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1 Model Inputs

1.1 Countries/Territories

We obtained a list of 235 countries/territories from the UN Population Projections 2019, grouped by geographic area and region. We excluded the following areas, mainly due to political affiliations with other countries. Our final dataset contained 200 countries/territories.

Excluded Area	Political Status
American Samoa	United States Territory
Anguilla	British Overseas Territory
Aruba	Kingdom of the Netherlands
Bonaire, Sint Eustatius and Saba	Caribbean Netherlands (special municipalities)
British Virgin Islands	British Overseas Territory
Channel Islands	British Crown dependency
Cook Islands	Free association with New Zealand
Curaçao	Kingdom of the Netherlands
Falkland Islands (Malvinas)	British Overseas Territory
French Guiana	French Overseas Department
French Polynesia	French Overseas Collectivity
Gibraltar	British Overseas Territory
Guadeloupe	French Overseas Department
Guam	United States Territory
Holy See	City-state
Hong Kong	Chinese special administrative region
Isle of Man	British Crown dependency
Macao	Chinese special administrative region
Martinique	French Overseas Department
Mayotte	French Overseas Department
Montserrat	British Overseas Territory
New Caledonia	French Overseas Collectivity
Niue	Free association with New Zealand
Northern Mariana Islands	United States Commonwealth
Réunion	French Overseas Department
Saint-Barthélemy	French Overseas Collectivity
Saint Helena	British Overseas Territory
Saint Martin	French Overseas Collectivity
Saint Pierre and Miquelon	French Overseas Collectivity
Sint Maarten	Kingdom of the Netherlands
Tokelau	Dependent territory of New Zealand
Turks and Caicos Islands	British Overseas Territory
United States Virgin Islands	United States Territory
Wallis and Futuna Islands	French Overseas Collectivity
Western Sahara	Disputed territory

1.2 Cancer Incidence

Cancer incidence (number of cases and incidence rates) were obtained from GLOBOCAN 2018. Estimates were obtained for both sexes and all ages combined, and were available for 166-178 countries.

According to GLOBOCAN, these 11 diagnosis groups comprise an estimated 10.8 million cases out of 18.1 million registered cases, accounting for 60% of the registered global burden.

Cancer	GLOBOCAN Codes	# Country Estimates	% of Diagnosed Global Cases
Oesophagus	C15	176	3.2%
Stomach	C16	177	5.7%
Colon	C18	178	6.1%
Rectum	C19-20	177	3.9%
Anus	C21	166	0.3%
Liver	C22	178	4.7%
Pancreas	C25	176	2.5%
Lung	C33-34	178	11.6%
Breast (females)	C50	178	11.6%
Cervix uteri (females)	C53	178	3.2%
Prostate (males)	C61	178	7.1%

Countries with missing data were matched to similar countries (i.e., similar region and income group) and estimated incidence rates imputed from the matched countries. Estimated number of cancers were then calculated based on the UN Medium Population estimates for 2018. Total population estimates were used for all cancers, except for breast and cervix where only females were used, and prostate where only males were used.

Missing	Match
Andorra	Spain
Antigua and Barbuda	Bahamas
Belize	Guatemala
Bermuda	Bahamas
Bhutan	Nepal
Brunei Darussalam	Malaysia
Cabo Verde	Senegal
Cayman Islands	Bahamas
Comoros	Madagascar
Djibouti	Eritrea
Dominica	Jamaica
Faroe Islands	Iceland
Gambia	Senegal
Greenland	Iceland
Grenada	Jamaica
Iceland	Norway
Kiribati	Fiji
Liechtenstein	Switzerland
Maldives	Sri Lanka
Marshall Islands	Fiji
Micronesia (Fed. States of)	Fiji
Monaco	France
Nauru	Fiji
Palau	Fiji
Saint Kitts and Nevis	Bahamas

Missing	Match
Saint Vincent and the Grenadines	Jamaica
Samoa	Fiji
San Marino	Italy
Sao Tome and Principe	Equatorial Guinea
Seychelles	Comoros
Taiwan	South Korea
Timor-Leste	Indonesia
Tonga	Samoa
Tuvalu	Samoa
Vanuatu	Papua New Guinea

The age distribution of incident cases was estimated based on GLOBOCAN data for the following age groups: 0-19, 20-39, 40-54, 55-69, 70+. For countries for which age group-specific estimates were not available we used the regional or area-level (as needed) average age distribution for each cancer. A specific age at diagnosis was assigned within the age group based on each country’s 2018 age structure as estimated by the UN Population projections. Note that this approach assumes a constant incidence rate within each age group, and so may result in underestimates of the age at diagnosis within the age group. We set uniform priors (i.e. Beta(1, 1)) and updated them based on the observed number of cases in each age group from GLOBOCAN. We sampled from these Beta distributions and re-normalized the age probabilities for each simulation.

References

Global Cancer Observatory. International Agency for Research on Cancer. <http://gco.iarc.fr/today/online-analysis-table>

United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. <https://population.un.org/wpp/Download/Standard/CSV/>

1.3 Hierarchical Models

We use Bayesian hierarchical models to synthesize data from multiple sources and estimate parameters for countries for which no data are available. In contrast to no pooling (i.e. every country is different), or complete pooling (i.e. every country is the same), hierarchical models allow for partial pooling of information (i.e. countries in similar income groups and geographic regions likely have similar parameters), which allows for ‘borrowing’ of information from multiple sources. This approach also helps to provide estimates that are more robust to outliers by smoothing, or ‘regularizing’ the country-specific parameters by virtue of the hierarchical structure. For more information on Bayesian data analysis, see Gelman et al. 2014.

We use vertical density plots to display the probability distributions of the model priors (remainder of Section 1), and the calibrated posteriors for each country (Section 4). In these plots, the value of interest (i.e. parameter value) is plotted on the y-axis, with the probability density plotted symmetrically around the origin for visual balance - wider curves correspond to higher probability density.

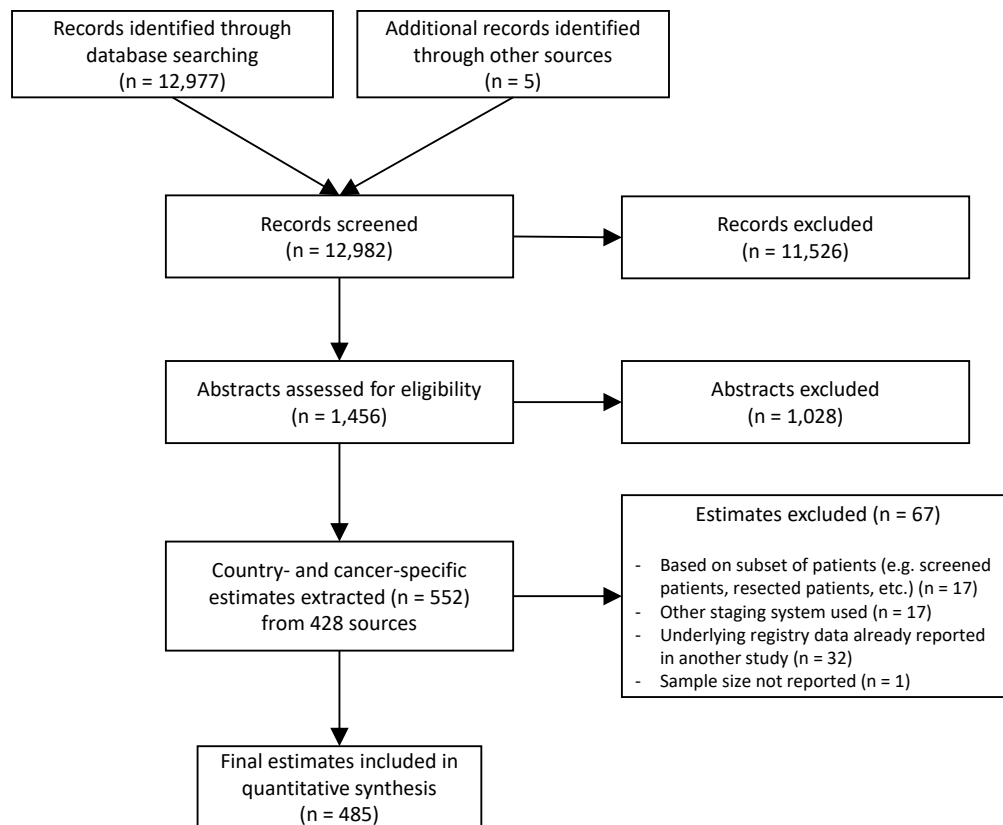
Reference:

Gelman A, Carlin JB, Stern HS, Rubin DB. Bayesian data analysis, 3rd edn. Boca Raton, Florida: CRC Press, 2014.

1.4 Stage Distribution

Due to the paucity of data available, we undertook a global literature review to gather data on stage at diagnosis. For each country, we performed a search in PubMed using the terms: “cancer” AND “stage” AND [country name]. For countries which returned more than 500 results, the searched was refined to: “cancer” AND “stage” AND “registry” AND [country name].

National estimates were available for the US, Canada, Czechia, and England, so a search was not performed for these countries. Data were also available for Australia from the Victoria cancer registry. Data were extracted if Roman numeral stage estimates (I-IV) were available. Other stage estimates (e.g. Local/Regional/Distant) were not extracted. If recent data from a nationally-representative registry were found for a cancer, then data from older studies from the same country/cancer were not extracted. For all estimates we excluded data where stage was not reported (e.g. Unknown). The search was performed in October 2019.



Note: Some sources contained estimates for multiple countries and/or cancers and so may appear multiple times in the following table counts.

Cancer	# sources	# countries
Oesophagus	15	15
Stomach	43	37
Colorectal	59	47
Colon	26	22
Rectum	30	22

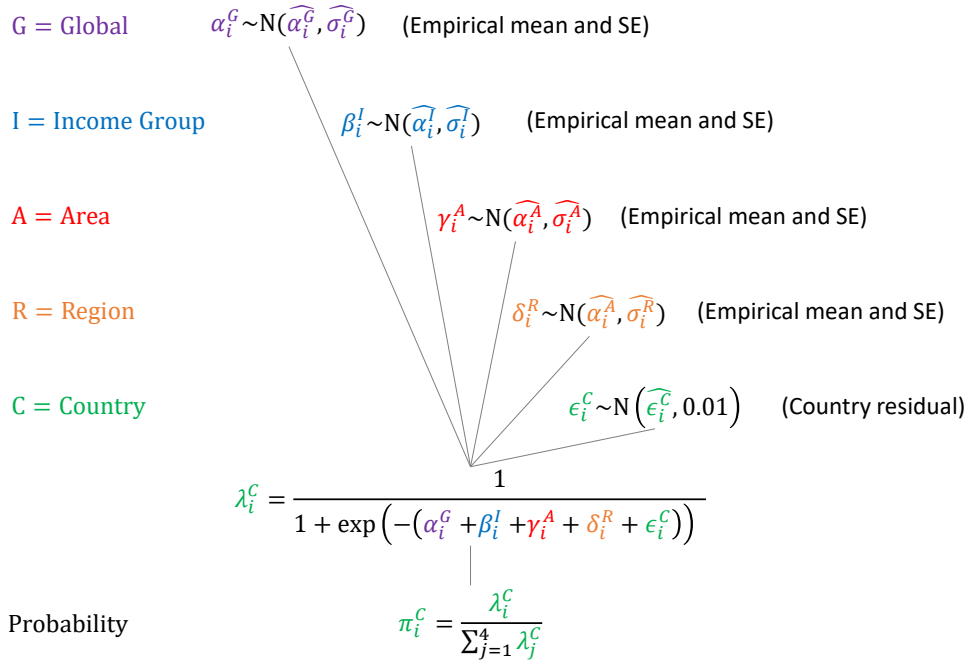
Cancer	# sources	# countries
Anus	4	4
Liver	6	6
Pancreas	18	17
Lung	52	37
Breast	179	84
Cervix	86	55
Prostate	17	16

We used ‘colorectal’ data for ‘colon’ and ‘rectum’ if data were not available for these specific cancers in the same country. After removing estimates that were likely duplicates (e.g. based on the same hospital registry data), or raised concerns of bias (e.g. stage distribution reported among surgically resected cases only, or among certain age groups, or only among screened patients, etc.), we had the following data:

Cancer	# sources	# countries
Oesophagus	11	11
Stomach	37	35
Colon	73	63
Rectum	74	61
Anus	3	3
Liver	6	6
Pancreas	18	17
Lung	45	37
Breast	162	84
Cervix	83	55
Prostate	17	16

We used a hierarchical modelling approach to regularize the stage distribution estimates, and to make estimates for countries with no data.

Stage at Diagnosis

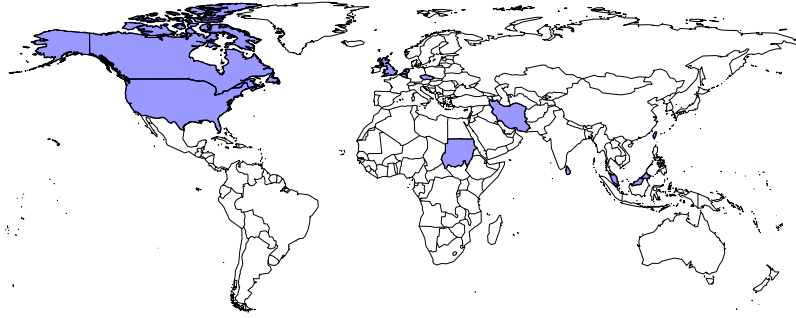


We weighted the estimates by the total number of cases for which stage was reported. To guard against over-fitting to individual country data we reduced the magnitude of the country-level residuals by 75%.

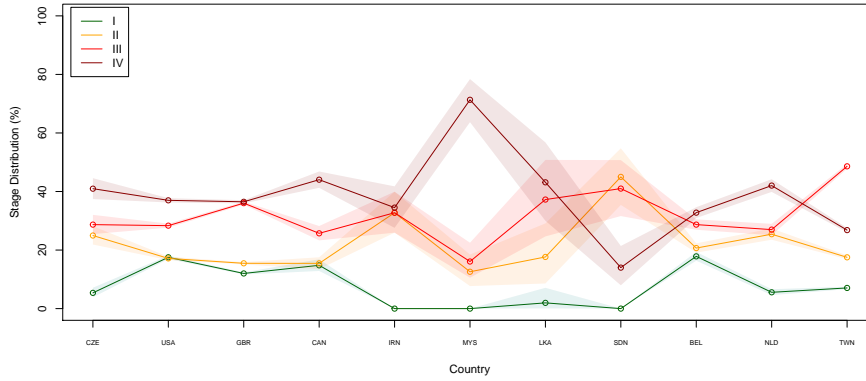
When drawing stage in the model, we used raking to estimate joint probabilities of stage and age. Initial joint probabilities of age and stage were estimated from SEER 2010-16 data using AJCC stage groups, 7 edition. Raking was then performed until convergence was achieved with the target marginal distributions: 1) estimated stage distribution and 2) age distribution from GLOBOCAN. Uniform priors were put on age distribution by stage (i.e. Beta(1, 1)) to avoid initial weights of 0 for raking.

1.4.1 Oesophagus

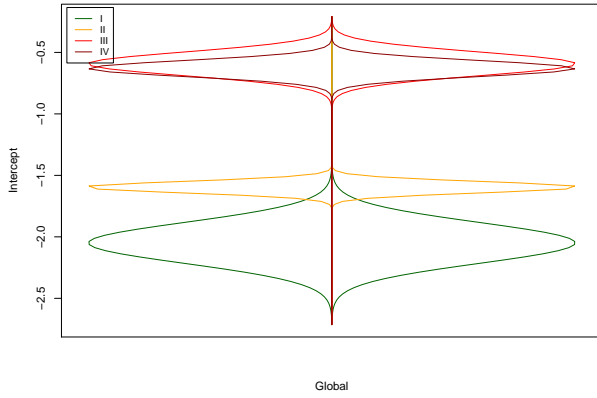
Stage Data Available – Oesophagus



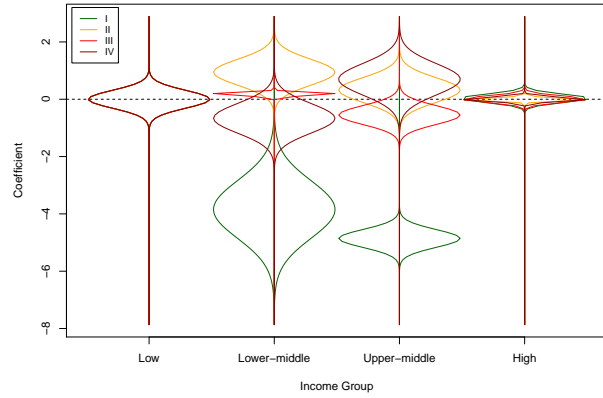
Stage at Diagnosis, Oesophagus

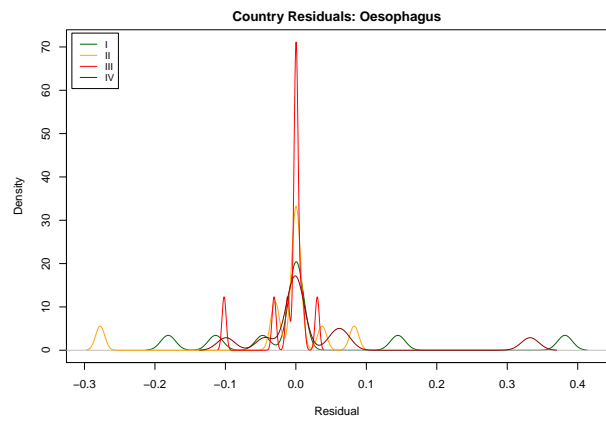
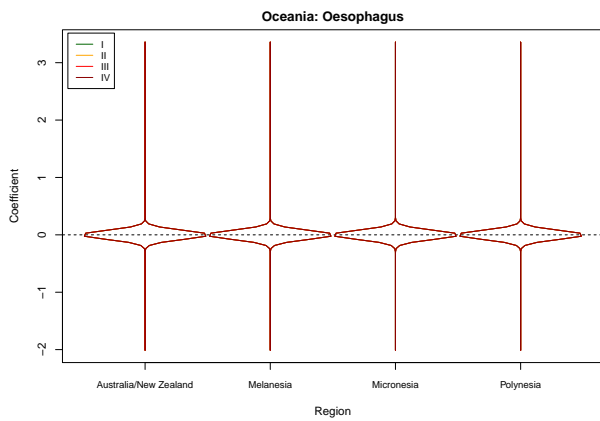
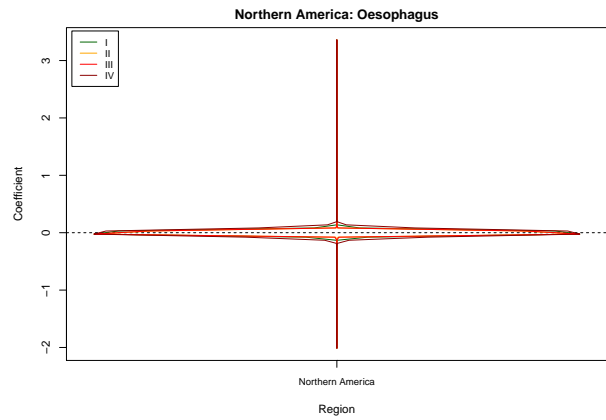
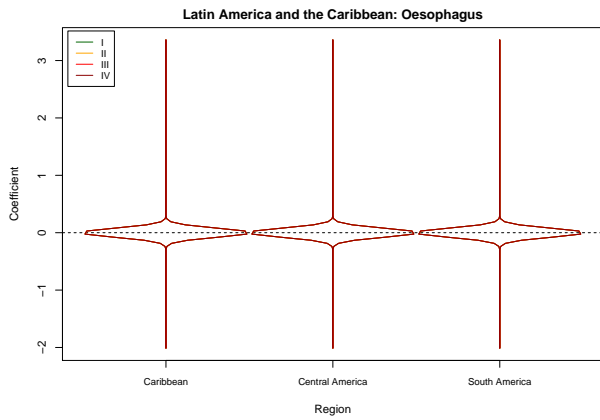
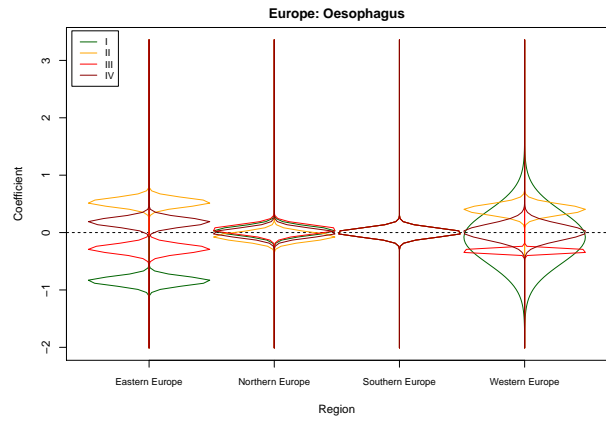
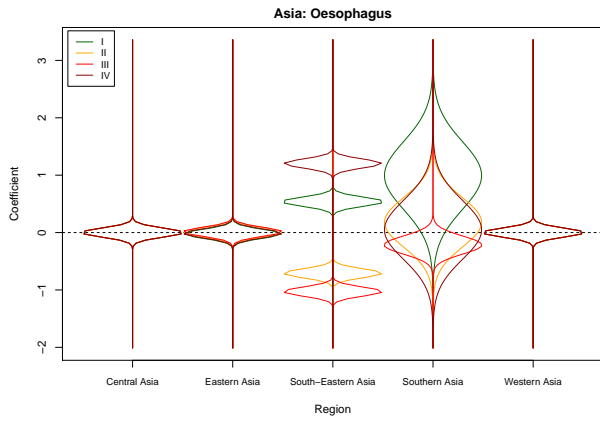
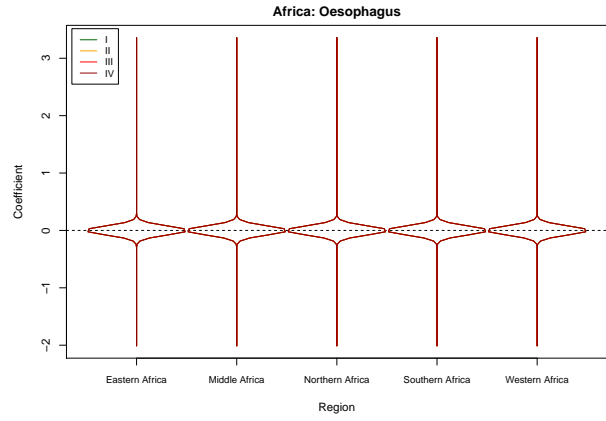
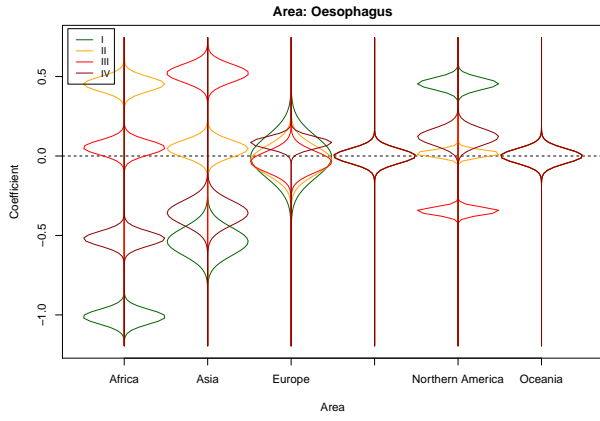


Global: Oesophagus



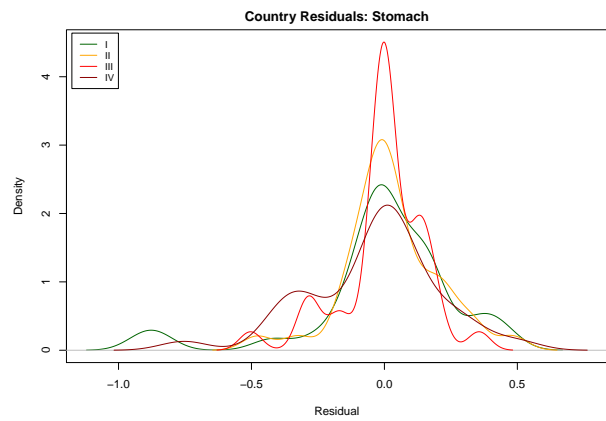
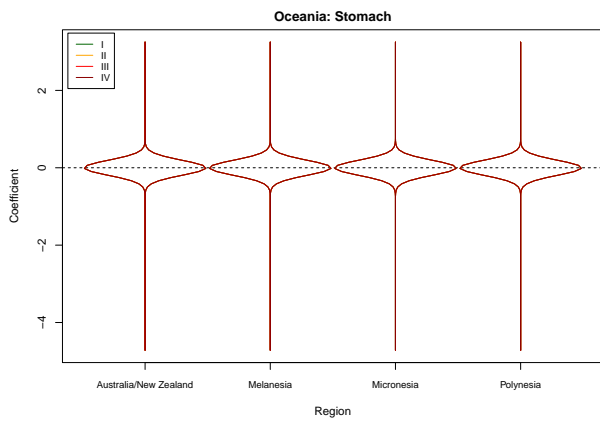
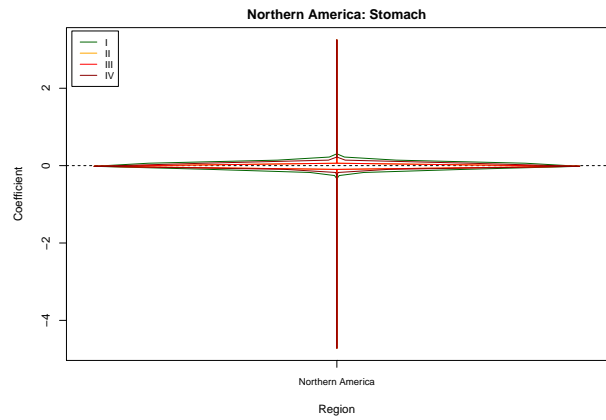
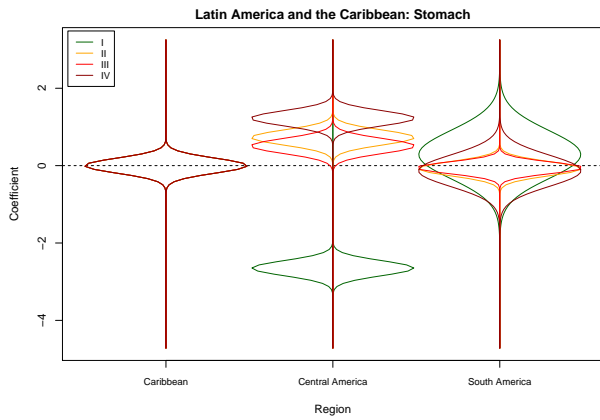
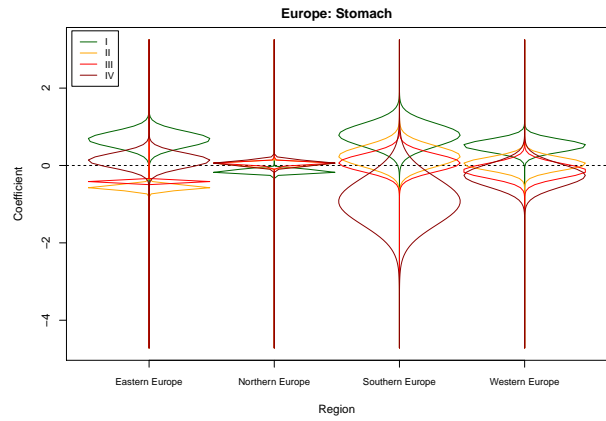
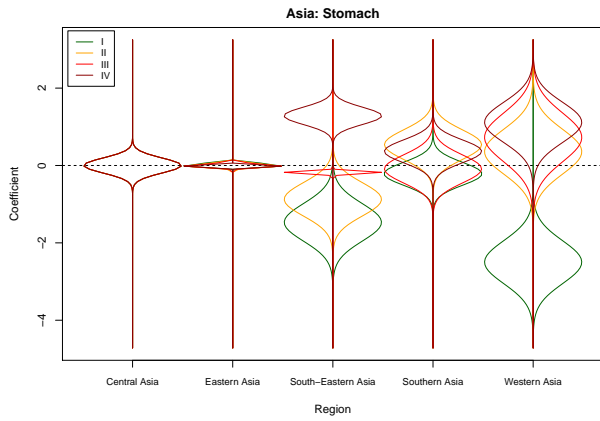
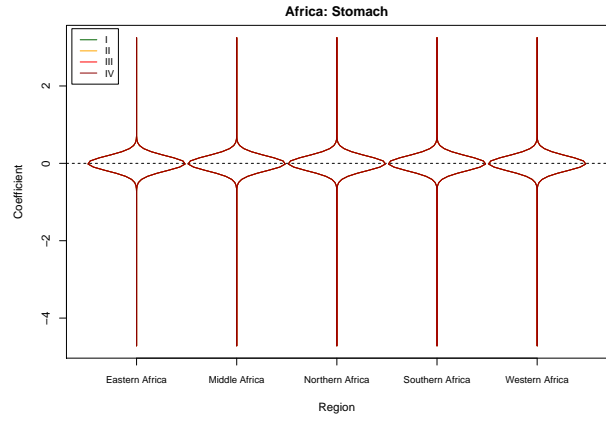
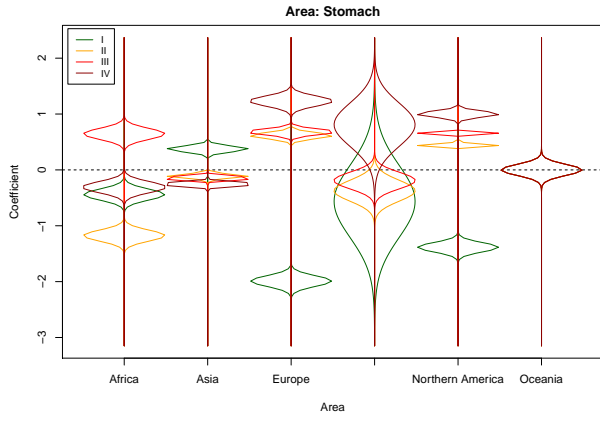
Income Group: Oesophagus





References

Country	Cases	Years	Source	Reference
BEL	2471	2008-2011	Belgian Cancer Registry	Silversmit 2017
CAN	1207	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CZE	725	2015	Modelled estimates based on data from Czech National Cancer Registry	Dusek 2015
GBR	30401	2013-2017	England ONS	ONS 2019
IRN	171	2006-2011	Imam Reza (AS) Radiation Therapy Center Hospital, Tabriz University, East Azerbaijan	Mirinezhad 2012
LKA	51	2015-2016	National Cancer Institute, Maharagama	Talagala 2018
MYS	143	1998-2003	University of Malaya Medical Centre, Kuala Lumpur	Abdullah 2010
NLD	1975	1999-2003	Netherlands Cancer Registry	Crane 2007
SDN	100	2003-2007	Shaab Hospital, Khartoum	Ahmed 2016
TWN	13653	2008-2014	Taiwan Society of Cancer Registry	Cheng 2018
USA	16076	2010-2016	SEER	SEER 2019

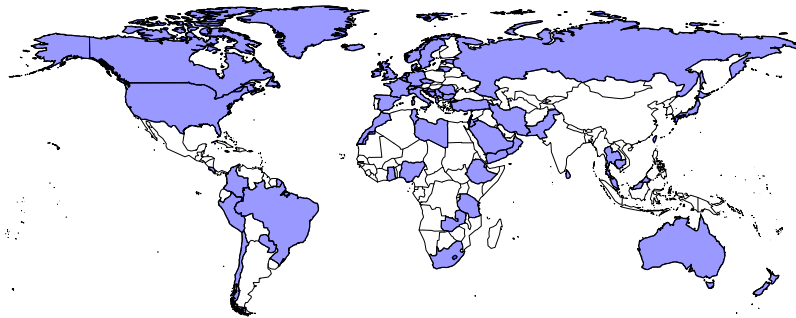


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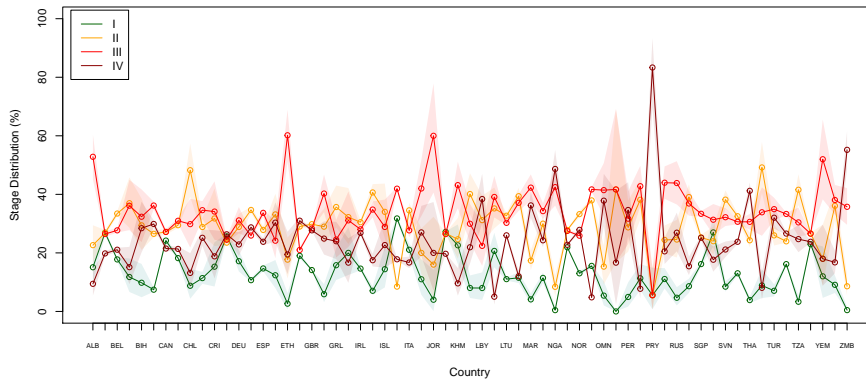
Country	Cases	Years	Source	Reference
ALB	62	2013-2014	Tirana	Malaj 2017
BEL	2510	2008-2011	Belgian Cancer Registry	Silversmit 2017
BRA	2140	2008-2014	Instituto do Câncer do Estado de São Paulo (ICESP)	Cormedi 2018
BRN	84	2008-2012	Four main hospitals in Brunei Darussalam	Yen 2014
BTN	354	2008-2013	National Referral Hospital, Thimphu	Dendup 2015
CAN	1849	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHL	379	1998-2002	Population-based cancer registry of Valdivia	Heise 2009
CHN	4543	2002-2003	Shanghai Cancer Registry	Zheng 2014
COL	172	2010-2011	Gastroenterology outpatient service of the National Oncology Institute of Bogota	Sanchez 2012
CZE	1531	2015	Modelled estimates based on data from Czech National Cancer Registry	Dusek 2015
DEU	255	Not reported	German Cancer Research Center	Meistere 2017
FRA	640	2004-2007	Population-based cancer registries: Cote-d'Or and Saone-et-Loire, Burgundy	Herbreteau 2015
GBR	20318	2013-2017	England ONS	ONS 2019
ISL	460	1990-2009	Iceland Cancer Registry	Olafsdottir 2016
ITA	527	2010-2015	Cremona, pathological and Hospital Discharge Records and patient clinical charts	Donida 2019
JOR	168	1991-2001	King Abdullah University Hospital, Irbid	Bani-Hani 2005
JPN	251888	2012-2015	Nationwide hospital-based cancer registries	Okuyama 2018
LKA	83	2000-2006	University Surgical Unit, Colombo South Teaching Hospital	Siriwardana 2007
LTU	178	Not reported	Lithuanian University of Health Sciences	Meistere 2017
LVA	178	Not reported	Oncology Centre of Latvia, Riga East University Hospital	Meistere 2017
MYS	250	1988-1998	Ipoh Hospital	Lim 2019
MYS	182	2004-2008	Penang Cancer Registry	Lim 2019
NOR	736	2001-2011	Cancer Registry of Norway and the Norwegian Patient Register	Bringeland 2017
NPL	152	2012-2014	Tertiary care general hospital	Kandel 2016
OMN	115	1995-2005	Sultan Qaboos University, Royal Hospital, and Armed Forces Hospital, Muscat	Al-Moundhri 2012
OMN	339	1993-2004	Sultan Qaboos University Hospital, Royal Hospital, and Sohar Hospital	Al-Moundhri 2006
PAK	15	2006-2010	Dow University of Health Sciences and Civil Hospital, Karachi	Afridi 2011
PAN	323	2012-2015	National Oncology Institute (NOI)	Castro 2017
PER	60	2005-2008	Santa Rosa Hospital	Pilco 2009
ROU	60	1998-2002	Emergency County Hospital in Timișoara	Lazar 2010
SRB	12	2002-2004	Institute for Digestive Diseases, Clinical Center of Serbia	Dragutinovic 2006
THA	329	2000-2012	Khon Kaen population-based cancer registry	Nanthanangkul 2016
TUR	166	2004-2008	Ten centers from Turkey took part in the REGATE registry	Yalcin 2014
TWN	268	Not reported	Taichung Veterans General Hospital	Meistere 2017
TZA	220	2007-2011	Bugando Medical Centre, Mwanza	Mabula 2012
USA	27428	2010-2016	SEER	SEER 2019
VEN	237	1991-1997	Two main hospitals in San Cristobal, Tachira	Plummer 2000

