Manager Awareness Training Part 1

Why HAV is important and how Reactec can help

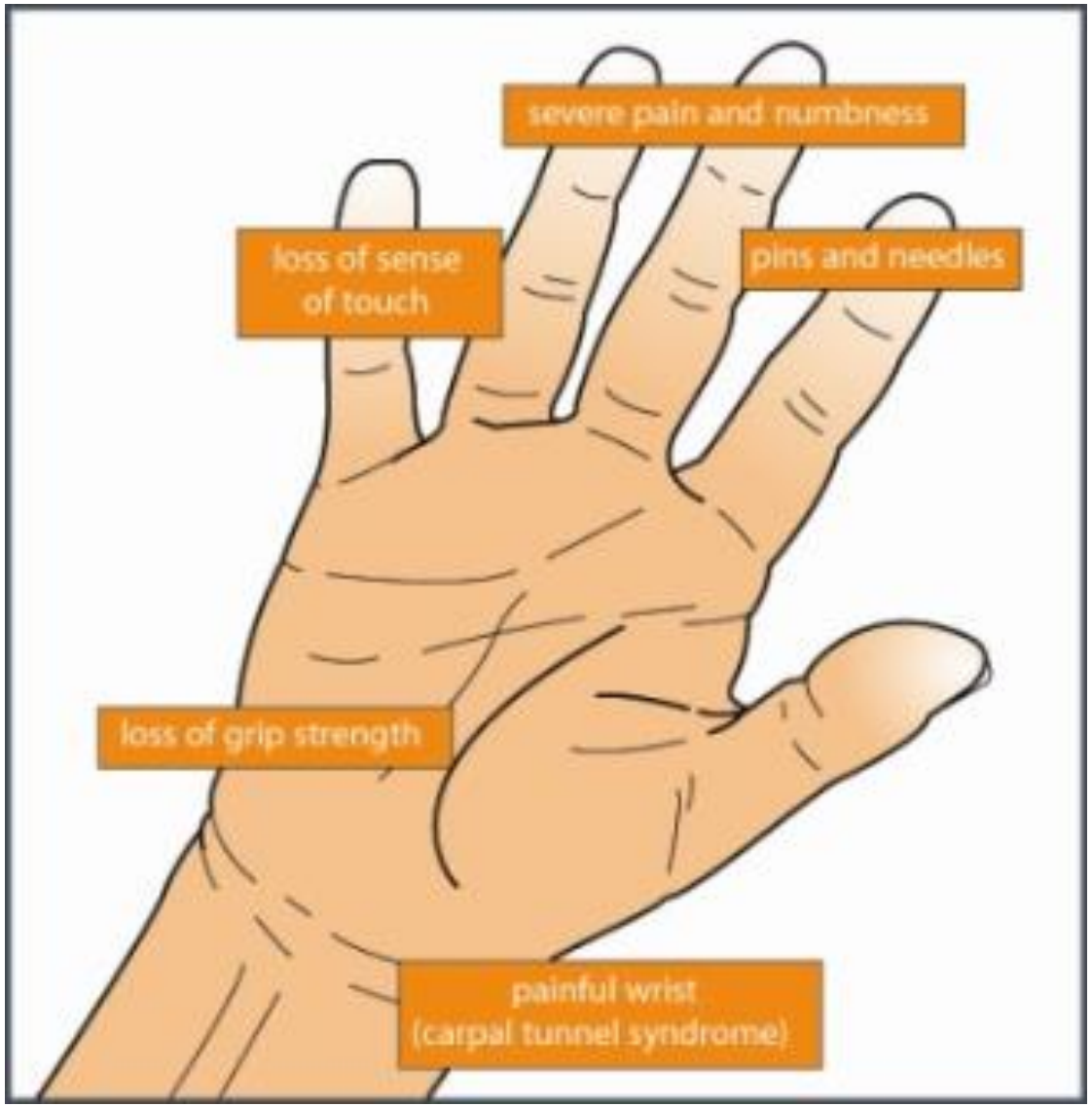
Hand-Arm Vibration Syndrome

Hand-Arm Vibration Syndrome (HAVS) is the medical term for damage that may occur to the fingers, hands and arms as a result of working with vibrating tools or machinery. Vibration injuries are divided into three subgroups:

1. Neurological injuries
2. Vascular injuries
3. Musculoskeletal injuries

Impact:

- Unable to hold a mobile phone or a pint
- Unable to do intricate work eg tie a shoelace, undo small buttons
- Sleepless nights



HOW LIKELY ARE YOU TO DEVELOP HAVS?

