Supplementary Material 2: Summary of the included publications

Author (publication year)	Country/ perspective	Disease	Treatment	Active ingredient	Biomarker	Treatment strategy	Result/[price year]	Consideration of test costs/Sensitivity and specificity	Funding
van den Akker-van Marle, M. E./ Gurwitz, D./ Detmar, S. B. et al. (2006) [32]	Four European member states (Germany, Ireland, Netherlands, UK)/societal perspective	Acute lymphoblastic leukaemia (ALL)	n.s.	Mercaptopurine	TPMT	(a) TPMT-genotyping: dosing mercaptopurine according to TPMT activity (wildtype (normal), intermediate, or deficient) (b) no TPMT-testing: standard doses	ICER (a) vs. (b): €4800 ($5702) per LYG [price year 2004]	yes/yes	European Commissions: European Science and Technology Observatory network (ESTO)
Behl A. S./Goddard K. A. B./Flottemesch T. J. et al. (2012) [33]	USA/perspective n. s.	Metastatic colorectal cancer (mCRC)	Second-line therapy (after failed chemotherapy)	Cetuximab vs. BSC	KRAS + (BRAF)	(a) No KRAS-Testing and no anti-EGFR therapy (cetuximab): all patients receive BSC (b) KRAS and BRAF-mutation screening: Patients without KRAS and BRAF mutation receive anti-EGFR therapy (cetuximab) (c) KRAS mutation screening: Patients without KRAS mutation receive Cetuximab (d) no KRAS testing: anti-EGFR therapy (Cetuximab)	ICER (b) vs (a): $648,396 pro LYS ICER (b) vs. (d): most cost effective strategy (significantly lower costs at marginally less benefit) ICER (c) vs. (d): is dominated by (b) vs. (d) [price year 2010]	yes/no	National Cancer Institute at the National Institutes of Health
Blank, P. R./Schwenkglenks, M./Moch, H. et al. (2010) [34]	Switzerland/ health care system	Breast cancer (early stage)	Second-line therapy (after adjuvant or neoadjuvant chemotherapy)	Trastuzumab	HER2	(a) IHC-/ FISH-Test: all patients**: reference strategy** (no Trastuzumab) (b) IHC-test and subsequent FISH-test for IHC2+ patients: trastuzumab treatment for FISH+ or IHC3+ patients; standard therapy for all other patients (c) FISH-Test: trastuzumab treatment for FISH+ patients; standard therapy for all other patients (d) IHC-Test: trastuzumab treatment for IHC 2+ and IHC3+ patients; standard therapy for all other patients (e) IHC-test and FISH-test (parallel): trastuzumab treatment for IHC2+ and IHC3+ and/or FISH+ patients; standard therapy for all other patients (f) No IHC-test/FISH-Test: all patients receive trastuzumab	ICER (c) vs. (a): €12,245 (US$15,676) per QALY ICER (f) vs. (e): €13,456,577 (US$17,226,646) per QALY ICER (e) vs. (c): €400,154 (US$512,263) per QALY ICER (b) vs (a): dominated (higher costs and less effective) (e) vs. (f) is dominated by (c) vs. (f) (d) is dominated by (c): less effective and more expensive (b) is extendedly dominated by (c): less expensive but also less cost-effective [price year n. s.*]	yes/yes	ETH Zurich Foundation; Competence Center for Systems Physiology and Metabolic Diseases (CC-SPMD)
Blank, P. R./Moch, H./ Szucs, T. D. et al. (2011) [35]	Switzerland/ health system	Metastatic colorectal cancer (mCRC)	Second-line therapy (after failed chemotherapy)	Cetuximab + BSC vs. BSC	KRAS + (BRAF)	(a) no KRAS-Test and no treatment with cetuximab: all patients receive BSC (b) KRAS Test and a subsequent BRAF Test: KRAS and BRAF wild-type tumour patients receive cetuximab + BSC; patients with a mutation of KRAS and/or BRAF gene receive BSC (c) KRAS Test: KRAS wild-type tumour patients receive cetuximab + BSC; patients with a mutation of KRAS gene receive BSC (d) No KRAS-Test: all patients receive cetuximab + BSC	ICER (b) vs. (a): €62,653 (US$83,279) pro QALY ICER (c) vs. (b): €313,537(US$416,755) pro QALY ICER (d) vs. (c): €314,588 (US$418,152) pro QALY [price year n. s.*]	yes/yes	ETH Zurich Foundation; Competence Center for Systems Physiology and Metabolic Diseases (CC-SPMD)
