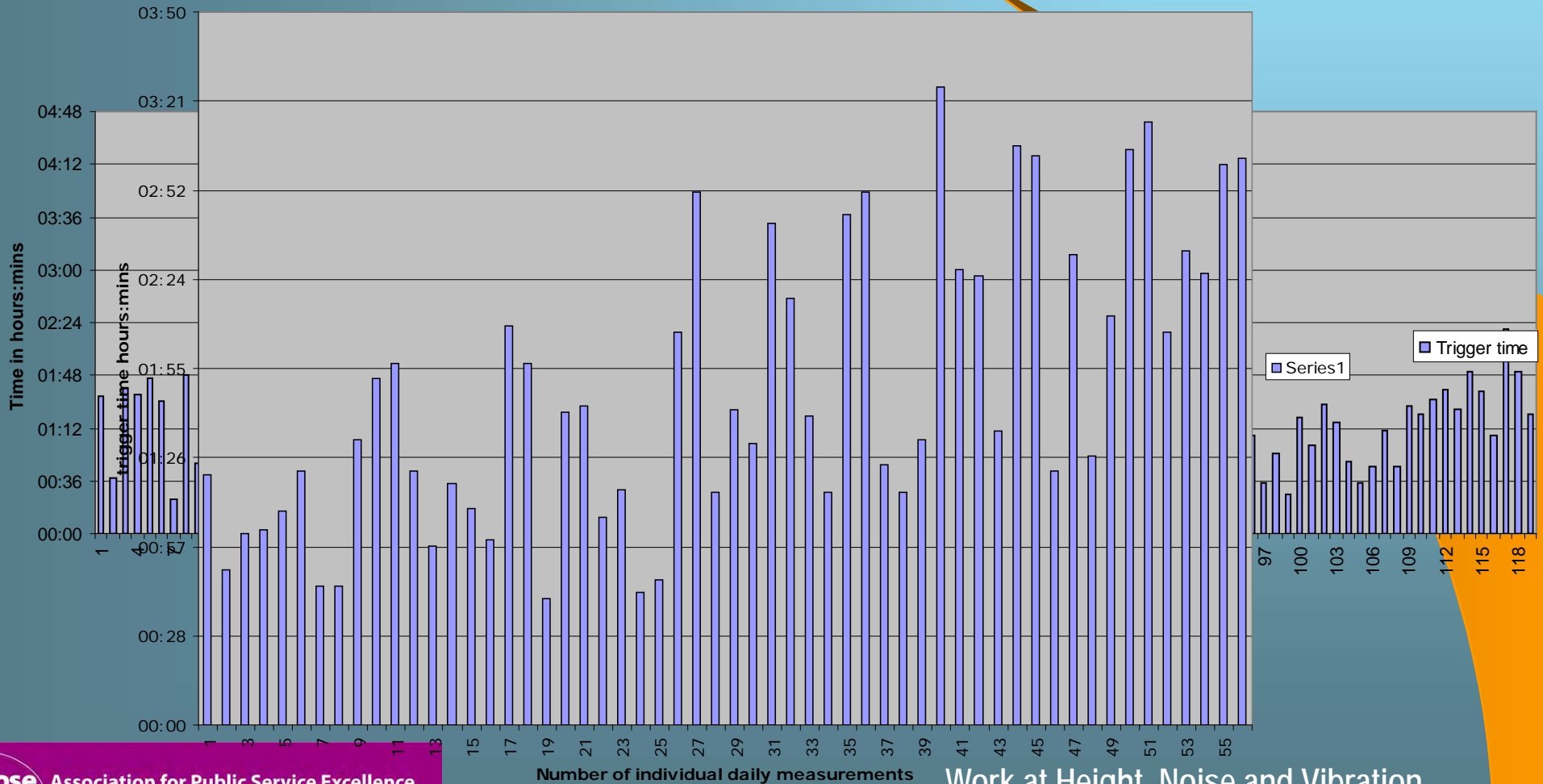
Exposure Time

- Generally overestimated
- Educated guess / accurately measure

Time of Exposure

Hedge trimming - times of trigger usage per day

Trigger time per day per machine - Electric lawnmowers at Bellahouston Depot in September 2004