1.4.3 Colon

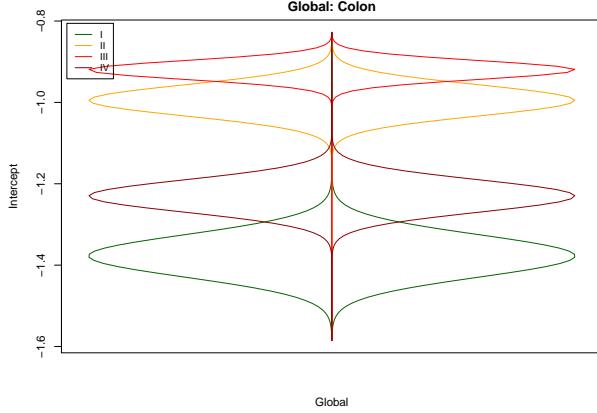
Stage Data Available – Colon



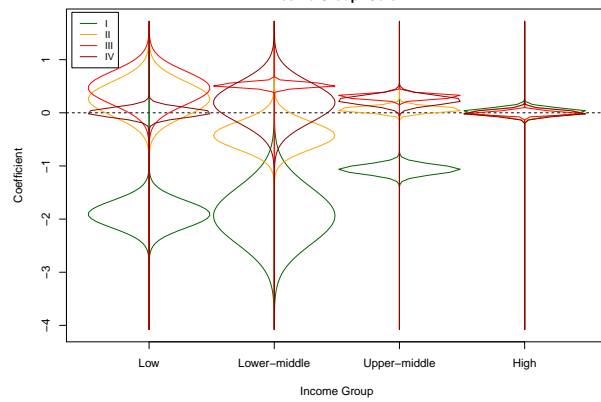
Stage at Diagnosis, Colon

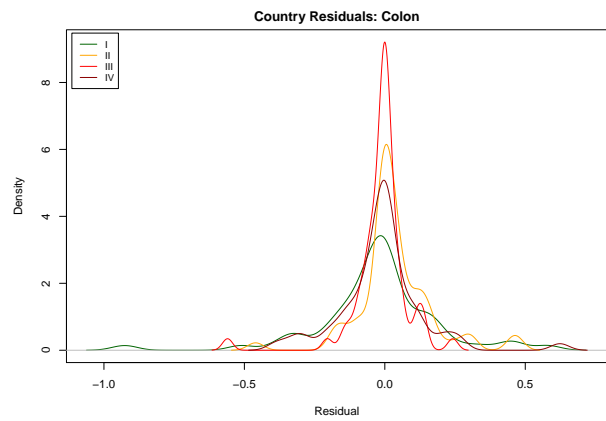
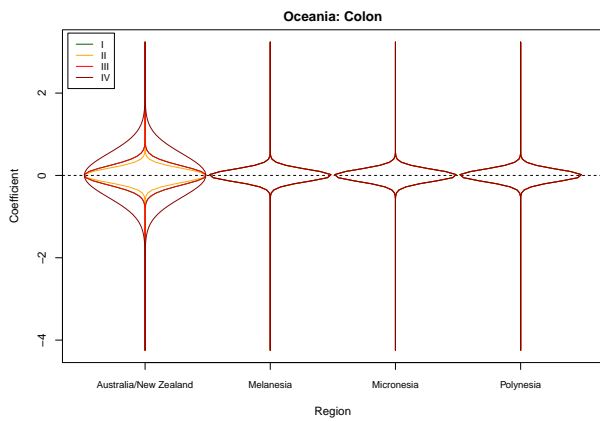
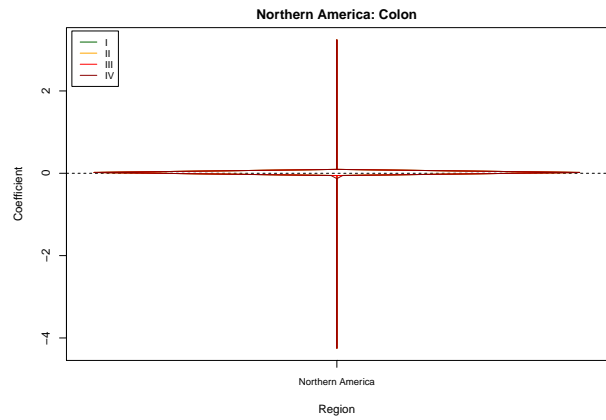
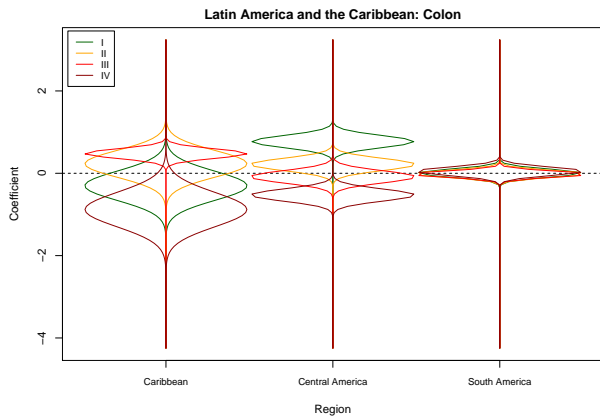
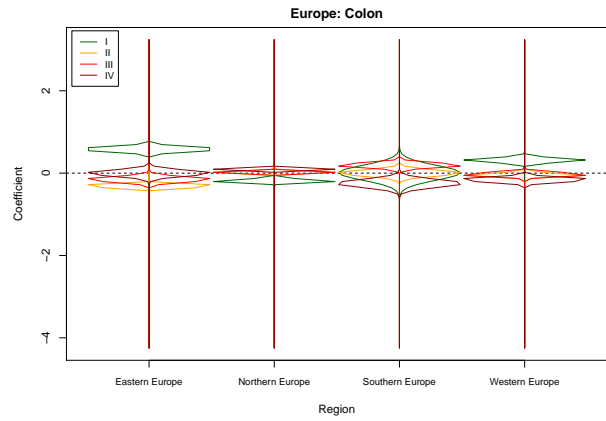
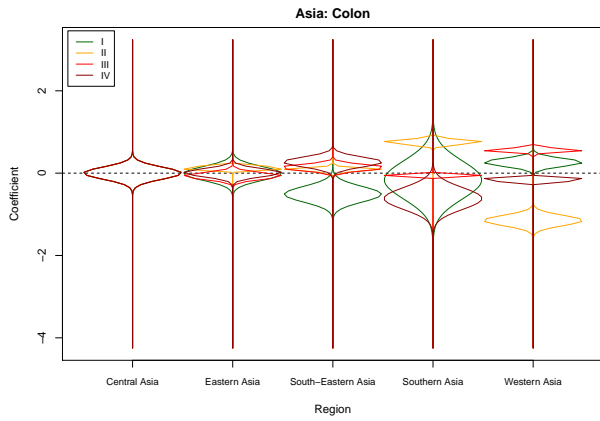
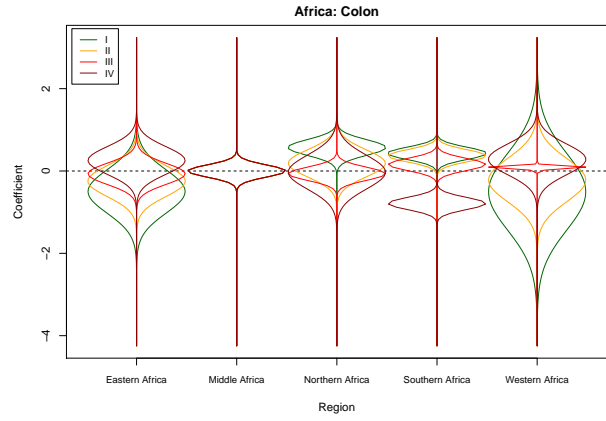
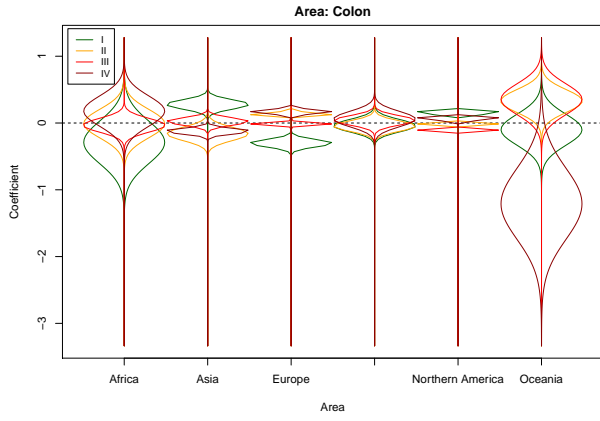


Global: Colon



Income Group: Colon





References

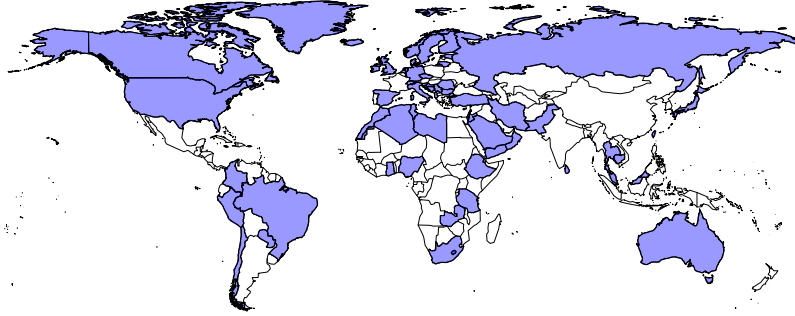
Country	Cases	Years	Source	Reference
ALB	159	2012-2013	Tirana University Hospital [Colorectal]	Martinetti 2014
AUS	3353	2017	Victoria Cancer Registry [Colorectal]	Victoria Cancer Registry 2019
AUS	4217	2011	New South Wales Cancer Registry [Colorectal]	Lawrance 2019
BEL	12893	2008-2011	Belgian Cancer Registry	Silversmit 2017
BGR	119	Not reported	University hospital in Stara Zagora and an Oncology centre in Pleven [Colorectal]	Stanilov 2014
BIH	102	2014-2015	Sarajevo Clinical Center, University of Sarajevo [Colorectal]	Raši? 2018
BRA	5100	2008-2014	Instituto do Câncer do Estado de São Paulo (ICESP) [Colorectal]	Cormedi 2018
CAN	7800	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHE	9147	2000-2008	SNC?NICER Cancer Epidemiology Study [Colorectal]	Feller 2018
CHL	53	2008-2013	Clinica Las Condes [Colorectal]	Alvarez 2017
CHL	61	2012-2014	Clinica Las Condes [Colorectal]	Gonzalez-Quiroz 2016
COL	777	2011-2015	Instituto de Cancerología (IDC) Las Américas, de Medellín	Campo-Sanchez 2019
COL	145	2010-2011	National Oncology Institute of Bogota [Colorectal]	Sanchez 2012
CRI	85	2010	Hospital San Juan de Dios, San Jose	Ramos-Esquivel 2014
CZE	8333	2015	Modelled estimates based on data from Czech National Cancer Registry [Colorectal]	Dusek 2015
DEU	402	1999-2000	Cancer Registry of Rostock	Fietkau 2004
DNK	7854	2010-2012	Population-based national cancer registry	Benitez Majano 2019
ESP	2462	2000-2014	Hospital del Mar Tumour Registry [Colorectal]	Parés-Badell 2017
ESP	2447	2006-2011	Mallorca Cancer Registry [Colorectal]	Ramos 2016
EST	178	2010-2014	Estonian Cancer Registry	Innos 2018
ETH	113	2016-2017	Tikur Anbessa Hospital [Colorectal]	Deressa 2019
FRA	6325	2000-2008	Population-based digestive cancer registry of Burgundy [Colorectal]	Drouillard 2015
GBR	98396	2013-2017	England ONS	ONS 2019
GBR	58144	2010-2012	Population-based national cancer registry	Benitez Majano 2019
GBR	1229	1999-2006	Hospitals in Scotland [Colorectal]	Theodoratou 2016
GHA	221	2009-2015	Komfo Anokye Teaching Hospital (KATH), Kumasi [Colorectal]	Agemang-Yeboah 2018
GRL	171	2004-2012	The Danish Pathology Data Bank [Colorectal]	Odgaard 2018
HRV	90	2009-2010	Not reported [Colorectal]	Kust 2017
IRL	12504	1994-2002	National Cancer Registry (Ireland) [Colorectal]	Carsin 2008
IRN	603	2002-2007	Cancer registry of the Research Center of Gastroenterology and Liver Disease (RCGLD), Shahid Beheshti Medical University, Tehran	Asghari-Jafarabadi 2009
IRN	546	2001-2008	Academic training and private hospitals of Urmia, West-Azerbaijan [Colorectal]	Mahmodlou 2012
ISL	97	1997-2004	Icelandic Cancer Registry	Snaebjornsson 2017
ISR	29271	1970-1996	Israel National Cancer Registry [Colorectal]	Barchana 2004
ITA	1358	2004-2009	Tumor Registry of Parma [Colorectal]	Negri 2019
JAM	100	2008-2012	University of the West Indies, Kingston [Colorectal]	Plummer 2016
JOR	25	2008-2015	King Abdullah University Hospital (KAUH) [Colorectal]	Al-Husein 2018
JPN	225172	2012-2015	Nationwide hospital-based cancer registries [Colorectal]	Okuyama 2018
KHM	146	2005-2010	Khmer-Soviet Friendship Hospital, Phnom Penh [Colorectal]	Hav 2011
LBN	187	2005-2012	Hotel-Dieu de France Hospital, Beirut [Colorectal]	Nehmeh 2018
LBY	125	2012	Benghazi Medical Center [Colorectal]	Bodalal 2014
LKA	179	2010-2014	University Surgical Unit at the North Colombo Teaching Hospital [Colorectal]	Chandrasinghe 2017
LTU	13689	2000-2012	Lithuanian Cancer Registry and the National Health Insurance Fund database [Colorectal]	Dulskas 2019
LUX	1148	1988-1998	National Morphologic Tumour Registry (MTR)	Scheiden 2005
MAR	461	2009-2011	10 cancer centers [Colorectal]	Mrabti 2016
MYS	1214	2008-2009	Malaysia National Cancer Patient Registry [Colorectal]	Hassan 2016
NGA	66	2014-2016	Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile-Ife, Osun State; University College Hospital (UCH), Ibadan, Oyo State; and University of Ilorin Teaching Hospital (UIH), Ilorin, Kwara State [Colorectal]	Alatise 2018
NGA	160	1990-2011	Obafemi Awolowo University Hospital [Colorectal]	Saluja 2014
NLD	45803	2010-2014	Netherlands Cancer Registry	Brouwer 2018
NLD	30091	2015-2016	Netherlands Cancer Registry [Colorectal]	Walraven 2019
NOR	7466	2010-2012	Population-based national cancer registry	Benitez Majano 2019
NZL	14646	2000-2012	New Zealand cancer registry	Ahmadi 2015
OMN	111	2000-2013	Sultan Qaboos University hospital	Kumar 2015
PAK	12	2012-2015	Jinnah Hospital and Services Hospital, Lahore [Colorectal]	Ghazanfar 2017
PER	101	2005-2010	Instituto Nacional de Enfermedades Neoplásicas, Lima	Ruiz 2016
PRI	194	2006-2011	Hospital del Maestro [Colorectal]	Cotto 2014
PRY	36	2017-2018	Hospital de Clinicas and Instituto Nacional del Cancer (INCAN) [Colorectal]	Fleitas-Kanonnikoff 2019

(continued)

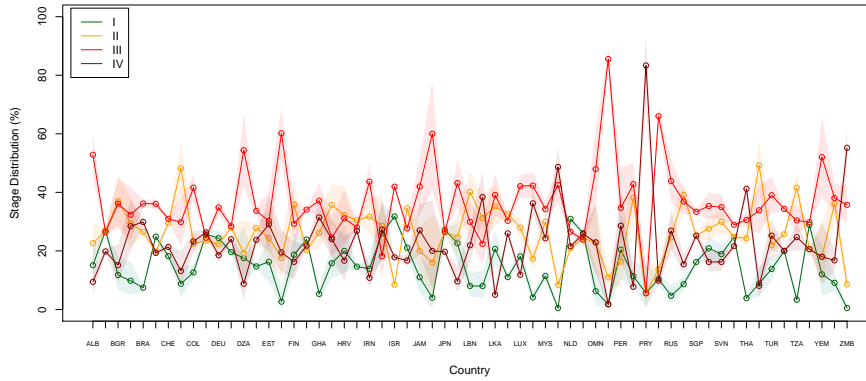
Country	Cases	Years	Source	Reference
ROU	307	2007-2011	“Colentina” Clinical Surgery	Mastalier 2012
RUS	171	2000, 2005-2008	N. N. Blokhin Cancer Research Center, Proctology Department of Oncological Center [Colorectal]	Kushlinskii 2013
SAU	324	2006-2017	Department of Pathology, King Fahad Hospital, Madinah [Colorectal]	Albasri 2019
SAU	175	2010-2015	King Saud University Hospital, Riyadh, King Khalid Hospital, Al Kharj, and Prince Sattam University Hospital, Al Kharj [Colorectal]	Aldiab 2017
SGP	8763	2011-2015	Singapore Cancer Registry [Colorectal]	Annual Report, 2017
SRB	300	2014-2015	Clinic of Digestive System Surgery, Clinical Center of Serbia [Colorectal]	Stojkovic Lalosevic 2017
SVN	898	1991-2000	Not reported	Stor 2019
SWE	11216	2010-2012	Swedish Colorectal Cancer Registry	Benitez Majano 2019
THA	1160	2003-2012	Khon Kaen cancer registry [Colorectal]	Phimha 2019
TUN	124	1995-2011	Pathology of Mongi Slim Hospital of Tunis [Colorectal]	Amara 2015
TUR	581	2008-2009	21 centers in 7 geographic regions	Aykan 2015
TWN	39900	2004-2010	Taiwan Cancer Registry [Colorectal]	Lee 2019
TZA	332	2006-2011	Bugando Medical Center, Mwanza [Colorectal]	Chalya 2013
USA	112746	2010-2016	SEER	SEER 2019
YEM	50	2008	Al-Gamhouria Teaching Hospital, Aden [Colorectal]	Hamid 2012
ZAF	352	2009	Durban Colorectal Unit, Inkosi Albert Luthuli Central Hospital (IALCH), Durban [Colorectal]	Ntombela 2017
ZMB	221	2007-2015	Cancer Disease Hospital (CDH) registry [Colorectal]	Asombang 2018

1.4.4 Rectum

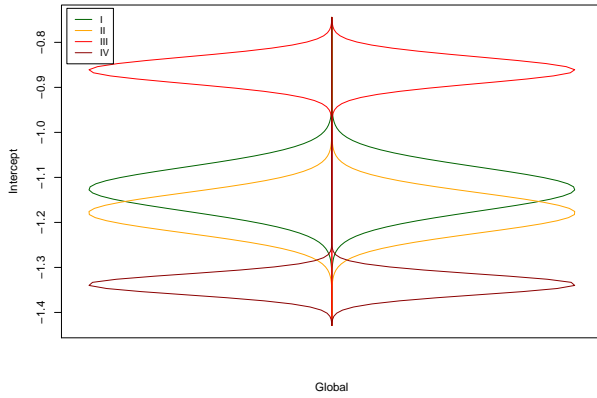
Stage Data Available – Rectum



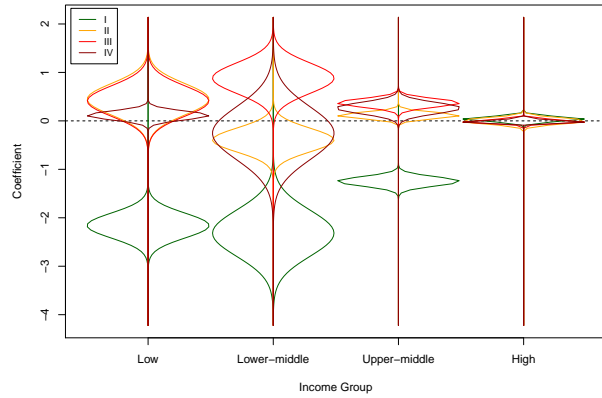
Stage at Diagnosis, Rectum

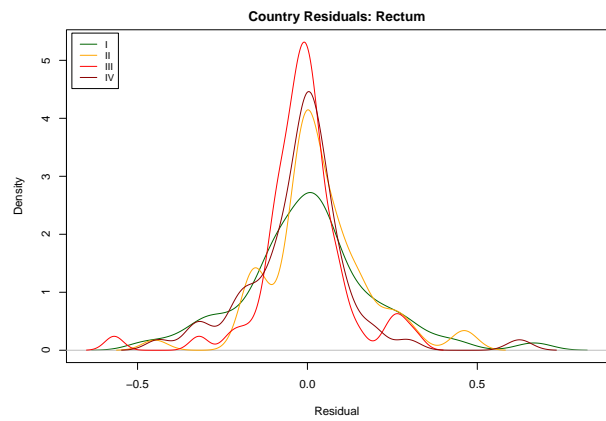
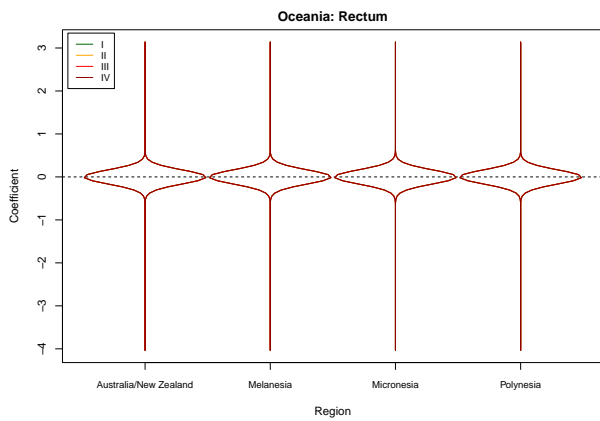
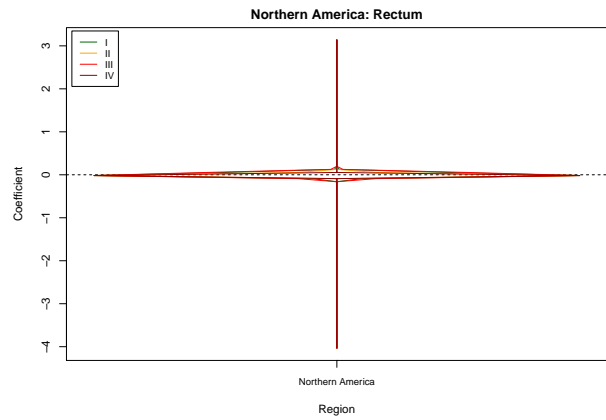
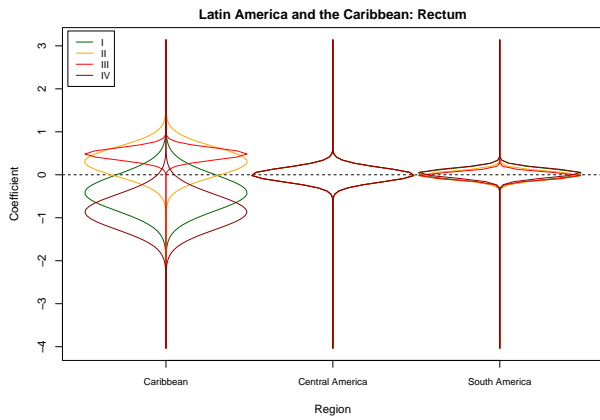
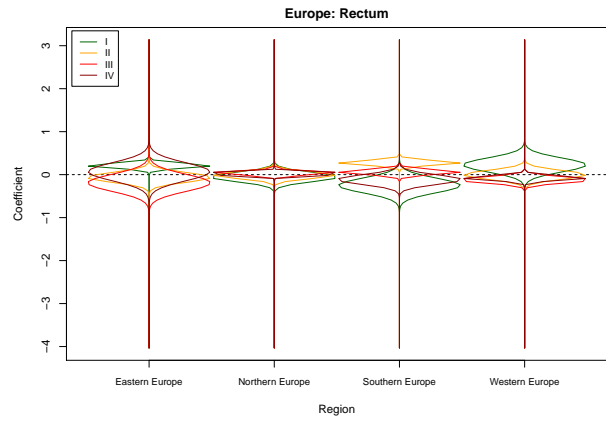
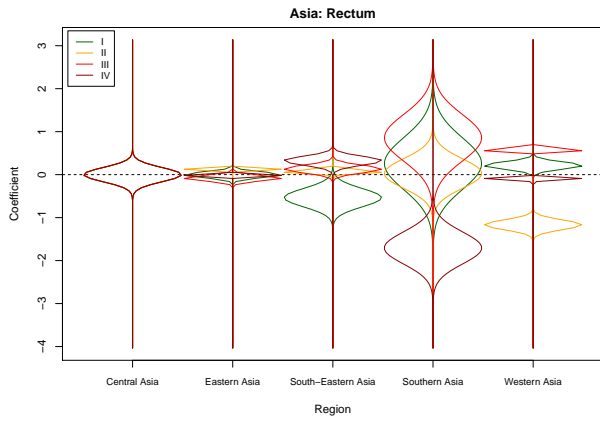
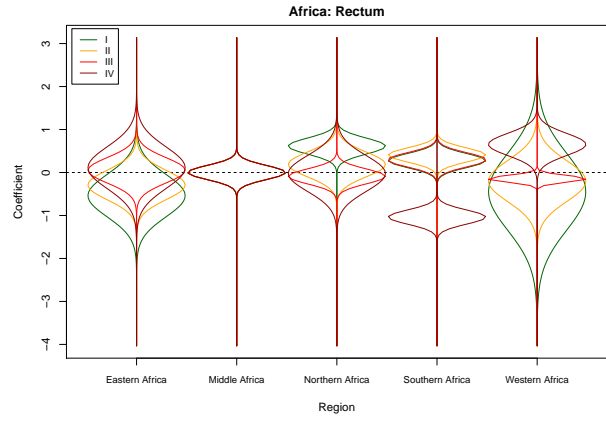
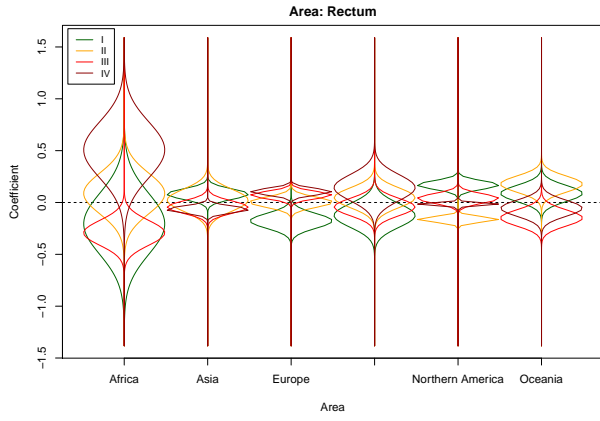


Global: Rectum



Income Group: Rectum





References

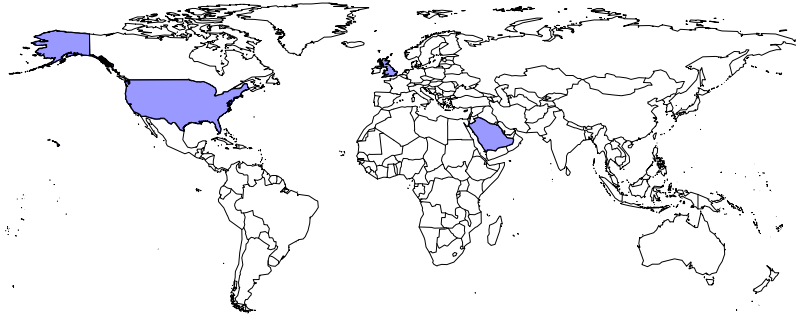
Country	Cases	Years	Source	Reference
ALB	159	2012-2013	Tirana University Hospital [Colorectal]	Martinetti 2014
AUS	3353	2017	Victoria Cancer Registry [Colorectal]	Victoria Cancer Registry 2019
AUS	4217	2011	New South Wales Cancer Registry [Colorectal]	Lawrance 2019
BGR	119	Not reported	University hospital in Stara Zagora and an Oncology centre in Pleven [Colorectal]	Stanilov 2014
BIH	102	2014-2015	Sarajevo Clinical Center, University of Sarajevo [Colorectal]	Raši? 2018
BRA	5100	2008-2014	Instituto do Câncer do Estado de São Paulo (ICESP) [Colorectal]	Cormedi 2018
CAN	4233	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHE	9147	2000-2008	SNC?NICER Cancer Epidemiology Study [Colorectal]	Feller 2018
CHL	53	2008-2013	Clínica Las Condes [Colorectal]	Alvarez 2017
CHL	61	2012-2014	Clínica Las Condes [Colorectal]	Gonzalez-Quiroz 2016
COL	577	2011-2015	Instituto de Cancerología (IDC) Las Américas, de Medellín	Campo-Sanchez 2019
CZE	8333	2015	Modelled estimates based on data from Czech National Cancer Registry [Colorectal]	Dusek 2015
DEU	860	1996-1998	Munich Cancer Registry	Engel 2005
DEU	203	1999-2000	Cancer Registry of Rostock	Fietkau 2004
DNK	801	1997	National cancer registry	Folkesson 2009
DNK	3822	2010-2012	Population-based national cancer registry	Benitez Majano 2019
DZA	57	2009-2015	Division of surgery "A" in Tlemcen	Mesli 2016
ESP	2462	2000-2014	Hospital del Mar Tumour Registry [Colorectal]	Parés-Badell 2017
ESP	2447	2006-2011	Mallorca Cancer Registry [Colorectal]	Ramos 2016
EST	86	2010-2014	Estonian Cancer Registry	Innos 2018
ETH	113	2016-2017	Tikur Anbessa Hospital [Colorectal]	Deressa 2019
FIN	123	1997	National cancer registry	Folkesson 2009
GBR	50792	2013-2017	England ONS	ONS 2019
GBR	654	1997	Scotland - National cancer registry	Folkesson 2009
GBR	23234	2010-2012	Population-based national cancer registry	Benitez Majano 2019
GHA	221	2009-2015	Komfo Anokye Teaching Hospital (KATH), Kumasi [Colorectal]	Agyemang-Yeboah 2018
GHA	24	2013-2016	Komfo Anokye Teaching Hospital (KATH), Kumasi [Colorectal]	Gyedu 2018
GRL	171	2004-2012	The Danish Pathology Data Bank [Colorectal]	Odgaard 2018
HRV	90	2009-2010	Not reported [Colorectal]	Kust 2017
IRL	12504	1994-2002	National Cancer Registry (Ireland) [Colorectal]	Carsin 2008
IRN	259	2002-2007	Cancer registry of the Research Center of Gastroenterology and Liver Disease (RCGLD), Shahid Beheshti Medical University, Tehran	Asghari-Jafarabadi 2009
ISL	77	1997	National cancer registry	Folkesson 2009
ISR	29271	1970-1996	Israel National Cancer Registry [Colorectal]	Barchana 2004
ITA	1358	2004-2009	Tumor Registry of Parma [Colorectal]	Negri 2019
JAM	100	2008-2012	University of the West Indies, Kingston [Colorectal]	Plummer 2016
JOR	25	2008-2015	King Abdullah University Hospital (KAUH) [Colorectal]	Al-Husein 2018
JPN	225172	2012-2015	Nationwide hospital-based cancer registries [Colorectal]	Okuyama 2018
KHM	146	2005-2010	Khmer-Soviet Friendship Hospital, Phnom Penh [Colorectal]	Hav 2011
LBN	187	2005-2012	Hotel-Dieu de France Hospital, Beirut [Colorectal]	Nehmeh 2018
LBY	125	2012	Benghazi Medical Center [Colorectal]	Bodalal 2014
LKA	179	2010-2014	University Surgical Unit at the North Colombo Teaching Hospital [Colorectal]	Chandrasinghe 2017
LTU	13689	2000-2012	Lithuanian Cancer Registry and the National Health Insurance Fund database [Colorectal]	Dulskas 2019
LUX	641	1988-1998	Morphologic Tumour Registry (MTR)	Scheiden 2003
MAR	461	2009-2011	10 cancer centers [Colorectal]	Mrabti 2016
MYS	1214	2008-2009	Malaysia National Cancer Patient Registry [Colorectal]	Hassan 2016
NGA	66	2014-2016	Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile-Ife, Osun State; University College Hospital (UCH), Ibadan, Oyo State; and University of Ilorin Teaching Hospital (UIITH), Ilorin, Kwara State [Colorectal]	Alatise 2018
NGA	160	1990-2011	Obafemi Awolowo University Hospital [Colorectal]	Saluja 2014
NLD	19632	2010-2014	Netherlands Cancer Registry	Brouwer 2018
NOR	2708	2010-2012	Population-based national cancer registry	Benitez Majano 2019
OMN	48	2000-2013	Sultan Qaboos University hospital	Kumar 2015
PAK	401	1996-2015	Shaikat Khanum Memorial Cancer Hospital (SKMC), Lahore	Khan 2019
PER	49	2005-2010	Instituto Nacional de Enfermedades Neoplásicas, Lima	Ruiz 2016
PRI	194	2006-2011	Hospital del Maestro [Colorectal]	Cotto 2014
PRY	36	2017-2018	Hospital de Clinicas and Instituto Nacional del Cancer (INCAN) [Colorectal]	Fleitas-Kanonnikoff 2019
ROU	498	2012-2017	Clinic of Oncological Surgery in Iasi	Scripcariu 2018
ROU	317	2000-2008	Ion Chiricuta Institute of Oncology	Vlad 2015

(continued)

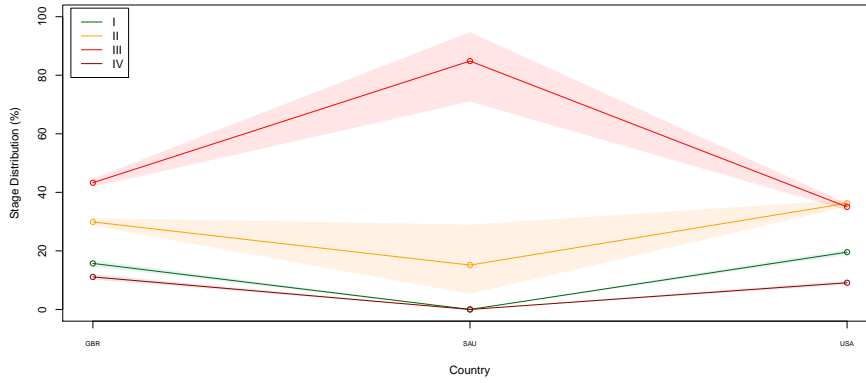
Country	Cases	Years	Source	Reference
RUS	171	2000, 2005-2008	N. N. Blokhin Cancer Research Center, Proctology Department of Oncological Center [Colorectal]	Kushlinskii 2013
SAU	324	2006-2017	Department of Pathology, King Fahad Hospital, Madinah [Colorectal]	Albasri 2019
SAU	175	2010-2015	King Saud University Hospital, Riyadh, King Khalid Hospital, Al Kharj, and Prince Sattam University Hospital, Al Kharj [Colorectal]	Aldiab 2017
SGP	8763	2011-2015	Singapore Cancer Registry [Colorectal]	Annual Report, 2017
SRB	300	2014-2015	Clinic for Digestive Surgery, Clinical Centre of Serbia, Belgrade [Colorectal]	Stojkovic Lalosevic 2017
SRB	150	2007-2010	Clinic for Digestive Surgery, Clinical Centre of Serbia, Belgrade [Colorectal]	Krivokapic 2012
SVN	518	1991-2000	Not reported	Stor 2019
SWE	5356	2010-2012	Swedish Colorectal Cancer Registry	Benitez Majano 2019
SWE	13571	2002-2012	Several linked nationwide registers	Riihimaki 2016
THA	1160	2003-2012	Khon Kaen cancer registry [Colorectal]	Phimha 2019
TUN	124	1995-2011	Pathology of Mongi Slim Hospital of Tunis [Colorectal]	Amara 2015
TUR	246	2008-2009	21 centers in 7 geographic regions	Aykan 2015
TWN	14272	2004-2008	Taiwan Cancer Registry	Chiang 2016
TZA	332	2006-2011	Bugando Medical Center, Mwanza [Colorectal]	Chalya 2013
USA	48035	2010-2016	SEER	SEER 2019
YEM	50	2008	Al-Gamhouria Teaching Hospital in Aden [Colorectal]	Hamid 2012
ZAF	352	2009	Durban Colorectal Unit, Inkosi Albert Luthuli Central Hospital (IALCH), Durban [Colorectal]	Ntombela 2017
ZMB	221	2007-2015	Cancer Disease Hospital (CDH) registry [Colorectal]	Asombang 2018

1.4.5 Anus

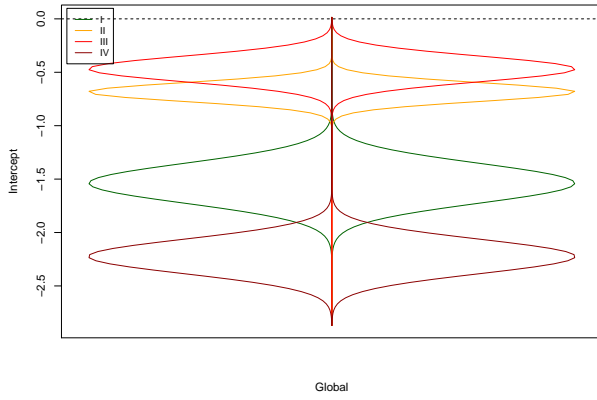
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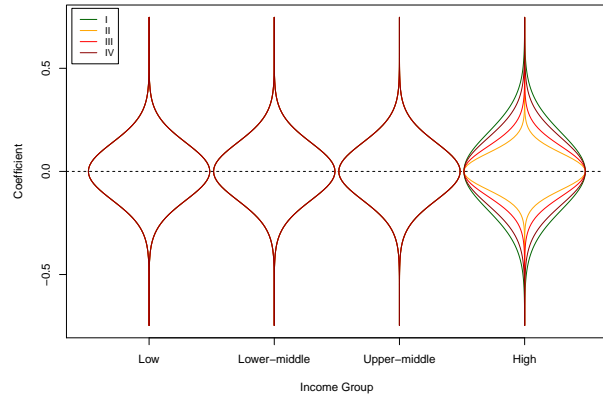
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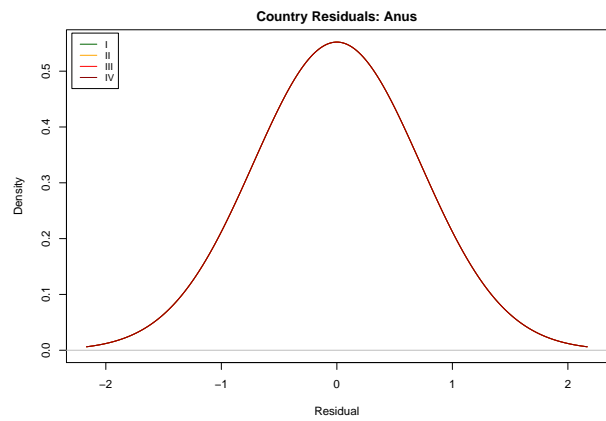
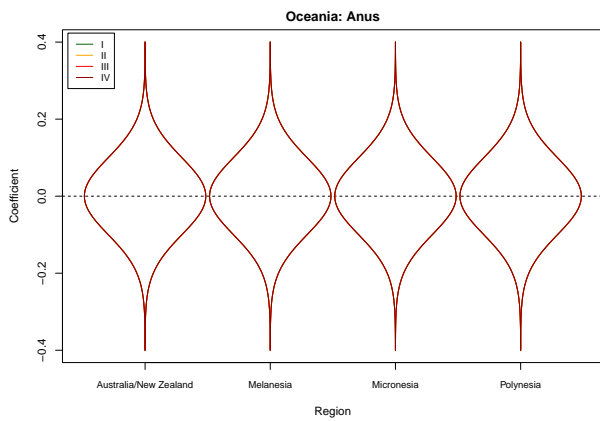
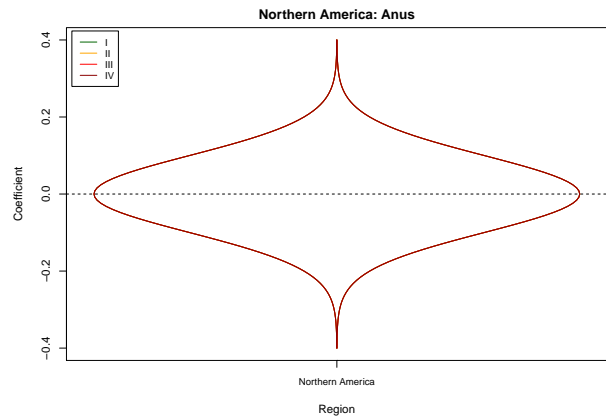
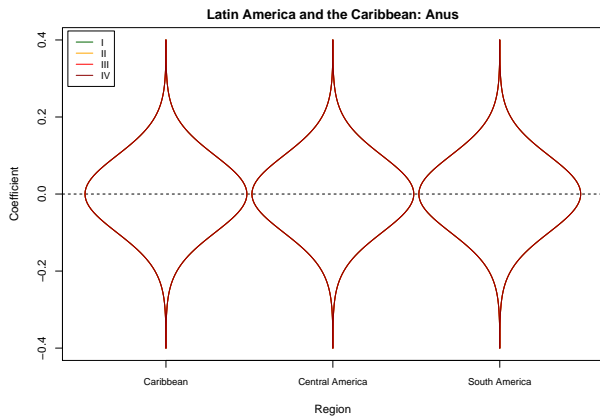
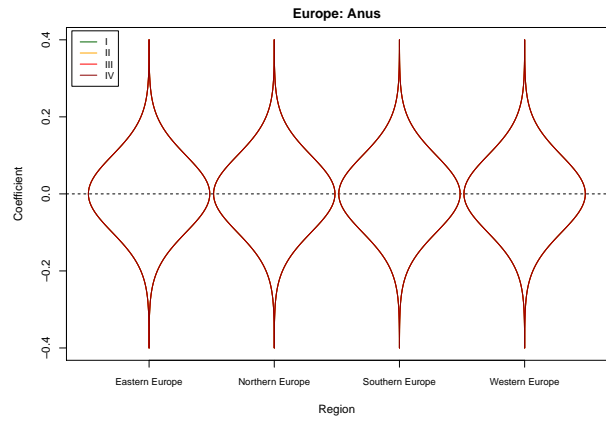
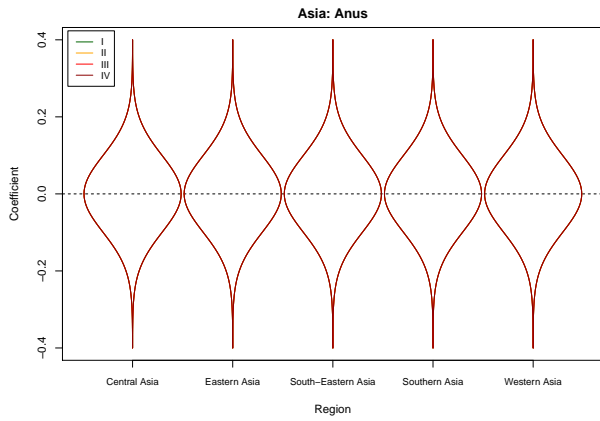
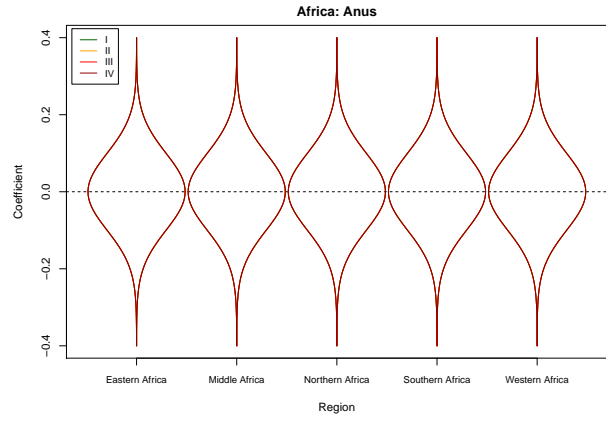
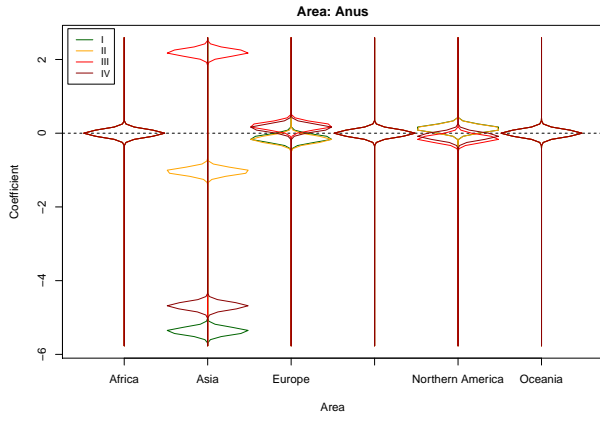


