

## Appendix 1: algorithm used to calculate disability weights from the additive model

The algorithm used for the unadjusted disability weight ( $DW_a$ ) was as follows:

$$DW_a = 0.081 + (0.069 \times MO) + (0.104 \times SC) + (0.036 \times UA) + (0.123 \times PD) + (0.071 \times AD) \\ + (0.176 \times M2) + (0.006 \times S2) + (0.022 \times U2) + (0.140 \times P2) + (0.094 \times A2) \\ + (0.269 \times N3)$$

The algorithm for the disability weight adjusted by percentage of time affected ( $DW_b$ ) was as follows:

$$DW_b = 0.081 + (0.069 \times MO \times P_1) + (0.104 \times SC \times P_2) + (0.036 \times UA \times P_3) + (0.123 \times PD \times P_4) + (0.071 \times AD \times P_5) \\ + (0.176 \times M2 \times P_1) + (0.006 \times S2 \times P_2) + (0.022 \times U2 \times P_3) + (0.140 \times P2 \times P_4) + (0.094 \times A2 \times P_5) \\ + (0.269 \times N3)$$

where  $P_1$  to  $P_5$  is percentage of time experiencing symptoms in relation to that dimension

The algorithm for the disability weight adjusted by the constant ( $DW_c$ ) was as follows:

$$DW_c = DW_b - 0.081$$

### Coding of variables in disability weight algorithms – additive model

Variable	Definition
Constant	Constant (=0.081): associated with any move away from full health
MO	MO=1 if mobility is level 2 (some/moderate problem); MO=2 if mobility is level 3 (extreme problem); MO=0 otherwise (no problem)
SC	SC=1 if self-care is level 2 (some/moderate problem); SC=2 if self-care is level 3 (extreme problem); SC=0 otherwise (no problem)
UA	UA=1 if usual activities is level 2 (some/moderate problem); UA=2 if usual activities is level 3 (extreme problem); UA=0 otherwise (no problem)
PD	PD=1 if pain/discomfort is level 2 (some/moderate problem); PD=2 if pain/discomfort is level 3 (extreme problem); PD=0 otherwise (no problem)
AD	AD=1 if anxiety/depression is level 2 (some/moderate problem); AD=2 if anxiety/depression is level 3 (extreme problem); AD=0 otherwise (no problem)
M2	M2=1 if mobility is level 3 (extreme problem); M2=0 otherwise
S2	S2=1 if self-care is level 3 (extreme problem); S2=0 otherwise
U2	U2=1 if usual activities is level 3 (extreme problem); U2=0 otherwise
P2	P2=1 if pain/discomfort is level 3 (extreme problem); P2=0 otherwise
A2	A2=1 if anxiety/depression is level 3 (extreme problem); A2=0 otherwise
N3	N3=1 if any dimension is level 3 (extreme problem); else N3=0

## Appendix 2: algorithm used to calculate disability weights from the multiplicative model

The algorithm used for the unadjusted disability weight ( $DW_d$ ) was as follows:

$$\begin{aligned} \log(w) = & 0 + (-0.247 \times d_{12}) + (-0.5419 \times d_{13}) + (-0.12455 \times d_{22}) + (-0.5718 \times d_{23}) \\ & + (0.000 \times d_{32}) + (-0.2051 \times d_{33}) + (-0.0576 \times d_{42}) + (-0.5039 \times d_{43}) \\ & + (-0.2284 \times d_{52}) + (-0.742 \times d_{53}) + (-0.1915 \times d_{62}) + (-0.5636 \times d_{63}) \\ & + (-0.01 \times s) + (-0.1228 \times p) \\ DW_d = & 1 - e^{\log(w)} \end{aligned}$$

The algorithm for the disability weight adjusted by percentage of time affected ( $DW_e$ ) was as follows:

$$\begin{aligned} \log(w) = & 0 + (-0.247 \times d_{12} \times P_1) + (-0.5419 \times d_{13} \times P_1) + (-0.12455 \times d_{22} \times P_2) + (-0.5718 \times d_{23} \times P_2) \\ & + (0.000 \times d_{32} \times P_3) + (-0.2051 \times d_{33} \times P_3) + (-0.0576 \times d_{42} \times P_4) + (-0.5039 \times d_{43} \times P_4) \\ & + (-0.2284 \times d_{52} \times P_5) + (-0.742 \times d_{53} \times P_5) + (-0.1915 \times d_{62} \times P_6) + (-0.5636 \times d_{63} \times P_6) \\ & + (-0.01 \times s) + (-0.1228 \times p) \\ DW_e = & 1 - e^{\log(w)} \end{aligned}$$

where  $P_1$  to  $P_6$  is percentage of time experiencing symptoms in relation to that dimension and  $e$  is the base of the natural logarithm

### Coding of variables in disability weight algorithms – multiplicative model

Variable	Definition
$d_{12}$	$d_{12}=1$ if mobility is level 2 (some/moderate problem); $d_{12}=0$ otherwise
$d_{13}$	$d_{13}=1$ if mobility is level 3 (extreme problem); $d_{13}=0$ otherwise
$d_{22}$	$d_{22}=1$ if self-care is level 2 (some/moderate problem); $d_{22}=0$ otherwise
$d_{23}$	$d_{23}=1$ if self-care is level 3 (extreme problem); $d_{23}=0$ otherwise
$d_{32}$	$d_{32}=1$ if usual activities is level 2 (some/moderate problem); $d_{32}=0$ otherwise
$d_{33}$	$d_{33}=1$ if usual activities is level 3 (extreme problem); $d_{33}=0$ otherwise
$d_{42}$	$d_{42}=1$ if pain/discomfort is level 2 (some/moderate problem); $d_{42}=0$ otherwise
$d_{43}$	$d_{43}=1$ if pain/discomfort is level 3 (extreme problem); $d_{43}=0$ otherwise
$d_{52}$	$d_{52}=1$ if anxiety/depression is level 2 (some/moderate problem); $d_{52}=0$ otherwise
$d_{53}$	$d_{53}=1$ if anxiety/depression is level 3 (extreme problem); $d_{53}=0$ otherwise
$d_{62}$	$d_{62}=1$ if cognition is level 2 (some/moderate problem); $d_{62}=0$ otherwise
$d_{63}$	$d_{63}=1$ if cognition is level 3 (extreme problem); $d_{63}=0$ otherwise
$s$	$s=1$ if all dimensions are level 1 (no problem) but disease present; else $s=0$
$p$	$p=1$ if prognosis is uncertain; else $p=0$