Time of Exposure

Timing Devices

- Stopwatch
- Electronic engine timers/ vibration activated timers
- Air line timers
- In line current measuring timers
- Hour timer on diesel/petrol engines

Time / daily exposure

Current Developments

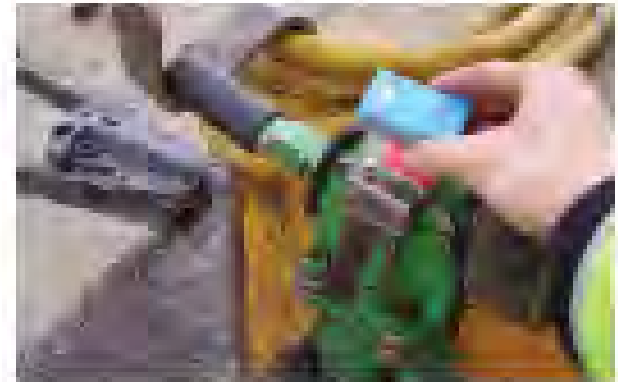
Unit is taken to work site
magnetic field is measured
clocks up



At the end of the day
the unit is taken back to
where it was charged

DEVICE

is a worker's work,
tool and
points system.



STATION

returns to the charging
station and
sends data.



HAVS data management – new developments

- Assure Safety



Evaluate risks and develop a plan for control

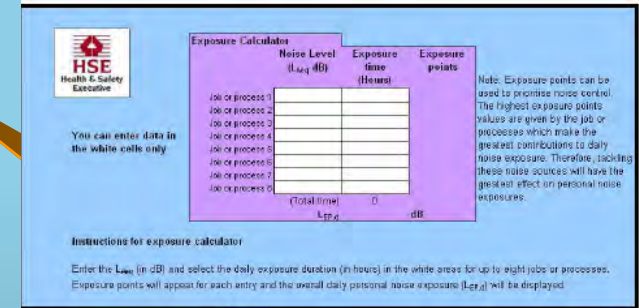
Calculate daily exposure

Noise and Vibration

POINTS SYSTEM

- HSE Ready-reckoner
- Own or bespoke system
- Usually the time for both noise and vibration is the same

Decide on Action Plan to manage the risk



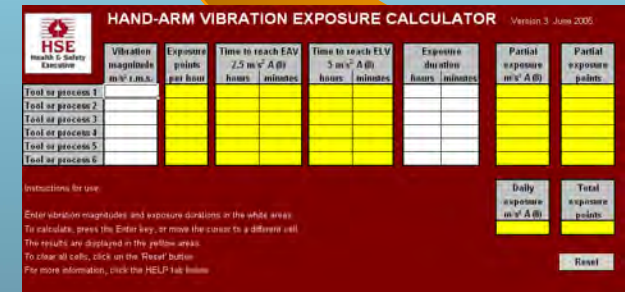
Exposure Calculator

Noise Level (Leq dB) | Exposure time (Hours) | Exposure points

Job or process 1	Job or process 2	Job or process 3	Job or process 4	Job or process 5	Job or process 6	Job or process 7	Job or process 8	
							(Total time) 0	(Leq) -dB

Instructions for exposure calculator

Enter the L_{eq} (in dB) and select the daily exposure duration (in hours) in the white areas for up to eight jobs or processes. Exposure points will appear for each entry and the overall daily personal noise exposure (Leq,d) will be displayed.