10% of employees exposed at the exposure action level will contract HAVS within **12** years or within **6** years if exposed to the exposure limit level. *(HSE)*

"Exposure below the Action Value cannot be considered safe..." (HSE)

D_y, years	4	8	12	15
A(8), m/s^2	7	3.7	2.5	2.0
Daily Exposure Pts	784	219	100	64

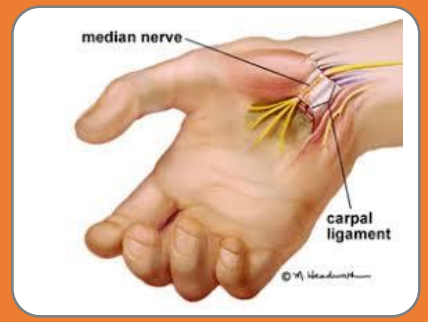
Established correlation between time to vascular damage (white finger) and average daily exposure

INDUSTRIAL DISEASE RIDDORS*

HAVS

Hand Arm Vibration Syndrome, 805

CTS



Carpel tunnel syndrome, 343

Dermatitis, 195

Tendonitis, 112

Biological Agents, 109

Asthma, 41

Cramp of the hand or forearm, 17

Occu... cance...

Le... 3

T... f...

* HSE 2018

LEGAL OBLIGATIONS

The Control of Vibration at Work Regulations 2005 and associated guidance requires the following;

- Elimination or control of vibration exposure risk to As Low As Reasonably Practicable (ALARP).
- An **assessment of the risks to employees from exposure to vibration**, including assessment of employees' daily exposure to vibration.
- Information, instruction and training to tool users and their managers.

A suitable and sufficient assessment of HAV exposure risk requires a determination of;

- **duration** of exposure and;
- **probable vibration magnitude** during exposure.

Meeting HSE Legislation

The HSE exposure point system to quantify risk

To estimate HAV exposure risk – time of exposure and the representative vibration magnitude of each tool used cumulated across all tools each day.

100 points (**8** hrs of a tool with **2.5** m/s^2)

EAV

Take action to reduce exposure.
1 in 10 develop HAVS in 12 years at this level.

400 points (**8** hrs of a tool with **5** m/s^2)

ELV

Do not work above this level.
1 in 10 develop HAVS in 6 years at this level.

Vibration magnitude m/s^2	15 m	30 m	1 h	2 h	3 h	4 h	5 h	6 h	8 h	10 h
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	95	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

Daily exposure time

Why does HAVS still dominate RIDDORS?

01 Does the risk assessment match the real tool use

02 How representative is vibration data used for risk assessments

03 Inadequate or ineffective controls.

04 Operator competency

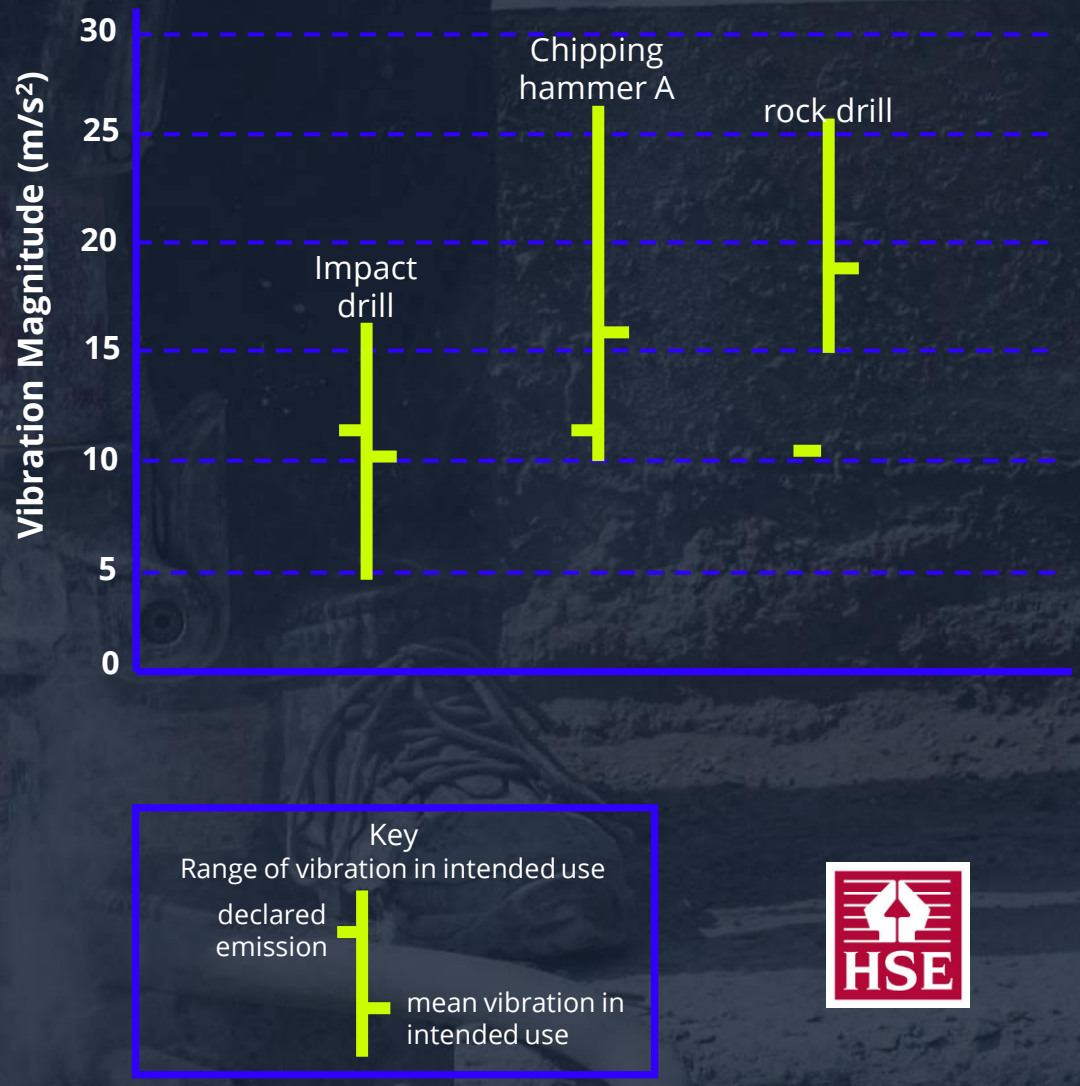
05 Is the right tool being used for the job

