

<b>Health and Safety Executive</b>		<b>Operational Circular</b>	
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Target audience:  
HSE and local authority inspectors

## MANUAL HANDLING ASSESSMENT CHARTS, (MAC), AND EMM

This OC helps in decision making to enable enforcement to be carried out in line with the HSC Enforcement Policy Statement, and gives guidance on the application of the EMM to manual handling risks. It is based on evidence concerning back pain from frequent and heavy lifting and links it to the Manual Handling Assessment charts (MAC). Please refer to MAC while reading this OC. OM 2002/122 explains the background to MAC and its use. If needed visit the MAC video training material on the HSE web site - [www.hse.gov.uk/msd](http://www.hse.gov.uk/msd).

This guidance should not inhibit the application of an inspector's judgment in specific cases.

As it does not include advice concerning pushing and pulling activities specialist advice should be sought concerning these risks.

For consideration of patient handling please see the relevant sector guidance.

For enforcement policy relating to the MSD risk control indicators, other than avoidance /control, please see the RHS MSD topic pack.

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### INTRODUCTION

1 Tackling MSD risk is an HSC priority. Strong enforcement action is encouraged. Musculoskeletal disorders represent considerable cost to society in terms of lost time as well as being a cause of pain and suffering to the individuals involved. This guidance provides information to facilitate enforcement. It:

- indicates the likelihood of injury from a manual handling activity for various MAC tool outcomes– ( See Table 1).
- designates the consequences of manual handling injury
- enables application of EMM and use of the EMM risk gap table.

## DEALING WITH RISK OF SERIOUS PERSONAL INJURY

2 The likelihood of serious personal injury occurring is difficult to determine for MSDs. In the Construction Sector Prohibition Notices have been served concerning the use of high density building blocks etc. This has been as part of evidence based, strategic sector initiatives and work supported by specialist advice. The issue of Prohibition Notices should be considered where handling operations involve attract scores in the MAC purple zone and reasonably practicable controls are available. Specialist advice should generally be sought except where relevant sector specific enforcement guidance clearly supports a PN.

## CONSEQUENCE

3 Please refer to table 1. Consequences of health effects - serious, significant and minor- have been assigned to enable a proportionate initial enforcement expectation (IEE) to be reached.

The consequence designations in table 1 are made on the basis of:

- the prevalence of work related MSDs,
- the difficulty in determining consequence for individual cases; and
- the need to enable more direct application of the Enforcement Policy Statement and the EMM

NB there are additional risk factors not considered by MAC which could increase the likelihood of injury, eg individual capability, falls while carrying. If additional factors appear to be especially significant in a particular case then specialist advice should be sought. Normally EMM excludes individual factors but they should be included for manual handling - as required by the Manual Handling Operations Regulations 1992 (as amended) Regulation 4(3).

## BENCHMARKING

4 The benchmark standard is a nil/negligible risk of a serious health effect. There will be cases where the activity cannot be avoided and there are not reasonably practicable controls to achieve that benchmark. Account should be taken of standards and guidance set out in the MSD RHS Inspection Pack, and sector guidance in SIMs etc. In cases of doubt concerning availability of reasonably practicable controls advice should be sought from the relevant Sector and/or specialist.

## DETERMINING THE RISK GAP AND INITIAL ENFORCEMENT EXPECTATION

5 Table 1 shows the likelihood of health effect for specific MAC assessment tool results and combines those with the consequence to provide a risk gap and initial enforcement expectation.

The risk gap information in table 1 is based on the single and low casualties risk gap table 2.1 in EMM and is equally applicable in cases where there are several persons exposed to the MSD risk as this may be taken into account as a duty holder factor.

TABLE 1. MAC CHART RESULTS, LIKELIHOOD AND CONSEQUENCE OF HEALTH EFFECT, RISK GAP AND IEE  
(NB colour coding and letters refer to the MAC system and not EMM chart colours)

MAC colour bands, letters and description		MAC Chart type:		
		Lifting	Carrying	Team Handling
		Likelihood and consequence of health effect, risk gap and IEE		
Load weight frequency is purple <b>See also section above “dealing with risk of serious personal injury” concerning PN</b>	<b>A</b>	Probable or Possible/Serious  Risk gap Extreme  IEE: IN and consider PR	Probable or Possible/Serious  Risk gap Extreme  IEE: IN and consider PR	Probable or Possible/Serious  Risk gap Extreme  IEE: IN and consider PR
Load weight/frequency score is red <b>and</b> hand distance from lower back is red	<b>A</b> <b>B</b>	AND  AND	Probable/Significant  RG Substantial  IEE: IN or letter	Probable/Significant  RG Substantial  IEE: IN or letter
Load weight/frequency is red <b>and</b> hand distance from lower back is amber <b>and</b> vertical lift region is red	<b>A</b> <b>B</b> <b>C</b>	AND  AND	Probable/Significant  RG Substantial  IEE: IN or letter	N/A  Probable/Significant  RG Substantial  IEE: IN or letter

Load weight/frequency and communication is red	<table border="1"> <tr> <td>A</td> <td>AND</td> </tr> <tr> <td>I</td> <td></td> </tr> </table>	A	AND	I		N/A	N/A	Probable/Significant RG Substantial IEE: IN or letter		
A	AND									
I										
Load weight/frequency is red and either asymmetrical trunk load or carrying while on a ladder (obstacle) red	<table border="1"> <tr> <td>A</td> <td>AND</td> </tr> <tr> <td>C</td> <td>OR</td> </tr> <tr> <td>I</td> <td></td> </tr> </table>	A	AND	C	OR	I		N/A	Probable/Significant RG Substantial IEE: IN or letter	N/A
A	AND									
C	OR									
I										
Load weight/frequency scores red and any of D,E,F,G, or H score red	<table border="1"> <tr> <td>A</td> <td>AND</td> </tr> <tr> <td>D,E,F,G, or H</td> <td></td> </tr> </table>	A	AND	D,E,F,G, or H		Possible /Significant RG moderate IEE: IN or letter	Possible /Significant RG moderate IEE: IN or letter	Possible/Significant RG moderate IEE: IN or letter		
A	AND									
D,E,F,G, or H										

<p>Load weight/frequency scores amber and B,C,D or E score red or amber.</p>	<table border="1"> <tr> <td>A</td> <td>AND</td> </tr> <tr> <td>ANY OF B, C, D or E</td> <td>OR</td> </tr> <tr> <td>ANY OF B, C, D or E</td> <td></td> </tr> </table>	A	AND	ANY OF B, C, D or E	OR	ANY OF B, C, D or E		<p>Possible / Significant  RG moderate  IEE: IN or letter</p>	<p>Possible / Significant  RG moderate  IEE: IN or letter</p>	<p>Possible/ Significant  RG moderate  IEE: IN or letter</p>
A	AND									
ANY OF B, C, D or E	OR									
ANY OF B, C, D or E										
<p>Any MAC risk factor scores red</p>	<p>Any of A, B, C, D, E, F, G, H or I</p>	<p>Possible/minor  RG Nominal  IEE: Letter or verbal</p>	<p>Possible/minor  RG Nominal  IEE: Letter or verbal</p>	<p>Possible/minor  RG Nominal  IEE: Letter or verbal</p>						
<p>Any single MAC risk factor scores amber</p>	<p>Any of A, B, C, D, E, F, G, H or I</p>	<p>Possible/minor  RG Nominal  IEE: Letter /verbal</p>	<p>Possible/minor  RG Nominal  IEE: Letter /verbal</p>	<p>Possible/minor  RG Nominal  IEE: Letter /verbal</p>						