



Public Health
England

Protecting and improving the nation's health

Appendix 9. Quality assurance

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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Published May 2018
PHE publications
gateway number: 2017858

PHE supports the UN
Sustainable Development Goals



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Quality assurance

All Quality Assurance (QA) runs were run using the England population, and a run of 10,000 individuals.

1. Quality assurance checklist: microsimulation model

MODEL PARAMETER	EXPECTED OUTCOME	CHECKED and NOTES
POPULATION MODULE		
Run with no births	No births occur across the simulation and the low birthweight incidence should be zero.	OK
TFR set to zero	No births occur across the simulation and the low birthweight incidence should be zero.	OK
Set TFR to x10 the current rate	Incidence of low birthweight approx. x10 higher	OK -Range from 31 times to 4 times over 20 yrs
Set low birthweight incidence to x10 current incidence	Incidence of low birthweight approx. x10 higher	OK
Set the low birthweight RR to x 100 the current RR	Increased incidence of low birthweight	Ok Lower or equal incidence
Set the female distribution to zero.	The female population outputs should be zero and any diseases (for example, low birthweight) which are female only should have zero incidence and prevalence.	OK
DISEASE MODULE		
Zero disease incidence/mortality for a specified disease	Zero diseases for the specified disease	OK
Zero costs entered	No cost output	OK
Zero utility weights entered	No QALY output produced	NO QALY output even selecting "Write QALY gains"
ECONOMIC MODULE		
With and without discounting	Proportionately lower costs output for the discounted vs. non-discounted cost	OK
SCENARIO MODULE		
Zero intervention costs, scenario	Scenario should be dominant vs baseline	NA, no intervention

is cost-effective		costs
100% reduction in risk factor	Risk factor output files shows zero or very low prevalence of the risk factor. This may not be appropriate for some risk factors where this scenario is not coded.	This is a current scenario
Run 2 baseline scenarios	Outputs should be identical	OK

2. Quality assurance checklist: tool

MODEL PARAMETER	EXPECTED OUTCOME	CHECKED
DISEASE MODULE		
Set the prevalence rate to zero for a specified disease	The prevalence outputs should be zero for the specified disease.	Prevalence is zero in 2017
ECONOMIC MODULE		
With and without discounting	Proportionately lower costs output for the discounted vs. non-discounted cost	Discounted costs are proportionately lower than non-discounted costs
Zero costs for a specified disease	There should be no costs for that specified disease	No costs for specified disease
SCENARIO MODULE		
100% reduction in risk factor	A reduction in the prevalence rates for each disease.	This is a current scenario
Run 2 baseline scenarios	Outputs should be identical	Outputs are identical

3. Version control and testing

The UK Health Forum uses GitHub for version control for both the microsimulation model and tool. During the development stages of both programmes, testing is carried out by another software developer or mathematical modeller on each new piece of code which is added. This will allow to different members of the technical team to test any new code independently before it is added to the programme.