01 Condition of tool

02 Condition of tool accessory

03 Operator competency

04 Material being worked



HOW GOOD ARE YOUR RISK ASSESSMENTS?

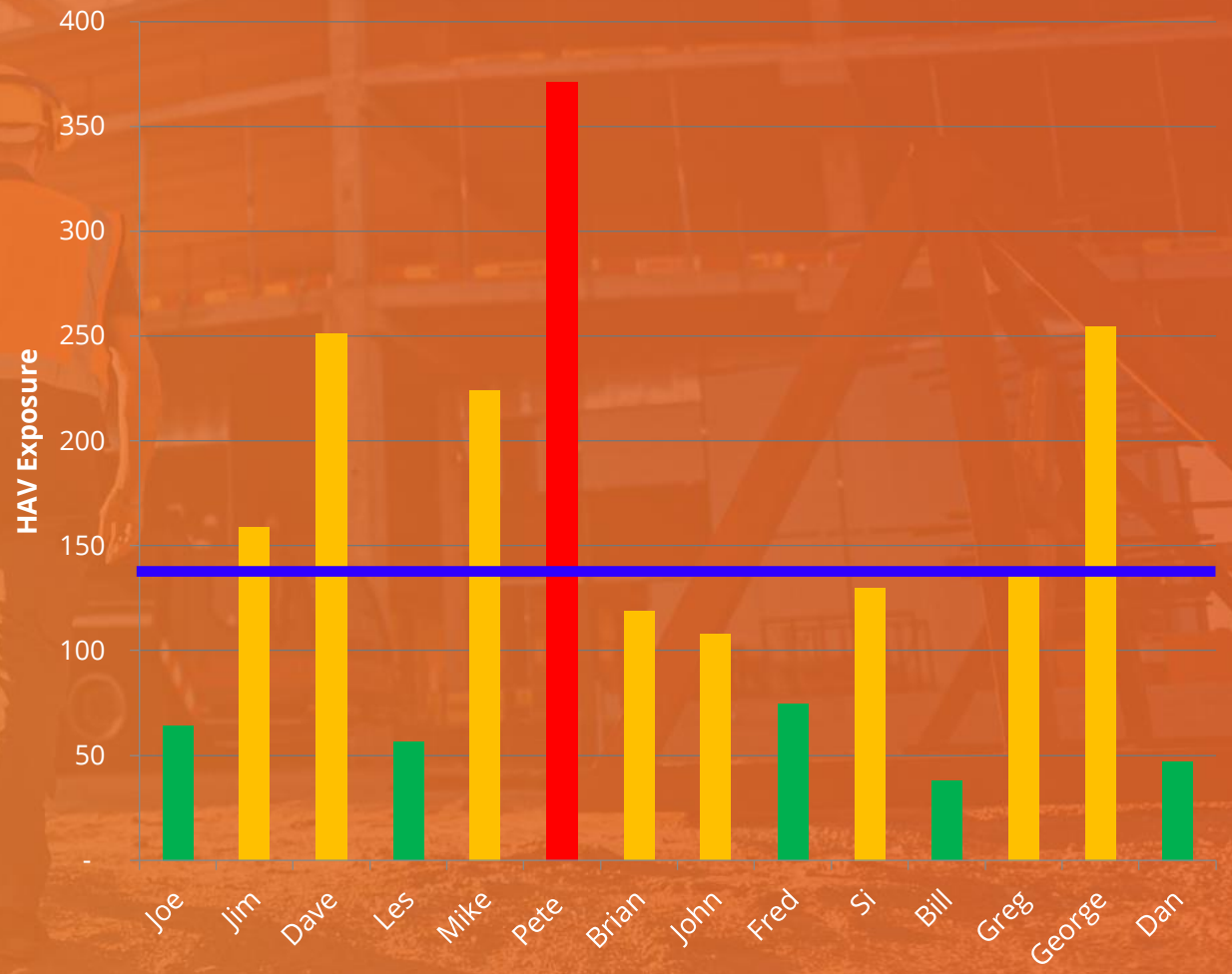
What is the risk to the individual?

A company requested a case study to understand the effectiveness of a generic risk assessment of HAV exposure risks.

