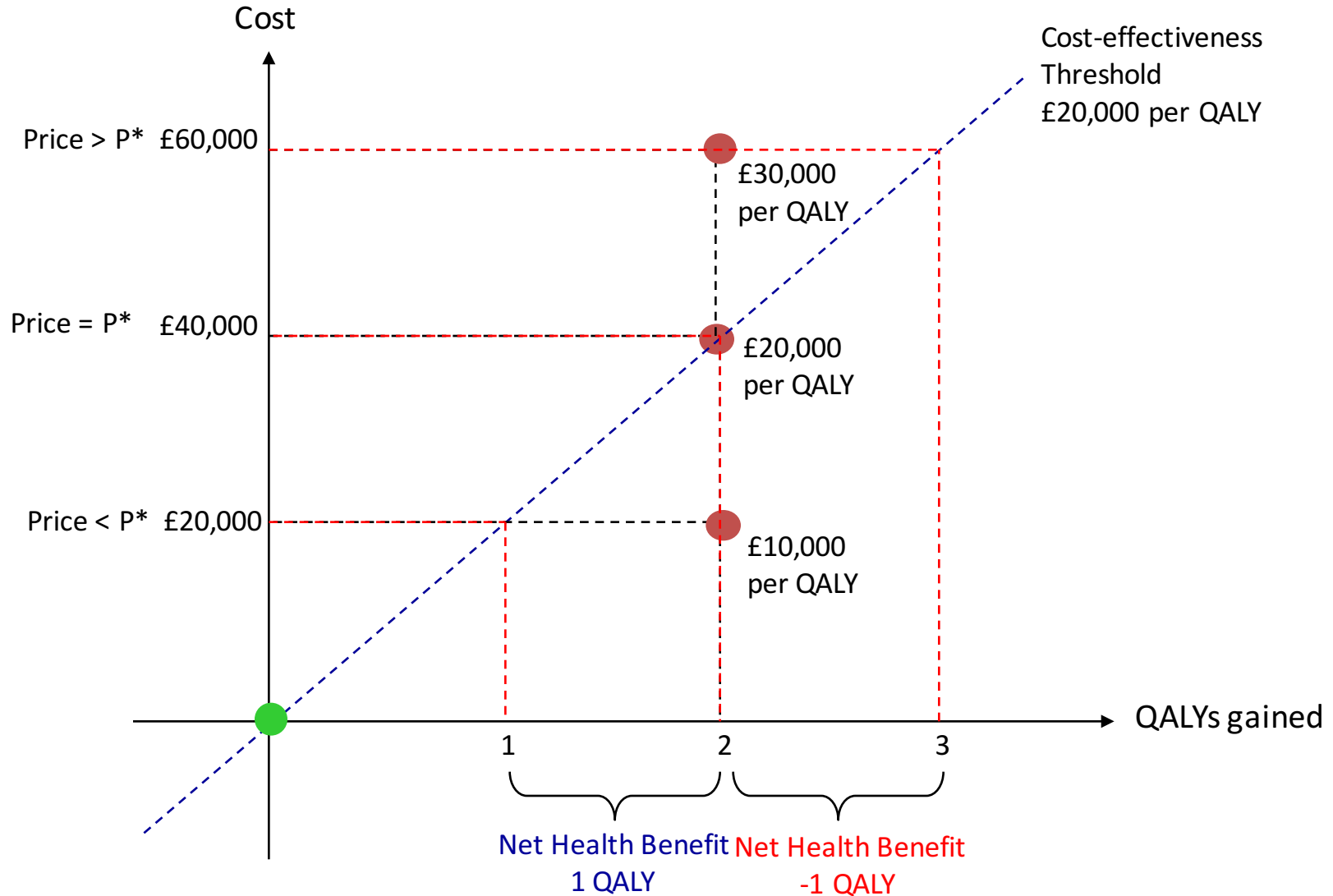