Global: Anus



Income Group: Anus



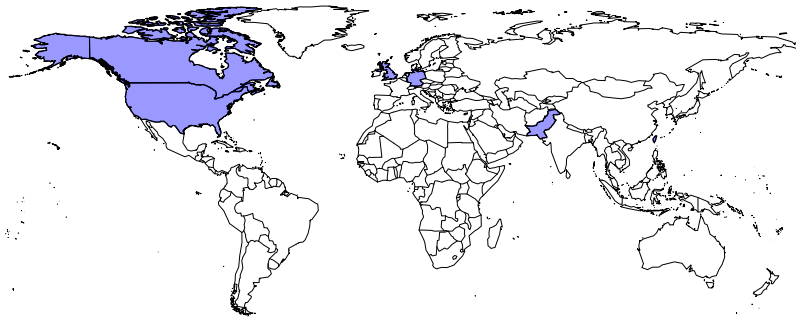


References

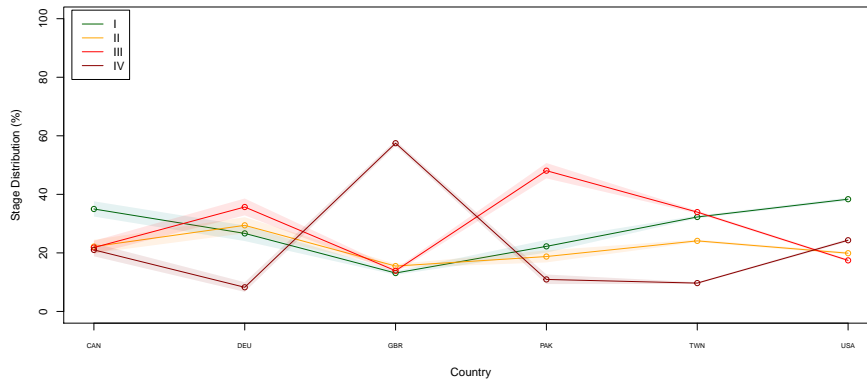
Country	Cases	Years	Source	Reference
GBR	4447	2013-2017	England ONS	ONS 2019
SAU	33	1993-2005	King Faisal Specialist Hospital and Research Centre	El-Haddad 2011
USA	6408	2010-2016	SEER	SEER 2019

1.4.6 Liver

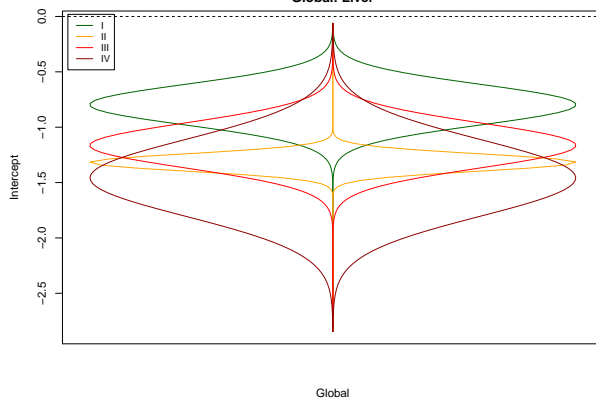
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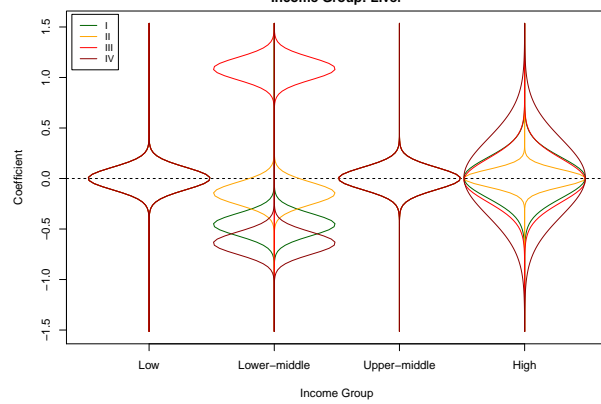
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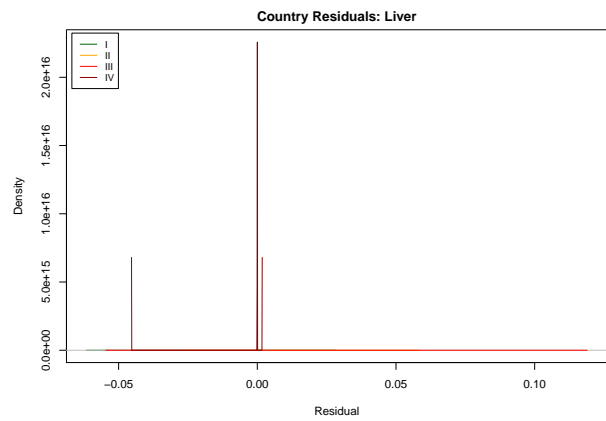
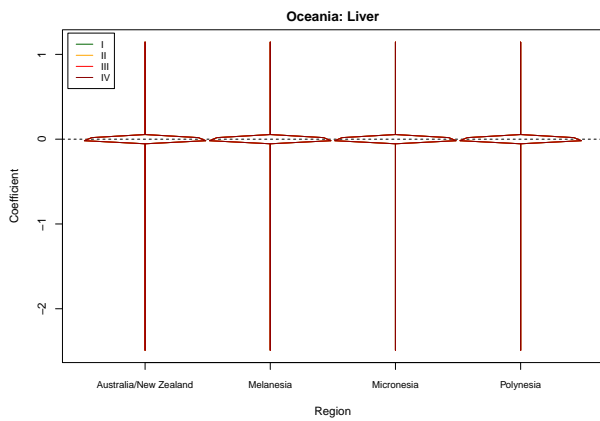
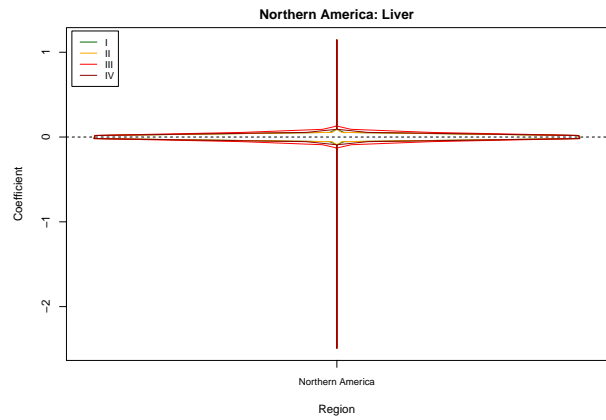
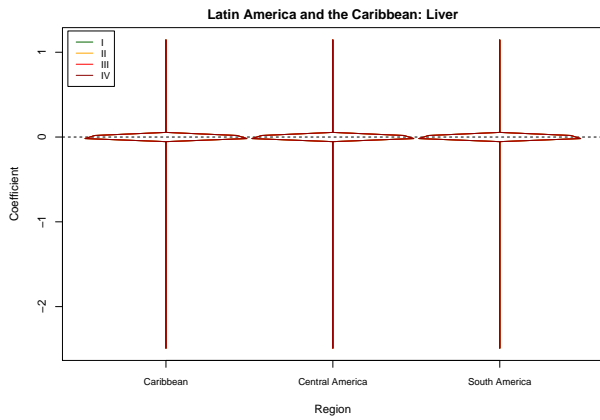
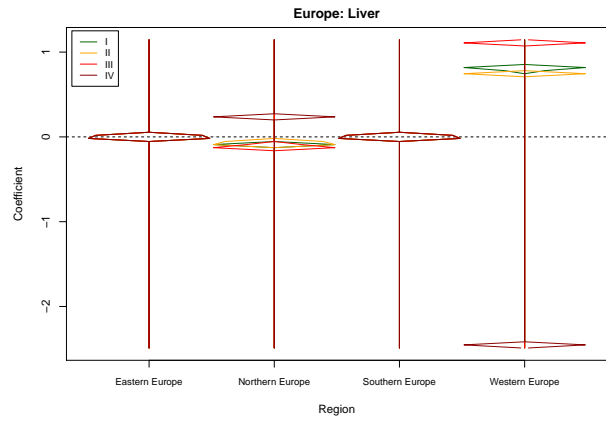
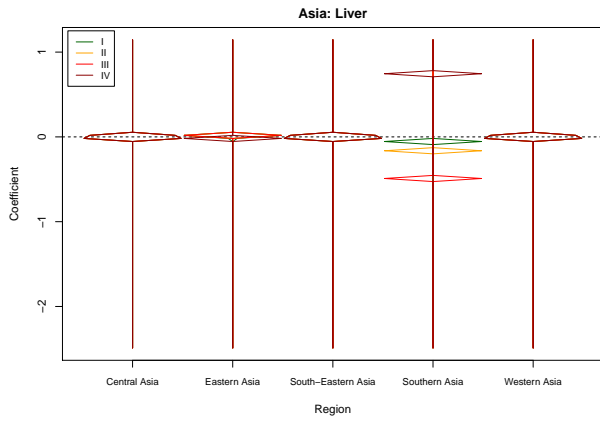
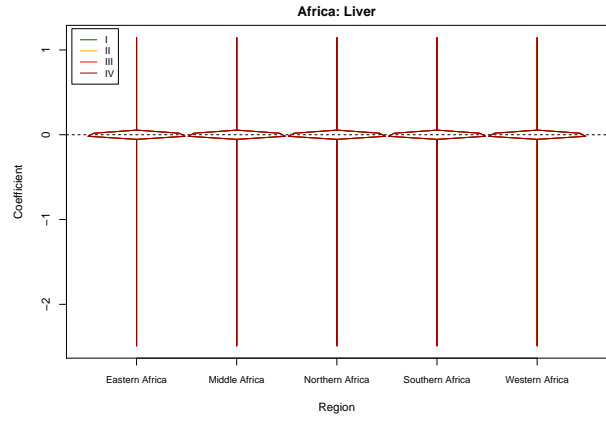
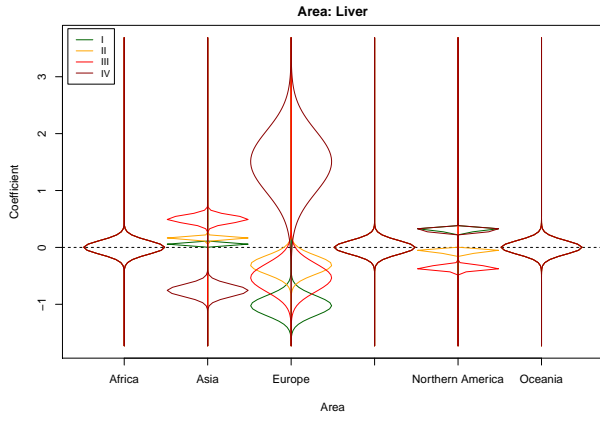


Global: Liver



Income Group: Liver



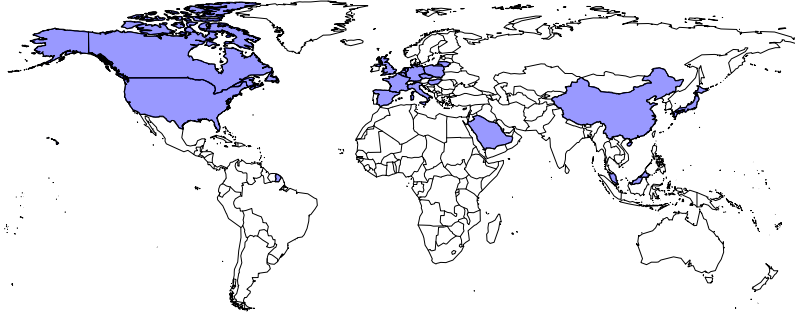


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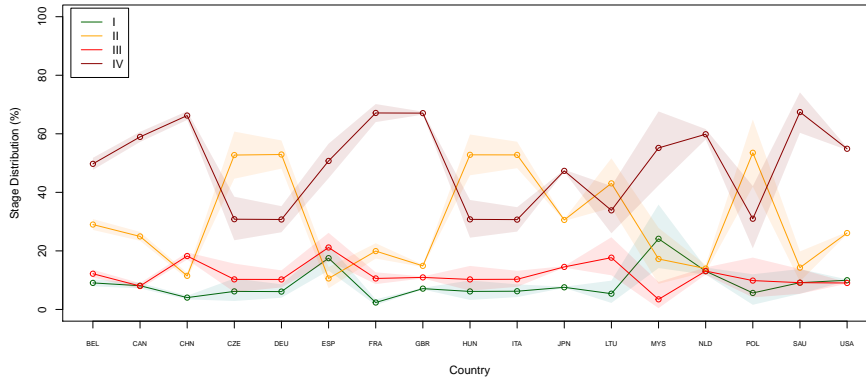
Country	Cases	Years	Source	Reference
CAN	1274	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
DEU	1054	1998-2009	University Medical Center of the Johannes Gutenberg-University	Weinmann 2014
GBR	10829	2013-2017	England ONS	ONS 2019
PAK	1381	2004-2012	Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore	Badar 2015
TWN	35952	2004-2008	Taiwan Cancer Registry	Chiang 2016
USA	32694	2010-2016	SEER	SEER 2019

1.4.7 Pancreas

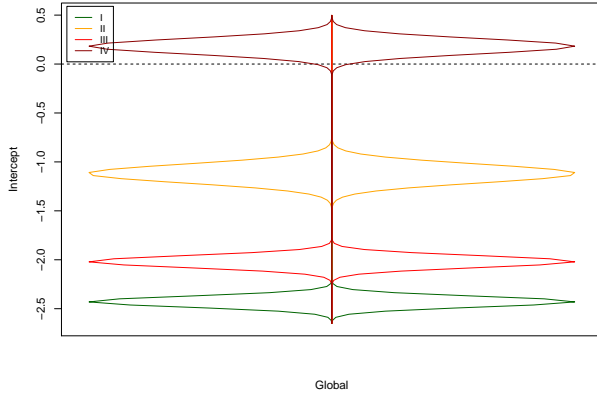
Stage Data Available – Pancreas



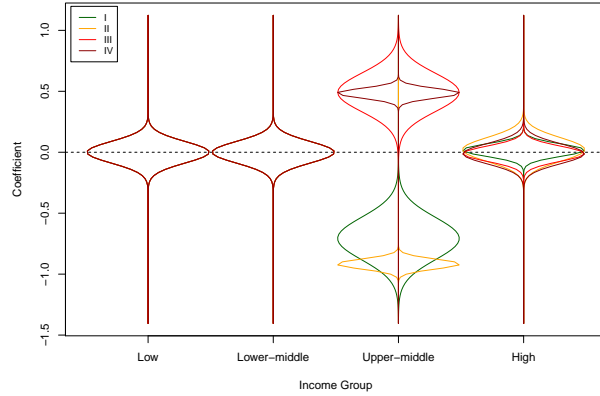
Stage at Diagnosis, Pancreas

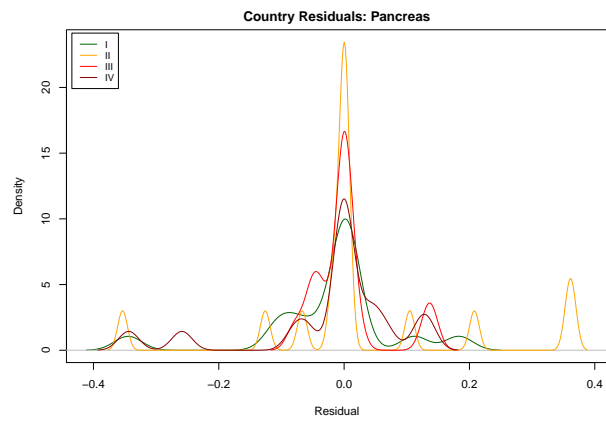
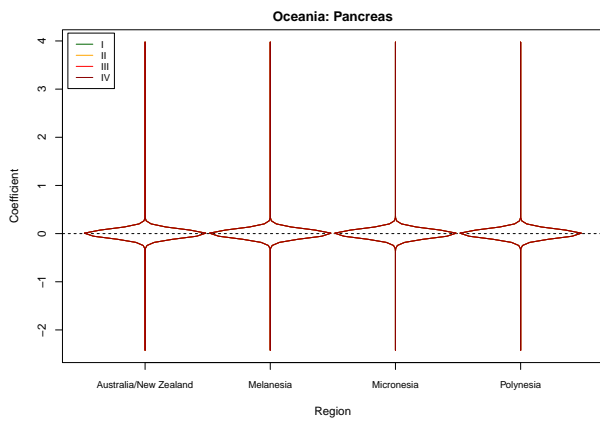
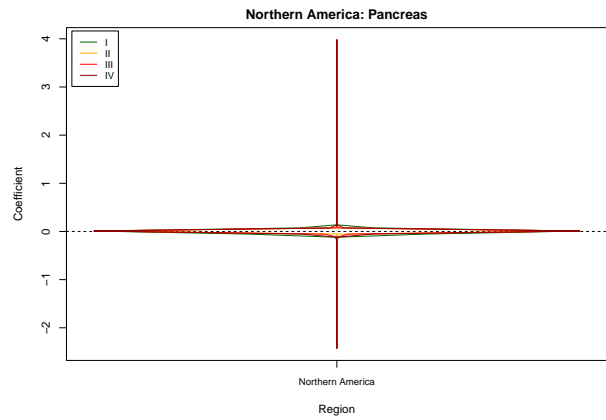
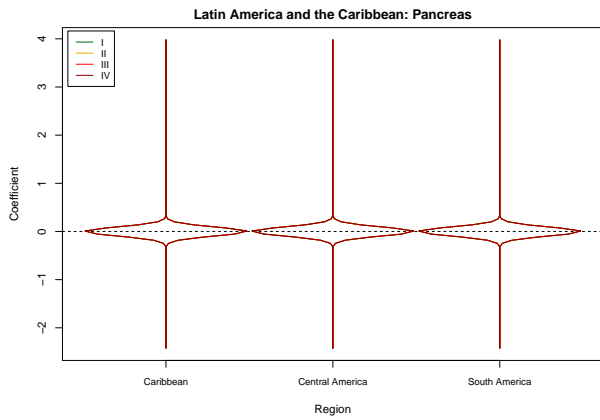
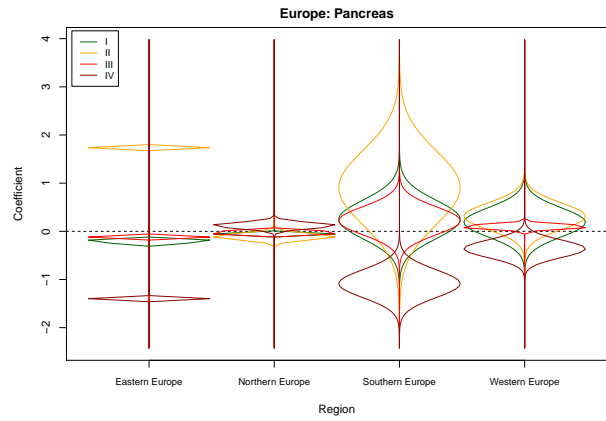
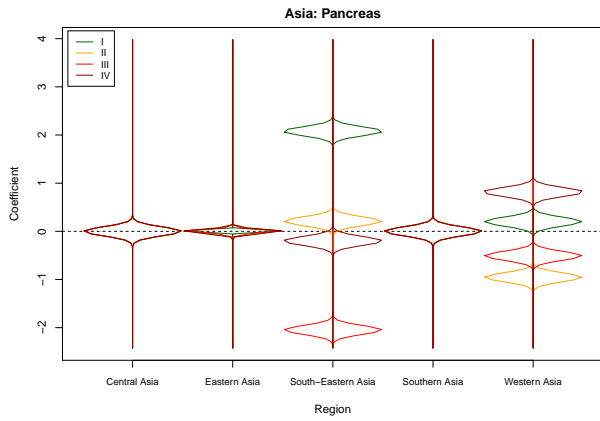
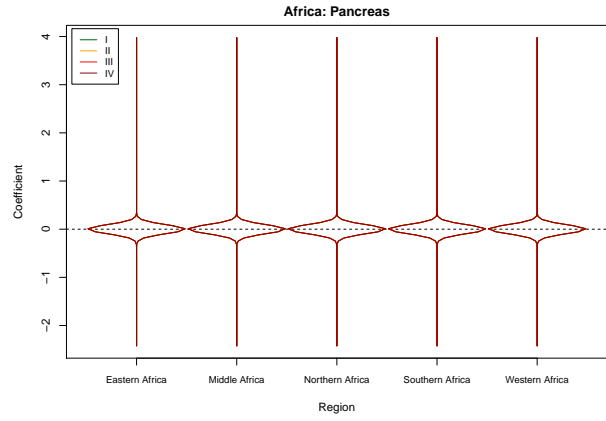
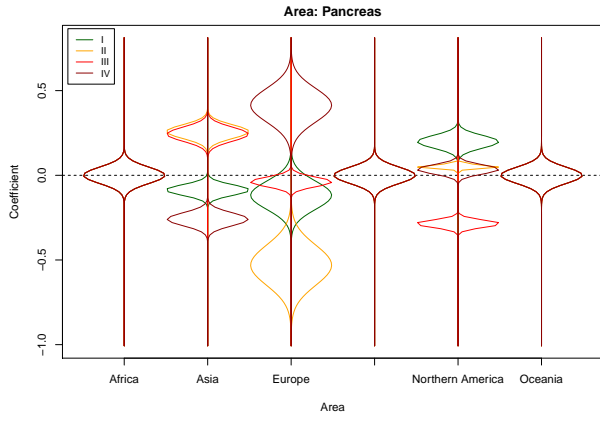


Global: Pancreas



Income Group: Pancreas



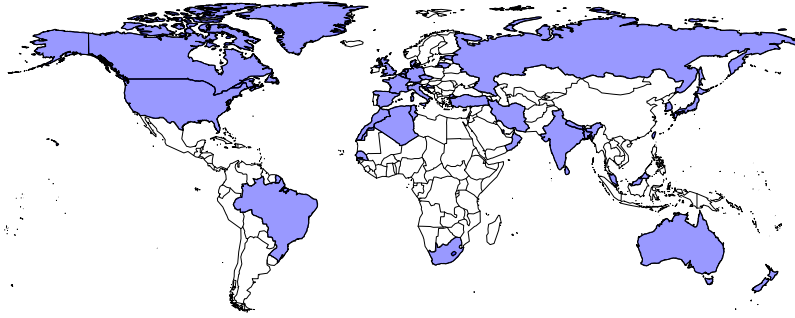


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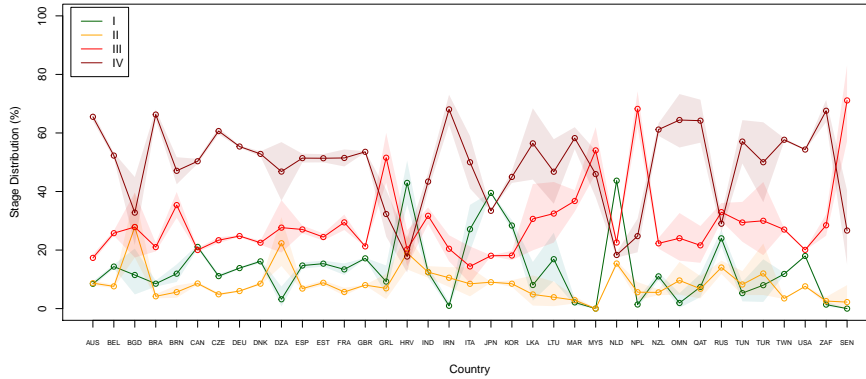
Country	Cases	Years	Source	Reference
BEL	2262	2008-2011	Belgian Cancer Registry	Silversmit 2017
CAN	3065	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHN	3782	2004-2009	Shanghai Cancer Registry	Luo 2013
CZE	146	Not reported	Pancreatic Disease ReseArch (PANDoRA) consortium	Gentiluomo 2019
DEU	410	Not reported	Pancreatic Disease ReseArch (PANDoRA) consortium	Gentiluomo 2019
ESP	274	1990-2003	Hospital Clínic of Barcelona	Soriano-Isquierdo 2004
FRA	888	2002-2011	Finistère digestive cancer registry database	Arnachellum 2016
GBR	30736	2013-2017	England ONS	ONS 2019
HUN	195	Not reported	Pancreatic Disease ReseArch (PANDoRA) consortium	Gentiluomo 2019
ITA	466	Not reported	Pancreatic Disease ReseArch (PANDoRA) consortium	Gentiluomo 2019
JPN	64534	2012-2015	Nationwide hospital-based cancer registries	Okuyama 2018
LTU	52	Not reported	Pancreatic Disease ReseArch (PANDoRA) consortium	Gentiluomo 2019
LTU	78	2005-2007	Clinic of Gastroenterology, Nephrourology, and Surgery, Faculty of Medicine, Vilnius University	Brimiène 2011
MYS	58	2001-2008	Universiti Sains Malaysia Hospital	Norsa'adah 2012
NLD	2914	2014-2015	Netherlands Cancer Registry	Zijlstra 2018
POL	71	Not reported	Pancreatic Disease ReseArch (PANDoRA) consortium	Gentiluomo 2019
SAU	175	2000-2010	King Abdulaziz Medical City, Riyadh	AlGhamdi 2013
USA	49887	2010-2016	SEER	SEER 2019

1.4.8 Lung

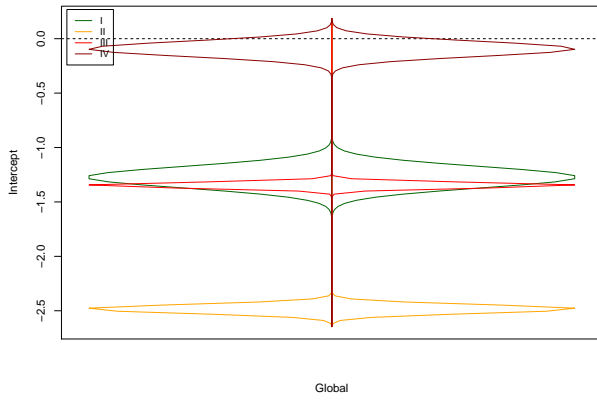
Stage Data Available – Lung



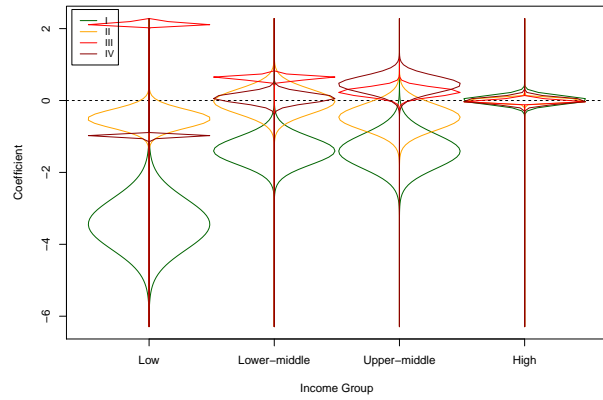
Stage at Diagnosis, Lung

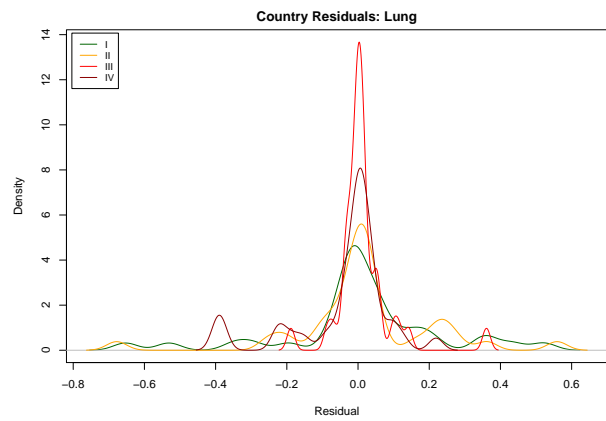
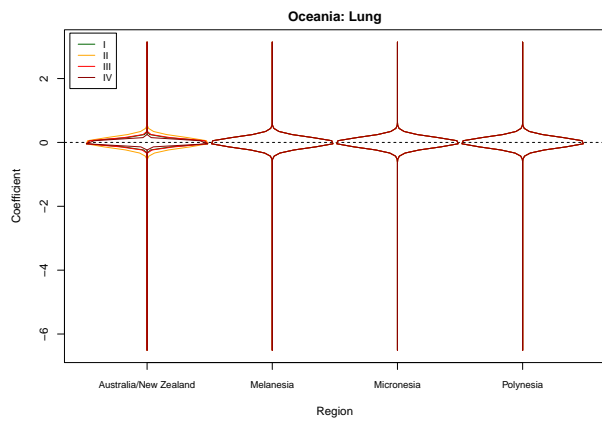
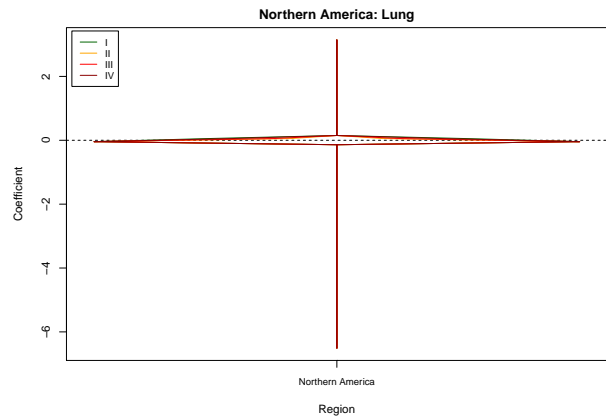
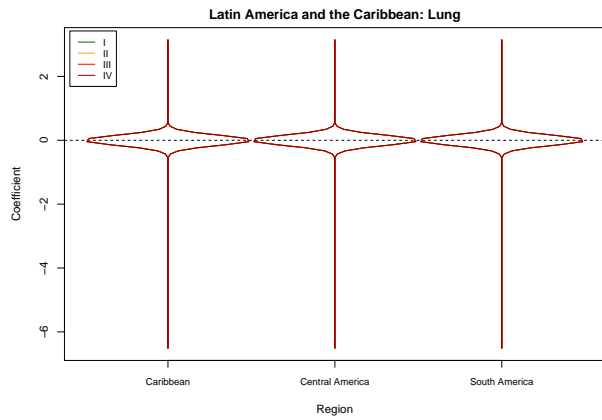
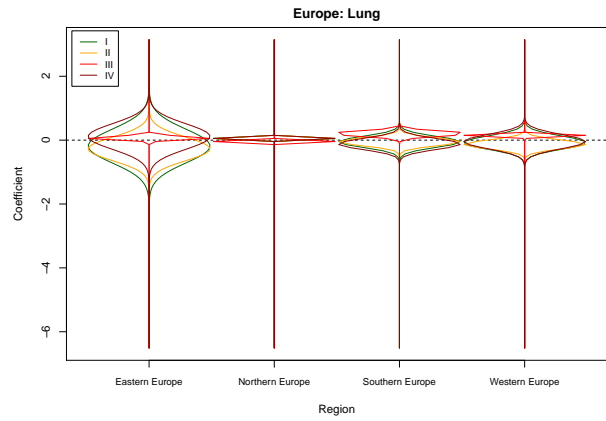
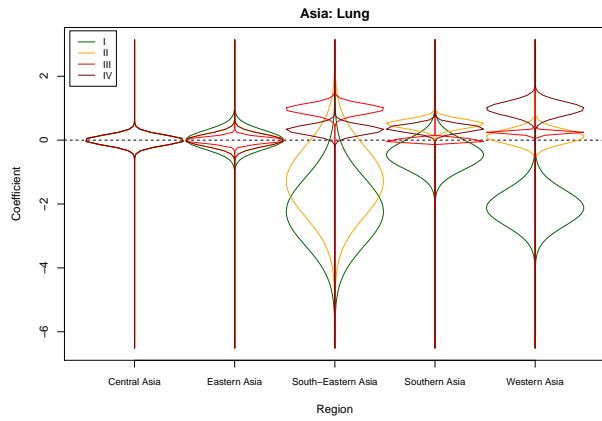
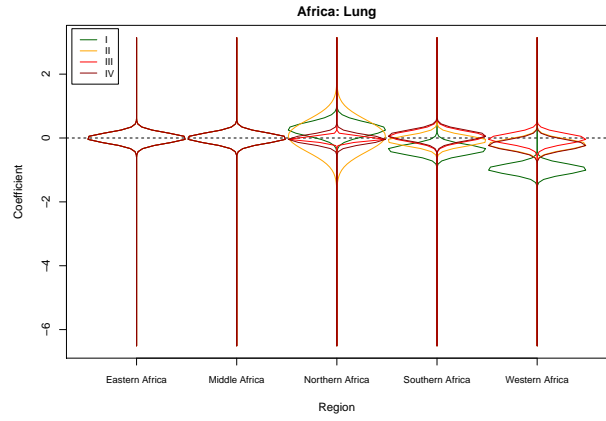
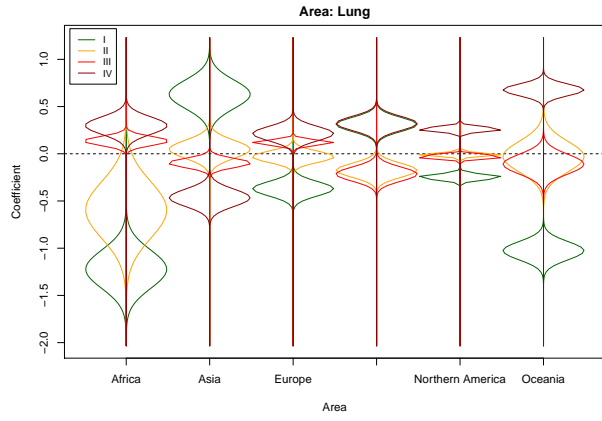


Global: Lung



Income Group: Lung



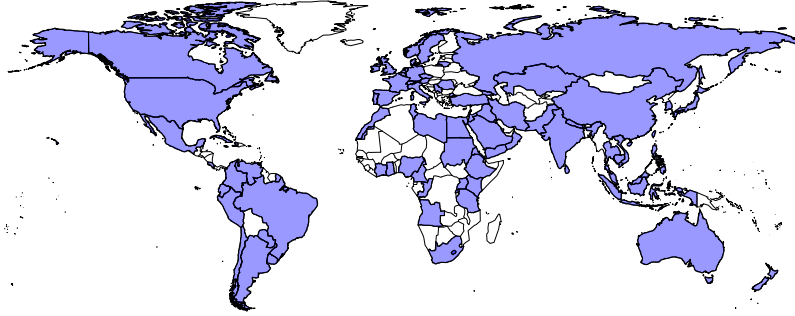


References

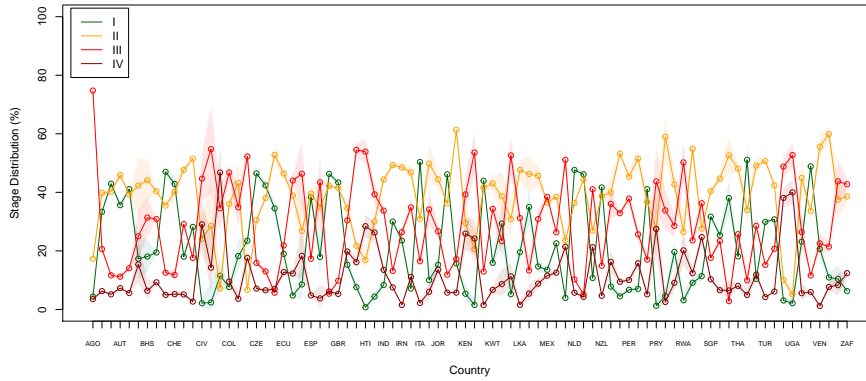
Country	Cases	Years	Source	Reference
AUS	1707	2011	Victoria Cancer Registry	Victoria Cancer Registry 2019
AUS	2368	2011	New South Wales Cancer Registry	Lawrance 2019
BEL	9837	2010-2011	Belgian Cancer Registry (BCR)	Vrijens 2018
BGD	61	2009-2011	National Institute of Diseases of the Chest and Hospital (NIDCH) and National Institute of Cancer Research and Hospital (NICRH)	Rahman 2014
BRA	2785	2008-2014	Instituto do Câncer do Estado de São Paulo (ICESP)	Cormedi 2018
BRN	444	2000-2012	Four district hospitals, and the Brunei Cancer Centre in Brunei Darussalam	Naing 2017
CAN	13554	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CZE	6926	2015	Modelled estimates based on data from Czech National Cancer Registry	Dusek 2015
DEU	74251	2007-2010	12 population-based cancer registries covering around one third of the German population	Eberle 2015
DNK	12083	2010-2012	Danish Lung Cancer Registry	Jakobsen 2016
DZA	94	Not reported	Mohamed Nekkache Hospital and University Hospital Mustapha Bacha, Algiers	Otsmane 2018
ESP	773	2003-2016	Hospital Universitario Puerta de Hierro Majadahonda (HUPHM)	Cruz?Bermúdez 2019
ESP	1147	2010-2011	Population-based cancer registries and hospital medical records: Granada and Huelva	Rodríguez-Barranco 2019
ESP	2233	2000-2014	Hospital del Mar Tumour Registry	Parés-Badell 2017
EST	4793	1996-2016	Estonian Cancer Registry	Innos 2019
FRA	1127	2004	10 French cancer registries	Seigneurin 2018
GBR	531	2005-2008	Four Scottish centres: Aberdeen, Glasgow (Stobhill Hospital), Inverclyde, and Dunfermline	Grose 2014
GBR	168387	2013-2017	England ONS	ONS 2019
GRL	130	2004-2010	Queen Ingrid's Hospital	Gelvan 2015
HRV	163	2010-2013	University Hospital Centre, Zagreb	Sertic Milic 2015
IND	1044	2012-2014	Trivandrum District population-based cancer registry	Mathew 2019
IRN	313	2007-2014	University hospitals of West Azerbaijan	Abazari 2015
ITA	118	2004-2013	Tuscan Cancer Registry data	Paci 2017
JPN	233061	2012-2015	Nationwide hospital-based cancer registries	Okuyama 2018
KOR	2234	2014	Korean Central Cancer Registry	Choi 2019
LKA	62	2010-2011	Respiratory unit of Teaching Hospital Kandy	Dassanayake 2012
LTU	77	2009-2010	Hospital of the Lithuanian University of Health Sciences Kauno Klinikos	Vaguliene 2011
MAR	273	2005-2008	Rabat Cancer Registry	Lachgar 2016
MAR	388	2004	Grand-Casablanca-Region Cancer Register	Tachfouti 2012
MYS	148	2007-2010	Hospital Tengku Ampuan Afzan, Kuantan, Pahang	How 2005
NLD	6874	2012-2016	Dutch Lung Cancer Audit	Beck 2018
NPL	93	2011-2012	Thoracic Surgery Unit of the Department of Cardio-Thoracic Vascular Surgery, Institute of Medicine, Tribhuvan University	Thapa 2014
NPL	121	2009-2010	B. P. Koirala Memorial Cancer Hospital (BPKMCH), Bharatpur, Chitwan	Hashibe 2011
NZL	1970	2011-2015	New Zealand Cancer Registry	Lawrenson 2018
OMN	104	2000-2015	Sultan Qaboos University Hospital, Muscat	Furrukh 2017
QAT	162	1998-2005	Qatari national cancer registry database and 2 hospitals: Hamad General Hospital and Al-Amal Hospital	Ibrahim 2010
RUS	721	Not reported	South of Russia	Kit 2017
RUS	75	2013-2014	Novosibirsk Research Institute of Circulation Pathology of Academician E.N. Meshalkin (Novosibirsk, Russia) and Cancer Research Institute of RAMS (Tomsk, Russia)	Zaporozhchenko 2016
RUS	87	Not reported	Krasnoyarsk Territorial Oncological Center	Belonogov 2009
SEN	45	2006	Specialized centers in Dakar	Agodokpessi 2011
TUN	170	2009-2011	Not reported	Rafrafi 2013
TUR	50	2007-2010	Gulhane Askeri Tip Akademisi (GATA) Haydarpasa Training Hospital, Istanbul	Oztutgan 2016
TWN	31940	2004-2008	Taiwan Cancer Registry	Chiang 2016
USA	210894	2010-2016	SEER	SEER 2019
ZAF	583	2013-2015	Tygerberg Academic Hospital and the Kuils River Respiratory Centre (Kuils River Hospital), Cape Town	John 2017