Carlson, J. J./Garrison, L. P./Ramsey, S. D. et al. (2009) [36]	USA/societal perspective	Advanced non-small cell lung cancer (NSCLC)	Second-line therapy (after failed chemotherapy)	Erlotinib vs. docetaxel	EGFR	(a) EGFR protein expression test: high protein expression (positive) = erlotinib until progression; low protein expression (negative)= docetaxel until progression (IHC) (b) EGFR gene copy test: high gene copy number (positive) = erlotinib until progression; low gene copy number (negative)= docetaxel until progression (GC) (c) no EGFR-Test: erlotinib until progression	ICER (b) vs. (c): US$162,018 per QALY ICER (a) vs. (c): US$179,612 per QALY ICER (b) vs. (a): dominant (ICER of (b) vs. (c) is better than ICER of (a) vs. (c)) [price year 2006]	yes/no	The author was supported in part by a pre-doctoral Fellowship in Health outcomes from PhRMA Foundation

Dong, D./Sung, C./Finkelstein, E. A. (2012) [37]	Asia/perspective n. s.	Epilepsy	First-line therapy	Carbamazepine (CBZ) vs. valproate (VPA)	HLA-B*1502	(a) no HLA-B*1502-Test: all patients receive CBZ/phenytoin (PHT) (b) HLA-B*1502-Test: negative test result = patients receive CBZ/PHT; positive test result = patients receive VPA (c) no HLA-B*1502-testing: all patients receive VPA	ICER (b) vs. (a): US$29,750 per QALY ICER (c) vs. (b): is dominated (higher costs and same efficacy) ICER (b) vs. (a) for 3 major ethnical populations in Singapore: Singapore Chinese: US$37,030 pro QALY Singapore Malays: US$7930 pro QALY Singapore Indians: US$136,630 pro QALY [price year 2010]	yes/yes	Duke-NUS Graduate Medical School
Donnan, J. R./Ungar, W. J./Mathews, M. et al. (2011) [38]	Canada/health care system	Acute lymphoblastic leukaemia (ALL)	n.s.	Mercaptopurine	TPMT	(a) genotypic TPMT-test: dosing mercaptopurine accordingly TPMT activity; TPMT deficiency: dose reducing; no TPMT deficiency: weight-based dosing (b) enzymatic-TPMT-test: dosing mercaptopurine accordingly TPMT activity- TPMT deficiency: dose reducing; no TPMT deficiency: weight-based dosing (c) no testing: weight-based dosing mercaptopurine (standard of care)	(a) total expected costs per patient CAD-$1090 (US$883), expected survival 2.9997 months (b) total expected costs per patient CAD-$1020 (US$826), expected survival 2.9997 months (c) total expected costs per patient CAD-$654 (US$530), expected survival 2.9997 months [price year 2008]	yes/yes	Atlantic Canada Opportunities Agency, the provincial government of Newfoundland and Labrador
Dubinsky, M. C./Reyes, E./Ofman, J. et al. (2005) [39]	Country n. s. /Third-party payer perspective	Inflammatory bowel disease (IBD)	First-line therapy	Azathioprine (AZA)	TPMT	(a) Community care: therapy started on lowest AZA dose threshold of 50 mg; AZA dose could increase to 100 mg AZA, if a patient did not respond clinically at 3 months; After 6 months, patients responding to the 100 mg dose AZA continued current treatment. (b) TPMT screening: AZA dose according to TPMT-genotype: initial doses by TPMT wild-type (normal) = 100 mg AZA; TPMT intermediate = 50 mg AZA; TPMT deficient = no AZA (patients receive MTX (25 mg) (c) TPMT screening and metabolite monitoring: similar to TPMT screening; initial dosing depends on patients´ TPMT genotype: initial dosing by TPMT wild-type (normal) = 100 mg AZA; TPMT intermediate = 50 mg AZA; TPMT deficient = no AZA (patients receive MTX therapy (25 mg); After 4 weeks AZA dose could be adjusted according to patients´ metabolite level (d) Metabolite monitoring: Initial dose at 50 mg AZA; AZA dose could be adjusted according to patients´ metabolite level	(a) is dominated by (b), (c) and (d): higher costs and longer time to reach sustained response (c) vs. (b): higher costs (US$5877 *vs.* US$3681) and faster time to reach sustained response (19.10 *vs.* 18.96 weeks) (no ICER is reported) (d) vs. (c): higher costs (US$6441 *vs.* US$5877) and faster time to reach sustained response (18.66 *vs.* 18.96 weeks) (no ICER is reported) [price year 2004]	yes/no	n. s.
