Duration

It is assumed that peanut allergy is a lifelong disease. It is important to note that the duration of allergic symptoms is very short.

Disability Weight

Mullins *et al.* [103] reported that 52% of cases referred to a specialist allergy medical practice in Australia suffered from mild symptoms (skin and subcutaneous tissue involvement only), 42% from moderate symptoms (features suggestive of respiratory, cardiovascular or gastrointestinal involvement), and 6% from severe symptoms (cyanosis, hypotension, confusion, collapse, loss of consciousness, incontinence). We propose the DW for clinically relevant peanut allergy be a weighted average accounting for this severity distribution. GBD2010 DWs [82] for the health states "Asthma: controlled" (DW = 0.009) are considered applicable for mild and moderate cases (94%), and "Generic uncomplicated disease: anxiety about the diagnosis" (DW = 0.054) for severe cases (6%), leading to a severity-weighted DW of 0.012 for clinically relevant peanut allergy.

Mortality

The limited data on the mortality rate of peanut-induced anaphylaxis show values ranging from 0 to 0.006 deaths per 100 000 person-years [102]. To reflect this uncertainty, the mortality rate of peanut-induced anaphylaxis in subregion "A" countries was modelled as a Uniform distribution ranging from 0/100 000 to 0.006/100 000. Given the lack of data, no estimates were generated for other countries.

Age distribution

The onset of peanut allergy is early in life (median age 18–24 months, [107, 108], with continued prevalence in older age groups. All incident cases of peanut allergy were therefore assumed to develop early in life, i.e. before the age of five.

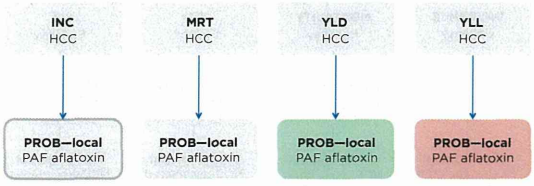
Deaths due to peanut allergen were assumed to occur at all ages, with an average age of 37 years [102][1].

Sex distribution

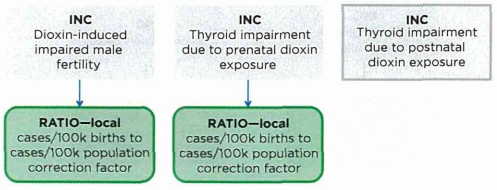
In the absence of information on the sex distribution of peanut allergy, a 50:50 age distribution was assumed.