A number of 2 man and 3 man teams were tasked with digging same sized hole in the same type of road with the same tool type

The task based assessment from the typical excavation time and average vibration concluded that for a 2 man team the exposure should be no greater than 140

Chart displays the max exposure risk experienced for each individual when digging one hole while sharing the work*.



R-Link

2 Concurrent Assessments

2

Pre-determined expected vibration magnitude

×

Trigger time of Tool Use

=

Tool Exposure Points (TEP)

2

Real use sensed vibration magnitude

×

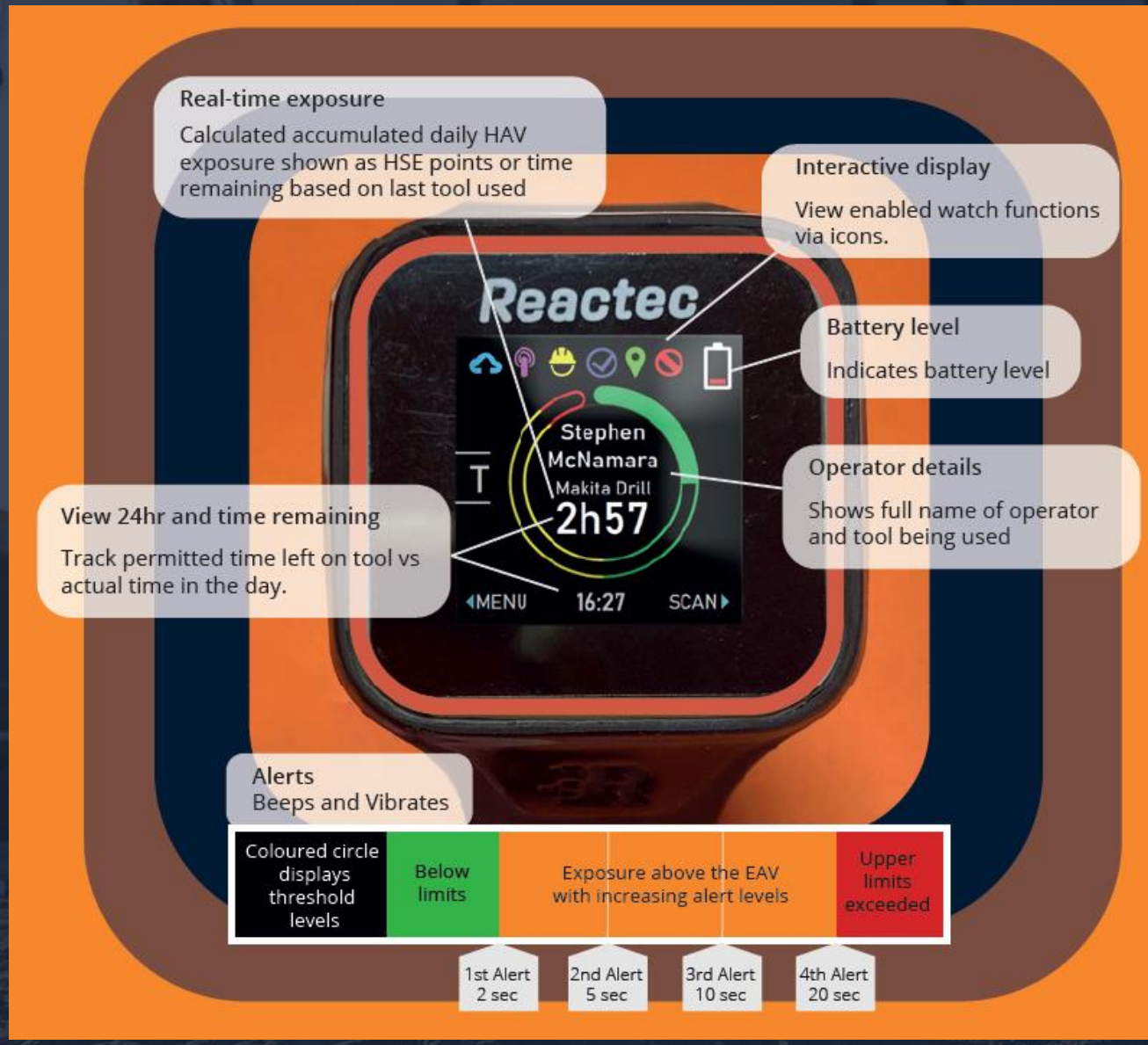
Trigger time of Tool Use

=

Sensed Exposure Points (SEP)