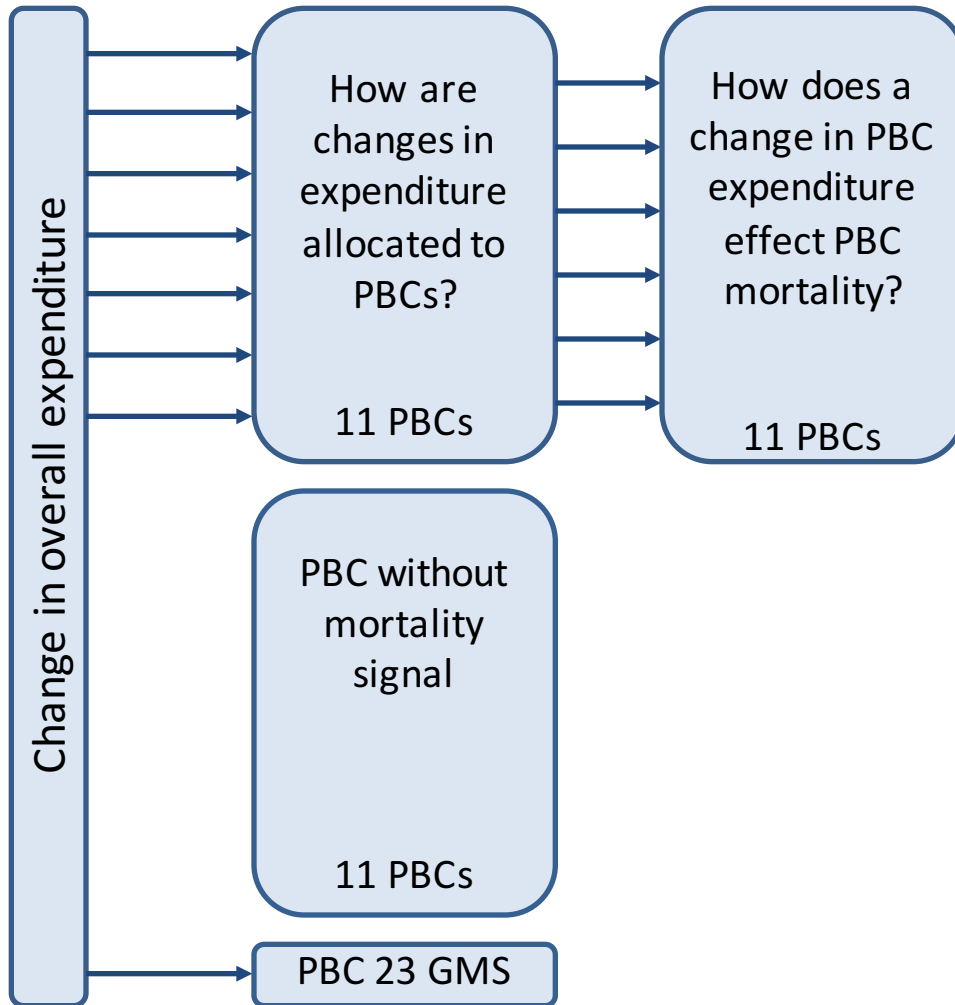


