Additional file 5: Table 4. Results from the causal probabilistic model

Table 4: Results from the causal probabilistic model			
<u>Queries (Q)</u>	<u>Target variables and outcome probabilities %</u>		
Q 1. Impact of cancer treatment resources on Cancer treatment	Outcome classes of the target variable Cancer treatment		
	Ongoing active treatment	***Treatment discontinued***	
Treatment resources available	0.640-0.800	0.200-0.360	
No treatment resources available	0.040-0.272	0.728-0.960	
Q 2. Impact of cancer treatment on Communication	Outcome classes of the target variable Communication of poor prognosis		
	Little information about the end of life given	***Partial information given***	***Full information given***
Cancer treatment resources available, ongoing active treatment	0.000-0.200	0.600-0.800	0.200-0.400
No treatment resources available, treatment discontinued	0.000-0.000	0.400-0.400	0.600-0.600
Q 3. Impact of palliative chemotherapy and communication on Family's awareness of dying	Outcome classes of the target variable Family's awareness of dying		
	Closed awareness	***Open awareness***	
Cancer treatment resources available, ongoing active treatment, little information given about poor prognosis	0.600-0.800	0.200-0.400	
No treatment resources available, treatment discontinued, full information about the end of life given	0.200-0.400	0.600-0.800	
Q 4. Impact of palliative chemotherapy and communication on Patient's awareness of dying	Outcome classes of the target variable Patient's awareness of dying		
	Closed awareness	***Open awareness***	
Cancer treatment resources available, ongoing active treatment, little information given about poor prognosis	0.800-0.800	0.200-0.200	
No treatment resources available, treatment discontinued, full information about the end of life given	0.200-0.400	0.600-0.800	
Q 5. Impact of chemotherapy on Hospital days	Outcome classes of the target variable Hospital days		
	0-20	***21-40***	***41-60***
Cancer treatment resources available, ongoing active treatment	0.640-0.794	0.206-0.360	0.000-0.092
No treatment resources available, treatment discontinued	0.800-0.924	0.076-0.200	0.000-0.124
Q 6. Impact of symptom burden on Hospital days	Outcome classes of the target variable Hospital days		
	0-20	***21-40***	***41-60***
No-low symptom burden	0.800-0.987	0.013-0.200	0.000-0.187
Medium-high symptom burden	0.660-0.791	0.209-0.340	0.000-0.060
Q 7. Impact of disease-related variables on POD	Outcome classes of the target variable POD		
	Home	***Nursing Home***	***Hospital***
Cancer treatment resources available, ongoing active treatment, medium-high symptom burden, 41-60 hospital days, little information given, closed awareness of dying among patient and family	0.087-0.351	0.025-0.278	0.569-0.888
No treatment resources available, treatment discontinued, no-low symptom burden, 0-20 hospital days, full information about the end of life given, open awareness among patient and family	0.213-0.575	0.025-0.282	0.336-0.664
Q 8. Patient's preference for place of care	Outcome classes of the target variable Patient's preference for place of care		
	Home	***Nursing home***	***Hospital***
Patient's residence at home	0.374-0.633	0.063-0.143	0.278-0.530
Patient's residence at nursing home	0.230-0.307	0.571-0.676	0.079-0.143
Q 9. Family's preference for place of care	Outcome classes of the target variable Family's preference for place of care		
	Home	***Nursing home***	***Hospital***
Urban environment	0.158-0.492	0.017-0.218	0.481-0.816
Rural environment	0.349-0.600	0.026-0.143	0.374-0.625

Table 4: Results from the causal probabilistic model (continued)	
<u>Queries (Q)</u>	<u>Target variables and outcome probabilities %</u>

Q 10. Impact of family's preference for place of care on POD

Outcome classes of the target variable POD

	Home	Nursing home	Hospital
Family's preference for home	0.538-0.698	0.013-0.119	0.282-0.437
Family's preference for hospital	0.057-0.283	0.014-0.203	0.587-0.873
Family's preference for nursing home	0.000-0.199	0.503-0.795	0.205-0.497

