**Supplementary material**

**Supplementary Table S1.** Intervention populations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Intervention | Patient number | Percentage females/males | Median age (range), years | Characteristics |
| MetAction,  all cases | 26 | 54/46 | 65 (23-75) | Treatment-refractory end-stage cancer of any solid tumour entity (61.5% CRC) analysed by NGS |
| MetAction,  AT-positive cases | 10 | 70/30 | 62.5 (46-75) | Treatment-refractory end-stage cancer (70% CRC) analysed by NGS and given molecularly matched therapy |

AT, actionable target; CRC, colorectal cancer; NGS, next-generation sequencing.

**Supplementary Table S2.** Comparator populations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comparator | Patient number | Percentage females/males | Median age (range), years | Characteristics |
| MetAction,  AT-untreatable cases | 16 | 44/56 | 66 (23-75) | Treatment-refractory end-stage cancer (56% CRC) analysed by NGS but given BSC |
| RECOURSE | 266 | 38/62 | 63 (27-82) | Treatment-refractory end-stage CRC given BSC |
| CORRECT | 255 | 40/60 | 61 (54-68) | Treatment-refractory end-stage CRC given BSC |

AT, actionable target; BSC, best supportive care; CRC, colorectal cancer; NGS, next-generation sequencing.

**Supplementary Figure S1.** Partitioned survival models for the precision cancer medicine intervention population (left panel) and the two external comparator populations (right panel). Ovals refer to health states and arrows indicate movements.

**Supplementary Table S3.** Health-related quality-of-life (HRQoL) weights applied in the models.

|  |  |  |
| --- | --- | --- |
| Health state | HRQoL | Source |
| *Progression* | 0.82 | Färkkilä N et al. Acta Oncol. 2015;54:454-462. |
| *Treatment*, cycle 1-4 | 0.64 | Ratcliffe J et al. Liver Transpl. 2002;8:263-270. |
| *Treatment*, cycle ≥5 | 0.71 | Bjørnelv GMW et al. Br J Surg. 2019;106:132-141. |

**Supplementary Table S4.** Distributions for the extrapolation of OS and PFS estimates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Study | Parameter | Distribution | Constants | AIC/BIC |
| MetAction,  all cases | OS  PFS | Log-logistic  Splines | λ = 5.340, γ = 0.484  7.20  –1.08  –2.21 | 69/71  30/31 |
| MetAction,  AT-positive cases | OS  PFS | Splines  Splines | 7.20  –2.87  7.20  –1.08  –2.21 | 30/31  30/31 |
| MetAction,  AT-untreatable cases | OS | Weibull | λ = 7.98e-06, γ = 2.097 | 38/40 |
| RECOURSE | OS | Splines | 7.20  –30.92  –22.33 | 691/705 |
| CORRECT | OS | Splines | 7.20  –19.80  –13.94 | 672/686 |

AIC, Akaike Information Criterion; AT, actionable target; BIC, Bayesian Information Criterion; OS, overall survival; PFS, progression-free survival.

**Supplementary Table S5.** Costs per patient.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Strategy | NGS procedure | Therapy and follow-up | BSC | EoL care | Total |
| MetAction, all cases | 4101 | 11,644 | 3376 | 13,299 | 32,420 |
| MetAction, AT-positive cases | 4101 | 30,642 | 3431 | 13,191 | 51,365 |
| MetAction,  AT-untreatable cases | 4101 | 0 | 3492 | 11,745 | 19,338 |
| RECOURSE | 0 | 0 | 3492 | 12,514 | 16,006 |
| CORRECT | 0 | 0 | 3492 | 12,489 | 15,981 |

Costs are discounted at a 4% rate and presented in EUR (converted from 2020 NOK).

AT, actionable target; BSC, best supportive care; EoL, end-of-life; NGS, next-generation sequencing.