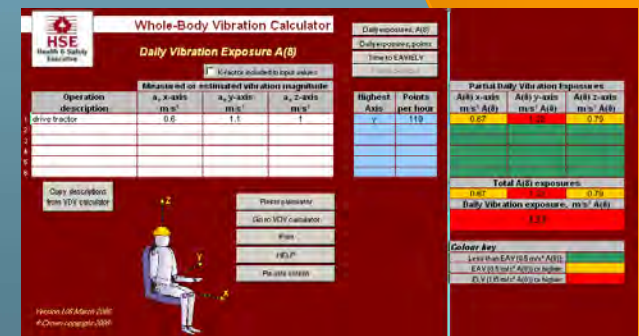
HAND-ARM VIBRATION EXPOSURE CALCULATOR Version 3 June 2005

Vibration magnitude (m/s ² r.m.s.)	Exposure points per hour	Time to reach EAV (25 m/s ² A(8)) (hours, minutes)	Time to reach EIV (5 m/s ² A(8)) (hours, minutes)	Exposure duration (hours, minutes)	Partial exposure (m/s ² A(8))	Partial exposure (points)
Total for process 1						
Total for process 2						
Total for process 3						
Total for process 4						
Total for process 5						
Total for process 6						

Instructions for use:

Enter vibration magnitudes and exposure durations in the white areas. To calculate, press the Enter key, or move the cursor to a different cell. The results are displayed in the yellow areas. To clear all cells, click on the 'Reset' button. For more information, click the HELP tab below.

Buttons: Daily exposure (m/s² A(8)), Total exposure (points), Reset



Whole-Body Vibration Calculator

Daily Vibration Exposure A(8)

Abstracted or unabstracted vibration magnitude

Operation description	A _x , x-axis (m/s ²)	A _y , y-axis (m/s ²)	A _z , z-axis (m/s ²)	Highest Axis	Points per hour
Time tractor	0.8	1.1	1	y	119

Buttons: Daily exposure A(8), Only exposure points, Time to EAV/EIV

Partial daily vibration exposure	A(8) x-axis (m/s ² A(8))	A(8) y-axis (m/s ² A(8))	A(8) z-axis (m/s ² A(8))
	0.67	0.89	0.79
Total A(8) exposures	0.67		
Daily Vibration exposure, m/s² A(8)	1.13		

Colour key:

- Lowest EAV/EIV (m/s² A(8))
- EAV/EIV (m/s² A(8))
- D.V.I. (m/s² A(8))

Action Plans for Noise and Vibration

- Identify significant sources of risk
- Prioritise them in relation to risk
- Identify solutions
- Plan introduction of control measures
- Plan health surveillance
- Define management responsibilities

Evaluate risks and develop a plan for control

Land & Environmental Services current system

- Measured all plant
- Agreed exposure time (timed or estimate)
- Points system for both noise and vibration
- On one database
- Gives assumed daily exposure of all employees
- Base health surveillance on the points system.
- Review all high points activities (time or change of process)

Current developments

Occupational Health providers are now suggesting restrictions to individual workers based on the medical examination – i.e. restricting exposure to 75 or 100 points per day.

Occupational Health Providers are now suggesting that low level carbon monoxide or exposure to low levels of organic solvents in the air can increase industrial deafness