Elkin, E. B./Weinstein, M. C./Winer, E. P. et al. (2004) [40]	USA/societal perspective	Metastatic breast cancer	First-line therapy	Trastuzumab + chemotherapy vs. chemotherapy	HER2	(a) no IHC-/FISH-Test: chemotherapy alone (b) IHC-Test: trastuzumab and chemotherapy for IHC +3 patients; for all others chemotherapy alone (c) IHC-Test and confirmatory FISH-test for patients with +2 und +3: trastuzumab + chemotherapy for FISH+ patients; for all others chemotherapy alone (d) IHC-Test and confirmatory FISH-Test for patients with IHC +2; trastuzumab + chemotherapy for FISH+ or IHC +3 patients; for all others chemotherapy alone (e) IHC: trastuzumab + chemotherapy for IHC +2 und +3 patients; for all others chemotherapy alone (f) FISH-Test: trastuzumab + chemotherapy for FISH+ patients; for all others chemotherapy alone (g) no IHC-/ FISH-Test: trastuzumab + chemotherapy for all	ICER (b) *vs.* (c): less effective (ruled out by extended dominance) ICER (d) *vs.* (c): dominated (more costly + equally effective) ICER (g) *vs.* (f): dominated (higher costs + same effectiveness) ICER (e) *vs.* (g): dominated (less effective + more expensive ICER (c) *vs.* (a): US$125,100 pro QALY ICER (f) *vs.* (c): US$145,400 pro QALY [price year 2002]	yes/yes	National Library of Medicine Research Training Program in Medical Informatics

Hagaman, J. T./Kinder, B. W./Eckman, M. H. (2010) [22]	USA/perspective n. s.	Idiopathic pulmonary fibrosis (IPF)	n.s.	Azathioprine (AZA) in combination with N-acetylcysteine and steroids vs. conservative therapy (no AZA)	TPMT	(a) TPMT-Test: Dosage of AZA according TPMT-activity: normal TPMT activity: standard doses; TPMT intermediate (reduced TPMT activity): reduced doses; TPMT deficient (absent TPMT-activity): conservative therapy without AZA (b) no TPMT-Test: AZA (c) conservative therapy	ICER (a) vs. (c): US$49,156 per QALY ICER (a) vs. (b): US$29,663 per QALY [price year 2007]	yes/no	n. s.
Hall, P. S./McCabe, C./Stein, R. C. et al. (2012) [41]	UK/NHS	Early-stage lymph node-positive breast cancer	First-line therapy	Tamoxifen + chemotherapy vs. tamoxifen	HOXB13-IL17BR	(a) Test of recurrence (Oncotype DX): low recurrence score (RS ≤ 18): no chemotherapy, only tamoxifen; high recurrence score (RS > 18): chemotherapy + tamoxifen (b) standard of care: chemotherapy + tamoxifen	ICER (a) *vs.* (b): £5529 (US$8852)** per QALY (starting age of the patient cohort was 60 years) [price year 2011]	yes/no	No external funding
Hughes, D. A./Vilar, F. J./Ward, C. C. et al. (2004) [42]	UK/NHS	HIV/AIDS	First-line therapy	Abacavir-containing combination therapy vs. alternative highly active antiretroviral therapy (HAART) without abacavir	HLA-B*5701	(a) HLA-B*5701-Test: negative test result = Abacavir-containing regimens (by a HSR: further treatment with alternative HAART); positive test result = alternative HAART (b) no HLA-B*5701-Test: Abacavir-containing regimens (by a HSR: further treatment with alternative HAART)	(a) *vs.* (b): ranged from dominant strategy (less expensive + more effective) up to €22,811 (US$26,714) per avoid HSR (population of 1000 patients) (depending on the costs of respective alternative HAART: low cost = ICER dominant; high cost = ICER up to €22,811 (US$26,714) per avoid HSR) [price year 2002]	yes/yes	n. s.