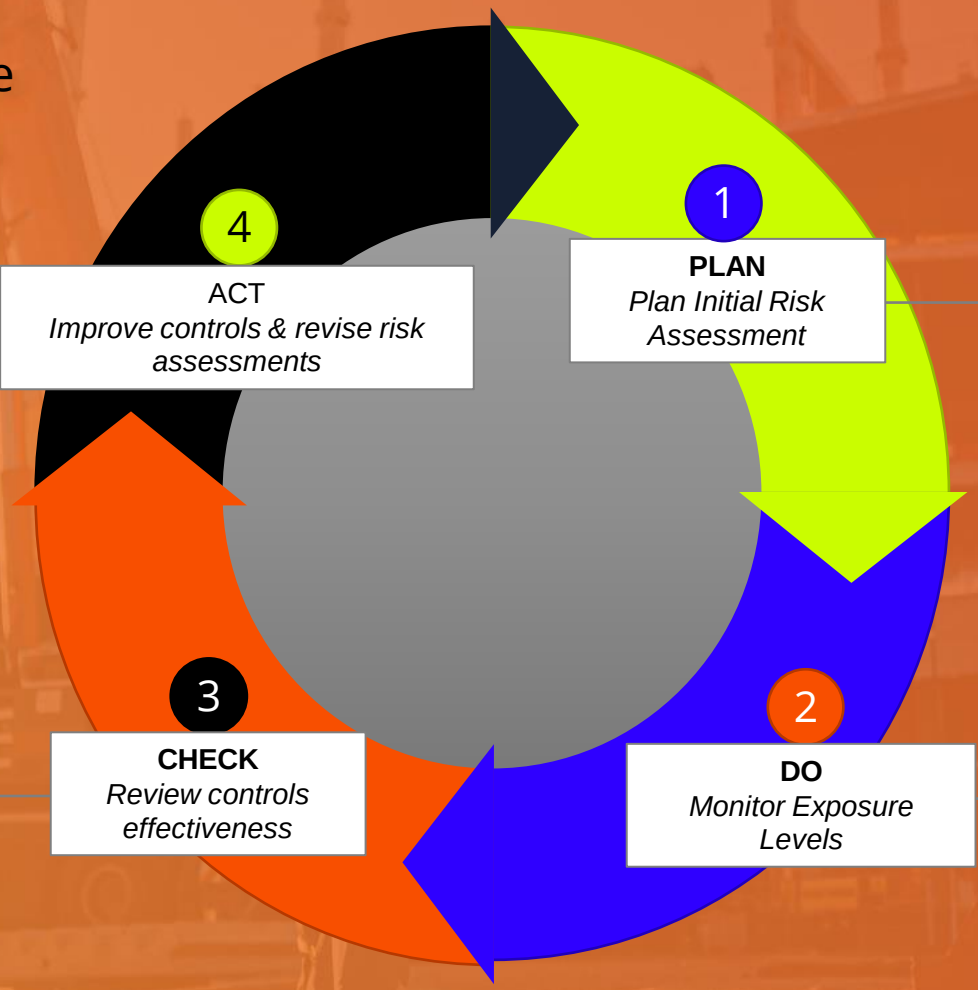
Independently validated by the IOM

R-LINK – WORKER INFORMATION



RISK ASSESSMENT SHOULD BE A CONTINUOUS PROCESS

PLAN, DO, CHECK, ACT
Management method for the control & continuous improvement of risk



Initial risk assessments of employees exposed to vibration are required to establish an appropriate set of controls and determine if occupational health screening is required.

Monitoring can help validate risk assessments.

Tool mounted and wearable on the wrist devices can be used to monitor HAV exposure.

Review the performance of controls and identify improvements to reduce risk ALARP.

R-Link sensed data can identify unexpected risk in the management of HAV exposure

Real use vibration magnitude insight

- *Tool and accessory performance issues*
- *Operator competency*

APPROXIMATELY RIGHT OR EXACTLY WRONG

Assessment / Monitoring

Can be suitable for monitoring HAV exposure all day from multiple tool use and assess exposure as required by "The Control of Vibrations at Work Regulations 2005". ✓

A wrist or tool mounted HAV monitor* does not measure in full **compliance to ISO5349.** X