1.4.9 Breast

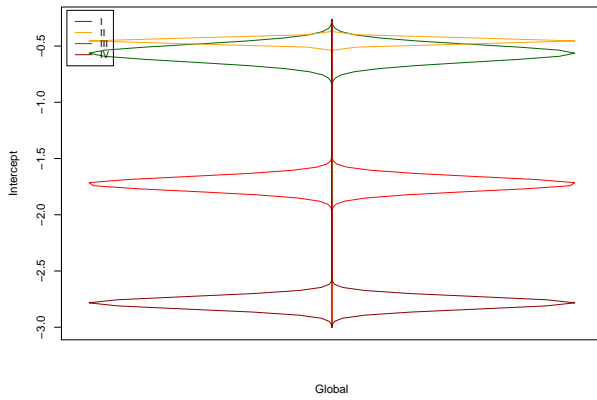
Stage Data Available – Breast



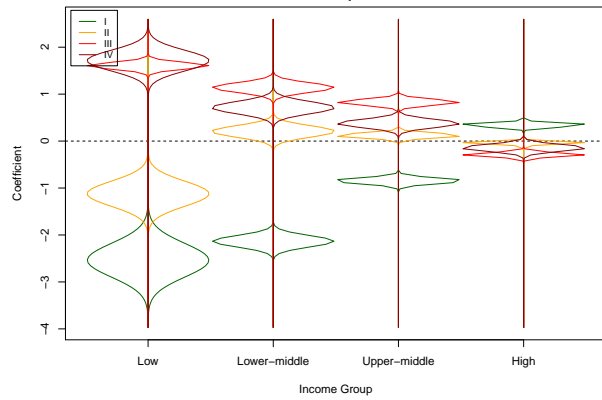
Stage at Diagnosis, Breast

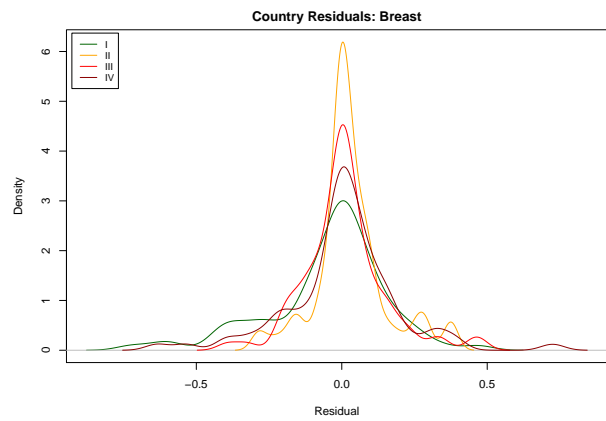
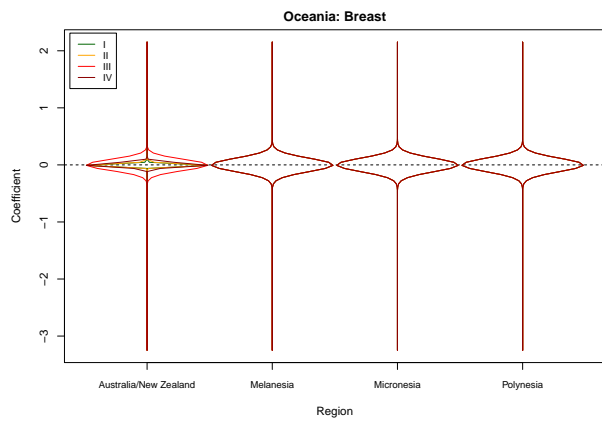
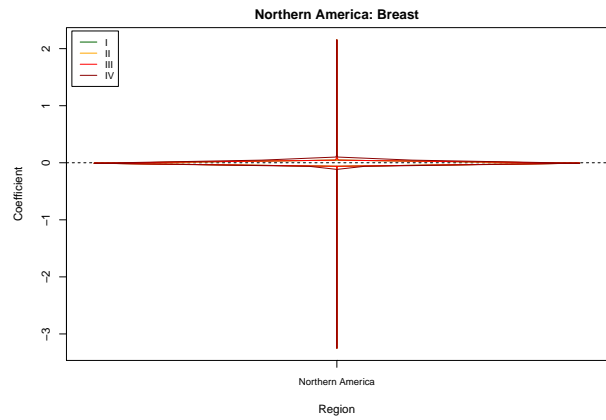
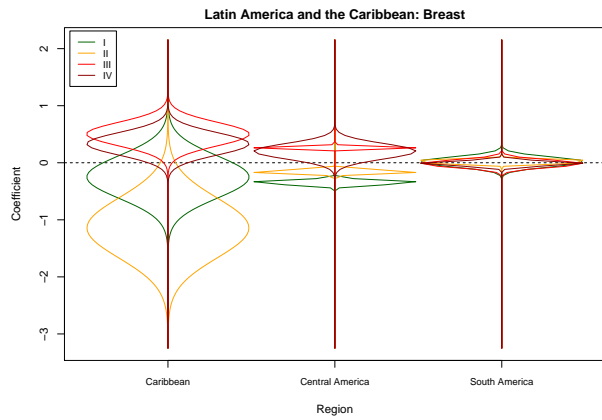
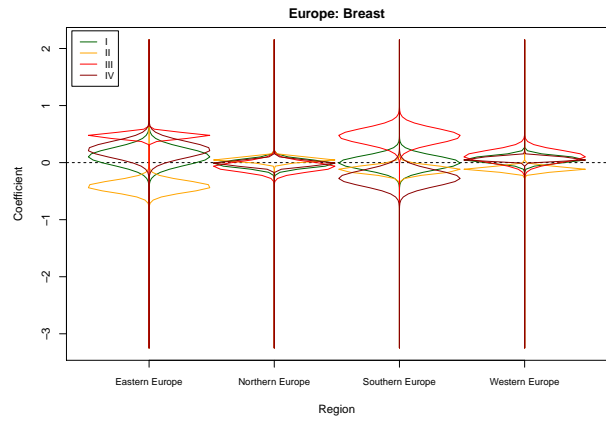
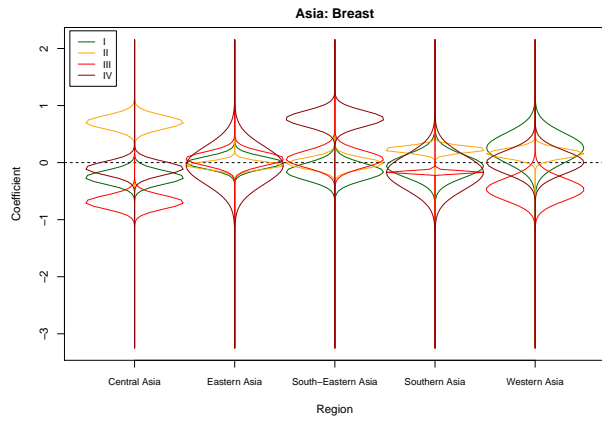
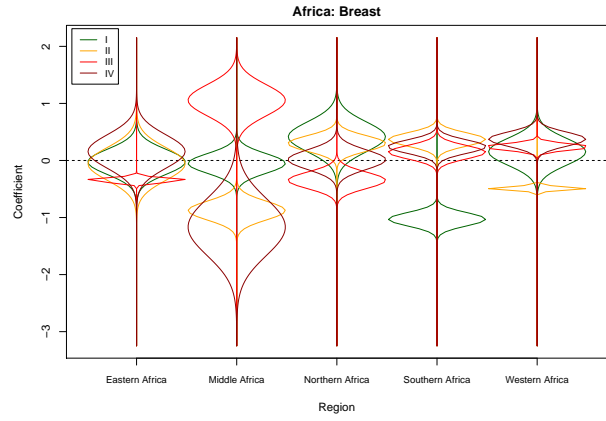
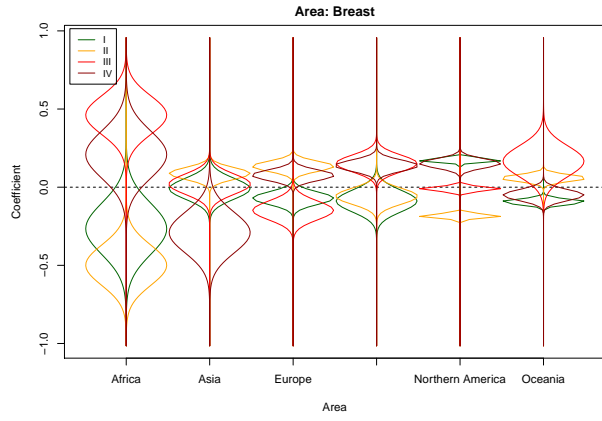


Global: Breast



Income Group: Breast





References

Country	Cases	Years	Source	Reference
AGO	162	2011	National Oncology Centre of Luanda	Armando 2015
AGO	1323	2006-2014	Tertiary hospital in Luanda	Lopes 2015
AGO	132	2011-2014	Angolan Institute of Cancer Control and Clínica Sagrada Esperança, Luanda	Miguel 2017
ARG	2457	2012-2016	Institutional Tumor Registry of Argentina (RITA)	Abriata 2019
ARG	3383		[Systematic review: de Lemos 2019]	Elizalde 2013
ARG	303		[Systematic review: de Lemos 2019]	Grippo 2015
ARG	281		[Systematic review: de Lemos 2019]	Juarez 2009
AUS	3935	2017	Victoria Cancer Registry	Victoria Cancer Registry 2019
AUS	4457	2011	New South Wales Cancer Registry	Lawrance 2019
AUT	3913	1988-2000	Cancer Registry of Tyrol	Oberaigner 2006
BEL	25178	2004-2006	Three databases were linked at the patient level: the Cancer Registry, the population and the claims databases	Vrijens 2012
BHR	104	2010-2013	Salmaniya Medical Complex, Manama	AlZaman 2016
BHS	188	2009-2011	National Oncology Board of the Bahamas	Mungrue 2016
BRA	201079	2001-2014	A network of SUS-affiliated hospital-based cancer registries (Registros hospitalares de cancer [RHC])	Dos-Santos-Silva 2019
CAN	16407	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHE	1017	2003-2007	Ticino Cancer Registry	Spitale 2009
CHL	4693	2000-2010	Six public hospitals	Del Castillo Sm 2017
CHN	288	2004-2006	First Affiliated Hospital of Inner Mongolia Medical College	Kang 2012
CHN	4187	2006-2010	Four hospitals: Cancer Hospital/Chinese Academy of Medical Sciences, Peking University Cancer Hospital, Beijing Obstetrics and Gynecology Hospital, and Shunyi Maternal and Child Health Care Hospital	Zuo 2017
CHN	1997	2008-2010	Hong Kong Breast Cancer Registry	Cheung 2012
CHN	3455	1999-2008	Nationwide multi-center study from 7 geographic regions across China (North, North-East, Central, South, East, North-West, and South-West)	Li 2011
CIV	141	2008-2009	Abidjan cancer registry	Islami 2015
CMR	42	2006-2009	Douala General Hospital	Nguefack 2012
COG	139	2008-2009	Brazzaville cancer registry	Islami 2015
COL	1548	2007-2012	Instituto Nacional de Cancerología of Colombia	Pardo 2018
COL	233	2003-2007	Manizales population-based Cancer Registry	Arias-Ortiz 2018
CRI	192	2009-2010	San Juan de Dios Hospital of the Costa Rican Social Security System (Caja Costarricense del Seguro Social)	Srur-Rivero 2014
CUB	54		[Systematic review: de Lemos 2019]	Milián-Mosquera 2015
CUB	141		[Systematic review: de Lemos 2019]	Viera-Hernández 2011
CUB	1315		[Systematic review: de Lemos 2019]	Gómez-Delgado 2017
CZE	7419	2015	Modelled estimates based on data from Czech National Cancer Registry	Dusek 2015
DEU	4383	2001-2013	Population-based Cancer Registry, Dresden	Kast 2017
DNK	1735	1996-1997	Danish Cancer Registry	Jensen 2003
ECU	302		[Systematic review: de Lemos 2019]	Martínez 2015
ECU	1158		[Systematic review: de Lemos 2019]	Cueva and Yopez 2014
ECU	621		[Systematic review: de Lemos 2019]	Cueva and Yopez 2009
EGY	3027	2004-2008	Gharbiah cancer registry	Schlichting 2015
ERI	82	2007-2008	General Surgical Units of 3 hospitals: Orotta Medical Surgical National Referral Hospital, Halibet Hospital, and Sembel Hospital	Tesfamariam 2013
ESP	2662	2000-2014	Hospital del Mar Tumour Registry	Parés-Badell 2017
ESP	4944	2000-2012	Population-based cancer registry in Granada (southern Spain)	Baeyens-Fernandez 2018
ETH	106	2012-2015	Tikur Anbessa Specialized Hospital	Hadgu 2018
FRA	3978	1990-1997	Cancer Registry of Isere	Cluze 2009
GBR	191086	2013-2017	England ONS	ONS 2019
GBR	13998	2009-2012	Scotland Cancer Registry	McMenamin 2017
GEO	3580	2006-2015	National population-based cancer registry	Vashakidze 2018
GHA	56	2013-2016	Komfo Anokye Teaching Hospital (KATH)	Gyedu 2018
GHA	179	2013	Korle Bu Teaching Hospital	Dedey 2016
GHA	463	2008-2011	Komfo Anokye Teaching Hospital (KATH)	Scherber 2014
GHA	564	2005-2009	Department of Pathology, University of Ghana Medical School	Edmund 2013
GHA	330	2004-2009	Komfo Anokye Teaching Hospital (KATH)	Ohene-Yeboah 2012
HTI	445	2013-2017	Port-au-Prince	Degennaro 2018
HTI	93	2013-2015	Innovating Health International Women's Cancer Center (IHI-WCC) in Port-au-Prince	Gomez 2016
IDN	421	2010	Dharmais Cancer Centre (DCC)	Ng 2011
IDN	195	1998-2002	Dharmais Cancer Hospital	Irawan 2008
IND	132	2010-2011	University Teaching and Tertiary Referral Hospital, Kashmir	Wani 2012
IND	2425	2005-2014	Population Based Cancer Registry, Trivandrum	Mathew 2016

(continued)

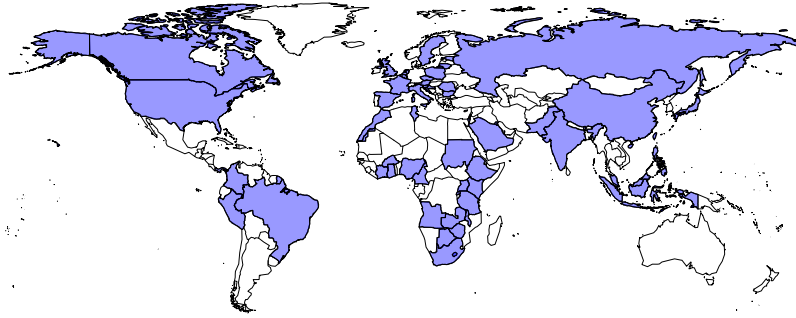
Country	Cases	Years	Source	Reference
IND	906	2010-2012	Hospital based cancer registry of a regional cancer center of North-East India	Krishnatreya 2014
IRL	20816	1999-2008	Irish National Cancer Registry	Walsh 2014
IRN	4748	Not reported	Shiraz Breast Cancer Registry	Akrami 2018
IRQ	479	2018	Duhok	Mohammed 2019
IRQ	30	Not reported	College of Medicine, Al-Nahrain University, Baghdad	Abdulhussain 2019
IRQ	996	2011-2015	Basra Oncology Center	Abood 2018
IRQ	242	2006-2008	Hewa Hematology and Oncology Hospital, Sulaimaniyah province	Majid 2009
ITA	138	2003-2010	Morgagni-Pierantoni Hospital (Forli)	Amadori 2014
ITA	1764	2003-2009	Varese section of the Lombardy Cancer Registry	Tagliabue 2016
JAM	65	2006-2007	Hospital-based specialist clinic in Kingston, Jamaica	Chin 2014
JAM	184	2002-2009	University Hospital of the West Indies	Alfred 2012
JOR	348	2004-2014	Jordan University of Science and Technology (JUST) and King Abdullah Teaching University Hospital (KAUH)	Ayoub 2019
JOR	151	2013-2014	Three hospitals in Central and Northern Jordan	Obeidat 2015
JOR	721	1997-1998	Jordan Cancer Registry	Arkoob 2010
JOR	98	2000-2002	Al-Basheer Governmental Hospital	Atoum 2010
JPN	157292	2012-2015	Nationwide hospital-based cancer registries	Okuyama 2018
KAZ	4210	2014	Registry data from fourteen regions and two major cities	Chukmaitov 2018
KEN	125	2012-2018	Aga Khan University Hospital, Nairobi	Ekpe 2019
KEN	99	2011-2012	Aga Khan University Hospital, Nairobi	Sayed 2014
KHM	194	2008-2011	Sihanouk Hospital Center of Hope, Phnom Penh	Ley 2016
KOR	86784	1996-2015	Korean Breast Cancer Society Registry	Park 2019
KWT	353	1999-2009	Kuwait Cancer Control Center	Fayaz 2013
KWT	902	1999-2004	Clinical oncologists' data	Elbasmi 2010
LBN	150	2009-2014	American University of Beirut Medical Center (AUBMC)	Akel 2017
LBY	100	2000-2007	National Cancer Institute, Sabratha	Ermiah 2012
LBY	130	2000-2006	African Oncology Institute, Sabratha and Tripoli Medical Center, Tripoli	Boder 2012
LKA	833	2006-2012	University of Ruhuna	Peiris 2017
LTU	240	2008	Kaunas region	Ivanauskiene 2012
MAR	560	2005-2008	Rabat Cancer Registry	Mechita 2016
MAR	279	2010-2015	Oncology Clinic Al Amal of Tangier	Derkaoui 2016
MEX	397		[Systematic review: de Lemos 2019]	Pérez-Michel 2009
MEX	816		[Systematic review: de Lemos 2019]	Ángeles-Llerenas 2016
MEX	2075		[Systematic review: de Lemos 2019]	Lara-Medina 2011
MEX	4301		[Systematic review: de Lemos 2019]	Reynoso-Noverón 2017
MYS	328	2005-2007	Three referral medical centres in the East Coast of Malaysia and two government hospitals in Kuala Lumpur	Norsa'adah 2011
MYS	447	2010	University Malaya Medical Centre (UMMC), Kuala Lumpur	Ng 2011
MYS	824	2014-2015	Three large hospitals: University Malaya Medical Centre (UMMC), Kuala Lumpur; Tengku Ampuan Rahimah Hospital (TARH), Klang, Selangor; Queen Elizabeth Hospital (QEH), Kota Kinabalu, Sabah	Wong 2019
MYS	121	2007-2013	Hospital Sultanah Nora Ismail Batu Pahat, Johor	Balasundram 2018
MYS	549	2007-2011	Kelantan Cancer Registry	Nordin 2018
MYS	446	2010-2015	Sarawak General Hospital	Yang 2017
MYS	3959	2001-2011	University Malaya Breast Cancer Registry	Kong 2017
NGA	85	2016	Lagos University Teaching Hospital (LUTH)	Awofeso 2018
NGA	105	2015	University College Hospital, Ibadan	Hafiz 2018
NGA	300	2014-2016	Six secondary and tertiary hospitals in Nigeria	Jedy-Agba 2017
NGA	200	2005-2008	Lagos State University Teaching Hospital (LASUTH) Cancer Registry	Makanjuola 2014
NGA	103	2001-2005	Ahmadu Bello University Teaching Hospital (ABUTH), Zaria, Kaduna State	Kene 2010
NGA	34	1999-2001	Jos University Teaching Hospital	Gukas 2008
NGA	89	2004-2005	Oncology Clinic of the Department of Surgery, University College Hospital, Ibadan	Adebamowo 2008
NLD	31277	2015-2016	Netherlands Cancer Registry	Walraven 2019
NOR	14890	2005-2010	Norwegian Cancer Registry	Lousdal 2014
NPL	85	2016-2017	Three cancer hospitals of Kathmandu, Nepal	Bhandari 2017
NPL	114	2007-2008	Bir Hospital, Kathmandu and BP Koirala Memorial Cancer Hospital, Bharatpur	Acharya 2012
NPL	1141	1999-2006	Tertiary care center	Jah 2010
NZL	13644	2000-2014	Auckland and Waikato Breast Cancer Registers	Tin Tin 2018
OMN	65	2015-2016	Sultan Qaboos University Hospital	Naik 2017
OMN	118	2003-2008	Sultan Qaboos University Hospital	Kumar 2011
OMN	150	1996-2002	Sultan Qaboos University Hospital and the Royal Hospital	Al-Moundhri 2004
PAK	261	2012-2013; 2013-2015	Institute of Nuclear Medicine and Oncology Lahore (INMOL); Services Hospital Lahore (SHL)	Khokher 2016
PAK	834	1999-2008	A university hospital in Southern Pakistan	Kumar 2016

(continued)

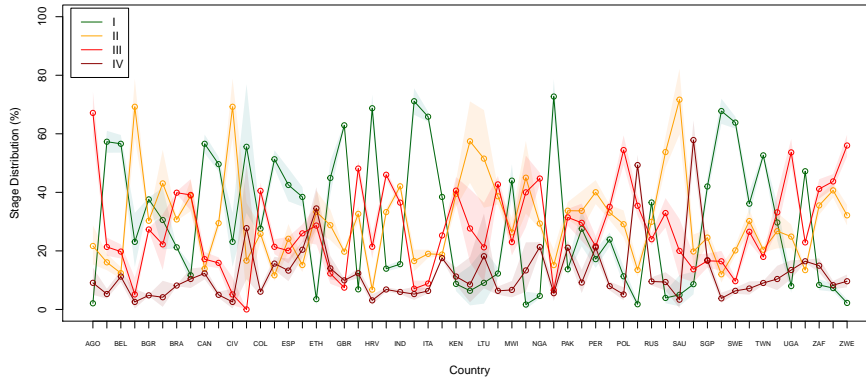
Country	Cases	Years	Source	Reference
PAK	1299	2001-2010	Aga Khan University Hospital (AKUH) in Karachi	Zeeshan 2019
PAK	9461	1994-2016	Liaquat National Hospital, Karachi	Soomro 2018
PAK	6214	2004-2012	Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore	Badar 2015
PER	91	2015	Tertiary care referral cancer center in Trujillo, Peru	Romanoff 2017
PER	75		[Systematic review: de Lemos 2019]	Larrea-Fernández 2016
PER	545		[Systematic review: de Lemos 2019]	Díaz-Vélez 2013
PER	1505		[Systematic review: de Lemos 2019]	Gutiérrez and Alarcón 2008
PHL	1166	1993-2002	Philippine Cancer Society-Manila Cancer Registry and the Department of Health-Rizal Cancer Registry	Laudico 2009
PRT	1229	2005	Southern Portugal Cancer Registry (ROR-Sul)	Andre 2014
PRT	551	2000-2007	North Region Cancer Registry	Jose Bento 2014
PRY	80		[Systematic review: de Lemos 2019]	Yoffe de Quiroz 2005
ROU	173	2000-2005	Municipal Clinical Hospital, Timisoara	Zaha 2010
ROU	22	Not reported	Not reported	Suciu 2008
RUS	473	2009-2012	N. N. Blokhin Russian Cancer Research Center	Filipenko 2017
RWA	42	Not reported	King Faisal Hospital and Kigali Teaching Hospital, Kigali	Habyarimana 2018
RWA	39	2016	Rwanda Military Hospital and King Faysal Hospital, Kigali	Habyarimana 2018
RWA	142	2014-2015	Butaro Cancer Center of Excellence	Schleimer 2019
SAU	535	2007-2012	Oncology Department at King Faisal Specialist Hospital & Research Center (KFSH&RC), Riyadh	Elkum 2014
SAU	449	Not reported	King Abdulaziz University Hospital	Khabaz 2017
SDN	1249	1999-2006	Institute of Nuclear Medicine, Molecular Biology and Oncology (INMO) at Gezira University, Wadmedani, al-Gezira State	Elgaili 2010
SGP	8773	2011-2015	Singapore Cancer Registry	Annual Report, 2017
SGP	1165	1990-2002	National University Hospital Breast Cancer Registry	Lim 2007
SRB	2252	1985-1990	Surgical and Oncological Clinic in Nis	Djordjevic 2004
SWE	247	1996-1997	Swedish Cancer Registry	Jensen 2003
THA	3251	2006-2015	Chiang Mai cancer registries	Chitapanarux 2019
TTO	362		[Systematic review: de Lemos 2019]	Raju and Naraynsingh 1989
TUN	70	2016-2017	Fattouma Bourguiba University Hospital of Monastir	Daldoul 2018
TUN	1082	2003-2007	Cancer Registry of the Center of Tunisia	Missaoui 2011
TUR	18586	2005-2017	National Breast Cancer Registry Program of Turkish Federation of Breast Diseases Societies	Ozmen 2019
TWN	29152	2004-2008	Taiwan Cancer Registry	Chiang 2016
TZA	74	2016-2017	Muhimbili National Hospital	Mansouri 2019
TZA	384	2002-2011	Bugando Medical Center, Mwanza	Mabula 2012
TZA	327	2007-2009	Ocean Road Cancer Institute (ORCI)	Burson 2010
UGA	194	2003-2010	Kampala Cancer Registry	Menon 2018
UGA	162	2014	Mulago National Referral Hospital	Odongo 2015
UGA	209	2014	Mulago National Referral Hospital and Ugandan Cancer Institute	Galukande 2015
URY	107		[Systematic review: de Lemos 2019]	Malvasio 2017
URY	109		[Systematic review: de Lemos 2019]	Camejo 2013
USA	293629	2010-2016	SEER	SEER 2019
VEN	179		[Systematic review: de Lemos 2019]	Rebolledo 2012
VEN	411		[Systematic review: de Lemos 2019]	Ferri 2012
VNM	1574	2001-2006	Hue Central Hospital and the Cancer Registry in Ho Chi Minh City	Lan 2013
YEM	192	1998-2002; 2005-2007	Registry of Algamhouria teaching hospital; Aden public and private hospitals	Harhra 2012
ZAF	231	2016-2017	Urban South African open-access breast care clinic	Rayne 2019
ZAF	1006	2015-2017	Charlotte Maxeke Johannesburg Academic Hospital and Chris Hani Baragwanath Academic Hospital, Johannesburg	Phakathi 2019
ZAF	586	2010-2011	Tygerberg Hospital, Cape Town	Langenhoven 2016
ZAF	1051	2006-2012	Chris Hani Baragwanath Academic Hospital, Soweto, Johannesburg	Dickens 2014

1.4.10 Cervical

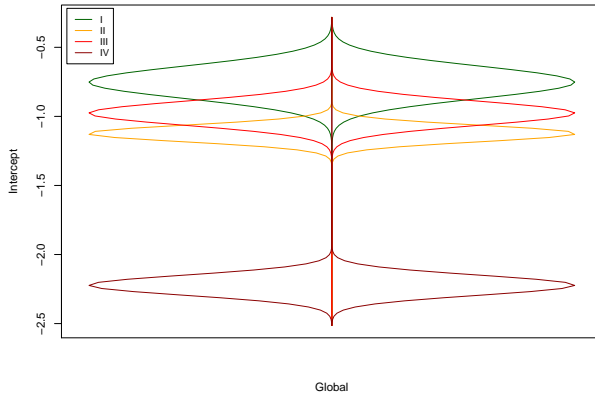
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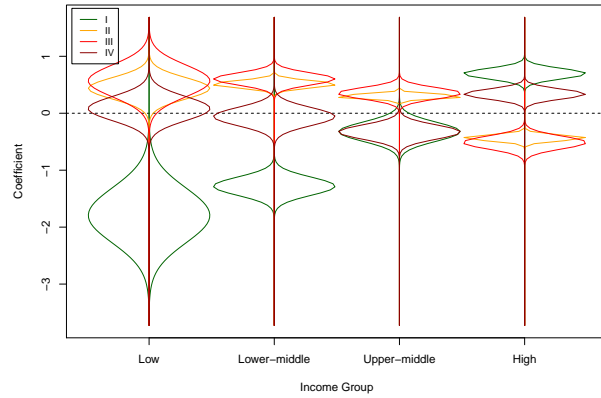
Stage at Diagnosis, Cervical

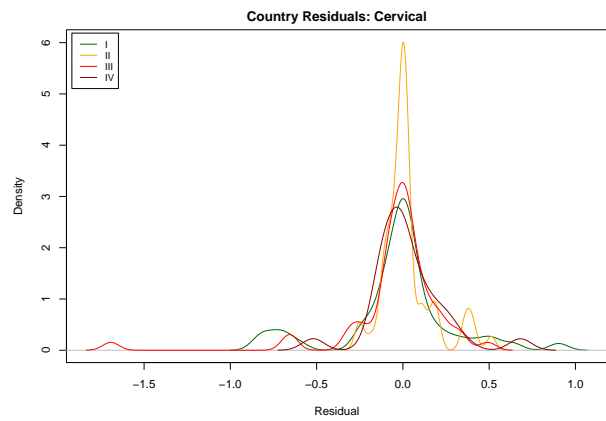
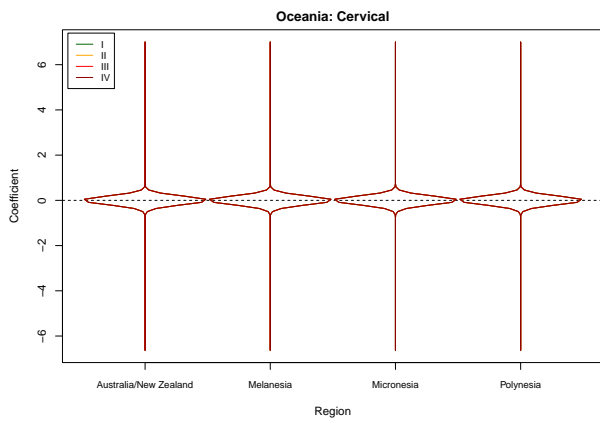
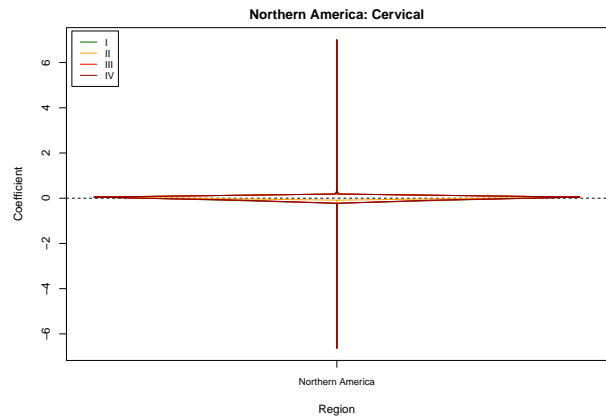
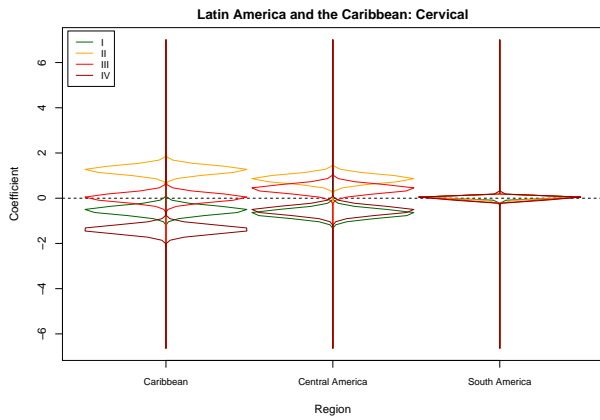
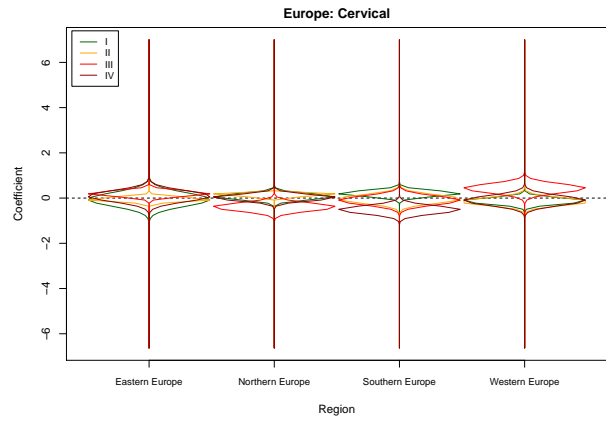
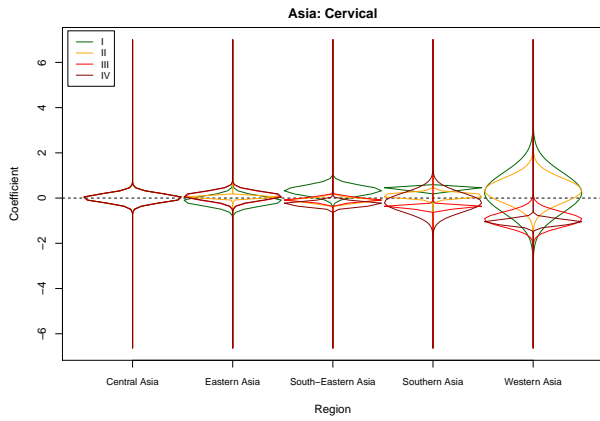
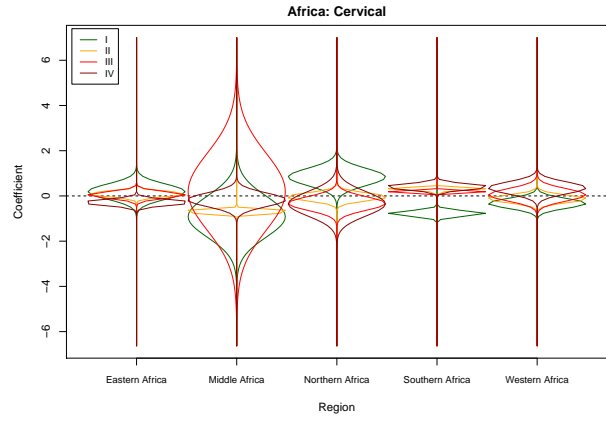
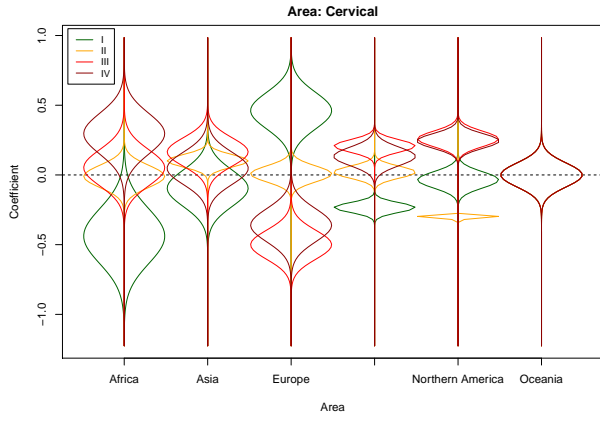