Kapoor, R./Martinez-Vega, R./Dong, D. et al. (2015) [43]	Singapore/healthcare system	HIV infection (early and late stage)	First-line therapy	First-line ABC-based ART substituted with tenofovir-based ART as second-line in the event of side effects vs. first-line tenofovir-based ART substituted with ABC-based ART in the event of side effects	HLA-B*5701	**Tenofovir and abacavir can be prescribed as first-line treatment** <u>Early Stage</u> (a) No HLA-B*5701-testing: ABC as first line (Chinese (a1); Malays (a2); Indians (a3) (b) HLA-B*5701: ABC as first-line Chinese (b1); Malays (b2); Indians (b3) (c) HLA-B*5701-testing before ABC: Tenofovir as first line Chinese (c1); Malays (c2); Indians (c3) (d) No HLA-B*5701 done before ABC: Tenofovir as first-line [Chinese (d1); Malays (d2); Indians (d3)] <u>Late stage:</u> (e) No HLA-B*5701-testing: ABC as first line Chinese (e1); Malays (e2); Indians (e3) (f) HLA-B*5701: ABC as first-line Chinese (f1); Malays (f2); Indians (f3) (g) HLA-B*5701-testing before ABC: tenofovir as first line Chinese (g1); Malays (g2); Indians (g3) (h) No HLA-B*5701 done before ABC: tenofovir as first-line Chinese (h1); Malays (h2); Indians (h3) **Patients who are contraindicated to tenofovir** <u>Early stage</u> (i) No genetic testing Chinese (i1); Malays (i2); Indians (i3) (j) HLA-B*5701-testing Chinese (j1); Malays (j2); Indians (j3) <u>Late stage</u> (k) No genetic testing Chinese (k1); Malays (k2); Indians (k3) (l) HLA-B*5701-testing Chinese (l1); Malays (l2); Indians (l3)	ICER (b1) *vs.* (a1): US$415,845/QALY ICER (b2) *vs.* (a2): US$318,029/QALY ICER (b3) *vs.* (a3): US$208,231/QALY ICER (f1) *vs.* (e1): US$926,938/QALY ICER (f2) *vs.* (e2): US$624,297/QALY ICER (f3) *vs.* (e3): US$284,598/QALY ICER (j1) *vs.* (i1): US$252,350/QALY ICER (j2) *vs.* (i2): US$154,490/QALY ICER (j3) *vs.* (i3): US$44,649/QALY ICER (l1) *vs.* (k1): US$757,270/QALY ICER (l2) *vs.* (k2): US$454,223/QALY ICER (l3) *vs.* (k3): US$114,068/QALY	yes/yes	n. s.