APPENDIX 5.
Disease models

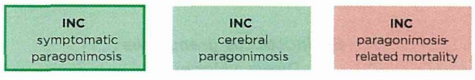
Aflatoxin
Disease Model



Dioxin
Disease Model



***Paragonimus* spp.**
Disease Model



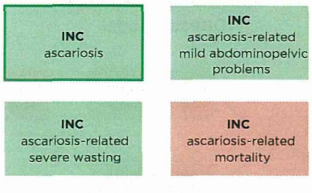
***Opisthorchis* spp.**
Disease Model

Intestinal flukes
Disease Model

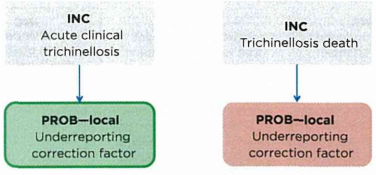
***Fasciola* spp.**
Disease Model

Clonorchis sinensis
Disease Model

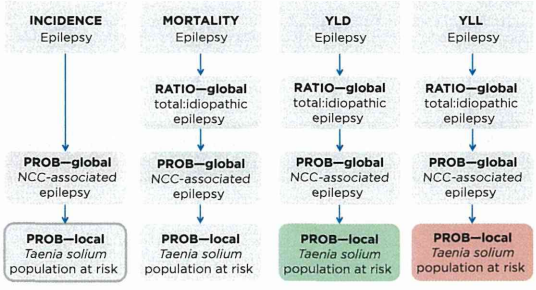
***Ascaris* spp.**
Disease Model



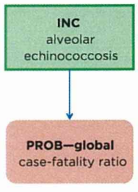
***Trichinella* spp.**
Disease Model



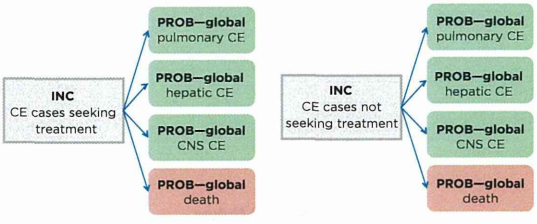
Taenia solium
Disease Model



Echinococcus multilocularis
Disease Model

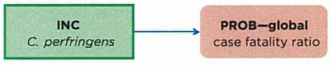


Echinococcus granulosus
Disease Model

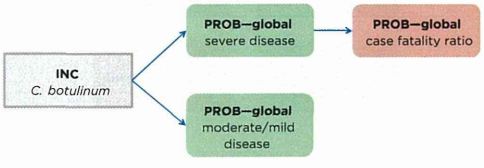


Staphylococcus aureus
Disease Model

Clostridium perfringens
Disease Model

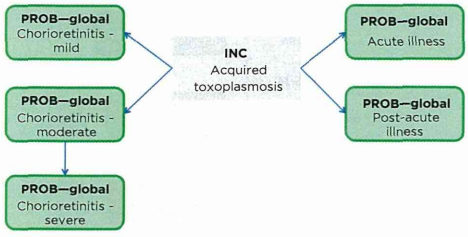


Clostridium botulinum
Disease Model

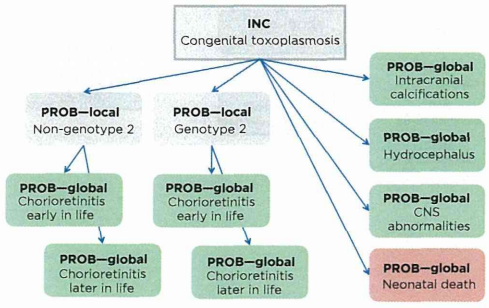


Bacillus cereus
Disease Model

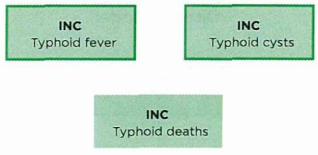
***Toxoplasma gondii* (acquired)**
Disease Model



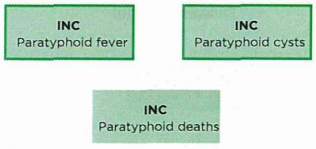
***Toxoplasma gondii* (congenital)**
Disease Model



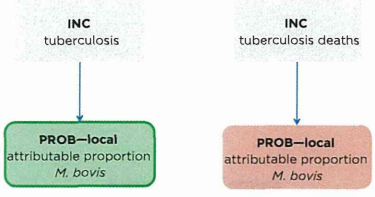
***Salmonella* Typhi**
Disease Model



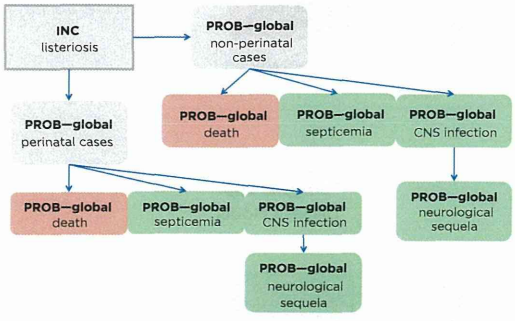
***Salmonella* Paratyphi**
Disease Model