Global: Cervical



Income Group: Cervical





References

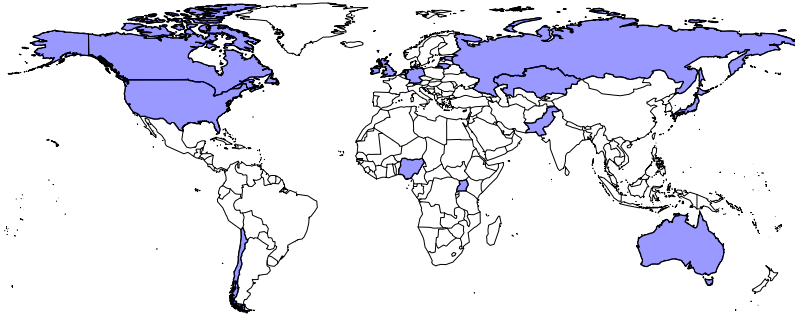
Country	Cases	Years	Source	Reference
AGO	143	2011	National Oncology Centre of Luanda	Armando 2015
AUT	665	1988-2000	Cancer Registry of Tyrol	Oberaigner 2006
BEL	1032	2008-2011	Belgian Cancer Registry	Silversmit 2017
BFA	78	2015-2016	University Hospital of Yalgado Ouédraogo, Ouagadougou	Toure 2017
BGR	20445	1993-2013	Bulgarian Cancer Registry	Samson 2016
BHS	72	2006-2016	The Cancer Centre Bahamas, in conjunction with Princess Margaret Hospital, Nassau, affiliated with The University of West Indies	Jones 2017
BRA	43567	2005-2014	Hospital-based cancer registry	Vale 2019
BWA	317	2010-2015	Princess Marina Hospital (October 2010 to July 2015), Gaborone Private Hospital (November 2012 to July 2015), and Nyangabgwe Referral Hospital (January 2015 to July 2015)	Dryden-Peterson 2016
CAN	926	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHN	256	2017	Zhongnan Hospital of Wuhan University	Thapa 2018
CHN	1247	1993-2008	Statistics Database of Beijing Cancer Registry (BJCaR)	Wang 2015
CIV	78	2015-2016	University hospital of Treichville, Abidjan	Toure 2017
CMR	18	2012-2017	Bamenda Regional Hospital, North West Region	Nkfusai 2019
COL	1011	2007-2012	Instituto Nacional de Cancerología of Colombia	Pardo 2018
COL	95	2003-2007	Manizales population-based Cancer Registry	Arias-Ortiz 2018
CZE	996	2015	Modelled estimates based on data from Czech National Cancer Registry	Dusek 2015
ESP	294	2006-2012	Mallorcan Cancer Registry	Amengual 2019
EST	804	2010-2014	Estonian Cancer Registry	Ojamaa 2018
ETH	171	2018	Tikur Anebessa Specialized Hospital (TASH), Addis Ababa	Araya 2019
FRA	285	1998-2010	Cote d'Or breast cancer registry	Lorin 2015
GBR	10717	2013-2017	England ONS	ONS 2019
GHA	1311	2010-2013	Komfo Anokye and Korle Bu Teaching Hospitals	Nartey 2016
HRV	355	1997-2003	Clinical Hospital Center Rijeka	Haller 2007
IDN	1303	2012-2014	Cipto Mangunkusumo hospital	Nuranna 2019
IDN	87	2013	Dr. Sardjito hospital, Yogyakarta, Java Island	Endarti 2015
IDN	3112	2007	Academic hospitals	Aziz 2009
IDN	282	2013-2017	Sanglah General Hospital, Bali	Prabawa 2019
IND	423	2012-2014	Trivandrum District population-based cancer registry	Mathew 2019
IND	272	2015-2017	Indira Gandhi Institute of Medical Sciences, Patna, Bihar	Kumari 2018
IND	140	2010-2013	Rural/suburban area of western India	Singh 2016
IND	193	2010	Hospital-based cancer registry of a regional cancer center in the NE India	Kataki 2018
IND	190	2010-2011	Hospital registry of Malabar Cancer Centre, Kerala	Bindu 2017
IND	172	2010-2012	Cancer registry of a regional cancer centre in Kamrup, North Eastern India	Krishnatreya 2015
IND	1051	2010-2012	Hospital-based cancer registry of a regional cancer center of North-East India	Krishnatreya 2014
IND	927	2000-2009	Departments of Pathology and Gynecology, at a tertiary care center, Delhi	Agarwal 2012
ISR	381	2002-2004	Israel National Cancer Registry	Kogan 2011
ITA	2927	2005	Italian Network of Cancer Registries	Ricciardi 2009
JPN	24101	2012-2015	Nationwide hospital-based cancer registries	Okuyama 2018
KEN	81	2017	Kenyatta National Hospital, Nairobi	Degu 2017
KEN	355	2008-2010	Kenyatta National Hospital, Nairobi	Maranga 2013
KWT	47	1995-1999	Kuwait Cancer Control Center	Abuzallouf 2008
LTU	33	2017-2018	Department of Obstetrics and Gynaecology, Hospital of Lithuanian University of Health Sciences	Vitkauskaitė 2019
MAR	645	2006	National Institute of Oncology of Rabat and Casablanca cancer center	Elmajjaoui 2016
MAR	350	2000-2010	National cancer institute of Morocco	Khalil 2015
MAR	138	2005-2010	Mohamed V Military Hospital, Rabat	Elmarjany 2015
MWI	300	2015	Queen Elizabeth Central Hospital (QECH), in Southern Malawi	Rudd 2017
MYS	60	2001-2008	University of Malaya Medical Centre	Zamaniah 2014
NGA	20	2016	Lagos University Teaching Hospital (LUTH)	Awofeso 2018
NGA	75	2008-2012	Port Harcourt Teaching Hospital (UPTH), Port Harcourt	Goddy 2015
NGA	36	1998-2003	National Hospital, Abuja (NHA)	Umezulike 2007
NGA	248	2009-2011	Obstetrics and Gynaecology outpatient theatre, University College Hospital, Ibadan	Awolude 2018
NGA	1467	2012-2016	Radiotherapy and Oncology Centre of Ahmadu Bello University Teaching Hospital, Zaria	Abdullahi 2018
NGA	65	2011-2013	Jos University Teaching Hospital (JUTH)	Musa 2016
NGA	41	2005-2010	Ebonyi State University Teaching Hospital (EBSUTH)	Eze 2013
NGA	267	2005-2009	Ahmadu Bello University Teaching Hospital, Zaria	Oguntayo 2011
NGA	149	1990-1999	University of Ilorin Teaching Hospital, Ilorin	Ijaiya 2004
NLD	198	1992-2001	Comprehensive Cancer Centre Stedendriehoek Twente	van der Aa 2008

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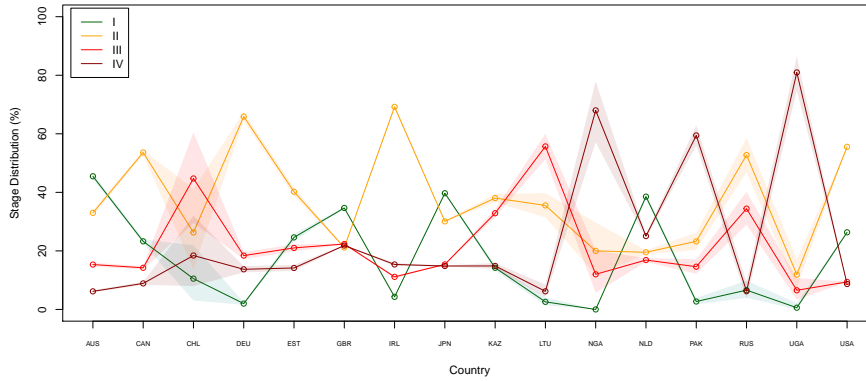
Country	Cases	Years	Source	Reference
PAK	56	2009	Nuclear Institute of Medicine and Radiotherapy (NIMRA)	Aziz 2013
PAK	331	1994-2004	Shaukat Khanum Memorial Cancer Hospital and Research Center (SKMCH & RC), Lahore	Badar 2007
PAK	618	1991-2000	Institute of Nuclear Medicine and Oncology, Lahore (INMOL)	Parveen 2006
PAN	196	1986-1987	National Oncology Institute	DeBritton 1993
PER	547	2008-2002	Instituto Nacional de Enfermedades Neoplásicas	Ruiz 2017
PHL	1255	1993-2002	Philippine Cancer Society-Manila Cancer Registry and the Department of Health-Rizal Cancer Registry	Redaniel 2009
POL	371	2009-2017	Not reported	Cegla 2019
ROU	734	2008-2017	Arad County Cancer Registry	Tataru 2019
RUS	1664	2000-2014	Arkhangel'sk Regional Cancer Registry (Northwest Russia)	Grjibovski 2018
RWA	331	2012-2015	Butaro Cancer Center of Excellence	Park 2018
SAU	60	2004-2010	King Faisal Specialist Hospital and Research Center, Jeddah and King Abdulaziz University Hospital, Jeddah	El Sayed 2017
SDN	197	2007	Radiation and Isotopes Centre in Khartoum	Ibarhim 2011
SGP	933	2011-2015	Singapore Cancer Registry	Annual Report, 2017
SVN	450	2003-2005	Institute of Oncology Ljubljana, the University Medical Center in Ljubljana, and Maribor University Hospital	Takac 2008
SWE	2093	2011-2015	Swedish Quality Registry for Gynecologic Cancer	Bjurberg 2019
TUN	112	2010-2012	Salah Azeiz Oncology Institute (SAI), Tunis	Zidi 2016
TUN	378	1993-2006	Cancer Registry of the center of Tunisia	Missaoui 2010
TWN	6626	2004-2008	Taiwan Cancer Registry	Chiang 2016
TZA	202	2013-2014	Bugando Medical Centre	Mlange 2016
UGA	278	2003-2010	Kampala Cancer Registry	Menon 2018
UGA	144	2012-2014	St Mary's Hospital Lacor, northern Uganda	Mwaka 2016
UGA	16	2012-2013	private-not-for-profit (PNFP) and a public Regional Referral Hospital, both in Gulu, northern Uganda	Mwaka 2015
USA	17431	2010-2016	SEER	SEER 2019
ZAF	836	1997-1998	Johannesburg Hospital	Lomalisa 2000
ZMB	1507	2007-2012	Hospitals in Lusaka and Southern and Western provinces	Kalima 2015
ZWE	675	1998-2010	Parirenyatwa Oncology and Radiotherapy Centre, Harare	Mushosho 2011

1.4.11 Prostate

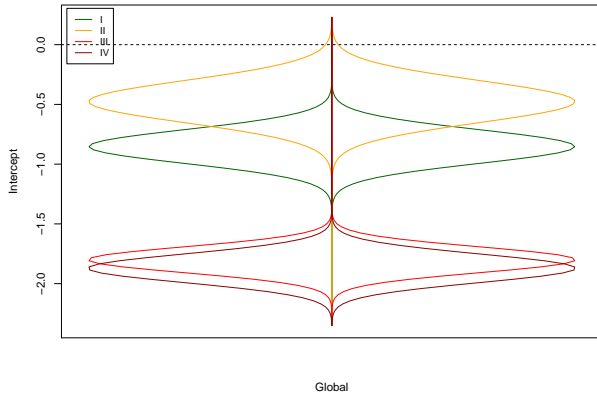
Stage Data Available – Prostate



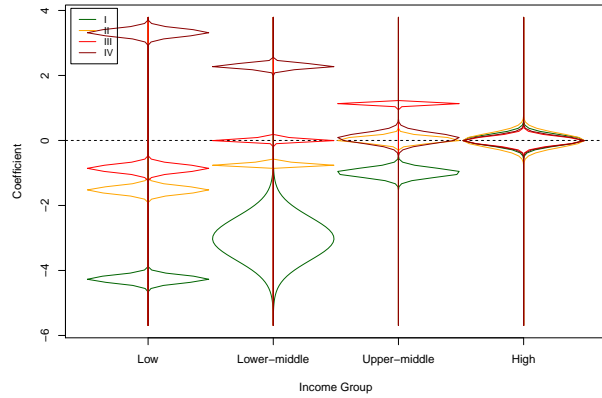
Stage at Diagnosis, Prostate

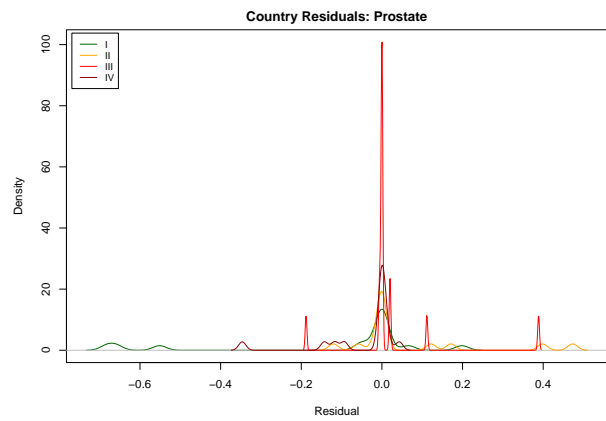
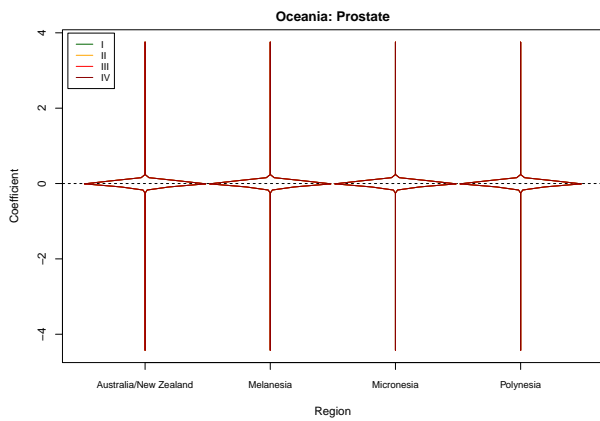
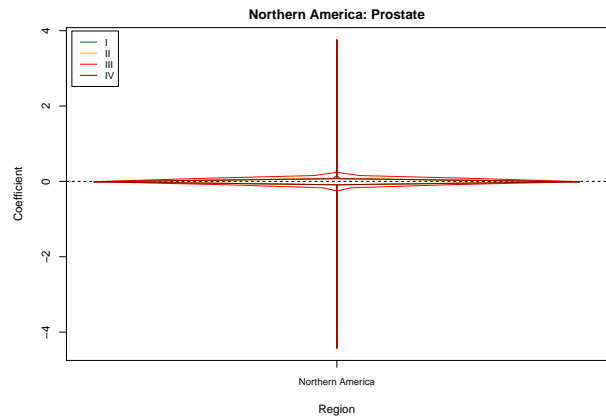
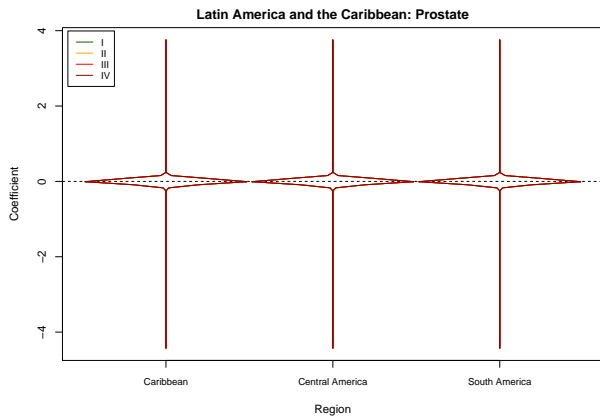
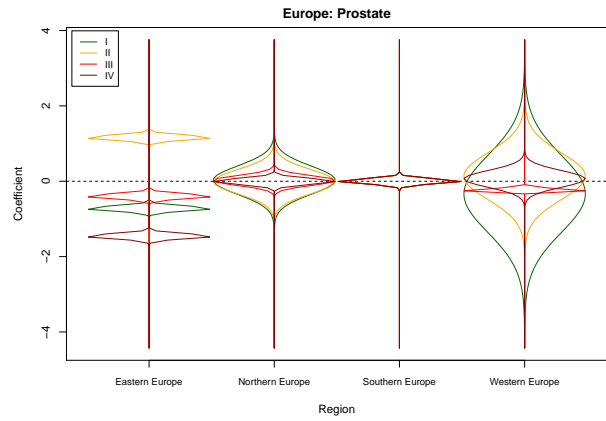
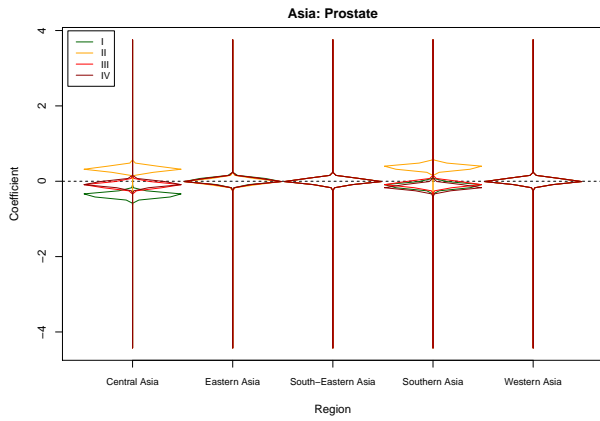
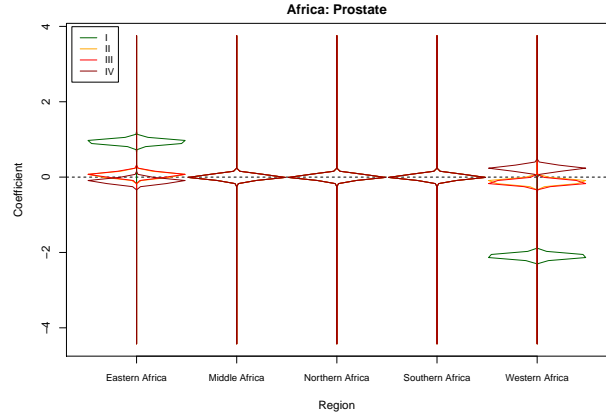
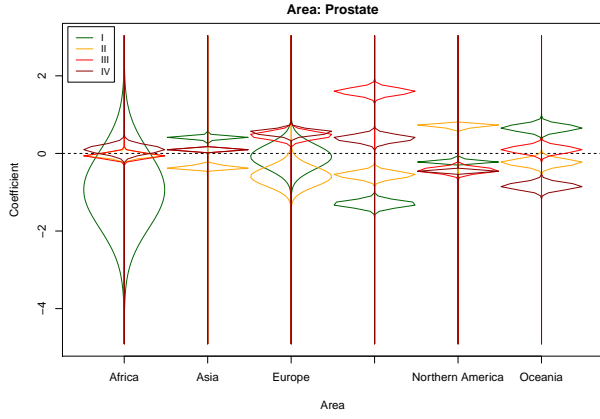


Global: Prostate



Income Group: Prostate



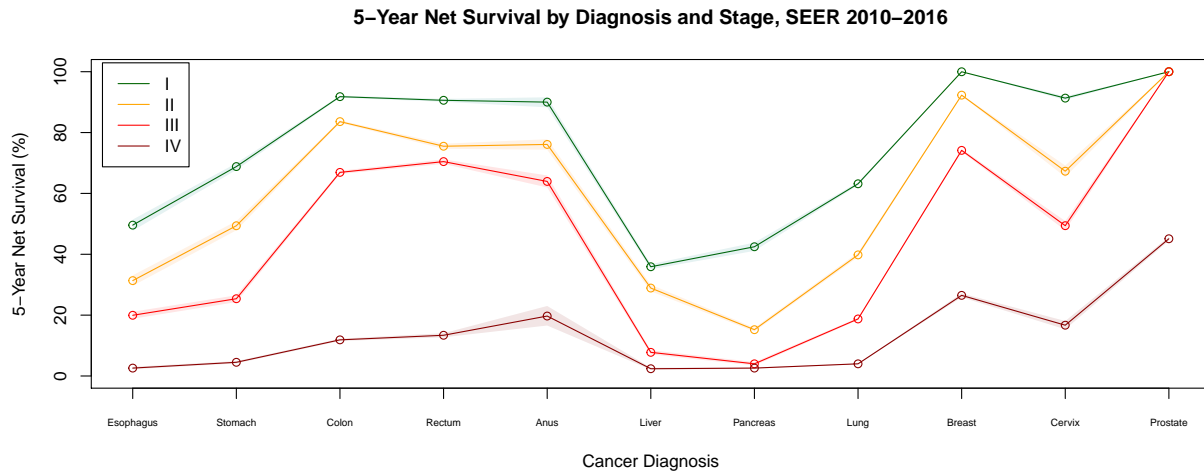


References

Country	Cases	Years	Source	Reference
AUS	5064	2017	Victoria Cancer Registry	Victoria Cancer Registry 2019
AUS	6946	2011	New South Wales Cancer Registry	Lawrance 2019
CAN	13345	2011-2015	Canadian Cancer Registry	Canadian Cancer Statistics 2018
CHL	38	Not Reported	Not Reported	Rivera 2003
DEU	3909	2004-2005	Cancer Registry Schleswig-Holstein	Rohde 2009
EST	4510	2010-2014	Estonian Cancer Registry	Innos 2017
GBR	179327	2013-2017	England ONS	ONS 2019
IRL	20244	1998-2009	National Cancer Registry Ireland	Burns 2014
JPN	152749	2012-2015	Nationwide hospital-based cancer registries	Okuyama 2018
KAZ	4597	2013-2015	Kazakhstan Cancer Registry	Ishkinin 2017
LTU	501	2010-2011	Six hospitals: Institute of Oncology of Vilnius University, the Hospital of Lithuanian University of Health Sciences, Oncology Hospital of Lithuanian University of Health Sciences, Klaipėda University Hospital, Šiauliai County Hospital, and Panevėžys County Hospital	Mickeviciene 2013
NGA	75	2001-2010	Department of Radiotherapy, Lagos University Teaching Hospital (LUTH)	Adewumi 2016
NLD	12974	2015-2016	Netherlands Cancer Registry	Walraven 2019
PAK	774	2004-2012	Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore	Badar 2015
RUS	273	2008-2010	N. N. Blokhin Russian Cancer Research Center RAMS and the A.I. Kryzhanivskiy Krasnoyarsk Regional Oncology Center	Oskina 2014
UGA	168	2012	Uganda Cancer Institute	Okuku 2016
USA	262231	2010-2016	SEER	SEER 2019

1.5 Maximum Achievable Survival

We based our priors for maximum achievable survival on reported stage-specific survival for SEER cases diagnosed in 2010-2016. We used estimates of 5-year relative survival.



We inflated these priors by 3 percentage points (up to maximum of 100%) to account for the potential for non-optimal service delivery in the US. When sampling we enforced constraints to ensure that survival was non-increasing by stage.

Reference:

Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER 18 Regs Research Data + Hurricane Katrina Impacted Louisiana Cases, Nov 2018 Sub (2000-2016) - Linked To County Attributes - Total U.S., 1969-2017 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, released April 2019, based on the November 2018 submission.

1.6 Treatment Benefits

To set prior probability distributions for the impact of treatment and imaging modalities on stage-specific cancer survival we used a survey to elicit expert opinion. Respondents were asked to indicate the impact of each treatment/imaging modality on five-year survival for each cancer and stage. Response descriptions are as follows:

Impact on survival	Description
1 No impact/not indicated	Not expected to affect 5-yr survival at all
2 Small impact	May improve the probability of 5-yr survival in some cases
3 Moderate impact	Likely to improve the probability of 5-yr survival in most cases
4 Necessary	Use is necessary to achieve 5-yr survival

As a simplifying assumption, expert opinion responses for treatment impacts were based on recommended treatment for patients at first presentation. Similarly, survey responses regarding imaging are limited to initial staging. These expert opinion results thus reflect best contemporary care for patients initially diagnosed at different stages of cancer.

1.6.1 Survey Participants

Imaging

Participant	Institution
Prof Alex Pitman	Northern Beaches Hospital, Sydney, Australia
Dr Shanker Ramdave	Monash Medical Centre, Melbourne, Australia
A/Prof Sze Ting Lee	Austin Health, Melbourne, Australia
A/Prof Eddie Lau	Austin Health, Melbourne, Australia
Prof Henry Bom	Chonam National University, Chonam, Korea
Prof Jun Hatazawa	Osaka University Graduate School of Medicine, Osaka, Japan
Dr Raef Boktor	Austin Health, Melbourne, Australia
Prof Pek-Lan Khong	University of Hong Kong, Hong Kong
Prof William MacDonald	Fiona Stanley Hospital, Perth, Australia
Prof Guy Frija	Paris Georges European Hospital, Paris, France
Prof Geraldine McGinty	Weill Cornell Medicine, New York, USA
Prof Luis Donoso-Bach	Hospital Clinic of Barcelona, Barcelona, Spain
Prof James Brink	Massachusetts General Hospital, Boston, USA
Prof Heinz-Peter Schlemmer	German Cancer Research Center, Heidelberg, Germany
Prof Christin Herold	Medical University of Vienna, Vienna, Austria
Prof Gabriel Krestin	Erasmus MC, University Medical Center, Rotterdam, NL
Prof Giles Boland	Brigham and Women's Health, Boston, USA
Prof Marius Mayerhoefer	University of Vienna, Vienna, Austria
Dr Miriam Mikhail Lette	International Atomic Energy Agency, Vienna, Austria
Dr Diana Paez	International Atomic Energy Agency, Vienna, Austria
Dr Joshua Chaim	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Richard Do	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Scott Gerst	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Hedvig Hricak	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Maria Lagratta	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Robert Lefkowitz	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Peter Sawan	Memorial Sloan Kettering Cancer Center, NY, USA
Dr H. Alberto Vargas	Memorial Sloan Kettering Cancer Center, NY, USA
Dr Andreas Wibmer	Memorial Sloan Kettering Cancer Center, NY, USA
Prof Regina Beets-Tan	The Netherlands Cancer Institute, Amsterdam, Netherlands

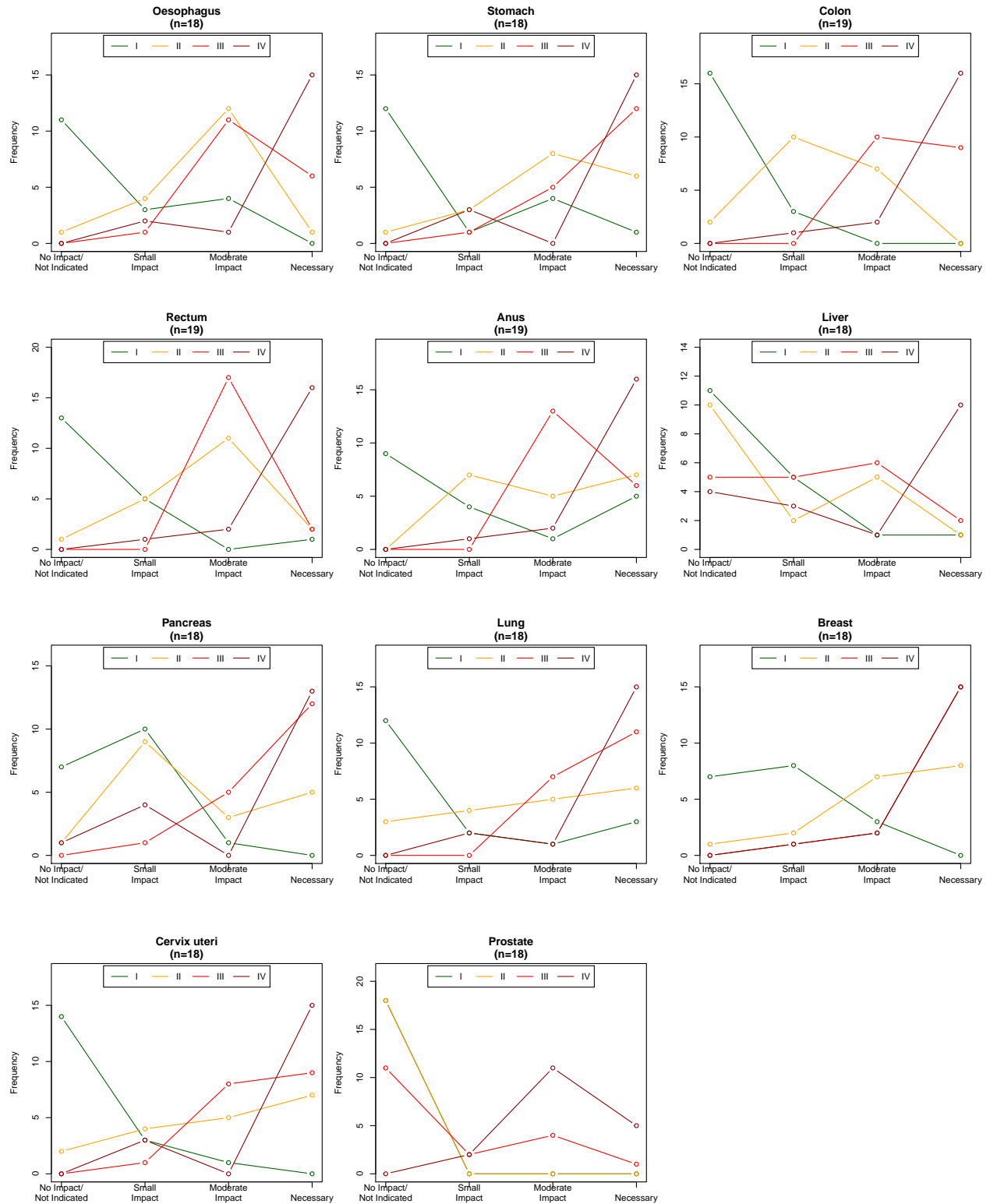
Participant	Institution
Prof David Bonekamp	German Cancer Research Center, Heidelberg, Germany
Prof Stefan Delorme	German Cancer Research Center, Heidelberg, Germany
Dr Melvin Danastasi	Mater Dei Hospital, Msida, Malta
Prof Daniele Regge	Candiolo Cancer Institute, Torino

Therapy

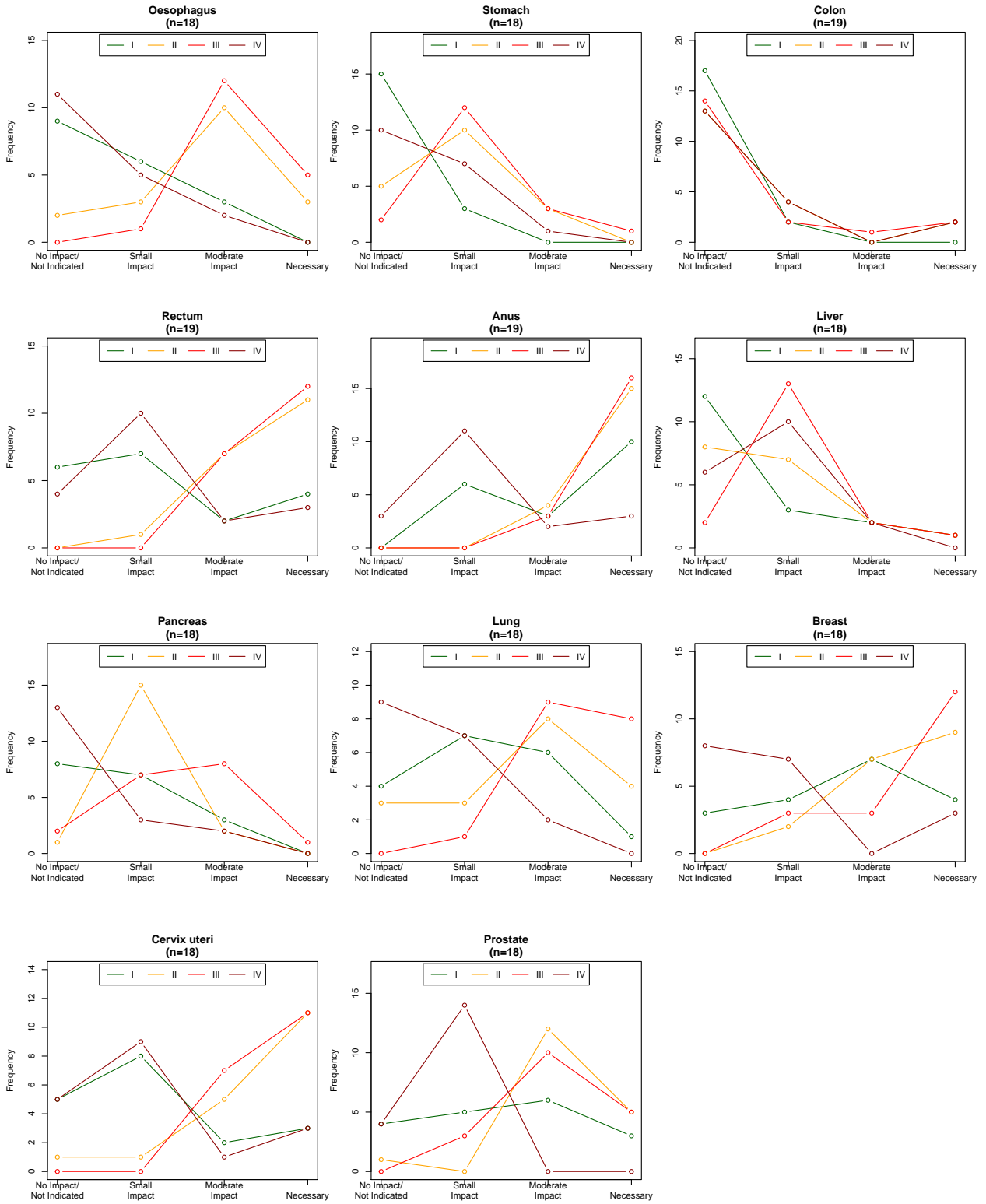
Participant	Institution
A/Prof Andrew Weickhardt	Austin Health, Melbourne, Australia
Prof Farshad Foroudi	Austin Health, Melbourne, Australia
Prof Hui Gan	Austin Health, Melbourne, Australia
Dr Siddarth Menon	Austin Health, Melbourne, Australia
Dr Umbreen Hafeez	Austin Health, Melbourne, Australia
A/Prof Eliza Hawkes	Austin Health, Melbourne, Australia
Dr David Chang	Austin Health, Melbourne, Australia
Dr Sagun Parakh	Austin Health, Melbourne, Australia
Dr George Iatropoulos	Austin Health, Melbourne, Australia
Dr Richard Khor	Austin Health, Melbourne, Australia
Dr May Abdel Wahab	International Atomic Energy Agency, Vienna, Austria
Dr Nadeem Abu-Rustum	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Peter Kingham	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Oren Cahlon	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Karim Toujier	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Diane Reidy	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Marty Weiser	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Vin Laudone	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Tim Donahue	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Oliver Zivanovic	Memorial Sloan-Kettering Cancer Center, New York, USA
Dr Surbhi Grover	University of Pennsylvania, Pennsylvania, USA

