



UK Health
Security
Agency

Appendix 7. Methods for estimating secondary care costs

October 2024

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Overview of approach

All secondary care costs are presented inflated to 2022 to 2023 prices using the NHS Cost Inflation Index outlined in the [Unit Costs of Health and Social Care 2023 Manual](#).

Our analysis uses methods originally developed to estimate the overall secondary care costs attributable to infectious diseases (1). The process involves:

- identifying the International Classification of Diseases, Tenth Revision (ICD-10) codes relevant to sexually transmitted infections (STIs)
- extracting admissions with primary diagnoses (in any episode of care) that have ICD-10 codes relevant to STIs
- categorising admissions by STI or related harm
- costing these admissions using national tariff and national cost collection data, plus an average cost per bed day for admissions with a healthcare resource group (HRG) code not included in these data sets
- estimating the costs attributable to STIs by weighting the cost of harms by the population attributable fraction (PAF), or proportion of the harms estimated to be caused by STIs

Note that in all cases, we have used deliberately conservative estimates.

[Table 1a](#) shows the STIs and harms included in the analysis, the corresponding ICD-10 code category, and the PAF and sources from which these are derived. Unless otherwise specified in the table, we include all codes within the code category.

Note that there is some uncertainty about the proportion of pelvic inflammatory disease (PID), ectopic pregnancy and tubal factor infertility (TFI) caused by gonorrhoea and *Mycoplasma genitalium*. For PID, we take the mid-point of the ranges provided in a recent [National Institute for Health and Care Excellence \(NICE\) evidence review](#). No robust estimates of the proportion of ectopic pregnancy and TFI caused by gonorrhoea and *Mycoplasma genitalium* were identified, so we assume that the progression rate from PID to ectopic pregnancy and TFI is the same for all PID caused by STIs, by applying the ratios of ectopic pregnancy and TFI to PID that we observe for chlamydia (2).

Tables 1a to 1d. Inputs to secondary care costing analysis

Table 1a. STIs and associated harms included in estimate of total costs

STI or related harm	ICD-10 code category	PAF to STIs	Source for PAF
Chancroid	A57	100%	Not applicable
Chlamydia	A56	100%	Not applicable
Donovanosis	A58	100%	Not applicable
Herpes	A60, A63	100%	Not applicable
Gonorrhoea	A54	100%	Not applicable
Lymphogranuloma venereum	A55	100%	Not applicable
Mpox	B04	92%	(3)
Other STIs	A63 (excluding A630), A64	100%	Not applicable
Syphilis: congenital	A50	100%	Not applicable
Syphilis: adult	A51, A52, A53	100%	Not applicable
Trichomoniasis	A59	100%	Not applicable
Ectopic pregnancy	O00	9.9% female	(2)
PID	N70, N71, N72, N73, N74	39.7% female	(2) (4)
TFI	N971	57.8%	(5)

Table 1b. Other harms not included in estimate of total costs

STI or related harm	ICD-10 code category	PAF to STIs	Source for PAF
Orchitis and epididymitis	N45	0%	No robust source identified
Proctitis	K512	0%	No robust source identified
Urethritis	N34	0%	No robust source identified

Table 1c. HIV

STI or related harm	ICD-10 code category	PAF to STIs	Source for PAF
HIV disease resulting in disease and other conditions	B20, B21, B22, B23, B24	100%	Not applicable
Other codes stating HIV as cause	O987, R75, R75X, Z114, Z206, Z21, Z21X, Z717, F024, Z830	100%	Not applicable

Table 1d. HPV-related conditions

STI or related harm	ICD-10 code category	PAF to STIs	Source for PAF
Anogenital (venereal) warts	A630	90%	Not applicable (6)
Anal cancer	C21	84.3%	(6)
Cervical cancer	C53	95.7%	(6)
Penile cancer	C60	46.9%	(6)
Pharynx cancer	C09, C10, C11, C14	31.0%	(6)
Vaginal cancer	C52	41.7%	(6)
Vulval cancer	C51	41.7%	(6)

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Abbreviations

Abbreviation	Meaning
HRG	Healthcare Resource Group
ICD-10	International Classification of Diseases, Tenth Revision
NICE	National Institute for Health and Care Excellence
PAF	population attributable fraction
PID	pelvic inflammatory disease
STI	sexually transmitted infection
STIs	sexually transmitted infections
TFI	tubal factor infertility
UKHSA	UK Health Security Agency

About the UK Health Security Agency (UKHSA)

UKHSA is responsible for protecting every member of every community from the impact of infectious diseases, chemical, biological, radiological and nuclear incidents and other health threats. We provide intellectual, scientific and operational leadership at national and local level, as well as on the global stage, to make the nation health secure.

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Version 1.1

Prepared by: Eleanor Bell, Y-Ling Chi, Kate Soldan.

For queries relating to this document, please contact: Eleanor.Bell@ukhsa.gov.uk

First published: October 2024

Updated: January 2026

Publishing reference: GOV-17362/GOV-20206



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