

### Multimedia Appendix 3

Important baseline features based on Lasso regression for TAU (including single levels for each item) and QALY prediction for  $\lambda=0.01485$ :

Feature	Parameter coefficient
(Intercept)	$3.897e-1$
Cumulated PHQ value (aPHQScore)	$-3.013e-3$
Anxiety/Depression (I am slightly anxious or depressed) (aEQ5D5L5)	$2.898e-2$
How many times did you consult the General practitioner (aTicp1a)	$-1.732e-3$
Mobility (I have no problems in walking about) (aEQ5D5L)	$1.502e-2$
General interest (I have virtually no interest in the activities I used to enjoy) (aQIDS13)	$-6.159e-3$
Usual activities (I have severe problems doing my usual activities) (aEQ5D5L3)	$-1.440e-2$
Anxiety/Depression (I am severely anxious or depressed) (aEQ5D5L5)	$-9.663e-3$
How many times did you consult other primary care (aTicp1h2)	$-3.168e-3$
Medication use (other period other depressants 1) (aTicp20d2)	$-3.183e-3$
How many times: medical specialist at an outpatient clinic (aTicp4)	$-2.726e-3$
Medication use (dosage Venlafaxine (Efexor)) (aTicp19b)	$-7.900e-5$
Medication use (Frequency other depressants 1) (aTicp20c)	$-1.710e-3$
Agoraphobia current (yes) (amini11)	$-1.263e-3$
Age at baseline (aAge)	$-5.200e-5$

Important baseline features based on Lasso regression for BT (including single levels for each item) and QALY prediction for  $\lambda=0.01479$ :

Feature	Parameter coefficient
(Intercept)	$2.930e-1$
Mobility (I have severe problems in walking about) (aEQ5D5L1)	$-1.760e-1$
Mobility (I have no problems in walking about) (aEQ5D5L1)	$3.180e-2$
Cumulated PHQ value (aPHQScore)	$-2.220e-3$
Energy level (I really cannot carry out most of my usual daily activities because I just do not have the energy) (aQIDS14)	$-1.863e-2$
Anxiety/Depression (I am severely anxious or depressed) (aEQ5D5L5)	$-1.830e-2$
Usual activities (I have no problems doing my usual activities) (aEQ5D5L3)	$1.630e-2$
Usual activities (I have severe problems doing my usual activities) (aEQ5D5L3)	$-1.806e-2$
How many times did you consult other mental care 3 (aTicp2j2)	$-5.045e-3$
Medication use (period Other medication for mental health complaints) (other) (aTicp29d1)	$7.260e-2$
How many times did you consult the general practitioner (aTicp1a)	$-2.890e-4$
Trouble concentrating on things, such as reading the newspaper or watching television (Nearly every day) (aPHQ07)	$-5.277e-3$
How many times did you consult the Dietician (aTicp1e)	$-1.050e-2$
Who is providing the sleep medication (Psychiatrist) (atreat11)	$2.706e-3$
Medication use (dosageFluoxetine (Prozac)) (aTicp14b)	$-5.700e-5$

Important baseline features based on Lasso regression for TAU (including single levels for each item) and cost prediction for  $\lambda=433.83$ :