1.6.2 Survey Responses

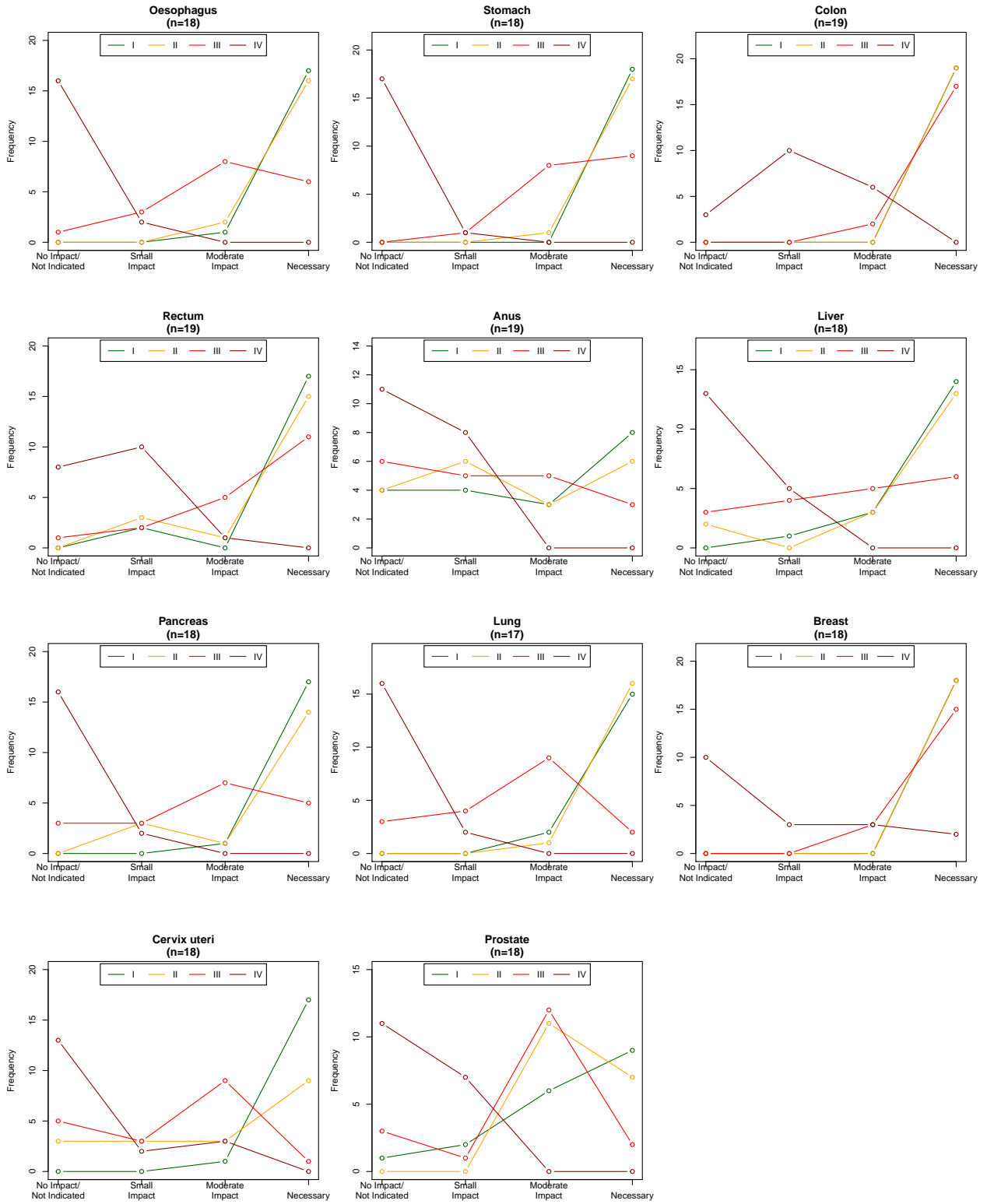
1.6.2.1 Chemotherapy



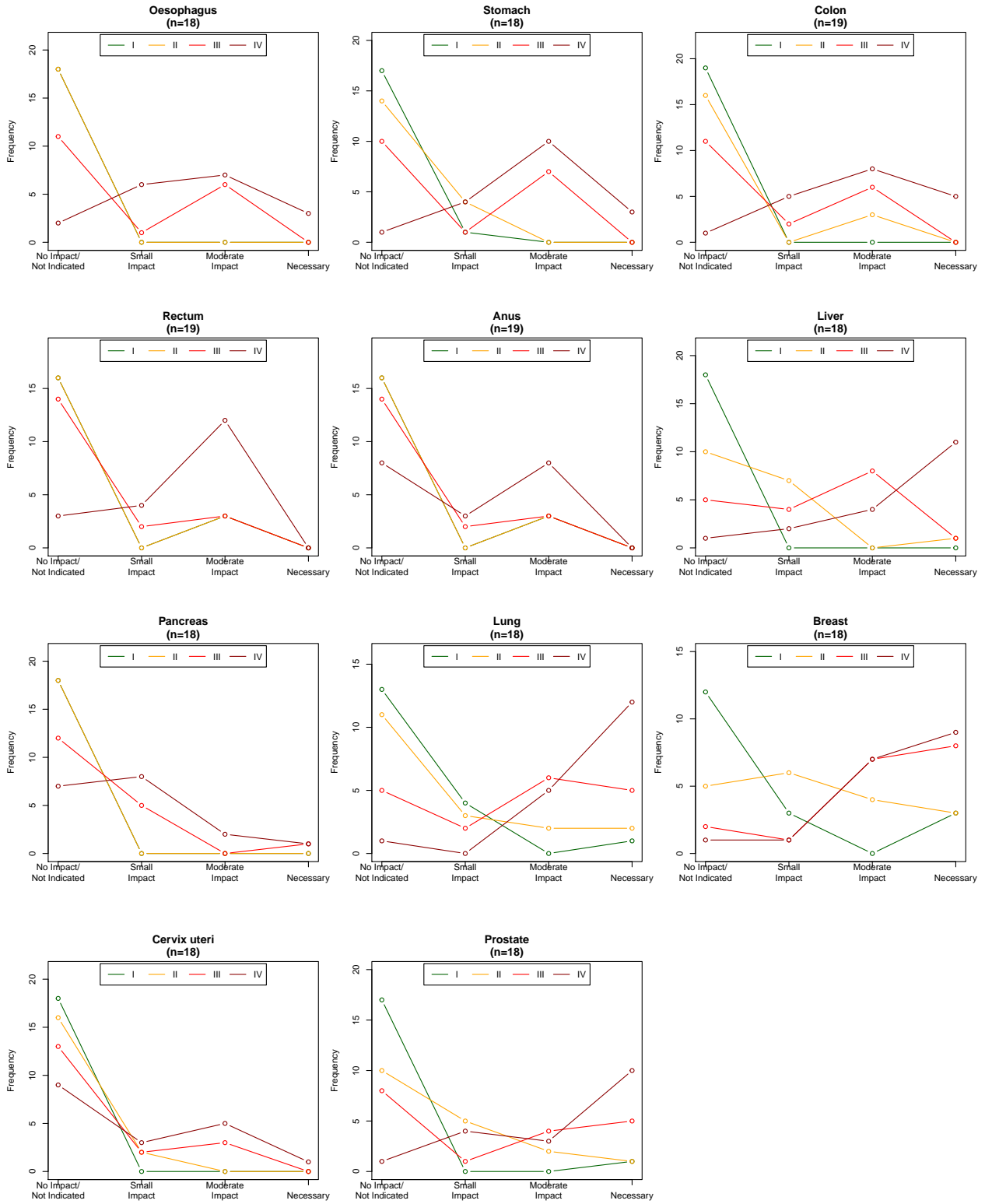
1.6.2.2 Radiotherapy



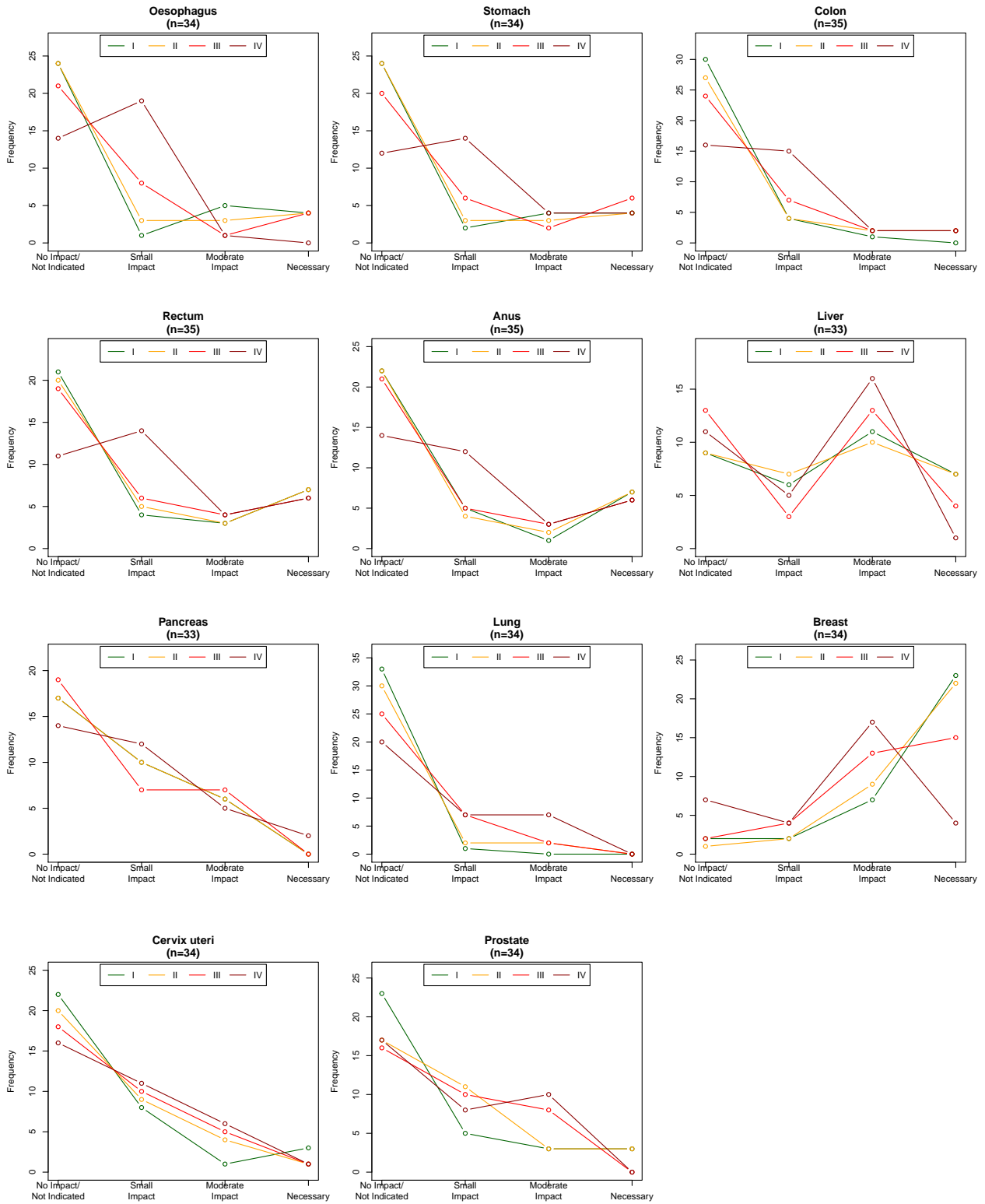
1.6.2.3 Surgery



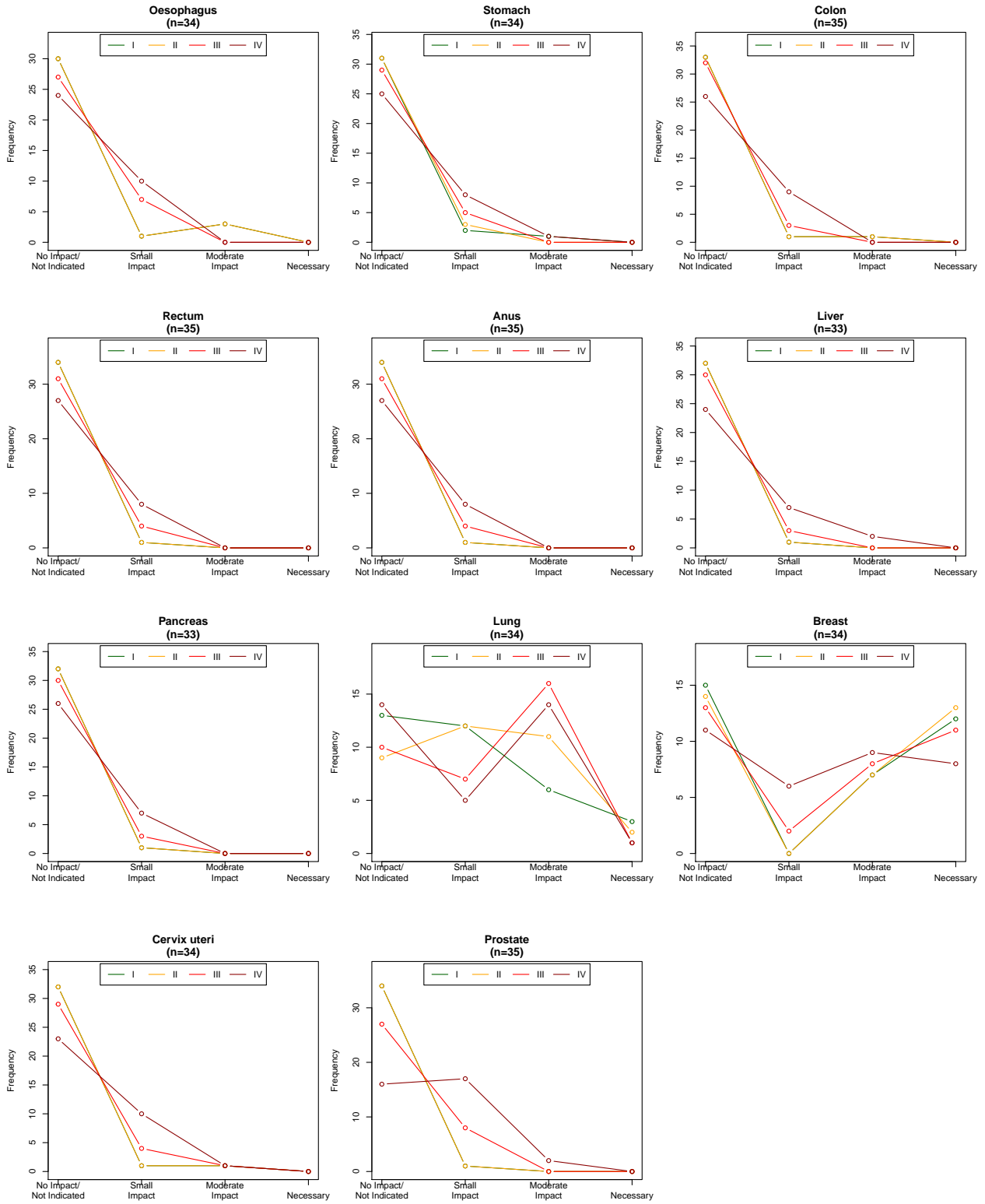
1.6.2.4 Targeted Therapy



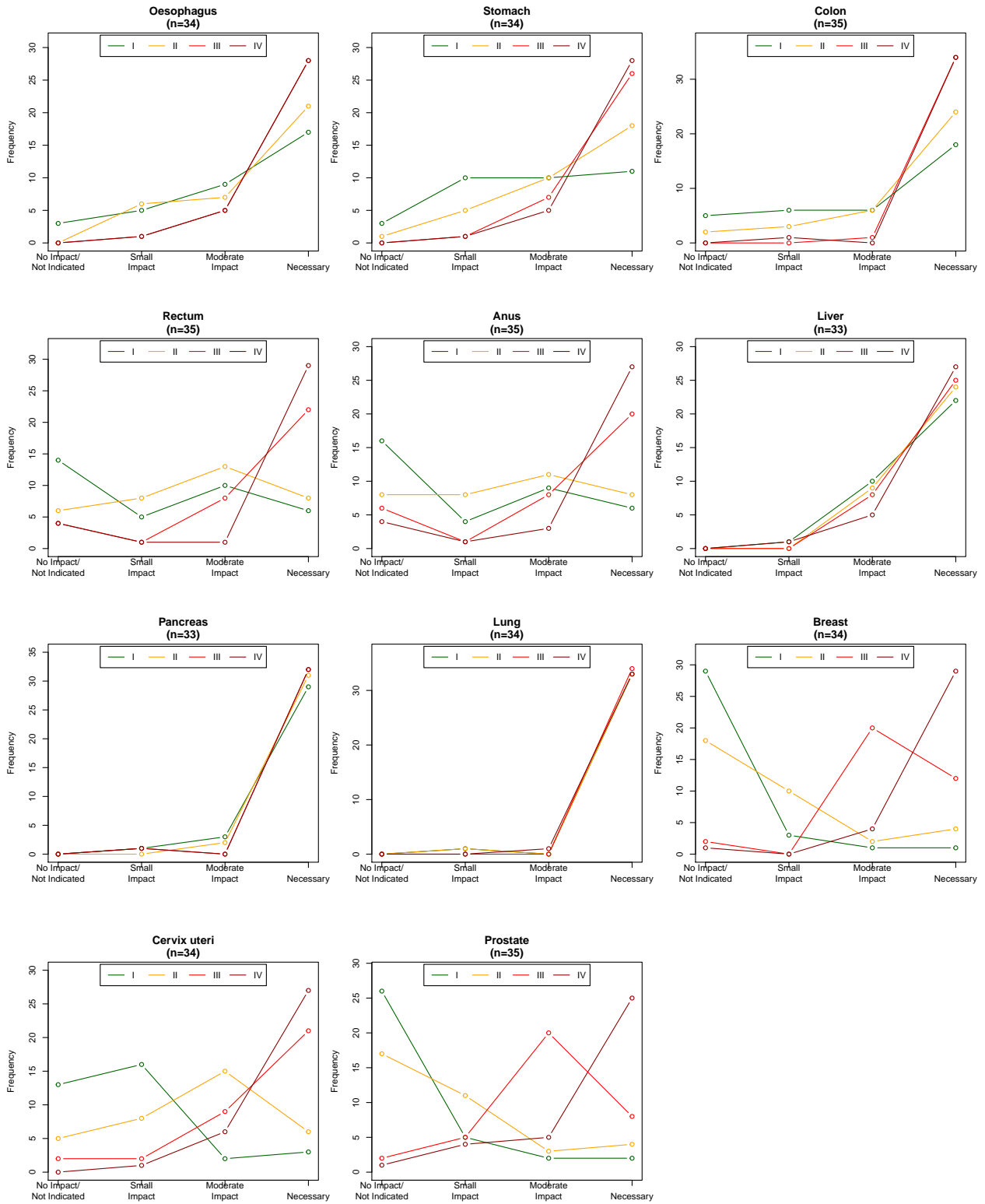
1.6.2.5 Ultrasound



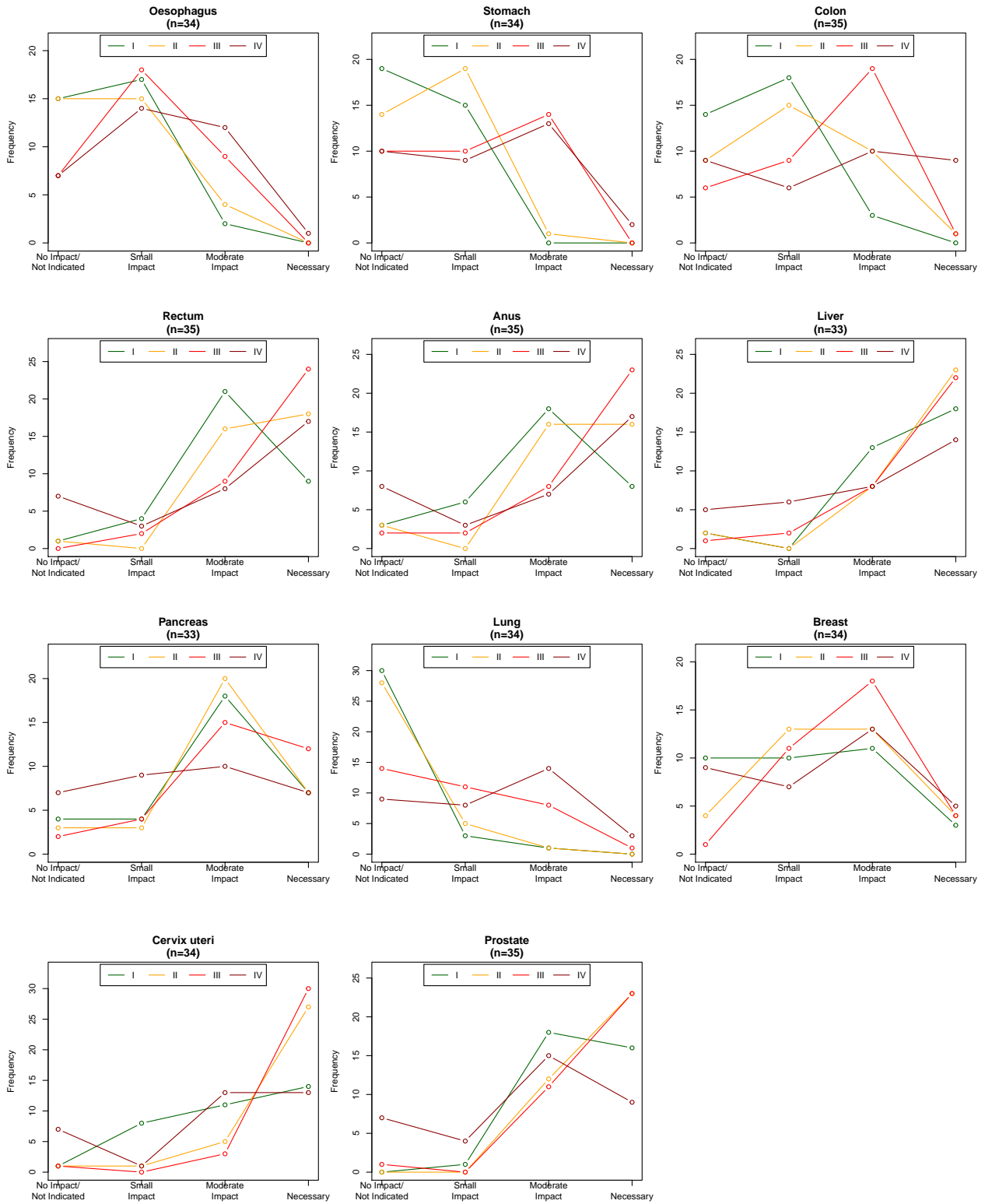
1.6.2.6 X-Ray



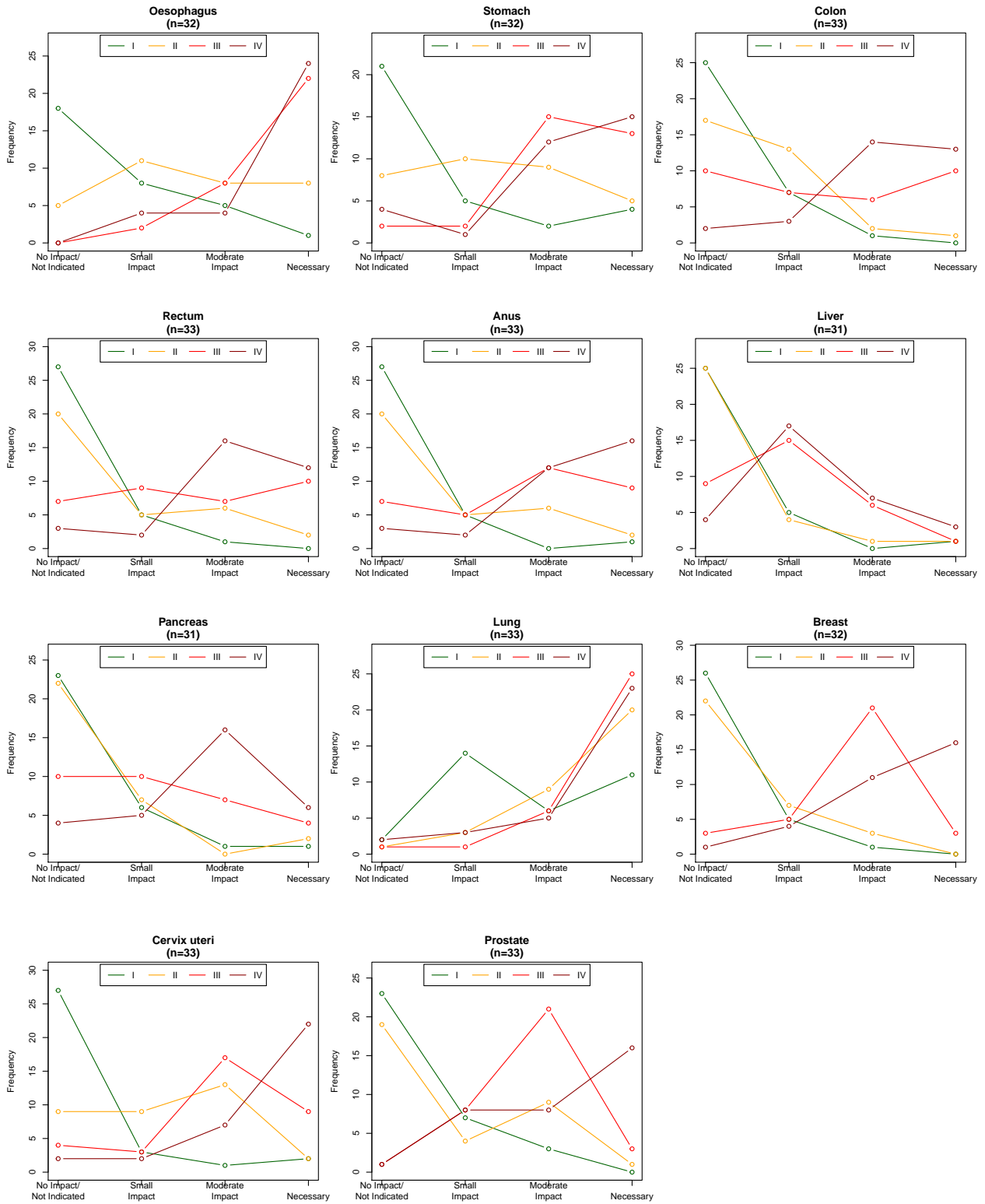
1.6.2.7 CT



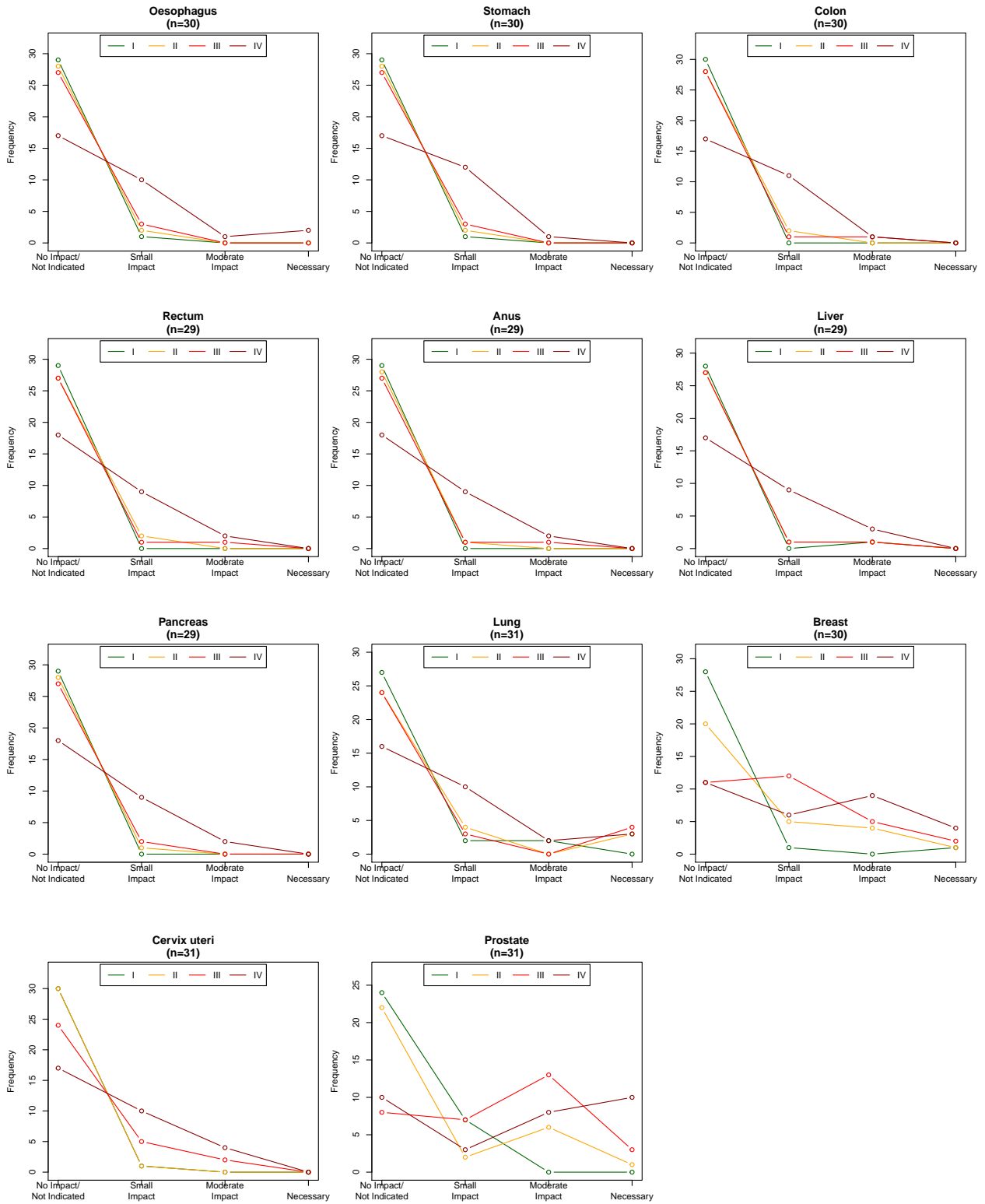
1.6.2.8 MRI



1.6.2.9 PET



1.6.2.10 SPECT

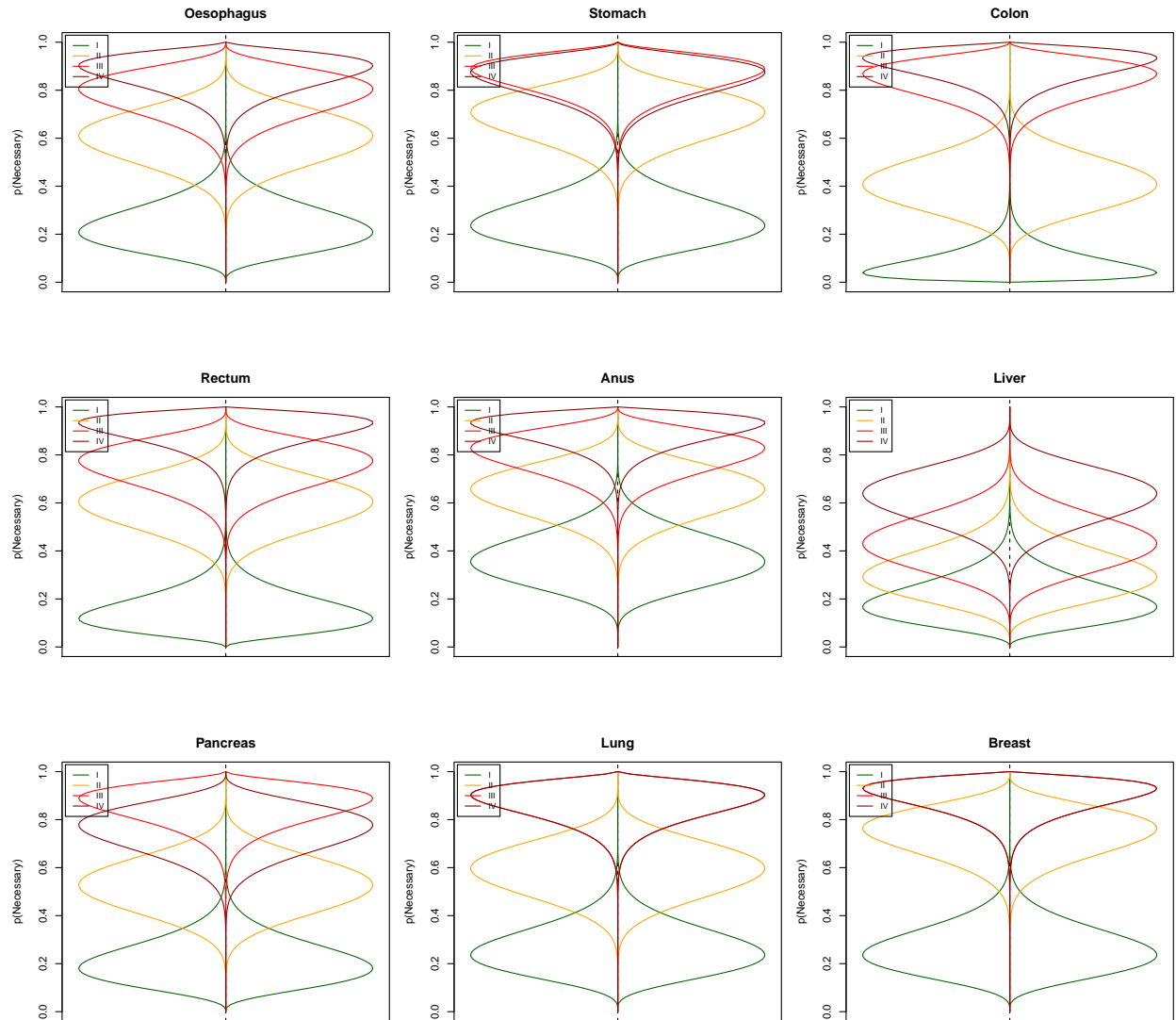


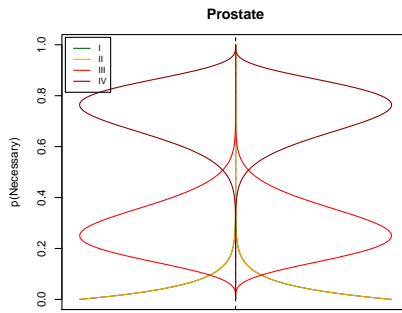
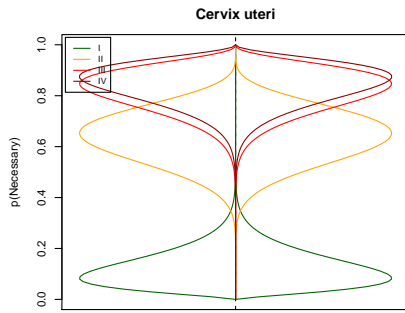
1.6.3 Estimated Priors

To estimate prior probability distributions for the probability that each modality was necessary, we weighted the responses as follows and estimated Beta distributions with the sum of the weighted estimates.

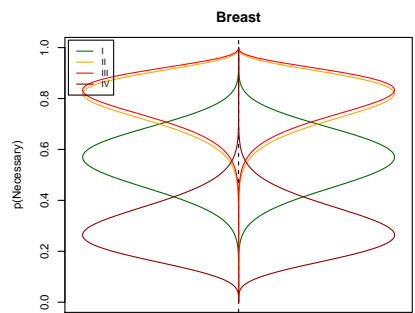
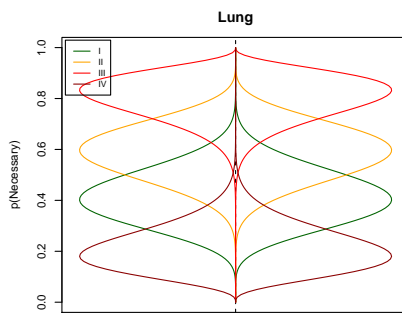
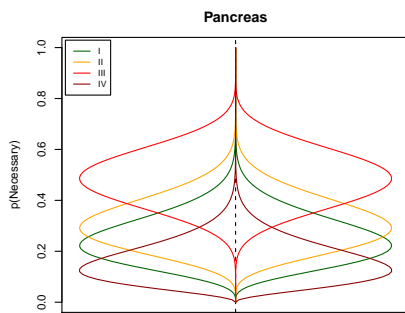
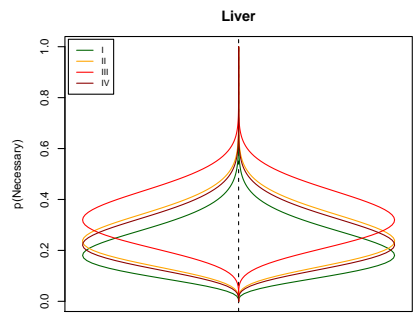
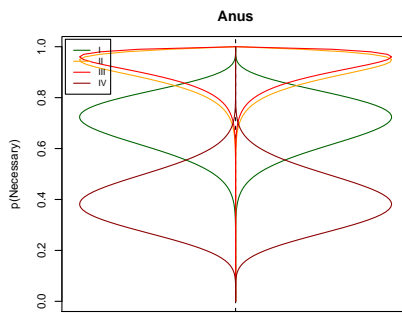
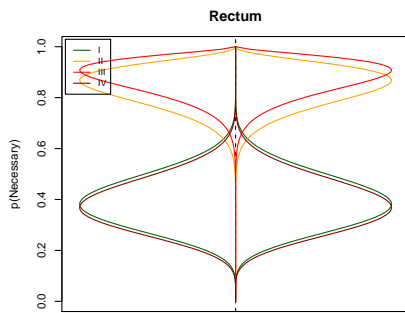
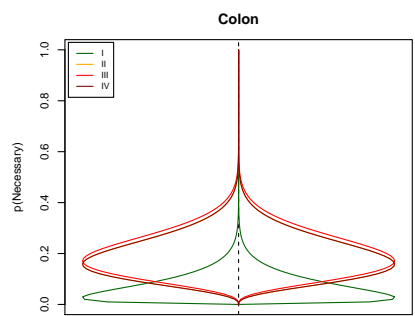
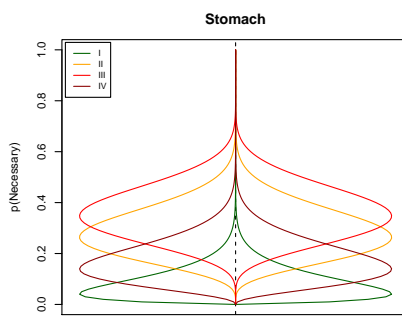
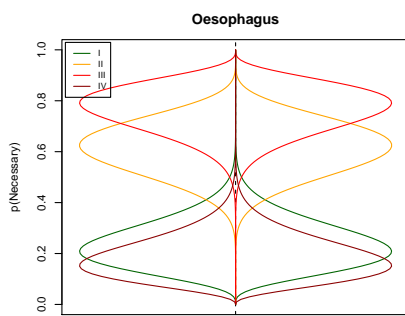
Response	Description	Weight
No impact/Not indicated	Not expected to affect 5-yr survival at all	0.0
Small impact	May improve the probability of 5-yr survival in some cases	0.25
Moderate impact	Likely to improve the probability of 5-yr survival in most cases	0.75
Necessary	Use is necessary to achieve 5-yr survival	1.00

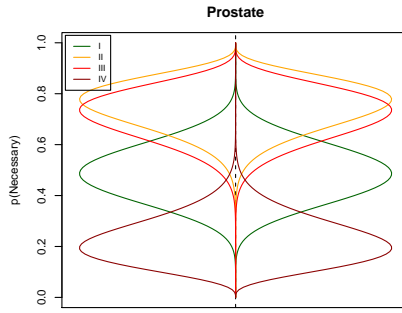
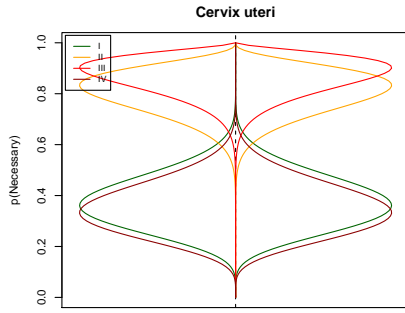
1.6.3.1 Chemotherapy



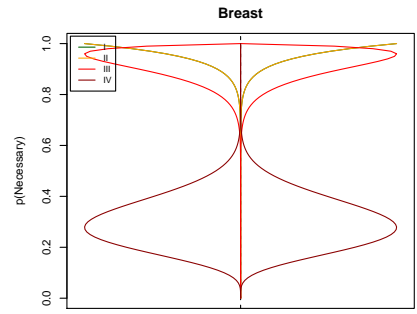
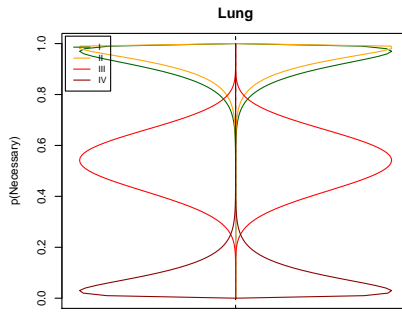
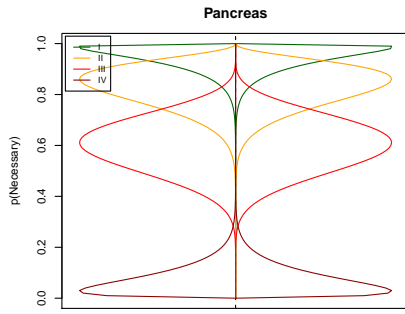
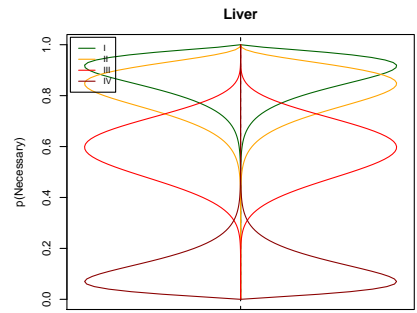
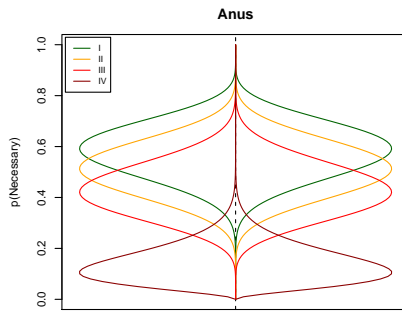
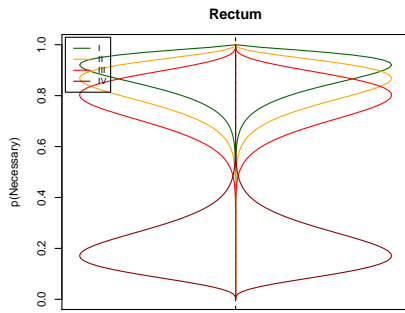
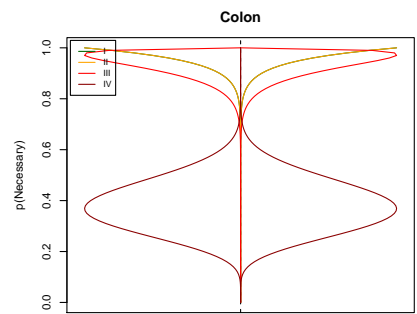
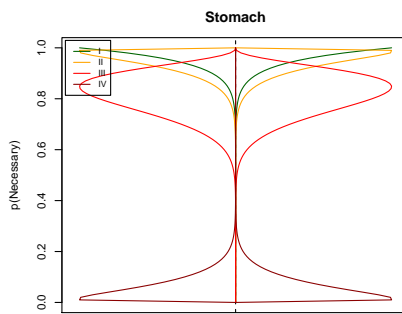
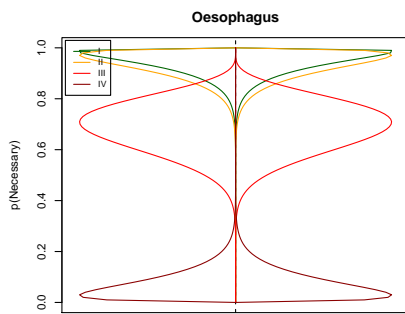


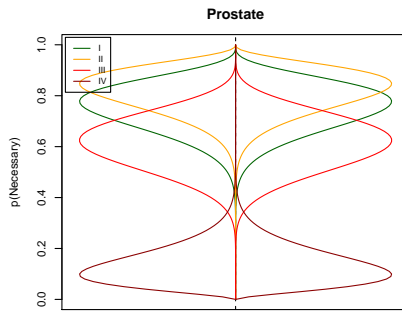
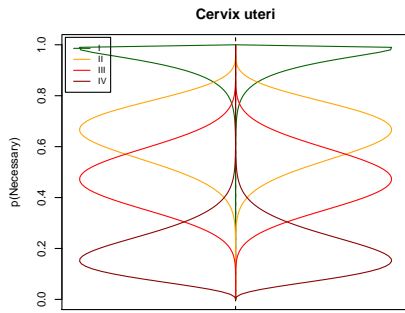
1.6.3.2 Radiotherapy