Kauf, T. L./Farkouh, R. A./Earnshaw, S. R. et al. (2010) [44]	USA/health care system	HIV/AIDS	First-line therapy	Abacavir and lamivudine + efavirenz (fixed dosed regimen) vs. alternative high active antiretroviral therapy (HAART) with tenofovir+emtricitabine+efavirenz (fixed dosed)	HLA-B*5701	(a) HLA-B*5701-Test: negative test result = abacavir-containing regimens (by a HSR: further treatment with alternative HAART); positive test result = alternative HAART (b) no HLA-B*5701-Test: abacavir-containing regimens (by a HSR: further treatment with alternative HAART)	(a) *vs.* (b): US$328 per avoid HSR [price year 2007]	yes/yes	GlaxoSmithKline, Inc. (Research Triangle Park, NC, USA)
de Lima Lopes, G./Segel, J. E./Tan, D. S. et al. (2012) [45]	Asia/perspective n. s.	Non-small cell lung cancer (NSCLC)	First- or second-line therapy	Gefitinib vs. chemotherapy	EGFR	(a) no EGFR-testing: chemotherapy as first-line therapy, subsequent treatment with gefitinib as second-line treatment (standard therapy) (b) EGFR-testing: patients with activating EGFR-mutation receive gefitinib as first-line therapy and chemotherapy as second-line therapy; patients without mutation receive chemotherapy as first-line therapy and BSC as second-line therapy	ICER (b) *vs.* (a): dominant (less expensive and more effective) [price year 2010]	yes/no	AstraZeneca (Singapore) Pte Ltd (biopharmaceutical company)

Lyman, G. H./Cosler, L. E./Kuderer, N. M. et al. (2007) [46]	USA/societal perspective	Early-stage breast cancer	First-line therapy	Tamoxifen + chemotherapy vs. tamoxifen	HOXB13-IL17BR	(a) 21-gene RT-PCR assay: low risk patients (recurrence score <18): tamoxifen alone; intermediate (recurrence score 18-30) and high-risk patients (recurrence score ≥ 31) receive chemotherapy and tamoxifen. (b) no test: chemotherapy + tamoxifen (c) no test: tamoxifen	ICER (a) *vs.* (c): US$1944 per LYS ICER (a) *vs.* (b): US$3385 per LYS [price year n.s.]	yes/no	Genomic Health; Amgen
Marra, C. A./Esdaile, J. M./Anis, A. H. (2002) [47]	Canada/payer perspective	Rheumatological conditions (rheumatoid arthritis and systemic lupus erythematosus)	n.s.	Azathioprine (AZA)	TPMT	(a) genotype TPMT-Test: AZA dosing according to genotype/TPMT-activity = TPMT homozygous wild type (normal TPMT-activity): target dose of 2.0-2.5 mg/kg/day; TPMT heterozygous (reduced TPMT-activity): target dose 1.0 mg/kg/ day; TPMT homozygous mutant (deficient of TPMT-activity): target dose 0.25 mg/kg/day (b) no TPMT-Test: normal dosing	(a) dominates (b) (more effective and less costly) [price year 1999]	yes/yes	Canadian Arthritis Network (a Canadian Network of Centres of Excellence)
Nieves Calatrava, D./De la Calle-Martin, O./Iribarren-Loyarte, J.(2009) [48]	Spain/National Health System	HIV infection	First-line Therapy	Abacavir (ABC)	HLA-B*5701	(a)HLA-B*5701-Test: positive test result: patients receive a HAART regimen without ABC; patients with a negative test result receive a HAART regimen with ABC (b) No HLA-B*5701-Test: all patients receive ABC	Incremental cost: (a) *vs.* (b) €630.16 (US$807) per HSR avoid [price year 2008]	yes/yes	GlaxoSmithKline
Oh, K.-T./Anis, A. H./ Bae, S.-C. (2004) [49]	Korea/ societal perspective	Rheumatoid arthritis and systemic lupus erythematosus	Second-line therapy	Azathioprine (AZA)	TPMT	(a) genotypic TPMT-Test: AZA dosing according to genotype/TPMT-activity: • TPMT wild type (high activity): Initial dosage 1 mg/kg, dose increment began at 4 weeks; further increment: 0.5 mg/kg steps at 4-week-intervals (target daily dose: 2.5 mg/kg); • TPMT intermediary/heterozygous mutant type(reduced activity): Initial dosage: 0.5 mg/kg, dose increment began at 4 weeks, further increment: 0.5 mg/kg steps at 4-week-intervals (target daily dose: 1 mg/kg); • TPMT deficient/ homozygous mutant type (low or no activity): Initial dosage: 0.25 mg/kg, no increment. (b)no TPMT-Test: conventional weight-based dosing of AZA started at 1 mg/kg daily, dose increase began at 8 weeks in 0.5 mg/kg steps (4-week intervals) up to the target dose of 2.5 mg/kg.	(a) *vs.* (b): dominant (less costly + more effective) [price year 2002]	yes/yes	Korea Health 21 R&D project - Ministry of Health and Welfare (Republic of Korea)