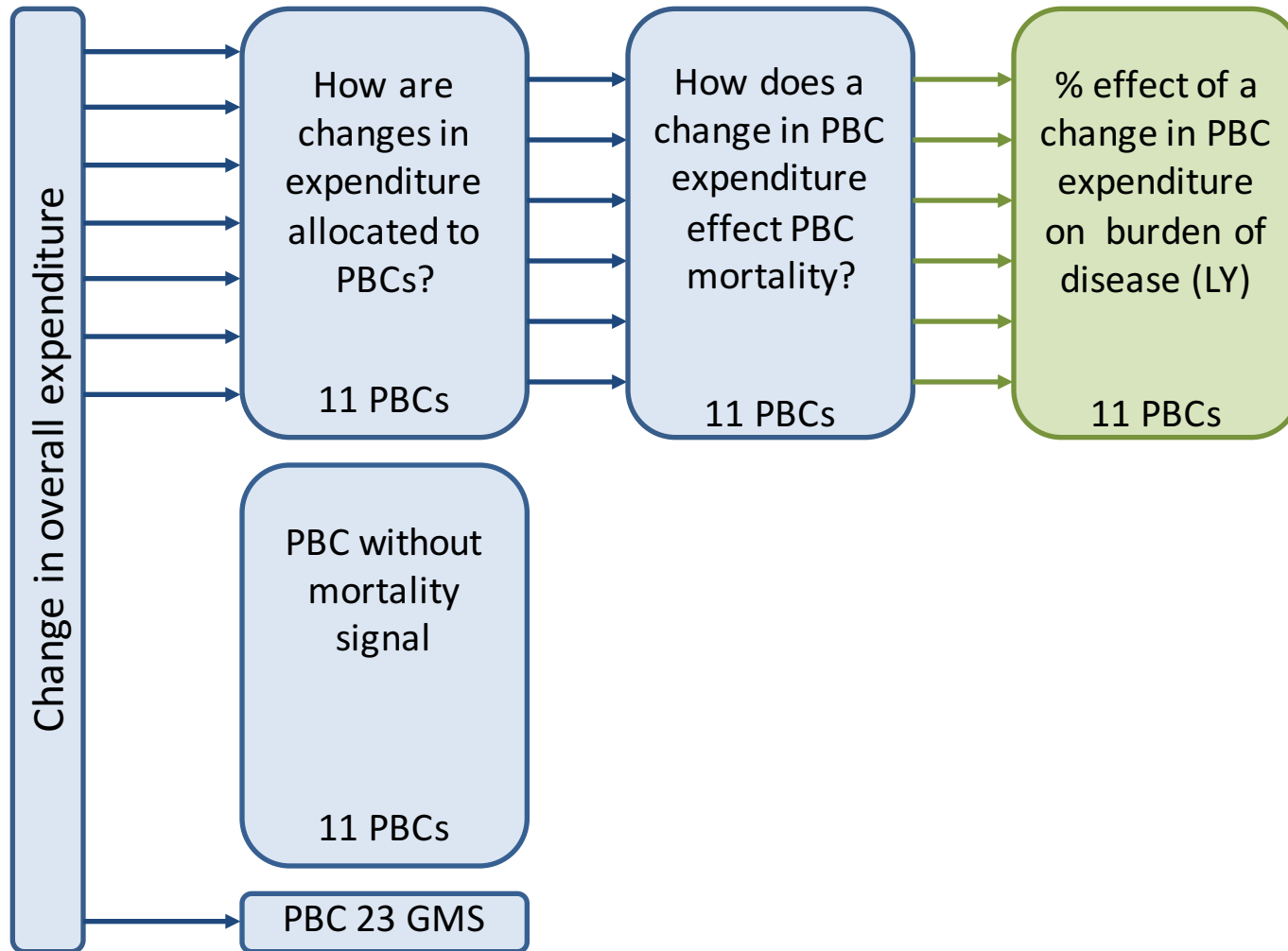
Which drugs at what price?