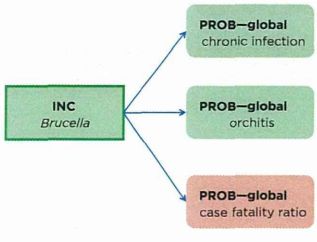
Mycobacterium bovis
Disease Model



Listeria monocytogenes
Disease Model



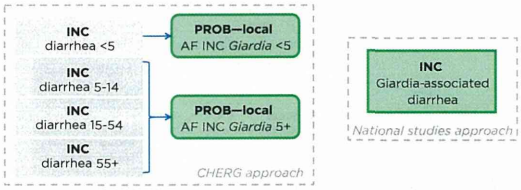
***Brucella* spp.**
Disease Model



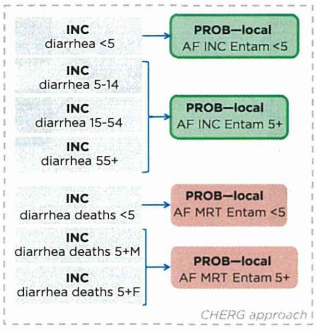
Hepatitis A virus
Disease Model

APPENDICES

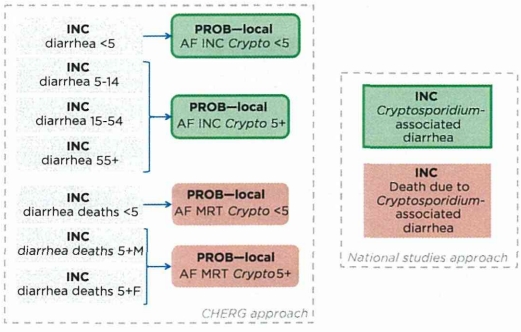
***Giardia* spp.**
Disease Model



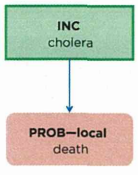
Entamoeba histolytica
Disease Model



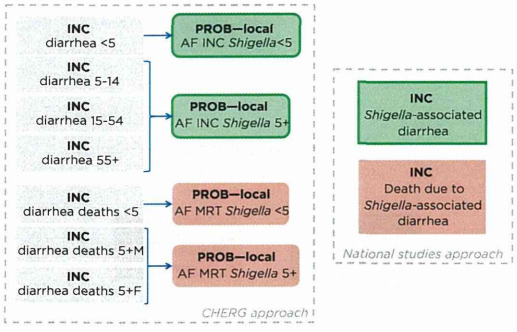
***Cryptosporidium* spp.**
Disease Model