Plumpton, C./Yip, V./Marson, A. et al.(2015) [50]	UK/National Health Service (NHS)	Epilepsy	First-line therapy	Carbamazepine (CBZ)	HLA-A*31:01	(a) No HLA-A*31:01-testing: all patients receive CBZ (b) HLA-A*31:01-Testing: positive test result: patients receive CBZ; negative test result: patients receive lamotrigine	ICER (b) *vs.* (a) per LYG: dominated ICER (b) *vs.* (a) per seizure-free year: dominated ICER (b) *vs.* (a) per cutaneous ADR avoid: £37,314 (US$53,674) ICER (b) *vs.* (a) per QALY gained: £12,808 (US$18,424) [price year 2010-2011***]	yes/no	NIHR Cochrane Programme Grant Scheme 10/4001/18: Clinical and cost effectiveness of interventions for epilepsy in the NHS; and the NIHR Invention for Innovation (i4i) scheme:
Priest, V. L./Begg, E. J./Gardiner, S. J. et al. (2006) [51]	New Zealand/payer´s perspective (the New Zealand government and patients with IBD	Inflammatory bowel disease (IBD)	First-line therapy	Azathioprine (AZA)	TPMT	(a) no TPMT-Test: standard dosage AZA (b) genotypic-TPMT-Test: dosage of AZA according to TPMT-activity (c) phenotypic-TPMT-Test: dosage of AZA according to TPMT-activity	(a) is dominated by (b) and (c) (c) *vs.* (b): dominant (less costly and more effective) [price year 2004]	yes/yes	No external funding
Rattanaviopapong, W./Koopitakkajorn, N./Mahasirimongkol, S. et al. (2013) [52]	Thailand/societal perspective	Epilepsy and neuropathic pain	First-line therapy	Carbamazepine (CBZ)	HLA-B*15:02	(a) No HLA-B*15:02-Screening: Patients receive CBZ (b) HLA-B*15:02-Screening for all patients: patients with a positive test result receive the alternative drugs; negative tested patients receive CBZ (c) No HLA-B*15:02-Screening: all patients receive an alternative drug treatment	<u>Epilepsy:</u> ICER (b) *vs.* (a): 220,000 THB (US$7066) per QALY ICER (c) *vs.* (a): 32,522,000 THB (US$1,035,073) per QALY <u>neuropathic pain</u> ICER (b) *vs.* (a): 130,000 THB (US$4137) per QALY gained ICER (c) *vs.* (b): 35,877,000 THB (US$1,141,852) per QALY gained [price year 2011]	yes/yes	n. s.

Schackman, B. R./Scott, C. A./Walensky, R. P. et al. (2008) [53]	USA/perspective n. s.	HIV/AIDS	First-line therapy	Abacavir-based treatment vs. tenofovir-based treatment	HLA-B*5701	(a) HLA-B*5701-testing: negative test result: abacavir-based treatment (abacavir + lamivudine + efavirenz); positive test result: tenofovir-based treatment (b) No HLA-B*5701-testing: abacavir-based therapy (abacavir + lamivudine + efavirenz); occurrence of HSR: further treatment with tenofovir-based treatment (c)No HLA-B*5701-testing: tenofovir-based therapy (renofovir + emtricitabine + efavirenz); occurrence of nephrotoxicity: substituting abacavir and lamivudine	ICER (a) *vs.* (b): US$36,700 pro QALY ICER (c) *vs.* (b): is dominated (higher costs + less effective) [price year 2006]	yes/no	National Institute of Allergy and Infectious Diseases; National Institute on Drug Abuse
Shiroiwa, T./Motoo, Y./Tsutani, K. (2010) [54]	Japan/health care payer	Metastatic colorectal cancer (mCRC)	First-line therapy	Cetuximab vs. BSC	KRAS	(a) KRAS testing: patients with KRAS wild-type receive cetuximab; patients with KRAS-mutation receive BSC (b) no KRAS-testing - all patients receive cetuximab (c) no KRAS-testing - all patients receive BSC	ICER (b) *vs.* (c): US$160,000 pro LYG; US$230,000 pro QALY ICER (a) *vs.* (c): US$120,000 pro LYG; US$180,000 pro QALY ICER (a) *vs.* (b): dominant (lower cost with the same or better outcome) [price year 2010]	yes/no	Roche Diagnostics KK.