Q 11. Impact of patient's and family's preferences for place of care on POD

Outcome classes of the target variable POD

	Home	Nursing home	Hospital
Family's preference for home and patient's preference for home	0.636-0.759	0.000-0.050	0.241-0.364
Family's preference for hospital and patient's preference for home	0.156-0.360	0.000-0.180	0.497-0.753
Family's preference for nursing home and patient's preference for home	0.000-0.200	0.600-0.800	0.200-0.400
Family's preference for home and patient's preference for hospital	0.481-0.600	0.000-0.180	0.400-0.508

Q 12. Impact of correlations of family-related variables on Family system

Outcome classes of the target variable Family system

	Suitable conditions for home care	Unsuitable conditions for home care
At least one person available for home care, open awareness of dying among family, somewhat solid family emotional relationship, patient almost independent, full information about the end of life given	0.800-1.000	0.000-0.200
Nobody available for home care, closed awareness of dying, somewhat conflictual family emotional relationship, patient needs continuous help, partial information about end of life given	0.000-0.200	0.800-1.000
At least one person available for home care, somewhat solid family emotional relationship, patient almost independent, full information about the end of life given, closed awareness of dying	0.400-0.400	0.600-0.600
Nobody available for home care, somewhat solid family emotional relationship, patient almost independent, full information about the end of life given, open awareness of dying	0.200-0.400	0.600-0.800

Q13. Impact of dependence degree and symptom burden on Family's availability for home care

Outcome classes of the target variable Family's availability for home care

	At least one person available	Nobody available
Patient almost independent, low symptom burden, open awareness of dying among family, somewhat solid family emotional relationship, full information about the end of life given	0.800-1.00	0.000-0.200
Patient needs continuous help, medium-high symptom burden, open awareness of dying among family, somewhat solid emotional relationship, full information about the end of life given	0.400-0.400	0.600-0.600

Q 14. Impact of all family-related variables on POD

Outcome classes of the target variable POD

	Home	Nursing home	Hospital
Patient needs continuous help, high symptom burden, somewhat conflictual family emotional relationship, closed awareness of dying among family, unsuitable conditions for home care, poor time resources, nobody available, distance range >50 km,	0.105-0.433	0.026-0.297	0.461-0.807
Patient almost independent, low symptom burden, somewhat solid family emotional relationship, open awareness of dying among family, suitable conditions for home care, unlimited time resources, distance range 0-5 km	0.239-0.535	0.025-0.267	0.388-0.685

Table 4: Results from the causal probabilistic model (continued)		

Queries (Q)	Target variables and outcome probabilities %	
	Outcome classes of the target variable Family's preference for place of care	

Q 15. Impact of economic resources and family system's conditions on Family's preference

	Home	*Nursing home*	*Hospital*
Patient's residence at home, patient's preference for home, patient needs continuous help, family system's suitable conditions for home care, poor economic resources	0.433-0.600	0.000-0.167	0.400-0.567
Patient's residence at home, patient's preference for home, patient needs continuous help, family system's suitable conditions for home care, high economic resources	0.433-0.667	0.000-0.200	0.333-0.567
Patient's residence at home, patient's preference for home, patient needs continuous help, family system's unsuitable conditions for home care, poor economic resources	0.033-0.267	0.000-0.200	0.733-0.967
Patient's residence at home, patient's preference for home, patient needs continuous help, family system's unsuitable conditions for home care, high economic resources	0.233-0.400	0.000-0.167	0.600-0.767

	Outcome classes of the target variable POD	

Q 16. Interventional test of the impact of health care-related variables on POD

	Home	*Nursing home*	*Hospital*
Home care costs fully covered by insurance and health care policy, GP home visits, specialist palliative home care service, continuous professional home care, volunteer hospice service 24/7	0.176-0.543	0.026-0.294	0.359-0.704
Home care costs partially covered by insurance and health care policy, no GP home visits, no specialist palliative home care service, no professional home care, volunteer hospice service available a few hours	0.113-0.404	0.025-0.269	0.528-0.833
Patient's residence at home, patient's and family's preferences for home, home care costs fully covered by insurance, GP home visits, specialist palliative home care service, routine home care, volunteer hospice service 24/7	0.759-0.827	0.000-0.062	0.173-0.241

	Outcome classes of the target variable POD	

Q 17. Interventional test of the impact of health care-related variables and preferences on POD