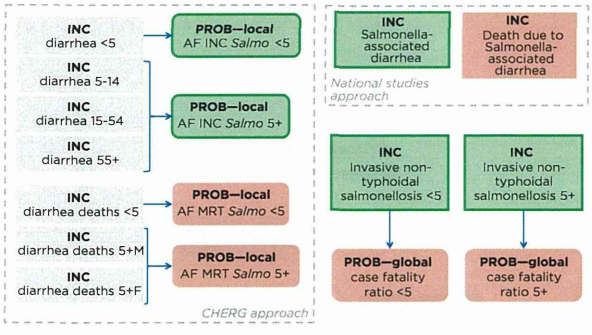
Vibrio cholerae
Disease Model



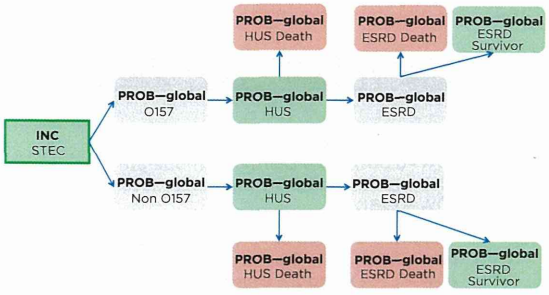
***Shigella* spp.**
Disease Model



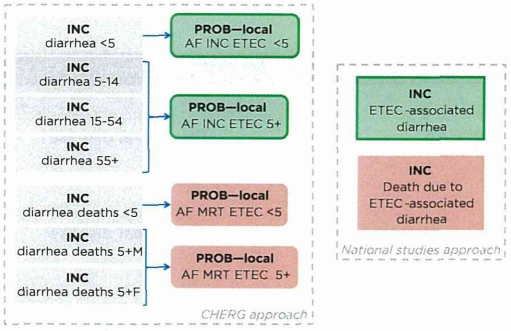
Salmonella enterica
Disease Model



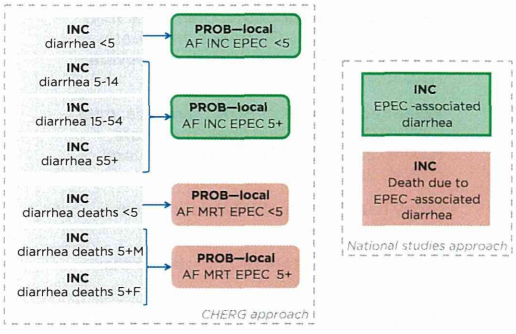
STEC
Disease Model



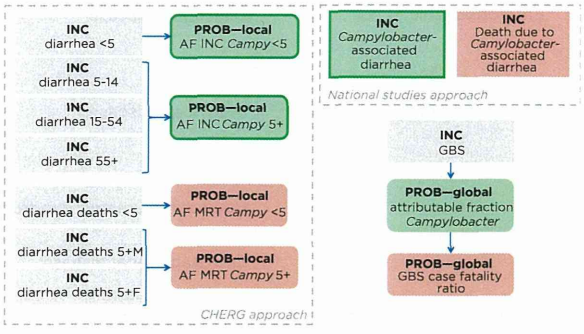
ETEC
Disease Model



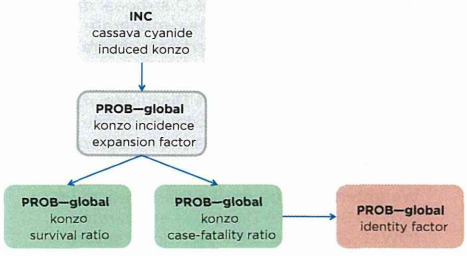
EPEC
Disease Model



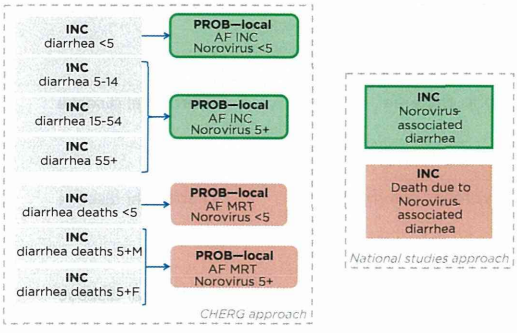
***Campylobacter* spp.**
Disease Model



Cyanide in cassava
Disease Model



Norovirus
Disease Model



Peanut allergen
Disease Model

APPENDICES

APPENDIX 6.
Derivation of Disability Weights

Figure A6.1 FERG hazards, causally related health states and corresponding disability weights (DWs). The fourth column describes how the various DWs were derived from the Global Burden of Disease Studies (GBD) and the World Health Organization Global Health Estimates (WHO/GHE).

HAZARD	HEALTH STATE	DW	MAPPING
Diarrhoeal hazards			
Norovirus	Diarrhoeal disease	0.074	**Weighted average** of 91% *Diarrhoea: mild* (DW=0.061); 8.5% *Diarrhoea: moderate* (DW=0.202); and 0.5% *Diarrhoea: severe* (DW=0.281)
Campylobacter spp.	Diarrhoeal disease	0.101	**Weighted average** of 73% *Diarrhoea: mild* (DW=0.061); 25% *Diarrhoea: moderate* (DW=0.202); and 2% *Diarrhoea: severe* (DW=0.281)
	Guillain-Barré syndrome	0.445	**Proxy health state** of *Multiple sclerosis: moderate*
Enteropathogenic *E. coli*	Diarrhoeal disease	0.074	**Weighted average** of 91% *Diarrhoea: mild* (DW=0.061); 8.5% *Diarrhoea: moderate* (DW=0.202); and 0.5% *Diarrhoea: severe* (DW=0.281)
Enterotoxigenic *E. coli*	Diarrhoeal disease	0.074	**Weighted average** of 91% *Diarrhoea: mild* (DW=0.061); 8.5% *Diarrhoea: moderate* (DW=0.202); and 0.5% *Diarrhoea: severe* (DW=0.281)
Shiga toxin-producing *E. coli*	Diarrhoeal disease	0.091	**Weighted average** of 80% *Diarrhoea: mild* (DW=0.061); 18% *Diarrhoea: moderate* (DW=0.202); and 2% *Diarrhoea: severe* (DW=0.281)
	Haemolytic uraemic syndrome	0.210	**Proxy health state** of *Infectious disease: acute episode, severe*
	End-stage renal disease	0.573	**Mapped health state** of *End-stage renal disease: on dialysis*
Non-typhoidal *S. enterica*	Diarrhoeal disease	0.101	**Weighted average** of 73% *Diarrhoea: mild* (DW=0.061); 25% *Diarrhoea: moderate* (DW=0.202); and 2% *Diarrhoea: severe* (DW=0.281)
	Invasive salmonellosis	0.210	**Proxy health state** of *Infectious disease: acute episode, severe*
Shigella spp.	Diarrhoeal disease	0.101	**Weighted average** of 73% *Diarrhoea: mild* (DW=0.061); 25% *Diarrhoea: moderate* (DW=0.202); and 2% *Diarrhoea: severe* (DW=0.281)
Vibrio cholerae	Diarrhoeal disease	0.194	**Weighted average** of 25% *Diarrhoea: mild* (DW=0.061); 40% *Diarrhoea: moderate* (DW=0.202); and 35% *Diarrhoea: severe* (DW=0.281)
Cryptosporidium spp.	Diarrhoeal disease	0.074	**Weighted average** of 91% *Diarrhoea: mild* (DW=0.061); 8.5% *Diarrhoea: moderate* (DW=0.202); and 0.5% *Diarrhoea: severe* (DW=0.281)
Entamoeba histolytica	Diarrhoeal disease	0.074	**Weighted average** of 91% *Diarrhoea: mild* (DW=0.061); 8.5% *Diarrhoea: moderate* (DW=0.202); and 0.5% *Diarrhoea: severe* (DW=0.281)
Giardia spp.	Diarrhoeal disease	0.074	**Weighted average** of 91% *Diarrhoea: mild* (DW=0.061); 8.5% *Diarrhoea: moderate* (DW=0.202); and 0.5% *Diarrhoea: severe* (DW=0.281)