Measurement

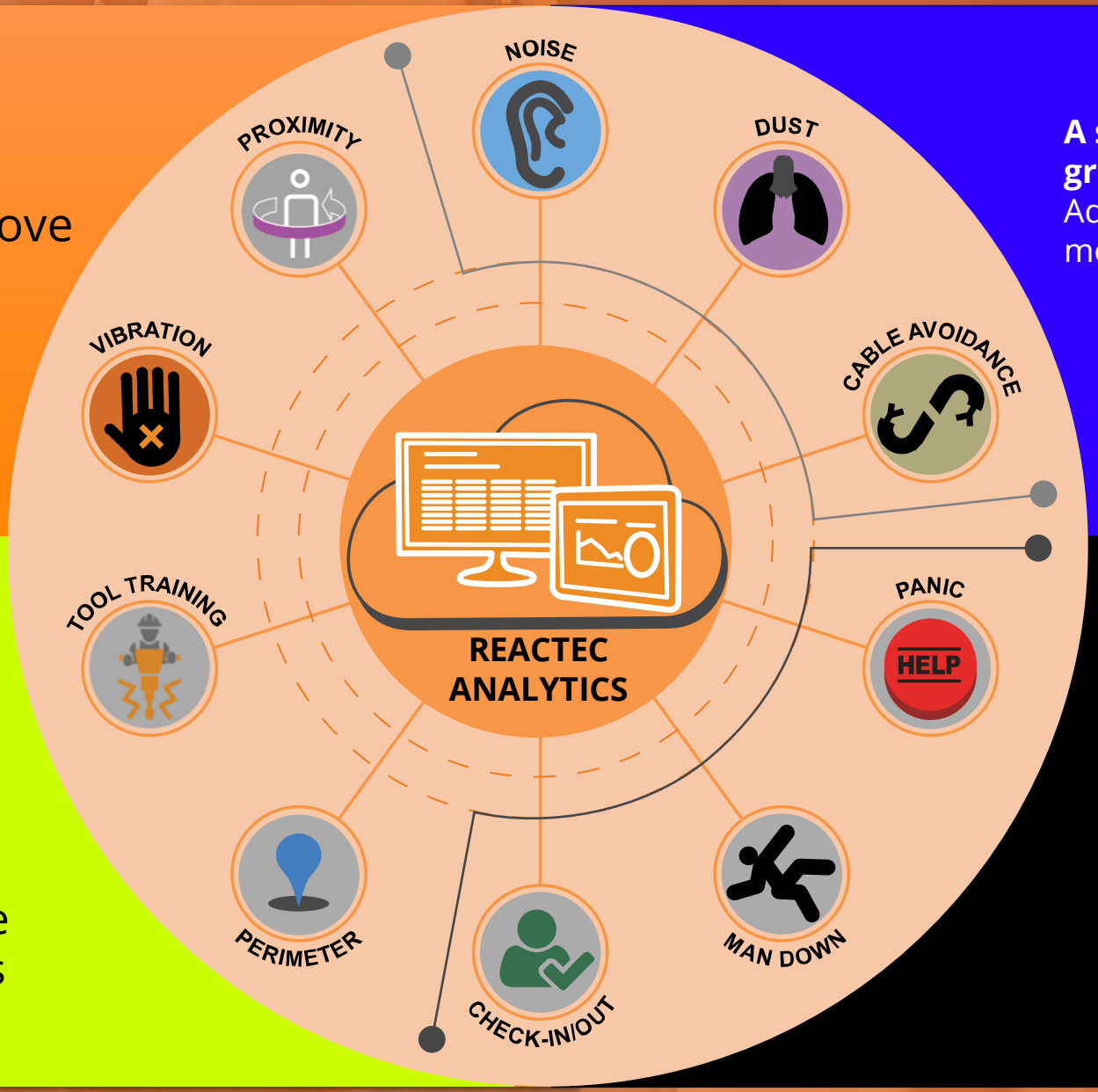
A grip mounted vibration magnitude measurement which can be compliant to ISO5349... ✓

... will not be suitable for monitoring HAV exposure all day from multiple tool use. X

Health and Safety Intelligence
Reactec Analytics

Connected Worker Technology

Connecting tasks, workers and risk monitoring to improve H&S processes and employee behaviour



A system that can grow with you
Add third party monitoring systems

A single system incorporating powerful analytics to manage aggregated risk data from a suite of personal monitors

Lone worker support

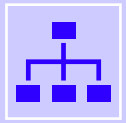
Universal & Flexible Ecosystem

Turning personal risk data into actionable intelligence

Monitor and assess health and safety risks by aggregating data from multiple monitoring systems into one ecosystem.

Work more efficiently and make better decisions with a single interface to manage multiple risks

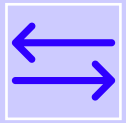
Intuitive analytics - More easily monitor and revise your measure of controls with a rich data set transformed into informative analytics



Flexible and powerful – Manage multiple risks at a corporate and individual level