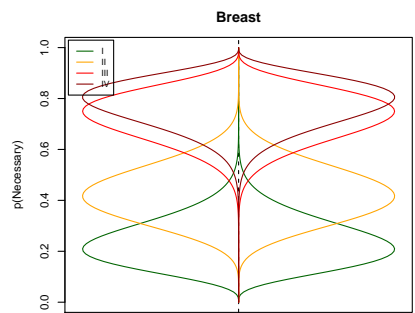
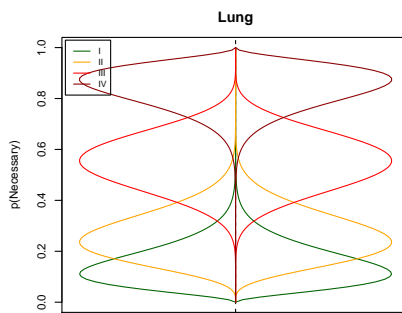
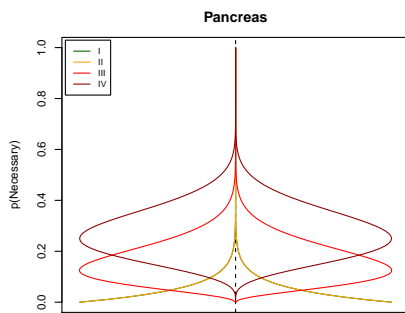
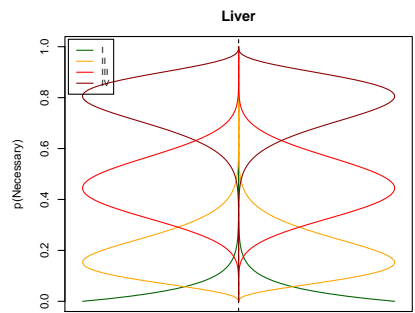
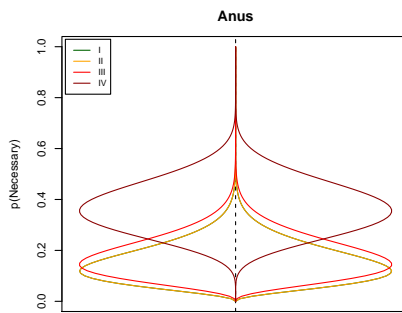
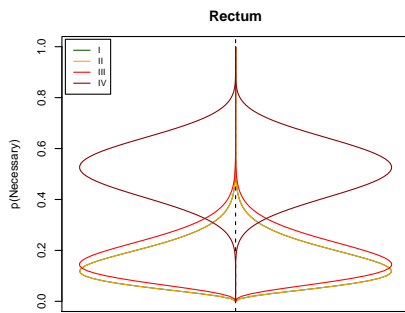
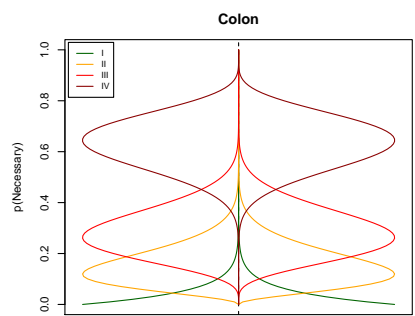
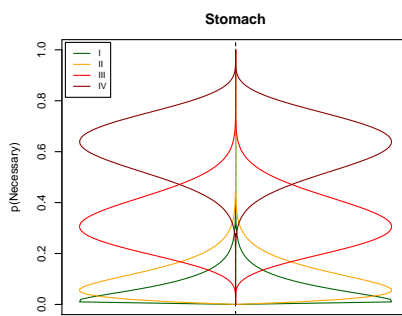
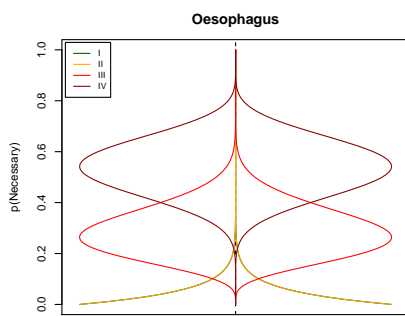


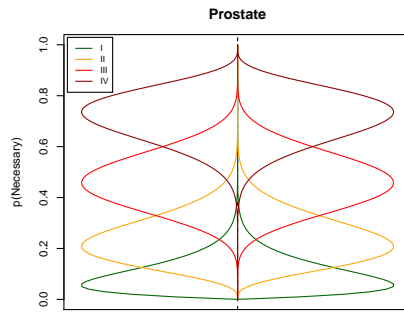
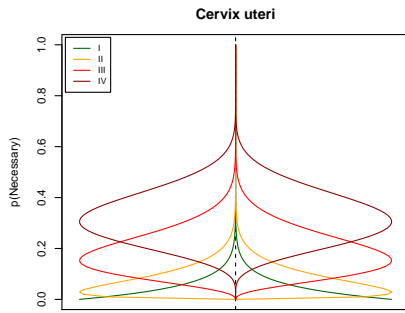
1.6.3.3 Surgery



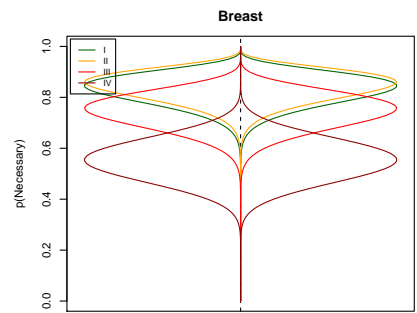
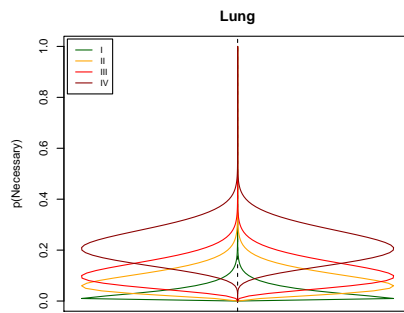
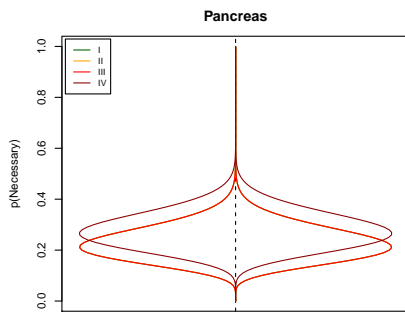
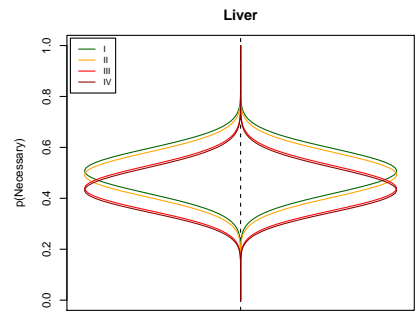
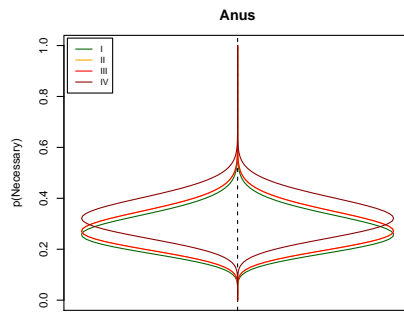
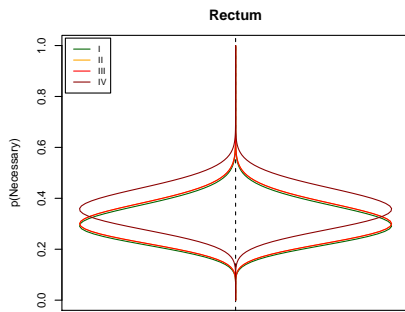
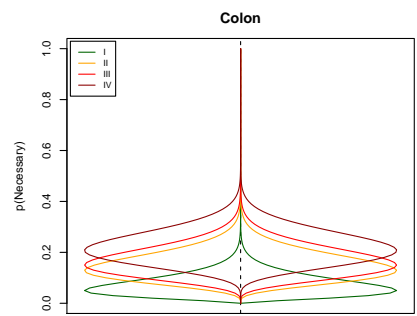
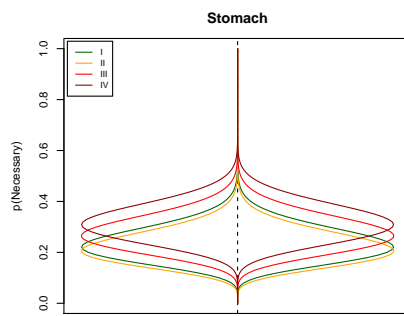
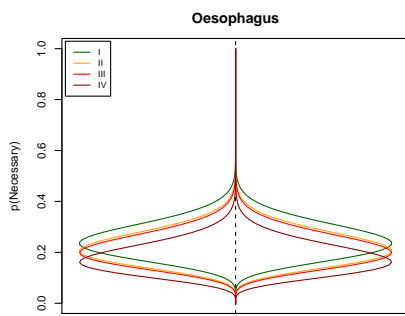


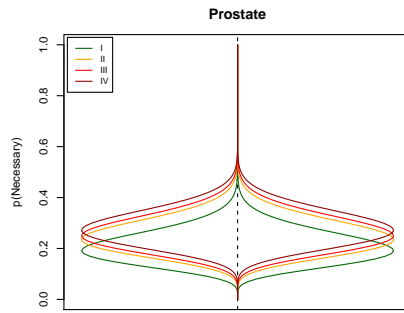
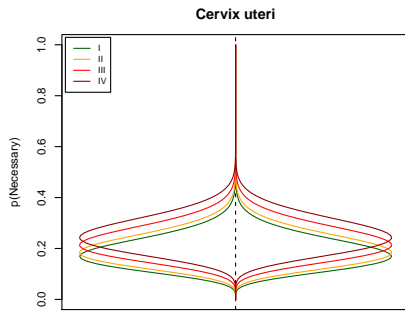
1.6.3.4 Targeted Therapy



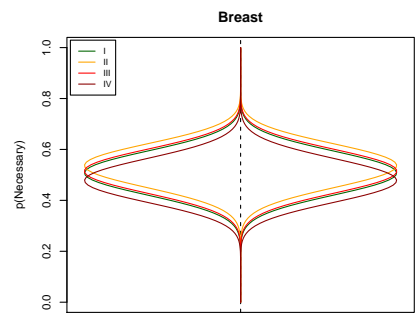
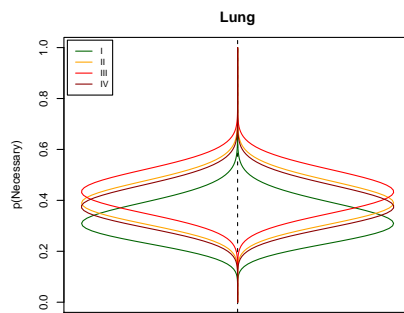
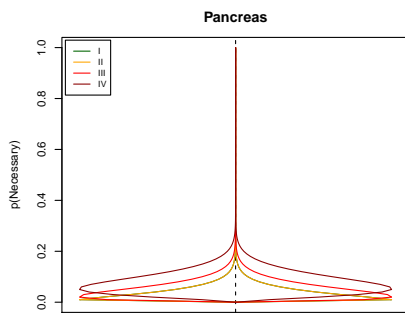
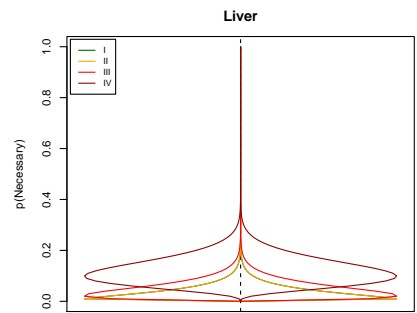
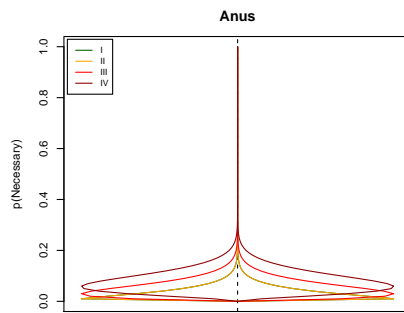
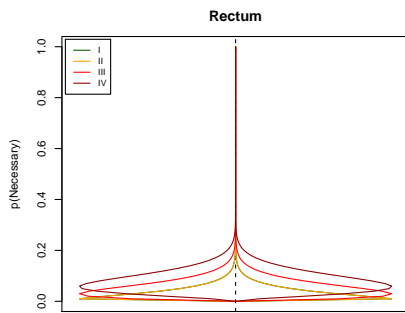
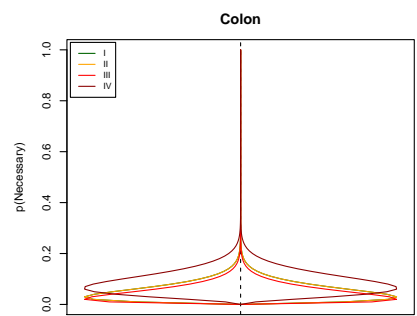
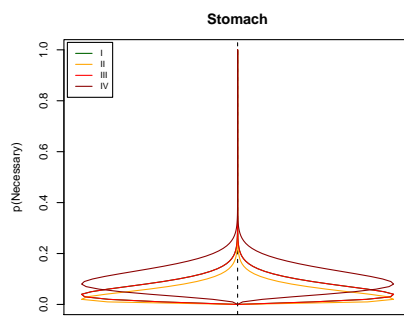
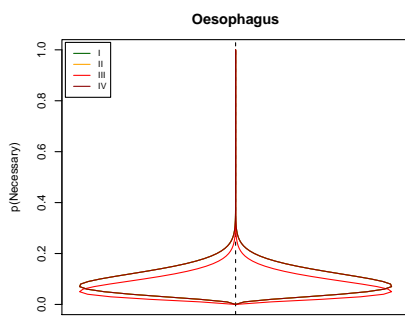


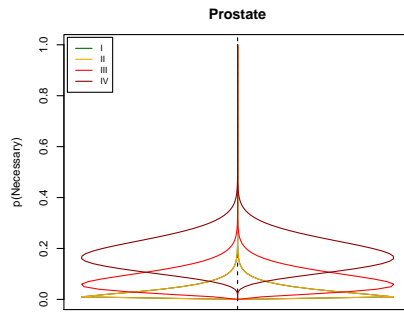
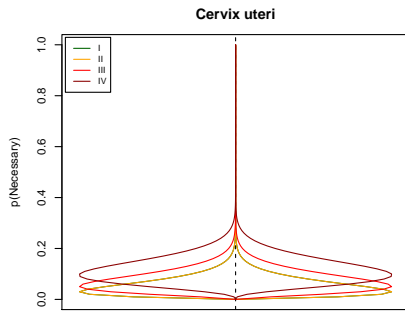
1.6.3.5 Ultrasound



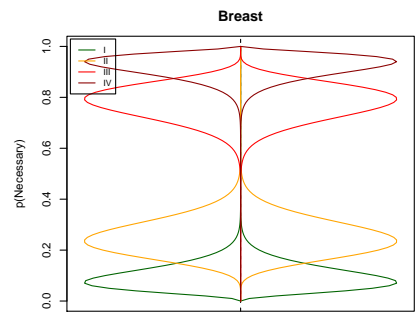
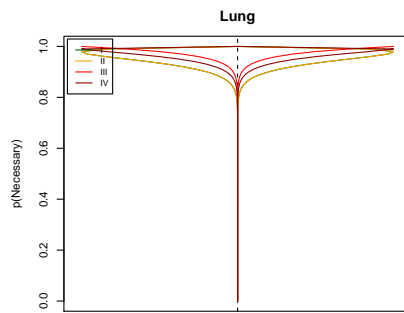
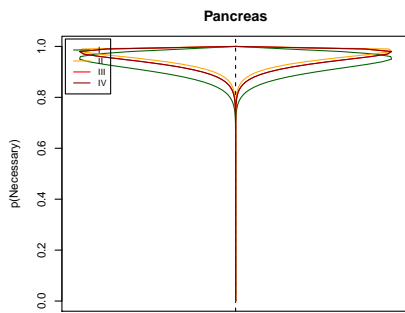
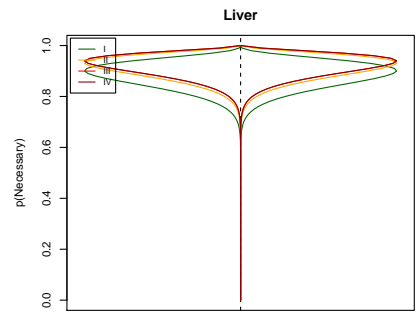
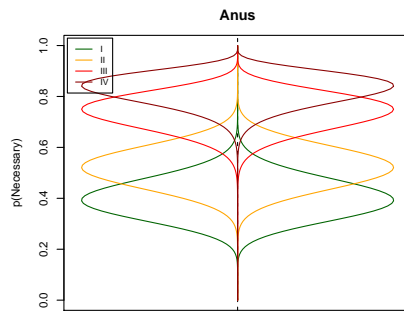
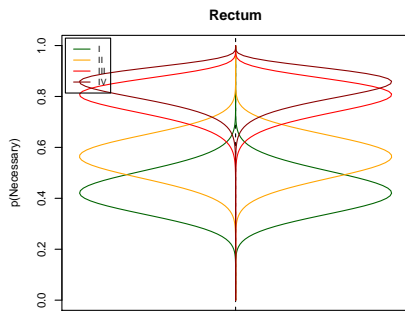
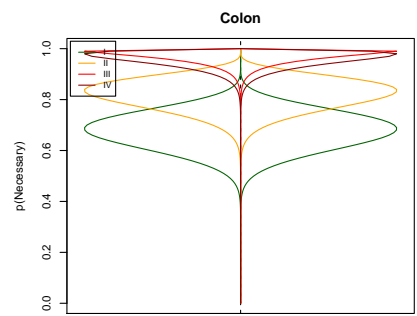
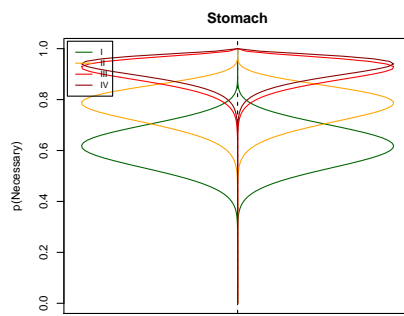
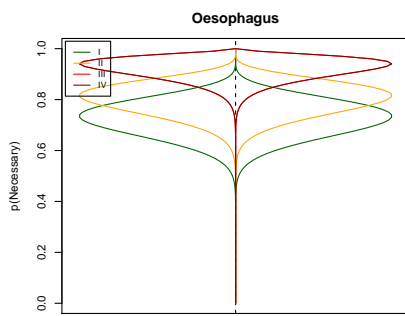


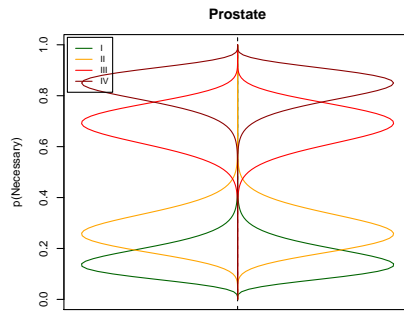
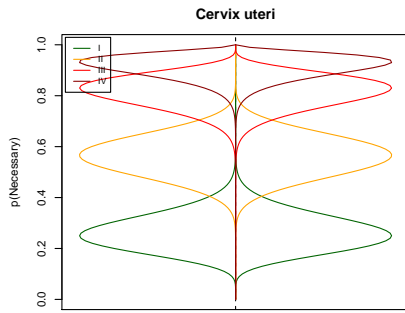
1.6.3.6 X-Ray



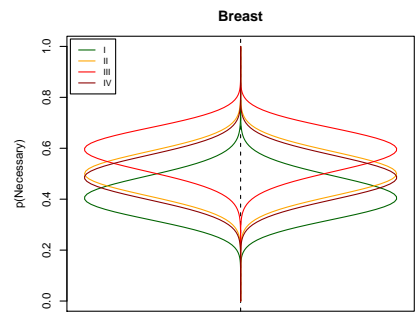
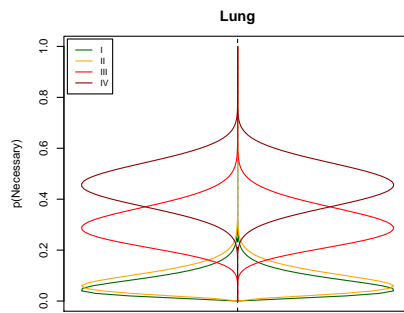
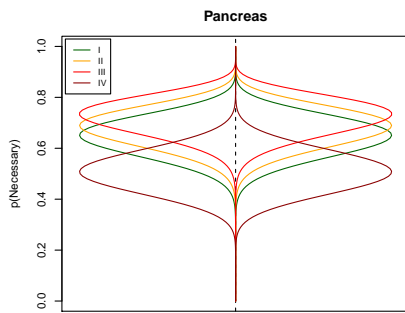
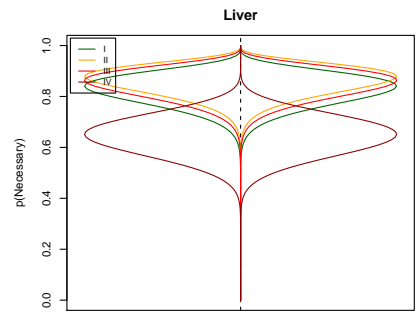
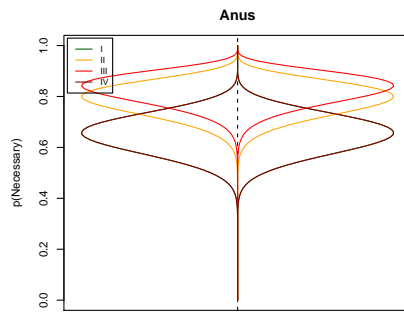
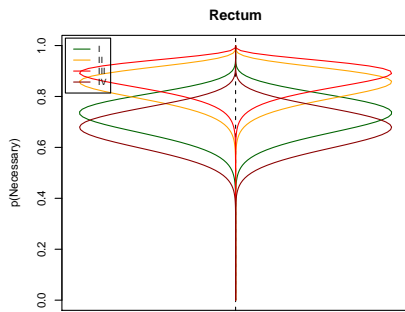
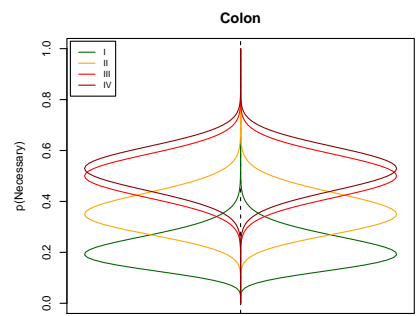
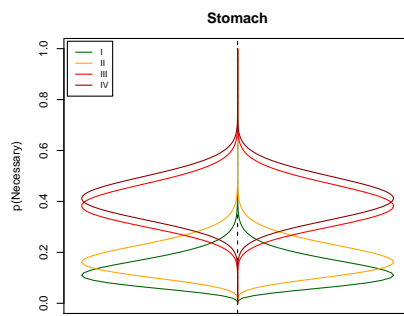
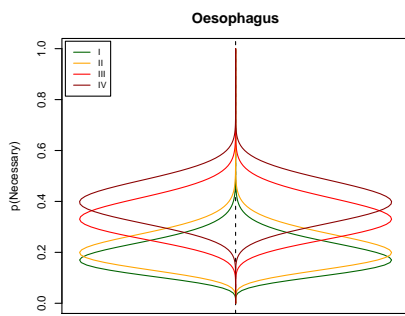


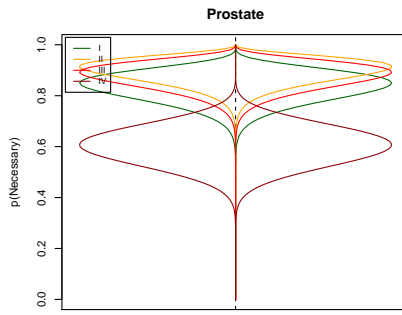
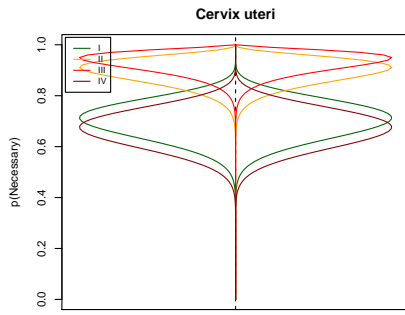
1.6.3.7 CT



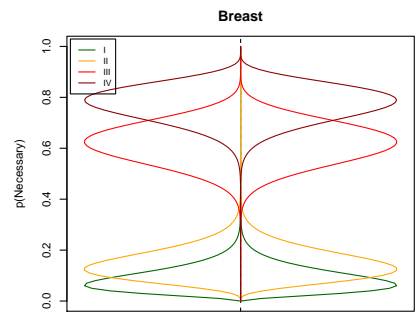
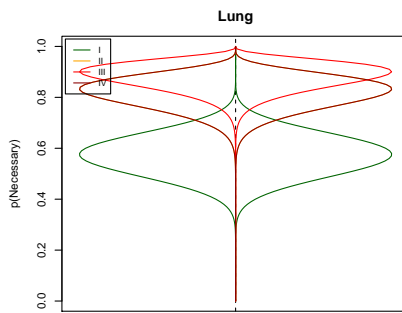
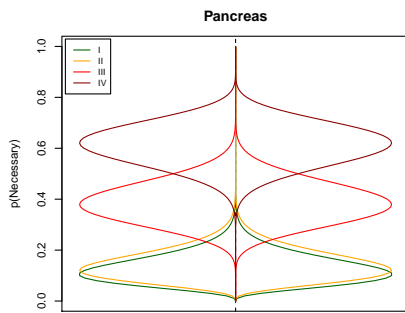
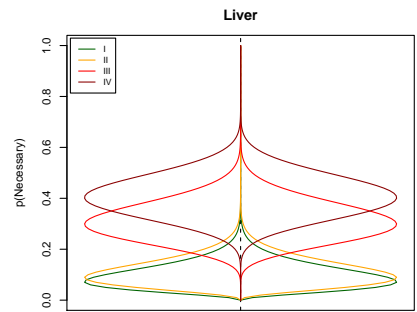
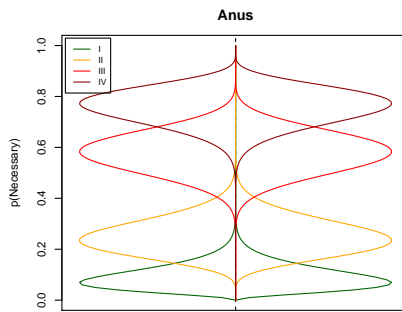
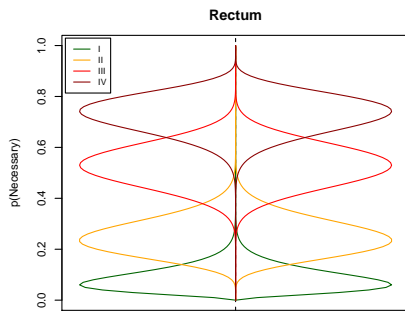
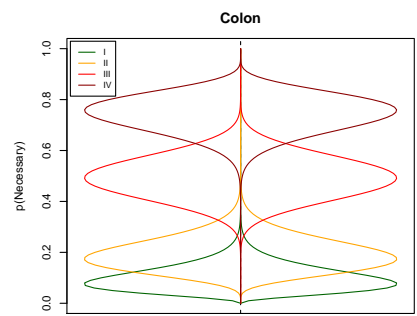
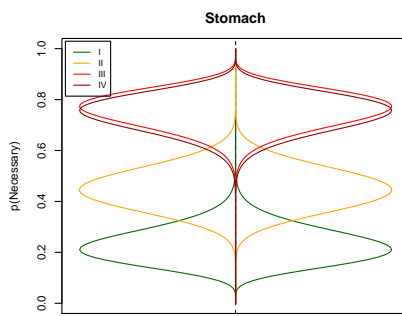
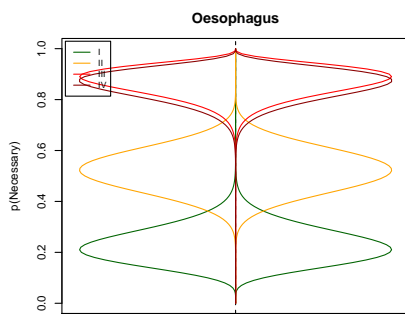


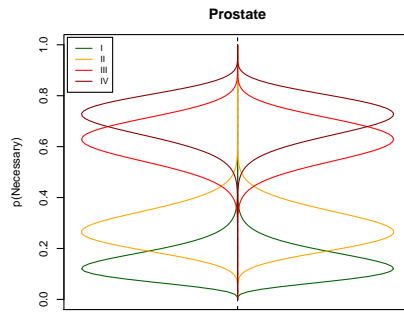
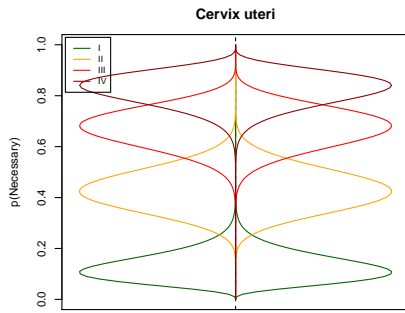
1.6.3.8 MRI



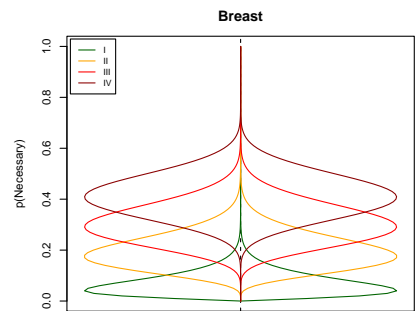
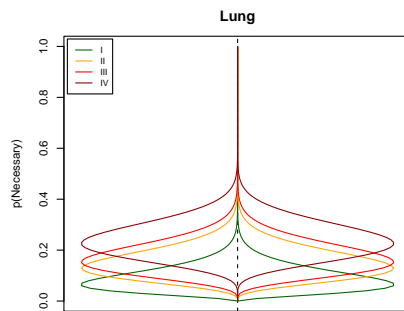
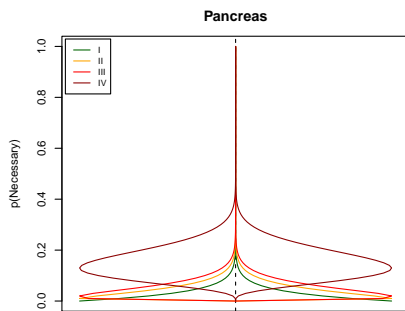
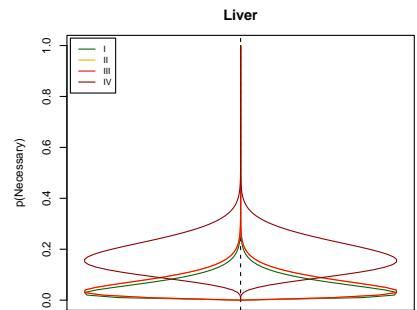
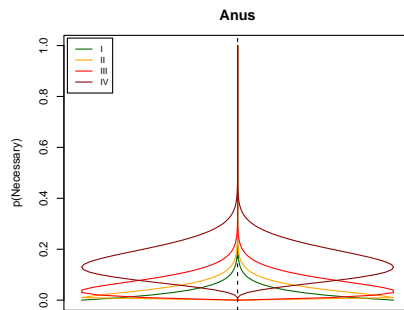
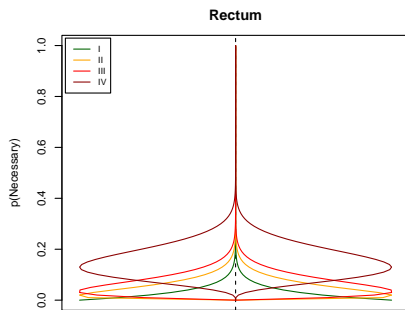
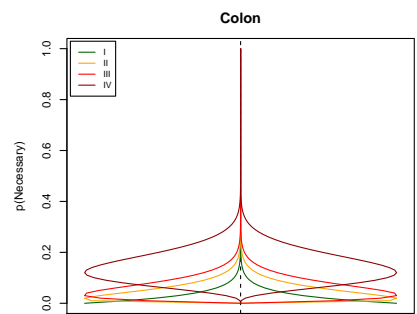
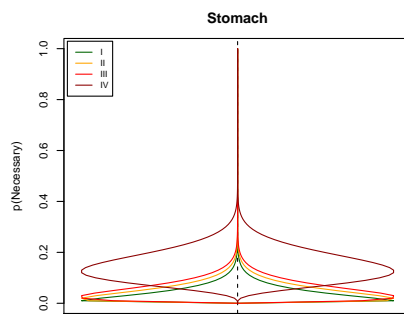
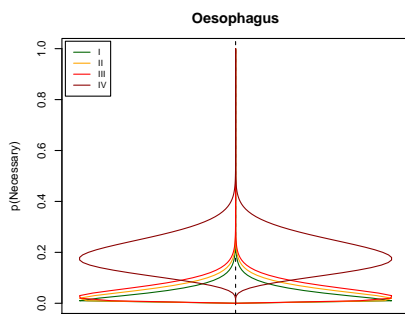


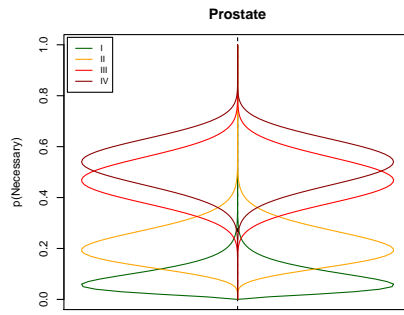
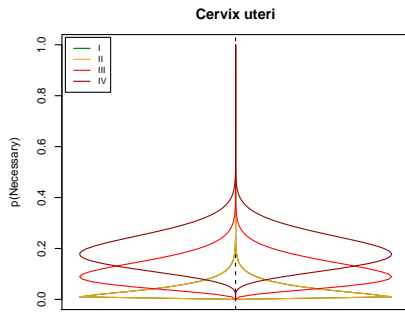
1.6.3.9 PET





1.6.3.10 SPECT





1.6.4 Expert Consensus

To provide consensus results, responses with at least 75% agreement were accepted as final responses, while responses with lower levels of agreement were discussed by a panel of experts to forge final consensus. Note that these final consensus results were not used in the simulation model - the estimated priors, plotted above, were used for model calibration. Instead, these consensus results are presented here as a summary of the expert opinion elicitation process and to provide guidance for recommendations for the forthcoming Lancet Oncology Commission on Imaging and Nuclear Medicine.

Expert Panel - Imaging

Participant	Institution
Chair: Dr H. Alberto Vargas	Memorial Sloan Kettering Cancer Center, New York, USA
Prof Andrew Scott	Austin Health, Melbourne, Australia
Prof Pek-Lan Khong	University of Hong Kong, Hong Kong
A/Prof Eddie Lau	Austin Health, Melbourne, Australia
Prof Heinz-Peter Schlemmer	German Cancer Research Center, Heidelberg, Germany
Prof Giles Boland	Brigham and Women's Hospital, Boston, USA
Prof Marius Mayerhoefer	University of Vienna, Vienna, Austria

Expert Panel - Therapy

Participant	Institution
Chair: Dr. Peter Kingham	Memorial Sloan Kettering Cancer Center, New York, USA
Dr Surbhi Grover	University of Pennsylvania, Pennsylvania, USA
Prof Hui Gan	Austin Health, Melbourne, Australia
Dr Diane Reidy	Memorial Sloan Kettering Cancer Center, New York, USA
Prof Farshad Foroudi	Austin Health, Melbourne, Australia
Dr Martin Weiser	Memorial Sloan Kettering Cancer Center, New York, USA

Oesophagus

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	Small impact	Moderate impact	Moderate impact	Necessary
Radiotherapy	Small impact	Moderate impact	Moderate impact	No impact
Surgery	Necessary	Necessary	Small impact	No impact
Targeted therapy	No impact	No impact	No impact	Small impact
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Small impact
X-ray	No impact	No impact	No impact	No impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	Small impact	Small impact	Moderate impact	Moderate impact
PET	No impact	Small impact	Necessary	Necessary
SPECT	No impact	No impact	No impact	Small impact

Stomach

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	Small impact	Moderate impact	Necessary	Necessary
Radiotherapy	Small impact	Small impact	Small impact	No impact
Surgery	Necessary	Necessary	Moderate impact	No impact
Targeted therapy	No impact	No impact	No impact	Small impact
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Small impact
X-ray	No impact	No impact	No impact	No impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	Small impact	Small impact	Moderate impact	Moderate impact
PET	No impact	Small impact	Necessary	Necessary
SPECT	No impact	No impact	No impact	Small impact

Colon

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	No impact	Small impact	Moderate impact	Necessary
Radiotherapy	No impact	No impact	No impact	No impact
Surgery	Necessary	Necessary	Necessary	Small impact
Targeted therapy	No impact	No impact	No impact	Small impact
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Moderate impact
X-ray	No impact	No impact	No impact	No impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	Small impact	Small impact	Moderate impact	Moderate impact
PET	No impact	No impact	Small impact	Necessary
SPECT	No impact	No impact	No impact	Small impact

Rectum

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	No impact	Small impact	Moderate impact	Necessary
Radiotherapy	No impact	Necessary	Necessary	No impact
Surgery	Necessary	Necessary	Necessary	No impact
Targeted therapy	No impact	No impact	No impact	Small impact
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Small impact
X-ray	No impact	No impact	No impact	No impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	Necessary	Necessary	Necessary	Necessary
PET	No impact	No impact	Necessary	Necessary
SPECT	No impact	No impact	No impact	Small impact

Anus

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	No impact	Necessary	Necessary	Necessary
Radiotherapy	Necessary	Necessary	Necessary	No impact
Surgery	No impact	No impact	No impact	No impact
Targeted therapy	No impact	No impact	No impact	Small impact
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Small impact
X-ray	No impact	No impact	No impact	No impact
CT	Small impact	Moderate impact	Necessary	Necessary
MRI	Moderate impact	Moderate impact	Necessary	Necessary
PET	No impact	No impact	Moderate impact	Necessary
SPECT	No impact	No impact	No impact	Small impact

Liver

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	No impact	No impact	No impact	Small impact
Radiotherapy	No impact	No impact	Small impact	No impact
Surgery	Necessary	Necessary	Small impact	No impact
Targeted therapy	No impact	No impact	Moderate impact	Necessary
<i>Imaging</i>				
Ultrasound	Necessary	Necessary	Necessary	Necessary
X-ray	No impact	No impact	No impact	No impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	Necessary	Necessary	Necessary	Necessary
PET	No impact	No impact	Moderate impact	Moderate impact
SPECT	No impact	No impact	No impact	Small impact

Pancreas

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	Small impact	Small impact	Necessary	Necessary
Radiotherapy	No impact	Small impact	Moderate impact	No impact
Surgery	Necessary	Necessary	Moderate impact	No impact
Targeted therapy	No impact	No impact	No impact	Small impact
<i>Imaging</i>				
Ultrasound	Small impact	Small impact	Moderate impact	Necessary
X-ray	No impact	No impact	No impact	No impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	Necessary	Necessary	Necessary	Necessary
PET	No impact	No impact	Moderate impact	Moderate impact
SPECT	No impact	No impact	No impact	Small impact

Lung

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	No impact	Necessary	Necessary	Necessary
Radiotherapy	Small impact	No impact	Necessary	No impact
Surgery	Necessary	Necessary	Moderate impact	No impact
Targeted therapy	No impact	No impact	Moderate impact	Necessary
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Moderate impact
X-ray	Small impact	Small impact	Small impact	Small impact
CT	Necessary	Necessary	Necessary	Necessary
MRI	No impact	No impact	No impact	Moderate impact
PET	Moderate impact	Necessary	Necessary	Necessary
SPECT	No impact	No impact	No impact	Moderate impact

Breast

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	Small impact	Necessary	Necessary	Necessary
Radiotherapy	Small impact	Necessary	Necessary	No impact
Surgery	Necessary	Necessary	Necessary	No impact
Targeted therapy	Small impact	Moderate impact	Necessary	Necessary
<i>Imaging</i>				
Ultrasound	Necessary	Necessary	Necessary	Necessary
X-ray	No impact	No impact	No impact	No impact
CT	No impact	No impact	Moderate impact	Necessary
MRI	Moderate impact	Moderate impact	Moderate impact	Necessary
PET	No impact	No impact	Moderate impact	Necessary
SPECT	Small impact	Small impact	Moderate impact	Necessary

Cervical

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	Necessary+	Necessary+	Necessary	Necessary
Radiotherapy	Necessary+	Necessary+	Necessary	No impact
Surgery	Necessary	Small impact	No impact	No impact
Targeted therapy	No impact	No impact	No impact	No impact
<i>Imaging</i>				
Ultrasound	No impact	Small impact	Small impact	Moderate impact
X-ray	No impact	No impact	No impact	No impact
CT	Small impact	Moderate impact	Necessary	Necessary
MRI	Necessary	Necessary	Necessary	Necessary
PET	No impact	Necessary	Necessary	Necessary
SPECT	No impact	No impact	No impact	Small impact

+For patients with bulky Stage I/II disease or parametrial extension

Prostate

Modality	Stage I	Stage II	Stage III	Stage IV
<i>Treatment</i>				
Chemotherapy	No impact	No impact	No impact	Necessary
Radiotherapy	Necessary	Necessary	Necessary	Small impact
Surgery	Necessary	Necessary	Small impact	No impact
Targeted therapy	No impact	No impact	Necessary	Necessary
<i>Imaging</i>				
Ultrasound	No impact	No impact	No impact	Small impact
X-ray	No impact	No impact	No impact	Small impact
CT	No impact	No impact	Moderate impact	Necessary
MRI	Moderate impact	Necessary	Necessary	Necessary
PET	No impact	No impact	Necessary	Necessary
SPECT	No impact	No impact	Moderate impact	Necessary

1.6.5 Impact of Modern Modalities

We differentiate between ‘traditional’ and ‘modern’ modalities.