	Home	*Nursing home*	*Hospital*
Patient's residence at home, patient's and family's preferences for home, home care costs fully covered by insurance and health care policy, GP home visits, routine home care, volunteer hospice service, no specialist palliative home care service	0.503-0.592	0.000-0.035	0.408-0.497
Patient's residence at home, patient's and family's preferences for home, home care costs fully covered by insurance and health care policy, GP home visits, continuous home care, volunteer hospice service, no specialist palliative home care service	0.503-0.592	0.000-0.035	0.408-0.497
Patient's residence at home, patient's preference for home, family's preference for hospital, home care costs covered by insurance and health care policy, GP home visits, specialist palliative home care service, continuous home care, volunteer hospice service 24/7	0.189-0.400	0.000-0.200	0.400-0.621

	Outcome classes of the target variable Family's preference for place of care	

Q 18. Interventional test of the impact of modifiable variables on Family's preference

	Home	*Nursing home*	*Hospital*
Patient's residence at home, GP home visits, specialist palliative home care service, continuous assistance by a home care service, home care costs fully covered by insurance and health care policy, availability of a volunteer hospice service 24/7	0.213-0.549	0.000-0.186	0.451-0.787
Patient's residence at home, little information given, no GP home visits, no specialist palliative home care service, no home care frequency, home care costs partially covered by insurance and health care policy, availability of a volunteer hospice service a few hours	0.197-0.540	0.000-0.185	0.460-0.803

Table 4: Results from the causal probabilistic model (continued)		
Queries (Q)	Target variables and outcome probabilities %	
	Outcome classes of the target variable Family system	
Q 19. Interventional test of the impact of communication, awareness of dying, symptom burden on the Family system	*Suitable conditions for home care*	*Unsuitable conditions for home care*
Patient's residence at home, little information given (action), closed awareness of dying among patient and family, high symptom burden	0.104-0.293	0.707-0.896
Patient's residence at home, full information about the end of life given (action), open awareness of dying among patient and family, low symptom burden	0.459-0.864	0.136-0.541

Table 5: Results from the classifier

Table 5: Results from the classifier			
States of variables	Prediction for Place of death (%)		
	Home	*Hospital*	*Nursing home*
a) Patient's residence at home, 0-20 hospital days, rural environment, low symptom burden, KPS 45-65, routine home care frequency, GP home visits, specialist palliative home care service provided, open awareness among patient and family, both family and patient preferences for home as place of care, family system's suitable conditions	0.9681	0.0318	0.0001
b) Same states as in test a) but in *urban environments*	0.824	0.1753	0.0007
c) Same states as in test b) but *palliative home care service not provided*	0.4594	0.539	0.0016
d) Patient's residence at home, urban environment, KPS 45-65, routine home care frequency, GP home visits, specialist palliative home care service provided, open awareness of dying among patient and family, both family and patient preferences for home as place of care, family system's suitable conditions, 0-20 hospital days, *medium-high symptom burden*	0.5874	0.4124	0.0002
e) Patient's residence at home, urban environment, KPS 45-60, routine home care frequency, GP home visits, specialist palliative home care service provided, open awareness of dying among patient and family, both family and patient preferences for home as place of care, family system's suitable conditions, *41-60 hospital days, medium-high symptom burden*	0.2336	0.7651	0.0014
f) Patient's residence at home, 0-20 hospital days, urban environment, low symptom burden, KPS 45-65, routine home care frequency, GP home visits, specialist palliative home care service provided, open awareness of dying among patient and family, both family and patient preferences for home as place of care, *family system's unsuitable conditions*	0.4655	0.5219	0.0126
g) Same states as in test f) but *closed awareness of dying among family*	0.1267	0.8449	0.0284
h) Patient's residence at home, 0-20 hospital days, urban environment, KPS 45-65, routine home care frequency, GP home visits, specialist palliative home care service provided, low symptom burden, patient's open awareness of dying, *unknown preferences of the patient and the family, unknown family system conditions, unknown state of awareness of the family*	0.359	0.5842	0.0568
i) Same states as in test h) but *medium-high symptom burden*	0.0915	0.9038	0.0047