Feature	Parameter coefficient
(Intercept)	1.170e+6
Little interest or pleasure in doing things (Several days) (aPHQ01)	-5.675e+2
Trouble falling or staying asleep, or sleeping too much (Nearly every day) (aPHQ03)	1.401e+3
Do you have a preference for one of the treatments offered (No preference) (apref1)	-3.972e+2
Do you have a preference for one of the treatments offered (Treatment as usual not including the online treatment) (apref1)	-3.972e+2
Mobility (I have no problems in walking about) (aEQ5D5L1)	-8.392e+2
Mobility (I have slight problems in walking about) (aEQ5D5L)	2.145e+2
Anxiety/Depression (I am severely anxious or depressed) (aEQ5D5L5)	1.112e+3
Anxiety/Depression (I am slightly anxious or depressed) (aEQ5D5L5)	-4.171e+2
How many times did you consult the general practitioner (aTicp1a)	6.831e+1
How many times did you consult a therapist for physical therapy (aTicp1b)	2.048e+1
How many times did you consult the Dietician (aTicp1e)	4.193e+1
How many times did you consult other primary care 1 (aTicp1g2)	5.988e+2
How many times did you consult the Psychiatrist (aTicp2d)	1.565e+2
How many times did you consult other mental care 1 (aTicp2h2)	-9.298e+1
How many times did you consult the Acupuncturist (aTicp3a)	5.166e+1
How many times: medical specialist at an outpatient clinic (aTicp4)	2.459e+2
Times of other institution admissions (aTicp6e2)	-4.074e+2
Medication use (dosage Citalopram (Cipramil)) (aTicp12b)	2.421e+1
Medication use (other period Citalopram (Cipramil)) (aTicp12d2)	-3.800e+1
Medication use (Fluoxetine (Prozac)) (aTicp14a)	-6.932e+2
Medication use (other period Nortriptyline (Nortrilen)) (aTicp16d2)	2.518e+3
Medication use (other) (aTicp17d1)	-2.363e+3
Medication use (dosage other depressants 1) (aTicp20b)	6.129e+1
Medication use (Frequency Oxazepam (Seresta)) (aTicp22c)	-9.576e+1
Medication use (period Oxazepam (Seresta)) (aTicp22d1)	-1.410e+3
Medication use (period Zopiclon (Imovane)) (aTicp26d1)	1.424e+3
Medication use (dosage Other Tranquilizers or sleep medication) (aTicp27b)	8.460e+0
Medication use (other period for Other medication for mental health complaints) (aTicp29d2)	-4.046e+2
Do you have a paid job (yes) (aTicp39)	1.052e+3
How many hours does your contract specify (aTicp40)	3.720e+1
Did health problems oblige you to call in sick from work at any time (Yes, I was off work during the full three months) (aTicp42)	4.242e+3
On which date did you call in sick from work first because of health problems (aTicp43)	-8.500e-5
On how many working days did you call in sick from work because of health problems in the past three months (aTicp45)	5.469e+1
Was your job performance adversely affected by health problems (yes) (aTicp46)	7.219e+2
Rate how well performed on days bothered by health problems (aTicp48)	-1.439e+2
What type of treatment do you receive (Medication) (aTreat2a)	-8.896e+0
How long have you been taking sleep medication (1-6 months) (atreat10)	-2.746e+3
How long have you been taking sleep medication (More than 1 year) (atreat10)	7.832e+2
Who is providing the sleep medication (Psychiatrist) (atreat11)	-6.851e+2
What type of treatment did you receive (Medication) (atreat17)	-7.687e+2

Suicidal risk current (yes) (amini5a)	5.668e+2
Recency manic episode (Lifetime) (amini7b)	3.520e+1
Agoraphobia current (yes) (amini11)	-1.532e+3
Panic disorder without agoraphobia current (amini12)	4.787e+2
Panic disorder with agoraphobia current (yes) (amini13)	-3.185e+3
Obsessive compulsive disorder current (yes) (amini16)	-7.251e+2
Falling asleep (I take at least 30 minutes to fall asleep, some nights) (aQIDS01)	-2.655e+1
Increased Appetite (I regularly eat more often and or greater amounts of food than usual) (aQIDS07)	6.115e+2
Weightloss (I have lost 2.5 kilos or more) (aQIDS08)	-6.544e+2
Weightgain (I have gained 2.5 kilos or more) (aQIDS09)	1.150e+3
Weightgain (I have not had a change in my weight) (aQIDS09)	1.029e+1
Concentration/Decision Making (Most of the time, I struggle to focus my attention or to make decisions) (aQIDS10)	-7.034e+1
Energy level (I have to make a big effort to start or finish my usual daily activities) (aQIDS14)	7.805e+1
Energy level (I really cannot carry out most of my usual daily activities because I just do not have the energy) (aQIDS14)	1.160e+3
Country code (Germany) (cc)	4.782e+2
Country code (Poland) (cc)	-2.842e+3
Country code (Netherlands) (cc)	4.058e+3
Country code (Spain) (cc)	-7.364e+2
Country code (UK) (cc)	4.058e+3