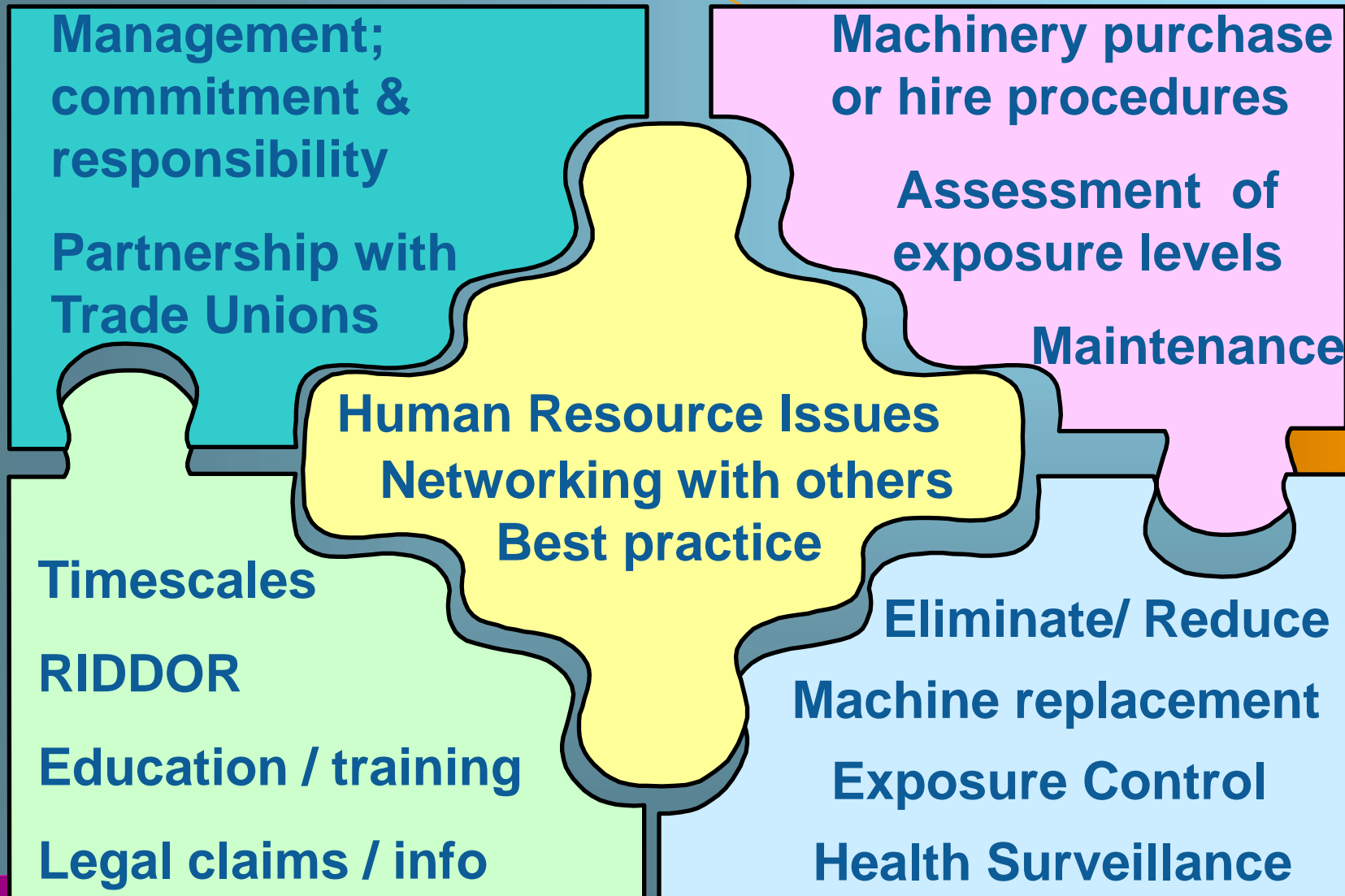
HSE e-Bulletins – go to hse.gov.uk and register

Service Delivery ?

With good management we can maximise the service delivery of services which rely on or use vibrating tools

We need a holistic action plan to manage all aspects of noise and vibration

What and Who is in the Action Plan?



Discussion

References:

Control of Vibration at Work Regulations and Guidance - L140

Control of Noise at Work Regulations and Guidance - L108

Control of whole body Vibration and Guidance - L141

Speedyhire. - http://www.speedyhire.co.uk/technical_catalogue.aspx?cat=239

OPERC (off highway plant and equipment) - www.operc.com

APSE (Association for Public Service Excellence) apse.org.uk

HSE –www.hse.gov.uk

REACTEC - vibration management systems, Stephen Dickson –
steve@reactec.com

Stihl Engine timer – digital engine tachometer DET-303 part no. 0464 801 0000

Vibration activated timer – SENDEC model 806-601 V1A sendec.com

Hire Association of Europe – www.hae.org.uk also
www.sheffield.ac.uk/safety.guidance/vibration.pdf

Assure Safety HAVS management system <http://assuresafety.eu>

Ralph Fleming –(Assure Safety) 07951738469