HAZARD	HEALTH STATE	DW	MAPPING
	Invasive enteric hazards		
Hepatitis A virus	Hepatitis	0.108	**Weighted average** of 50% *Infectious disease: acute episode, mild* (DW=0.005); and 50% *Infectious disease: acute episode, severe* (DW=0.210)
Brucella spp.	Acute brucellosis	0.132	**Weighted average** of 50% *Infectious disease: acute episode, moderate* (DW=0.053); and 50% Infectious disease: acute episode, severe (DW=0.210)
	Chronic brucellosis	0.079	**Proxy health state** of *Musculoskeletal problems: legs, moderate*
	Orchitis	0.097	**Mapped health state** of *Epididymo-orchitis*
Listeria monocytogenes, perinatal	Sepsis	0.210	**Proxy health state** of *Infectious disease: acute episode, severe*
	Central nervous system infection	0.426	**Weighted average**; see [70]
	Neurological sequelae	0.292	**Weighted average**; see [70]
Listeria monocytogenes, acquired	Sepsis	0.210	**Proxy health state** of *Infectious disease: acute episode, severe*
	Central nervous system infection	0.426	**Weighted average**; see [70] for details
	Neurological sequelae	0.292	**Weighted average**; see [70] for details
Mycobacterium bovis	Tuberculosis	0.331	**Mapped health state** of *Tuberculosis: without HIV infection*
Salmonella Paratyphi	Paratyphoid fever	0.210	**Proxy health state** of *Infectious disease: acute episode, severe*
	Liver abscesses and cysts	0.254	**Proxy health state** of *Infectious disease: post-acute consequences (fatigue, emotional lability, insomnia)*
Salmonella Typhi	Typhoid fever	0.210	**Proxy health state** of *Infectious disease: acute episode, severe*
	Liver abscesses and cysts	0.254	**Proxy health state** of *Infectious disease: post-acute consequences (fatigue, emotional lability, insomnia)*
Toxoplasma gondii, congenital	Intracranial calcification	0.010	**Proxy health state**; see [296] for details
	Hydrocephalus	0.360	**Weighted average**; see [296] for details
	Chorioretinitis, 1st year of life	0.033	**Proxy health state** of *Distance vision: moderate impairment*
	Chorioretinitis, later in life	0.033	**Proxy health state** of *Distance vision: moderate impairment*
	Central nervous system abnormalities	0.360	**Weighted average**; see [296] for details
Toxoplasma gondii, acquired	Chorioretinitis, mild	0.004	**Proxy health state** of *Distance vision: mild impairment*
	Chorioretinitis, moderate	0.033	**Proxy health state** of *Distance vision: moderate impairment*
	Chorioretinitis, severe	0.191	**Proxy health state** of *Distance vision: severe impairment*
	Acute illness	0.053	**Mapped health state** of *Infectious disease: acute episode, moderate*
	Post-acute illness	0.254	**Mapped health state** of *Infectious disease: post-acute consequences (fatigue, emotional lability, insomnia)*