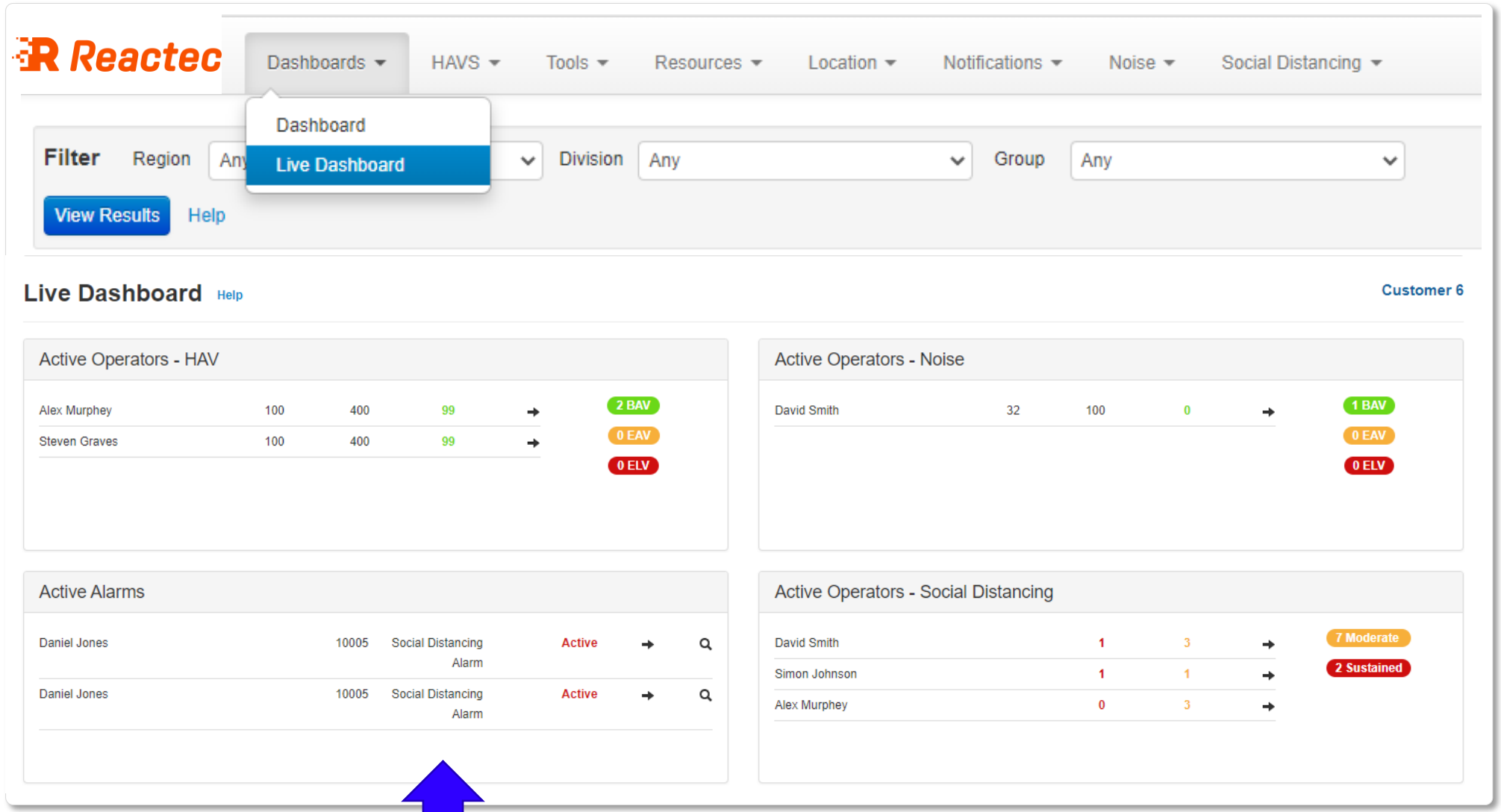
Real-time risk management – Reduce risk and protect employees with onsite and remote management solutions

Corporate control of devices and data - On demand daily allocation of monitors removing reliance on employee ownership (including but not limited to R-Link watches)



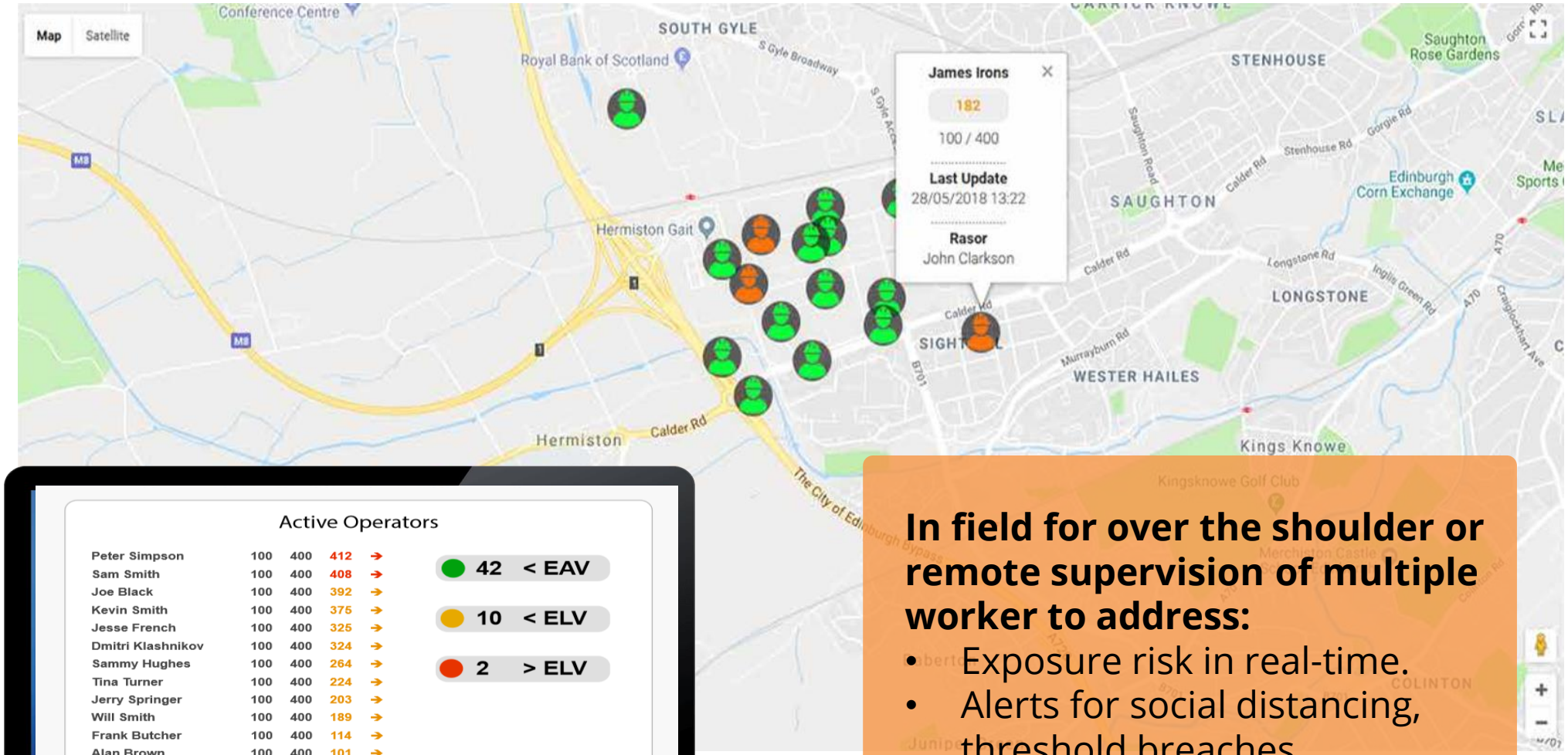
Future proof - Third party integration means you can add your existing or preferred systems into the Reactec Ecosystem