Important baseline features based on Lasso regression for BT (including single levels for each item) and cost prediction for  $\lambda=651.14$ :

Feature	Parameter coefficient
(Intercept)	-1.524e+6
Little interest or pleasure in doing things (Not at all) (aPHQ01)	-5.829e+2
Trouble falling or staying asleep, or sleeping too much (Several days) (aPHQ03)	-2.313e+2
Poor appetite or overeating (Nearly every day) (aPHQ05)	1.742e+3
Trouble concentrating on things, such as reading the newspaper or watching television (Not at all) (aPHQ07)	-5.504e+2
Willing to carry a Smartphone delivered by treatment team (no) (apref4)	-1.444e+3
Usual activities (I have no problems doing my usual activities) (aEQ5D5L3)	-2.353e+1
Anxiety/Depression (I am moderately anxious or depressed) (aEQ5D5L5)	1.555e+2
How many times did you consult the industrial physician (aTicp1f)	5.155e+2
How many times did you consult other primary care 1 (aTicp1g2)	7.368e+2
How many times did you consult other mental care 3 (aTicp2j2)	1.621e+2
How many times did you consult the Acupuncturist (aTicp3a)	9.675e+2
Nights of regular hospital admissions (aTicp6a2)	4.013e+1
Times of other institution admissions (aTicp6e2)	-2.483e+2
Medication use (Citalopram (Cipramil)) (aTicp12a)	-7.973e+2
Nights of regular hospital admissions (aTicp15d2)	-3.801e+2
Medication use (dosage Venlafaxine (Efexor)) (aTicp19b)	1.879e+1
Medication use (period Venlafaxine (Efexor)) (aTicp19d1)	1.692e+3
Medication use (dosage other depressants 1) (aTicp20b)	1.490e+1
Medication use (other antidepressant 2) (yes) (aTicp21a)	1.850e+3

Medication use (dosage other depressants 2) (aTicp21b)	2.358e+2
Medication use (other period Oxazepam (Seresta)) (aTicp22d2)	4.460e+2
Medication use (dosage Other medication for mental health complaints) (aTicp30b)	1.348e+3
Do you have a paid job (yes) (aTicp39)	2.453e+3
How many hours does your contract specify (aTicp40)	5.939e+0
Job questions: over how many days are these hours distributed (aTicp41)	1.562e+2
Did health problems oblige you to call in sick from work at any time (Yes, I was off work during the full three months) (aTicp42)	1.008e+4
On which date did you call in sick from work first because of health problems (aTicp43)	1.120e-4
On how many working days did you call in sick from work because of health problems in the past three months (aTicp45)	1.614e+2
Number of hours you had to catch up on work unable to perform (aTicp49b)	5.345e+0
How long have you been in psychotherapy (6 months-1 year) (atreat14c)	1.191e+3
How long have you been in psychotherapy (Less than one month) (atreat14c)	-1.830e+10
What type of treatment did you receive (Psychotherapy) (atreat17)	2.619e+3
Falling asleep (I take at least 30 minutes to fall asleep, some nights) (aQIDS01)	9.567e+2
General interest (There is no change from usual in how interested I am in other people or activities) (aQIDS13)	-1.854e+3
Energy level (I really cannot carry out most of my usual daily activities because I just do not have the energy) (aQIDS14)	2.764e+1
Feeling Restless (I do not feel restless) (aQIDS16)	9.588e+2
Country code (Germany) (cc)	2.794e+2
Country code (UK) (cc)	-2.967e+2