HAZARD	HEALTH STATE	DW	MAPPING
	Enteric intoxications		
Bacillus cereus [1]	Acute intoxication	0.061	**Proxy health state** of *Diarrhoea: mild*
Clostridium botulinum [1]	Moderate/mild botulism	0.198	**Proxy health state** of *Multiple sclerosis: mild*
	Severe botulism	0.445	**Proxy health state** of *Multiple sclerosis: moderate*
Clostridium perfringens [1]	Acute intoxication	0.061	**Proxy health state** of *Diarrhoea: mild*
Staphylococcus aureus [1]	Acute intoxication	0.061	**Proxy health state** of *Diarrhoea: mild*
	Cestodes		
Echinococcus granulosus, cases seeking treatment	Pulmonary cystic echinococcosis	0.192	**Proxy health state** of *COPD and other chronic respiratory diseases: moderate*
	Hepatic cystic echinococcosis	0.123	**Proxy health state** of *Abdominopelvic problem: moderate*
	Central nervous system cystic echinococcosis	0.221	**Proxy health state** of *Motor plus cognitive impairments: moderate*
Echinococcus granulosus, cases not seeking treatment	Pulmonary cystic echinococcosis	0.015	**Proxy health state** of *COPD and other chronic respiratory diseases: mild*
	Hepatic cystic echinococcosis	0.012	**Proxy health state** of *Abdominopelvic problem: mild*
	Central nervous system cystic echinococcosis	0.054	**Proxy health state** of *Motor plus cognitive impairments: mild*
Echinococcus multilocularis	Alveolar echinococcosis	0.123	Proxy health state of *Abdominopelvic problem: moderate*
Taenia solium	Epilepsy: treated, seizure free	0.072	**Mapped health state** of *Epilepsy: treated, seizure free*
	Epilepsy: treated, with recent seizures	0.319	**Mapped health state** of *Epilepsy: treated, with recent seizures*
	Epilepsy: severe	0.657	**Mapped health state** of *Epilepsy: severe*
	Epilepsy: untreated	0.420	**Mapped health state** of *Epilepsy: untreated*
	Nematodes		
Ascaris spp.	Ascariasis infestation	0.030	**Mapped health state** of *Intestinal nematode infections: symptomatic*
	Mild abdominopelvic problems due to ascariasis	0.012	**Mapped health state** of *Abdominopelvic problem: mild*
	Severe wasting due to ascariasis	0.127	**Mapped health state** of *Severe wasting*
Trichinella spp.	Acute clinical trichinellosis	0.637	**Aggregate** of *Diarrhoea: moderate* (DW = 0.202); *Disfigurement: level 2, with itch or pain* (DW = 0.187); *Musculoskeletal problems: generalized, moderate* (DW = 0.292); and *Infectious disease: acute episode, severe* (DW = 0.210) [84]
	Trematodes		
Clonorchis sinensis	Abdominopelvic problems due to heavy clonorchiosis	0.123	**Proxy health state** of *Abdominopelvic problem: moderate*
Fasciola spp.	Abdominopelvic problems due to heavy fasciolosis	0.123	**Proxy health state** of *Abdominopelvic problem: moderate*
Intestinal flukes [2]	Abdominopelvic problems due to heavy intestinal fluke infections	0.123	**Proxy health state** of *Abdominopelvic problem: moderate*
Opisthorchis spp.	Abdominopelvic problems due to heavy opisthorchiosis	0.123	**Proxy health state** of *Abdominopelvic problem: moderate*

HAZARD	HEALTH STATE	DW	MAPPING
Paragonimus spp.	Central nervous system problems due to heavy paragonimosis	0.420	Proxy health state of *Epilepsy: untreated*
	Pulmonary problems due to heavy paragonimosis	0.132	Proxy health state of *Asthma: uncontrolled*
	Organic pollutants		
Dioxin	Infertility	0.056 [3]	Mapped health state of *Infertility: primary*
	Hypothyroidy due to prenatal exposure	0.019 [4]	Mapped health state of *Hypothyroidy*
	Hypothyroidy due postnatal exposure	0.019 [4]	Mapped health state of *Hypothyroidy*
	Toxins and allergens		
Aflatoxin	Hepatocellular carcinoma: diagnosis and primary therapy	0.294	Mapped health state of *Cancer: diagnosis and primary therapy*
	Hepatocellular carcinoma: metastatic	0.484	Mapped health state of *Cancer: metastatic*
	Hepatocellular carcinoma: terminal phase with medication	0.508	Mapped health state of *Cancer: terminal phase with medication*
	Hepatocellular carcinoma: terminal phase without medication	0.519	Mapped health state of *Cancer: terminal phase without medication*
Cyanide in cassava	*Konzo*	0.065	Weighted average of 63% *Motor impairment: mild* (DW=0.012); 27% *Motor impairment: moderate* (DW=0.076); and 10% *Motor impairment: severe* (DW=0.377)
Peanut [1]	Living with peanut-induced allergy	0.012	Weighted average of 94% *Asthma: controlled* (DW=0.009); and 6% *Generic uncomplicated disease: anxiety about diagnosis* (DW=0.054)

[1] Excluded from global burden assessments.

[2] Includes *Echinostoma* spp., *Fasciolopsis buski*, *Heterophyes* spp., *Metagonimus* spp. and other foodborne intestinal trematode species.

[3] Note the higher values used in WHO/GHE [310] compared with GBD2010 [82].

[4] Value taken from the GBD 2013 disability weights [142].