Thompson, A.J./Newman W.G/Elliott, R. A. et al. (2014) [12]	UK/health service perspective	Autoimmune diseases	n.s.	Azathioprine (AZA)	TPMT	(a)No TMPT- genotyping (current practice): • TMPT-wild type (normal activity): starting dose: 0.86 +/- 0.53 mg AZA; Maintenance dose at 4 months: 1.74 +/-0.50 mg AZA; • TMPT-heterozygous (low activity): starting dose: 0.93 +/- 0.64 mg AZA; Maintenance dose at 4 months: 1.62 +/-0.56 mg AZA (b) TPMT genotyping: • TMPT-wild type (normal activity): starting dose: 0.92 +/- 0.60 mg/kg/d AZA; Maintenance dose at 4 months: 1.62 +/-0.55 mg/kg/d AZA • TMPT-heterozygous (low activity): starting dose: 0.61 +/- 0.33 mg/kg/d AZA; Maintenance dose at 4 months: 1.80 +/-0.89 mg/kg/d AZA	Incremental costs (adjusted) for TPMT-genotyping: (b) *vs.* (a): £421.06 (US$625) Incremental QALY for TPMT-genotyping: (b) *vs.* (a): -0.008 Incremental net benefit (b) *vs.* (a): £256.89 ($381) [price year 2009-2010***]	yes/no	TARGET-Study: The Department of Health UK; A.J. Thompson: NIHR School for Primary Research; Prof. Payne-Research Councils UK (partly)
Vijayaraghavan, A./Efrusy, M. B./Göke, B. et al. (2012) [55]	USA and Germany/health care payer perspective	Advanced metastatic colorectal cancer (mCRC)	Second-line therapy (after failed prior chemotherapy)	Cetuximab panitumumab Combination therapy (US: cetuximab+irinotecan; Germany: cetuximab+FOLFIRI) Combination therapy (US: cetuximab+irinotecan; Germany: cetuximab+FOLFIRI) vs. irinotecan (US) or FOLFIRI (Germany)	KRAS	(a) no KRAS-testing: panitumumab (b) KRAS-testing: panitumumab (c) no KRAS-testing: cetuximab (d) KRAS-testing: cetuximab (e) no KRAS-testing: combination therapy: USA: cetuximab + irinotecan, Germany: cetuximab + FOLFIRI (f) KRAS-testing: combination therapy: USA: cetuximab + irinotecan, Germany: cetuximab + FOLFIRI; (Assumption: patients with KRAS mutation will not receive chemotherapy) (g) KRAS-testing: combination therapy: USA: cetuximab + irinotecan, Germany: cetuximab + FOLFIRI; patients with KRAS mutation (wild type) receive irinotecan (US) and FOLFIRI (Germany)	ICER (b) *vs.* (a): dominant (lower costs + same effectiveness) ICER (d) *vs.* (c): dominant (lower costs + same effectiveness (f) *vs.* (e): less expensive + less effective = no ICER stated (g) *vs.* (e): lower costs + same effectiveness, no ICER stated ICER (g) *vs.* (f): US$35,539 pro LYS [price year 2009]	yes/yes	Roche Molecular Systems, Inc., United States (Roche)
Winter, J./Walker, A./Shapiro, D. et al. (2004) [56]	UK/perspective n. s.	Inflammatory bowel disease (IBD)	Second-line therapy	Azathioprine (AZA) vs. alternative treatment	TPMT	(a) TMPT-Test: AZA dosing according to genotype/TPMT-activity: homozygote does not receive AZA, heterozygotes receive a reduced dose AZA (b) no TMPT-Test: all patients receive AZA	(a) vs. (b): £487 (US$776) per LYS (for a 30 year old patient) or £951 (US$1515) per LYS (for a 60 year old patient) [price year n. s.*]	yes/yes	n. s.

Abbreviations: ICER: incremental cost-effectiveness ratio; LYS: life-year saved; LYG: life-year gained; QALY: quality adjusted life years; n.s.: not stated; HSR: hypersensitivity reaction; ADR: adverse drug reaction; THB: Thai Baht; CAD: Canadian Dollars

*As price year, the second year prior to the publication year, was assumed.

** Not calculated by the authors

*** An average exchange rate of these two price years was calculated.