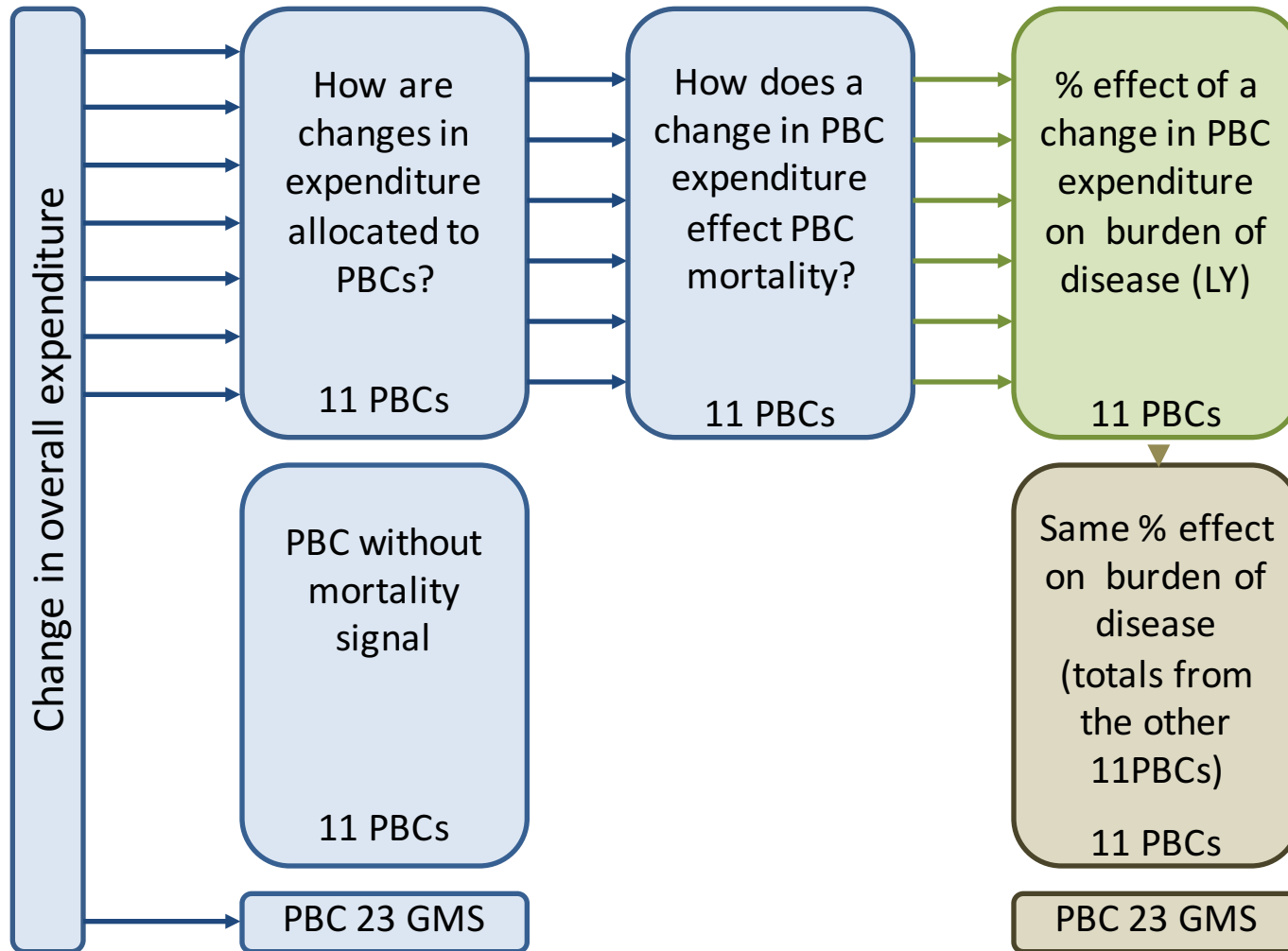
How can we estimate health opportunity costs?