Live Analytics Data



Monitor the situation of live alerts and alarms

Onsite & Remote Supervision



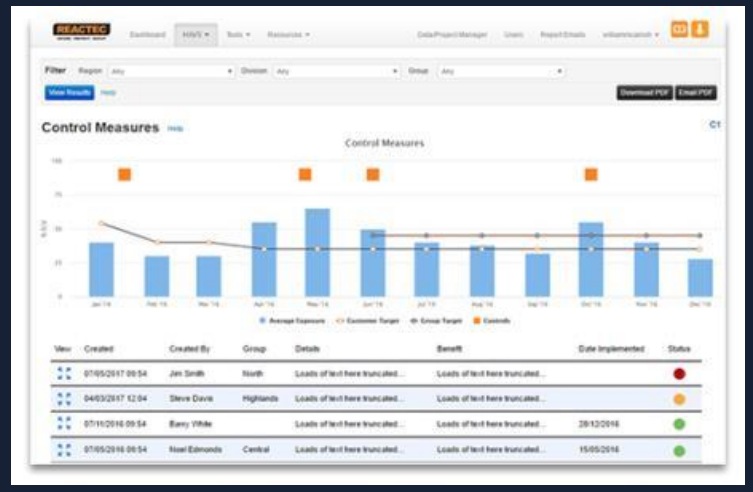
In field for over the shoulder or remote supervision of multiple worker to address:

- Exposure risk in real-time.
- Alerts for social distancing, threshold breaches, slips/trips, panic…

EVIDENCE YOUR PREVENTION ENGINEERING

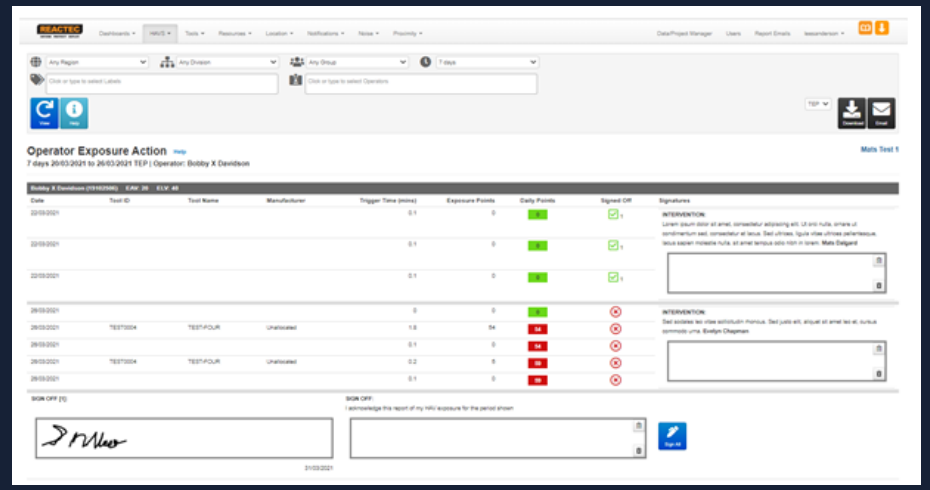
Record & Monitor Control Measure Success

Log applied control measures and track their effectiveness in reducing risk by the impact on workforce average daily HAV exposure.



Log & Authenticate Interventions

Log intervention notes allocated to individual employees and electronically sign to acknowledge.



THE REACTEC PREVENTION ENGINEERING APPROACH - WHY

Regulations & the HSE	Civil litigation	Employee care
Prioritise and verify the effectiveness of your controls	Robust and credible evidence to assist in defence of claims	Real life assessments of individual HAV exposure
Enhanced real-time HAV exposure risk assessments.	Reduce defence preparation costs	Personal instead of generic risk.
Design, prioritise and record controls based on data analytics.	Auditable and tamper proof	Ensure individuals are not at increased risk of developing HAVS
Evidence of control Effectiveness	GDPR compliant data management	Consolidate employee H&S monitored data

End

Thank you