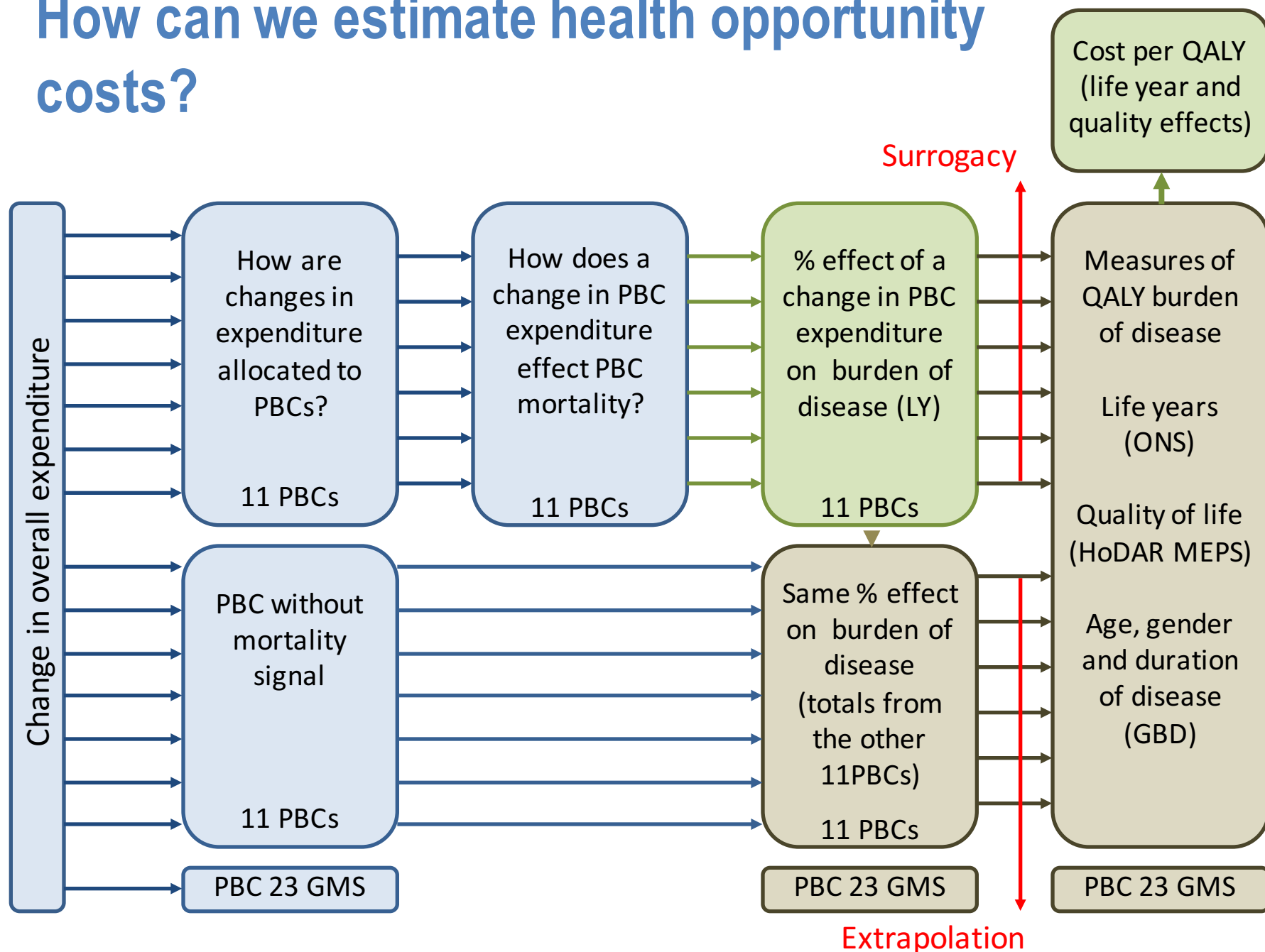
How can we estimate health opportunity costs?



How can we estimate health opportunity costs?



How can we estimate health opportunity costs?



Estimates of health opportunity costs

	Cost per death averted	Cost per life year	Cost per QALY (mortality effects)	Cost per QALY
<i>Qol associated with LYs</i>	-	<i>1</i>	<i>Norms</i>	<i>Based on burden</i>
<i>Qol during disease</i>	-	<i>0</i>	<i>0</i>	<i>Based on burden</i>
<i>YLL per death averted</i>	-	<i>4.5 YLL</i>	<i>4.5 YLL</i>	<i>4.5 YLL</i>
<i>QALYs per death averted</i>	-	<i>4.5 YLL</i>	<i>3.8 QALY</i>	<i>12.7 QALY</i>
11 PBCs (with mortality)	£105,872	£23,360	£28,045	£8,308
All 23 PBCs	£114,272	£25,214	£30,270	£12,936

What are the expected health consequences of £10m?

	Change in spend	Additional deaths	LY lost	Total QALY lost	Due to premature death	Quality of life effects
Totals	10 (£m)	51	233	773	150	623
Cancer	0.45	3.74	37.5	26.3	24.4	1.9
Circulatory	0.76	22.78	116.0	107.8	73.7	34.1
Respiratory	0.46	13.37	16.1	229.4	10.1	219.3
Gastro-intestinal	0.32	2.62	24.7	43.9	16.2	27.7
Infectious diseases	0.33	0.72	5.3	15.7	3.6	12.1
Endocrine	0.19	0.67	5.0	60.6	3.2	57.3
Neurological	0.60	1.21	6.5	109.1	4.3	104.8
Genito-urinary	0.46	2.25	3.3	10.6	2.1	8.5
Trauma & injuries*	0.77	0.00	0.0	0.0	0.0	0.0
Maternity & neonates*	0.68	0.01	0.4	0.2	0.2	0.1
Disorders of Blood	0.21	0.36	1.7	21.8	1.1	20.7
Mental Health	1.79	2.83	12.8	95.3	8.3	87.0
Learning Disability	0.10	0.04	0.2	0.7	0.1	0.6
Problems of Vision	0.19	0.05	0.2	4.2	0.2	4.1
Problems of Hearing	0.09	0.03	0.1	14.0	0.1	13.9
Dental problems	0.29	0.00	0.0	6.8	0.0	6.8
Skin	0.20	0.24	1.1	1.9	0.7	1.2
Musculo skeletal	0.36	0.39	1.8	23.2	1.2	22.1
Poisoning and AE	0.09	0.04	0.2	0.8	0.1	0.7
Healthy Individuals	0.35	0.03	0.2	0.7	0.1	0.6
Social Care Needs	0.30	0.00	0.0	0.0	0.0	0.0
Other (GMS)	1.01	0.00	0.0	0.0	0.0	0.0

Is NICE doing more harm than good?

- For every £10m of additional NHS costs

Cost-effectiveness of a new drug	Health gained (QALYs)	Health lost (QALYs)	Net harm to NHS patients
£20,000 per QALY	500	773	-273
£30,000 per QALY	333	773	-440
£40,000 per QALY	250	773	-523
£50,000 per QALY	200	773	-573

Harm done by the Cancer Drugs Fund

	Budget	Health lost elsewhere (QALYs)	Benefits of CDF (QALYs)*	Net harm to NHS patients
2013/14	£231m	17,821	3,374	-14,447
2014/15	£280m	21,645	4,098	-17,547
2015/16	£340m	26,283	4,977	-21,306

* 19,282 patients treated in 2013/14 and assuming 3 month survival benefit and 0.7 quality of life.
Implies £68,321 per QALY which is used to infer benefits in 2014-16

Potential solution (re-negotiating the PPRS)

- National value based rebates
 - Difference between global price and what the NHS can afford to pay for the benefits
 - NICE assesses evidence of benefits and cost of a new drug
 - Manufacturers decide if wish to include it in their national rebate calculation
 - Based on evidence of health opportunity costs
- Incentives for uptake
 - If included then use can be fully reimbursed by centre (top slice + rebate)
 - If not, still available but not reimbursed
- Enables price discrimination
 - UK and the rest of the global market
 - Across indications

Improving estimates of health opportunity costs

- Re-estimate at local authority geographies
- Re-estimate for subsequent and previous waves of data
 - Express uncertainty in this sequence of estimates
- Explore impact of lagged spend
 - Explore net effects
- Explore impact of Public Health and GMS spend
- Sensitivity to the approach to estimation (IV)
- Explore panel data estimation
 - Pooled, fixed effects, random effects and dynamic panel
- Elicitation
 - Assumptions of surrogacy, extrapolation and duration for key PBCs
 - Clinical and policy experts