Traditional We classified chemotherapy, radiotherapy, and surgery as ‘traditional’ treatment modalities as they have been available for many years. We also classified ultrasound and x-ray as ‘traditional’ imaging modalities given their long history of use: x-rays were invented in the 19th century, and the first clinical application of breast ultrasound was reported in 1954 (Dempsey 2004).

Modern Here we list the ‘modern’ modalities and period of introduction:

- Targeted therapy: The first targeted cancer therapy was tamoxifen, which was approved in 1977 for the management of metastatic breast cancer (Meisel 2018).
- CT: The first machines were installed between 1974 and 1976, with whole-body systems becoming available in 1976 (DecodingScience 2019).
- MRI: The first commercial MRI scanner was produced in 1980 (US Dept of Energy 2009).
- PET: The first whole-body PET scanner appeared in 1977 (US Dept of Energy 2009).
- SPECT: While SPECT was introduced in the 1950s and is older than most other imaging modalities, it did not come into widespread use until the 1980s (Matthews 2006).

References:

DecodingScience. CT Scan: Computed Axial Tomography (CAT) Scan. <https://www.decodedscience.org/ct-scan-computed-axial-tomography-cat-scan/>

Dempsey PJ. The history of breast ultrasound. *J Ultrasound Med* 2004; 23(7): 887-94.

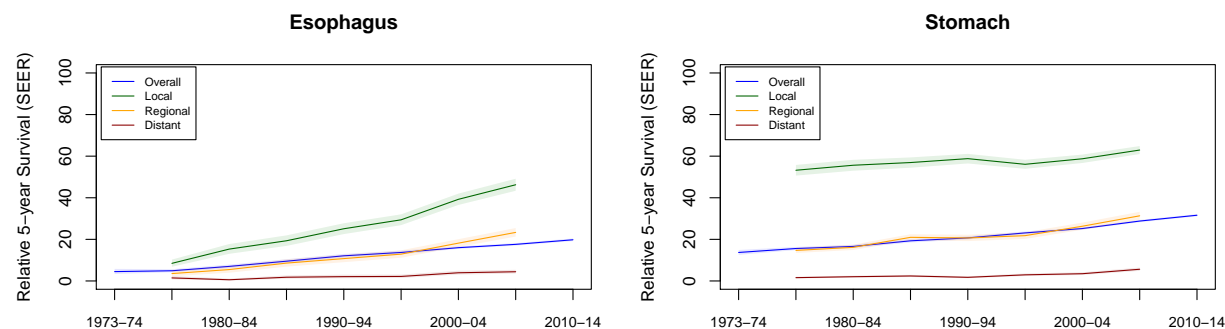
Matthews M. The Story of SPECT. *Axis Imaging News* 2006. <https://www.axisimagingnews.com/radiology-products/imaging-equipment/ct/the-story-of-spect>

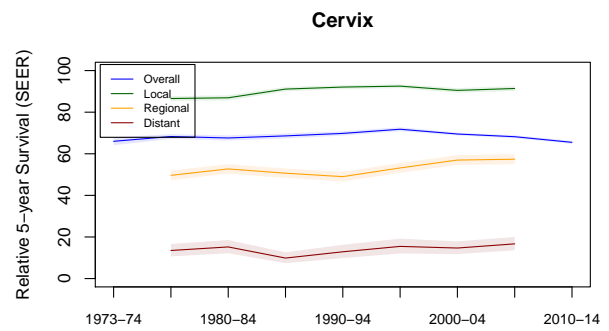
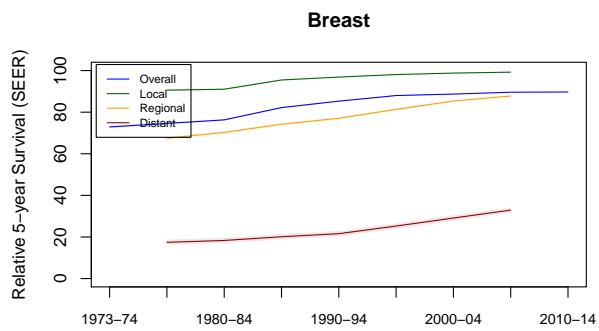
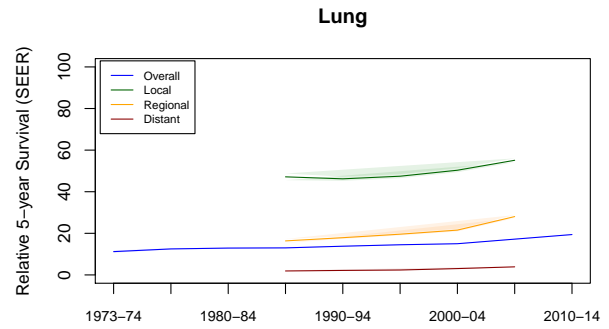
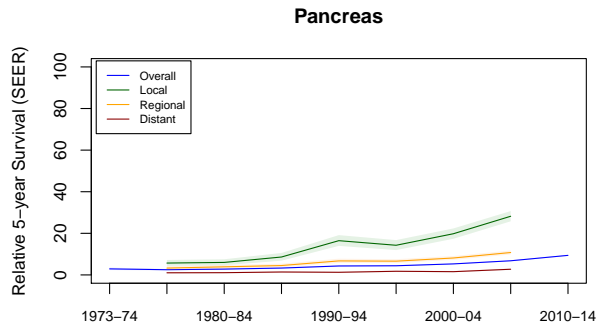
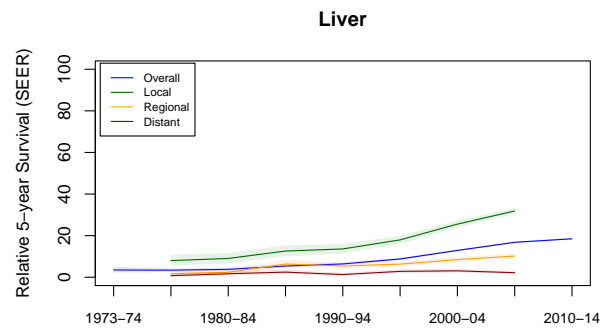
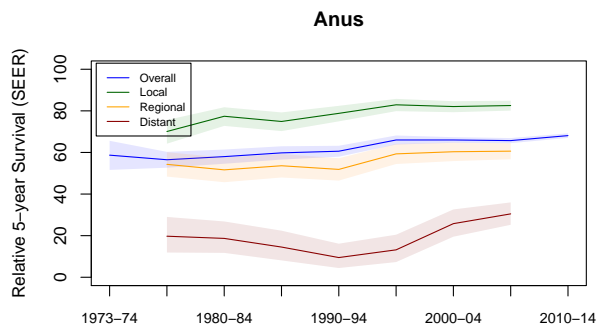
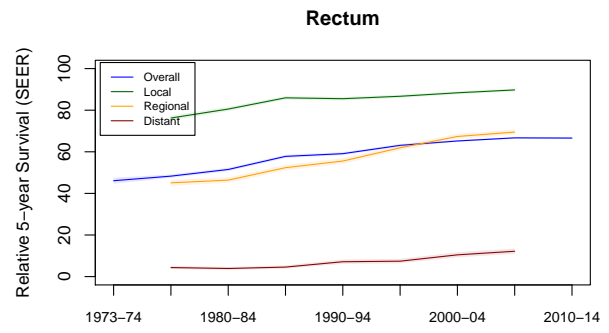
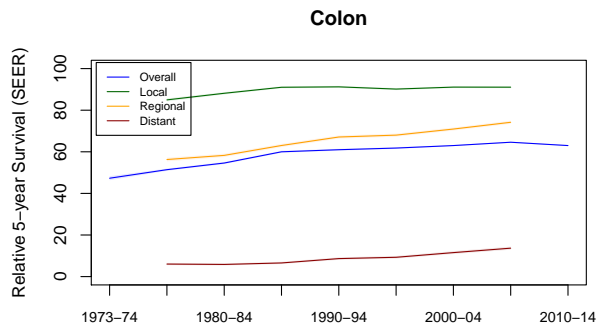
Meisel JL, Venur VA, Gnant M, Carey L. Evolution of Targeted Therapy in Breast Cancer: Where Precision Medicine Began. *Am Soc Clin Oncol Educ Book* 2018; 38: 78-86.

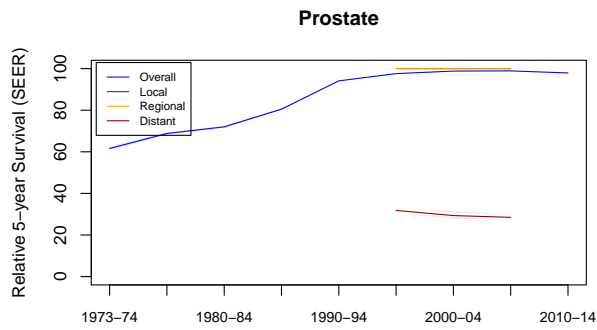
U.S. Department of Energy. Molecular Nuclear Medicine Legacy. <https://www.doemedicalsciences.org/historypetmri.shtml>

To estimate priors for the potential impact of modern modalities, we analyzed trends in 5-year net cancer survival in SEER from 1973 to 2014. For example, prostate cancer survival was 60% in 1973-74, before targeted therapy and technologies such as MRI and PET were available. We can therefore set a bound of ~40% for the maximum probability that these newer modalities are necessary for prostate cancer survival.

Here we plot the trends in survival based on SEER data. We used SEER Historic Stage A (Local/Regional/Distant) as it was the only staging system available for historic data.

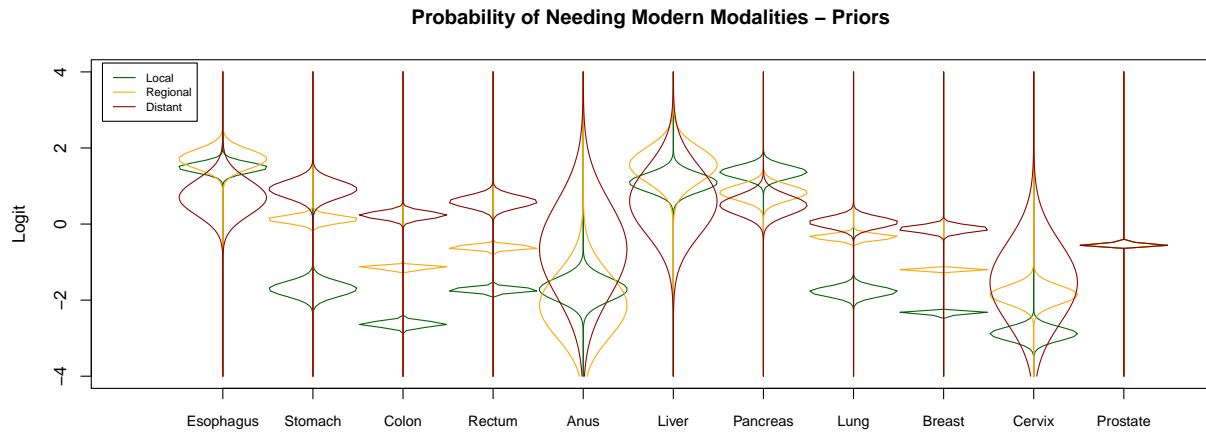






To estimate priors, we sampled survival probabilities (based on the SEER data) for the earliest (s_1) and latest periods (s_2) available for each cancer. With these probabilities, we calculated the proportion of current survival that could be achieved before the modern period ($p = s_1/s_2$), and used the complement ($1 - p$) to estimate the probability of needing modern modalities. We sampled 1000 pairs of survival probabilities to estimate uncertainty around the probability of needing modern modalities.

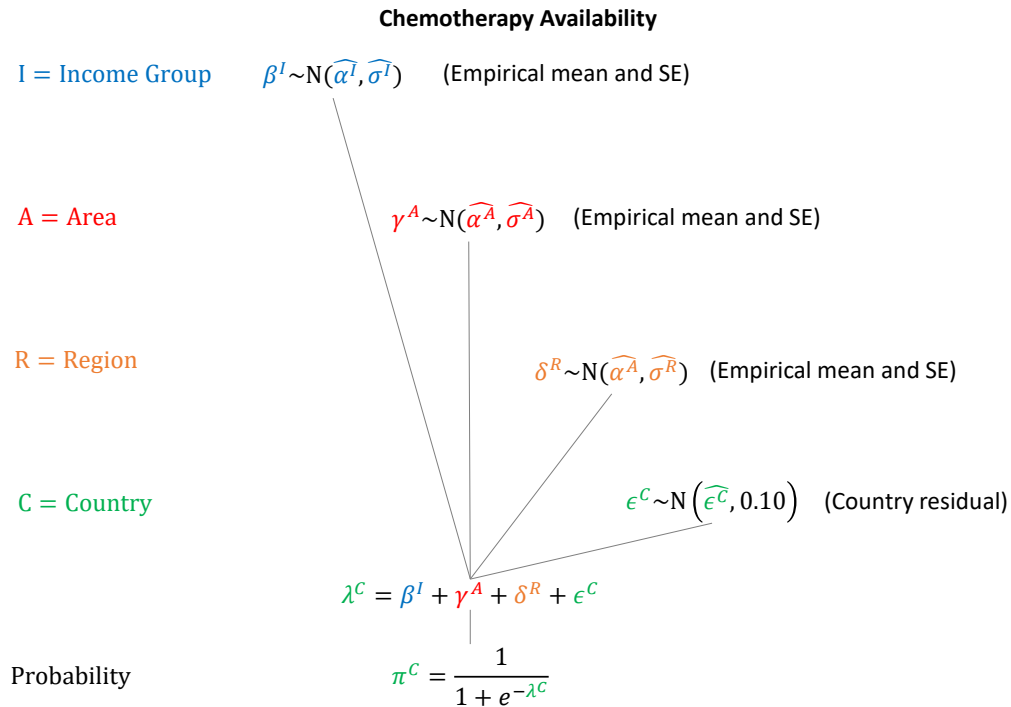
We estimated priors by stage, except for prostate cancer for which we used overall trends in survival due to lack of stage data in the 1970s. When setting priors we assumed that SEER Historic Stage Local corresponds to Stage I, Regional corresponds to Stages II-III, and Distant corresponds to Stage IV. Probabilities for each stage (I-IV) were sampled independently in the model. We logit-transformed the priors to allow unconstrained sampling.



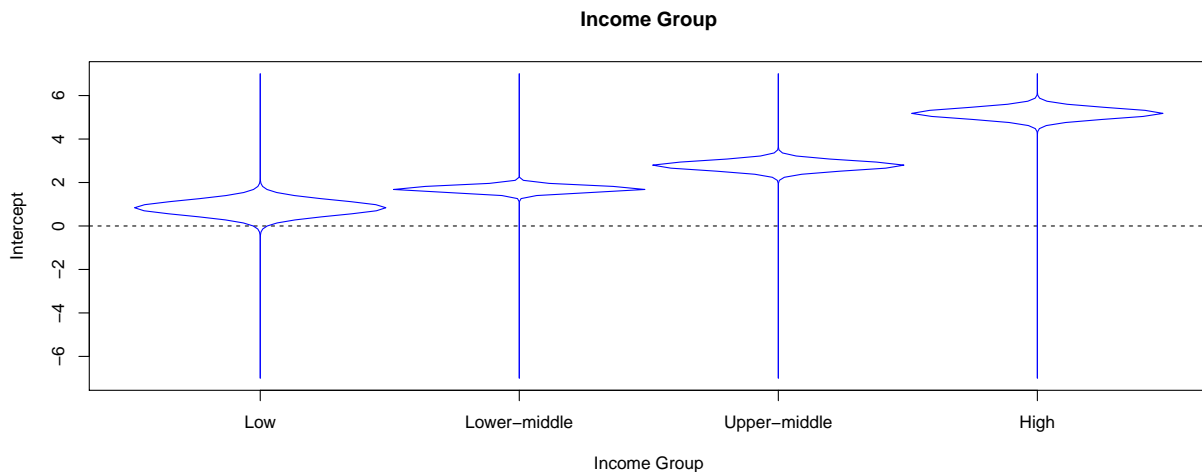
1.7 Chemotherapy

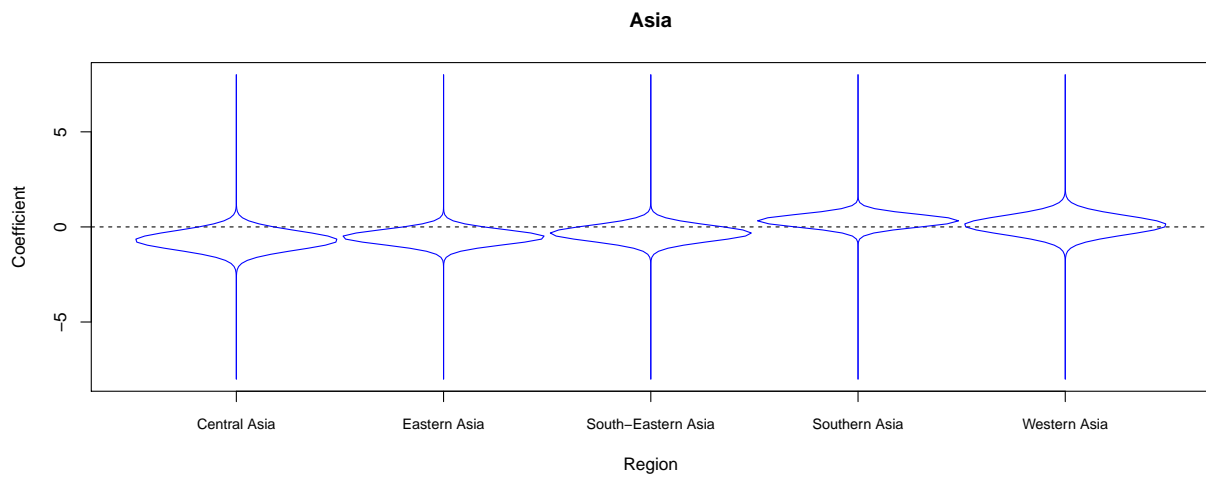
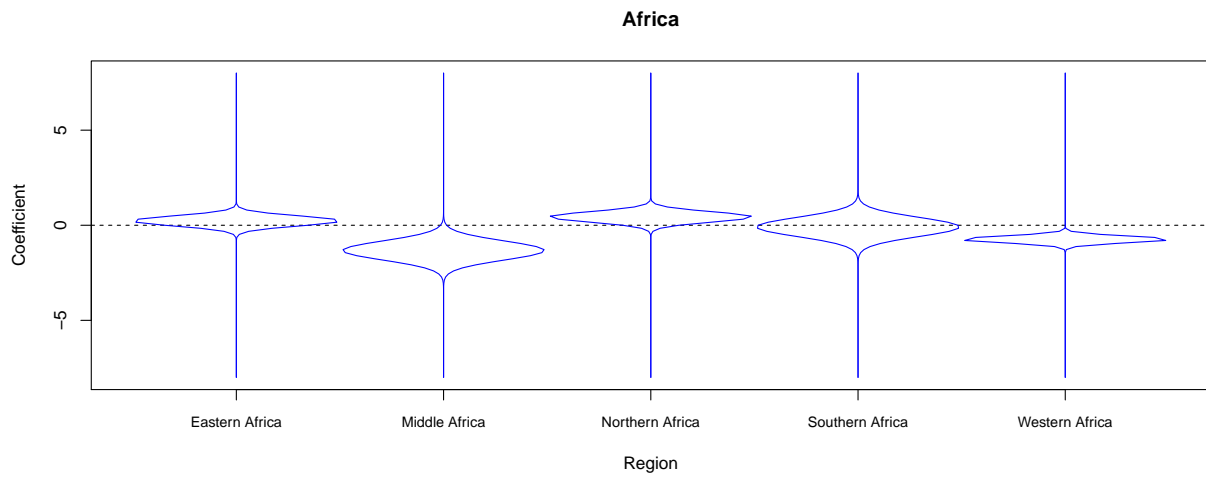
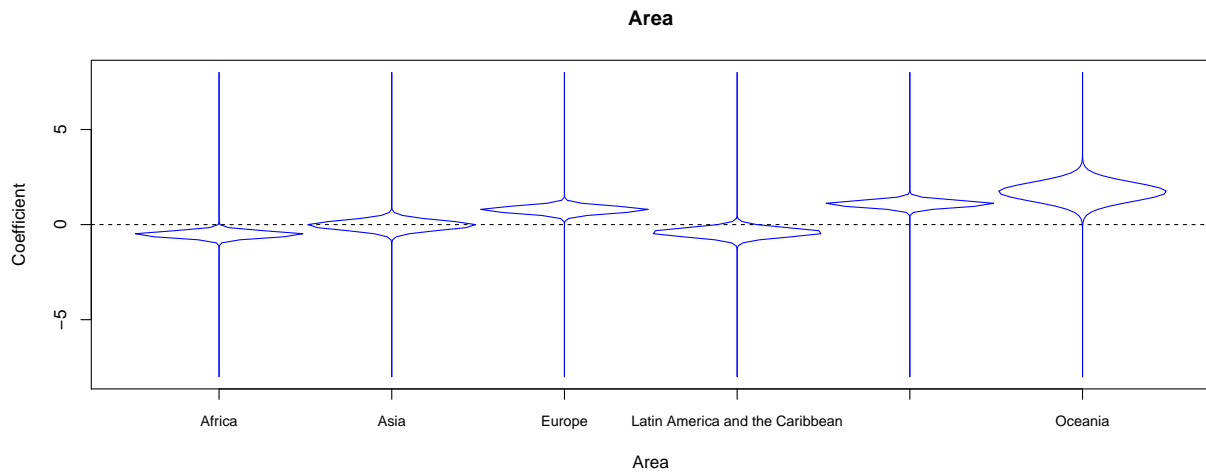
We used estimates of chemotherapy availability from a global survey of paediatric oncologists. While the chemotherapy agents used for childhood cancers may differ from agents used for adults cancers, we assume that the relative availability of agents in each country is similar, and so use these estimates as a proxy. Estimates were available for 94 countries. We used a hierarchical model and set priors based on these empirical estimates, weighted by the number of respondents in each country.

Reference: Cohen P, Friedrich P, Lam C, et al. Global access to essential medicines for childhood cancer: a cross-sectional survey. *J Glob Oncol* 2018; 4: 1–11.

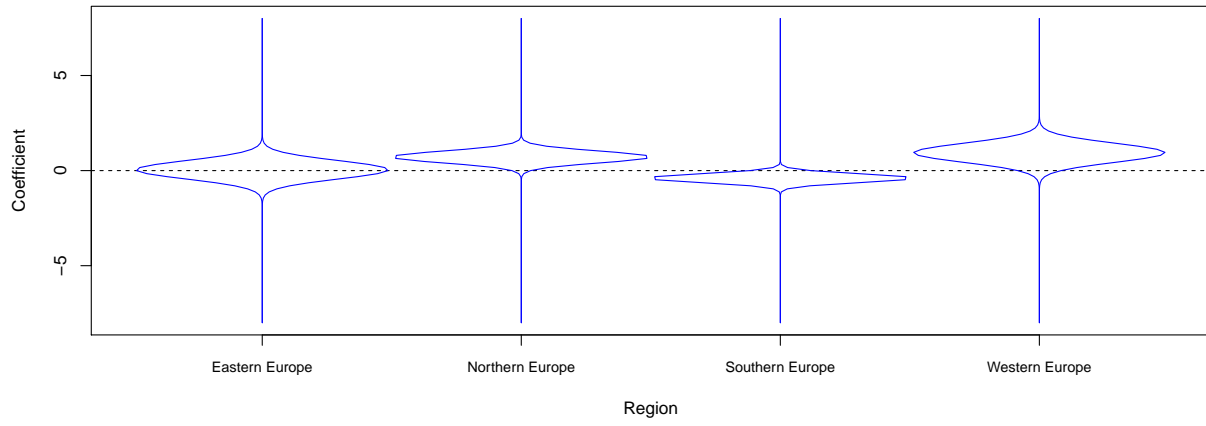


Here we plot the estimated prior distributions (in logit space).

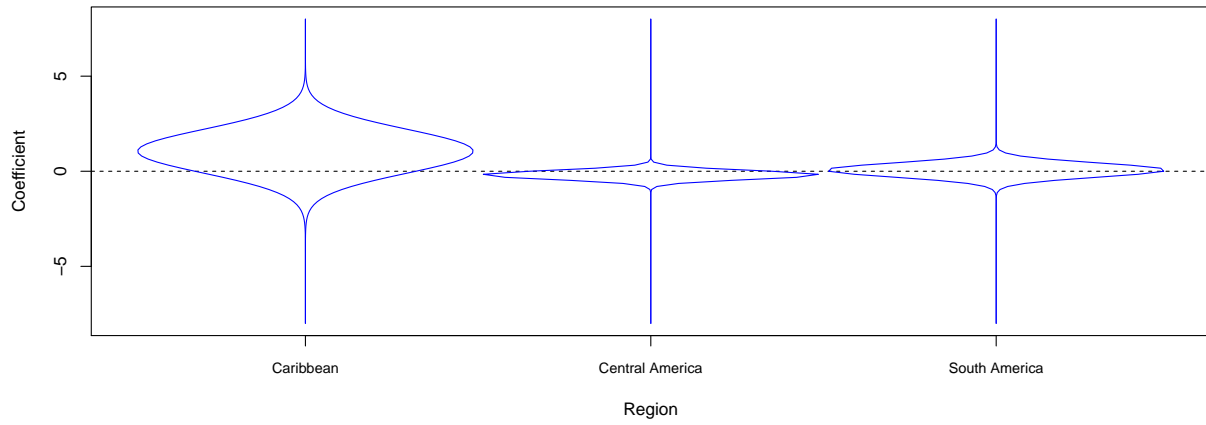




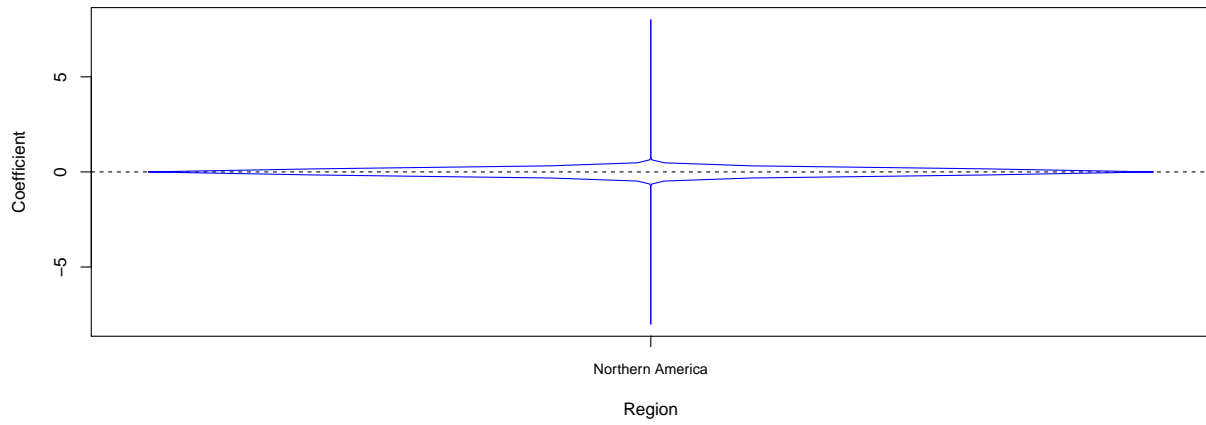
Europe

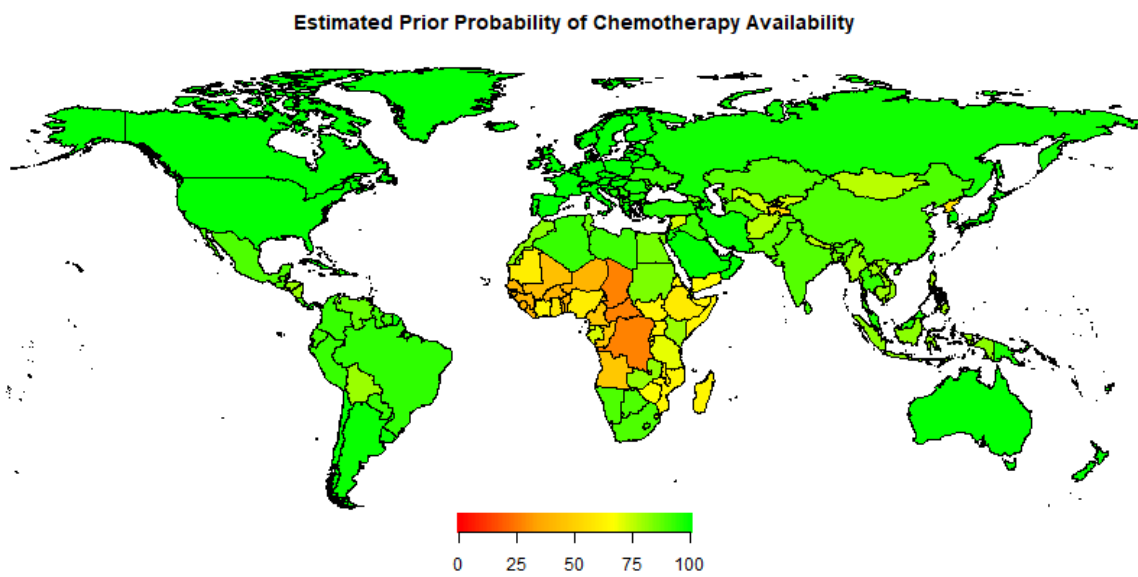
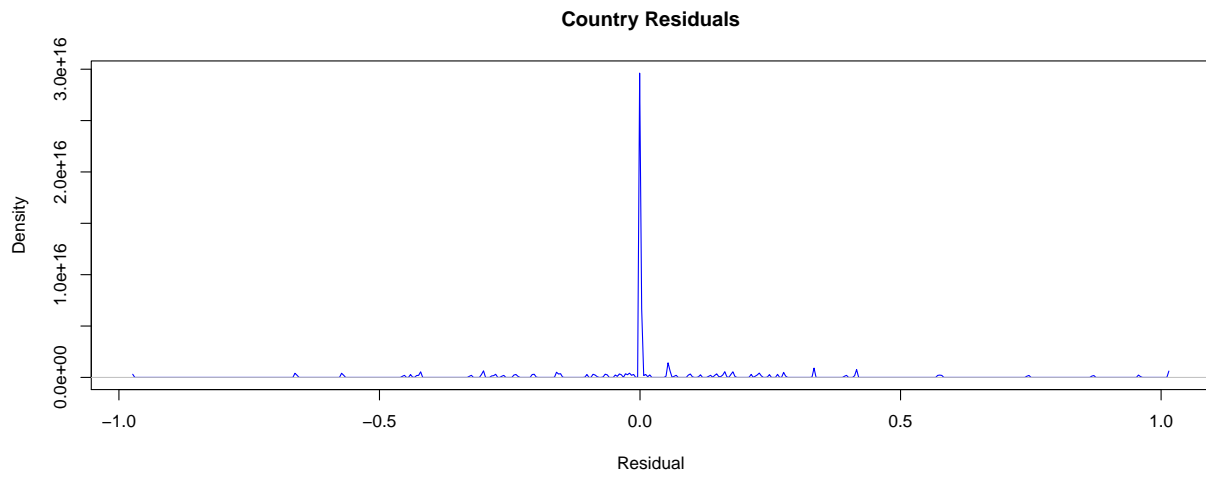
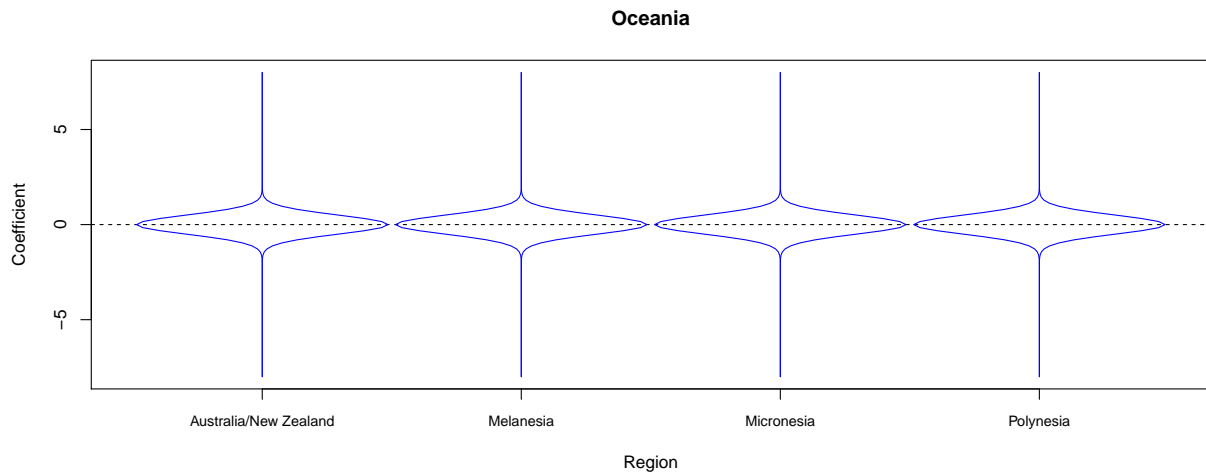


Latin America and the Caribbean



Northern America



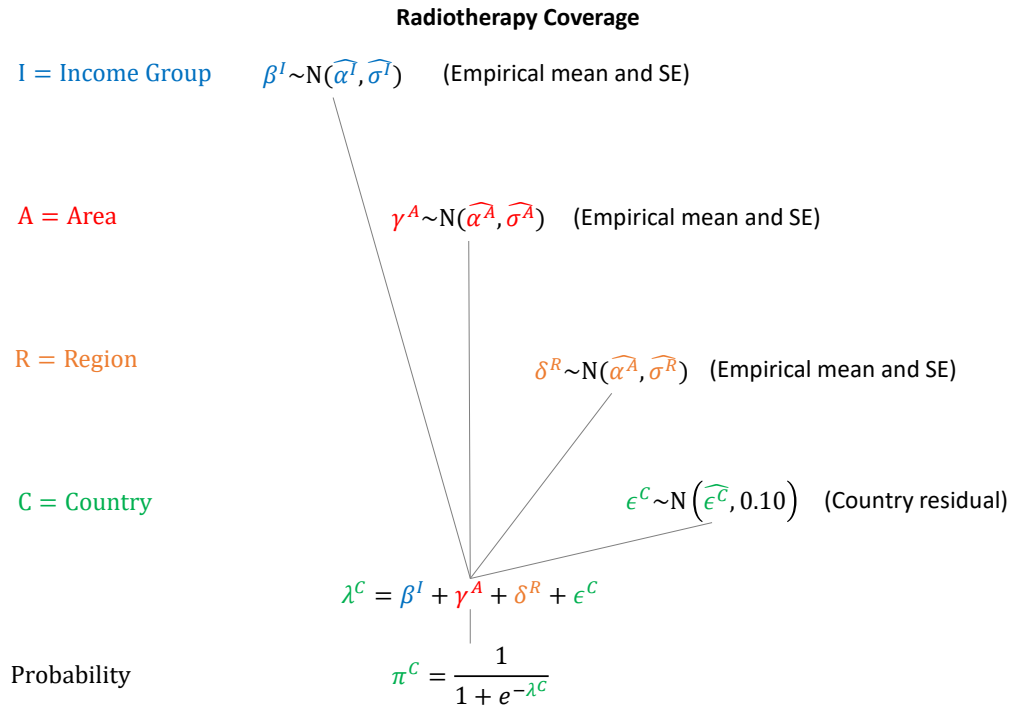


1.8 Radiotherapy

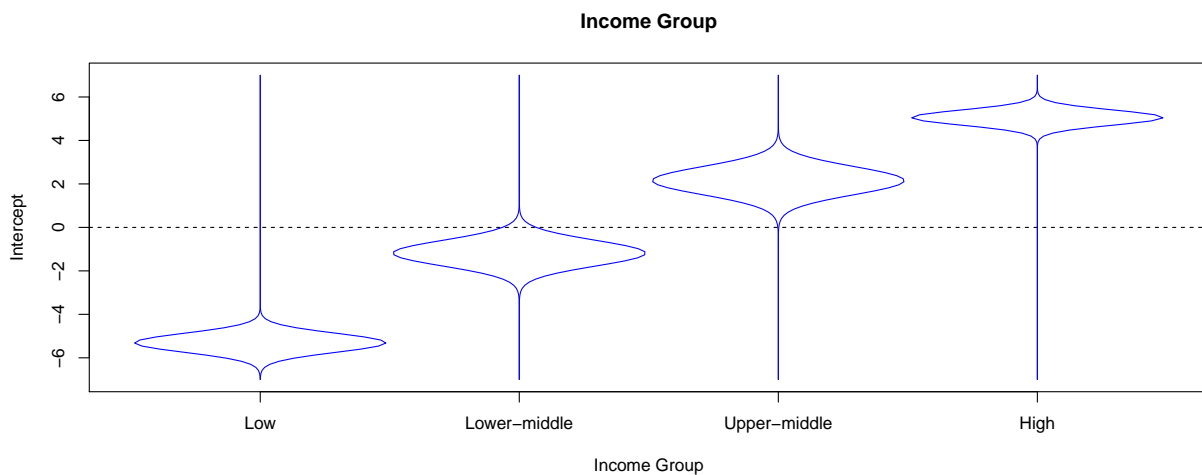
Estimates of radiotherapy availability were based on modeled estimates from the Lancet Radiotherapy Commission for 173 countries. We used the 12-hour coverage estimates to update the hierarchical models to estimate availability of radiation.

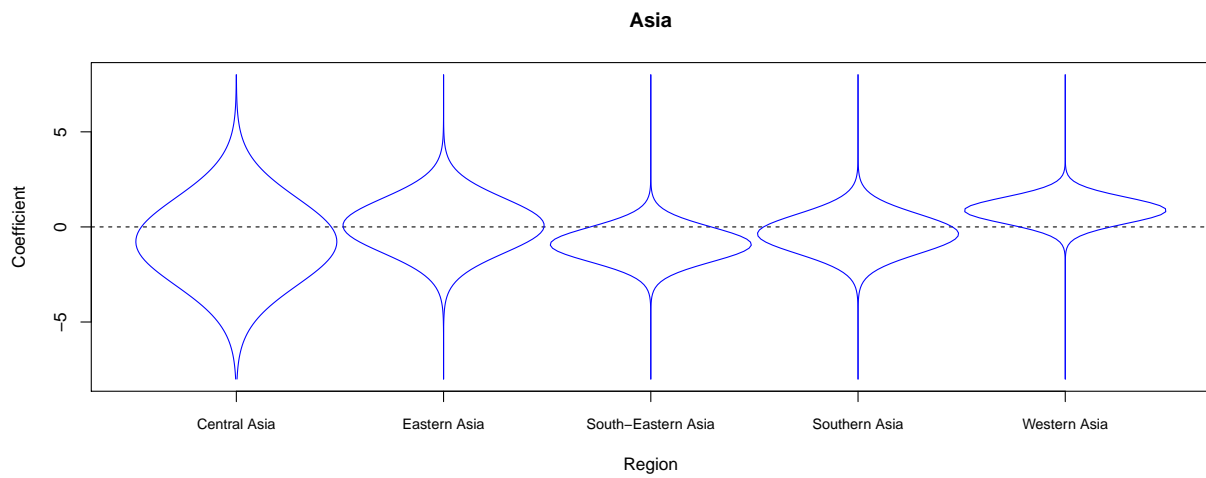
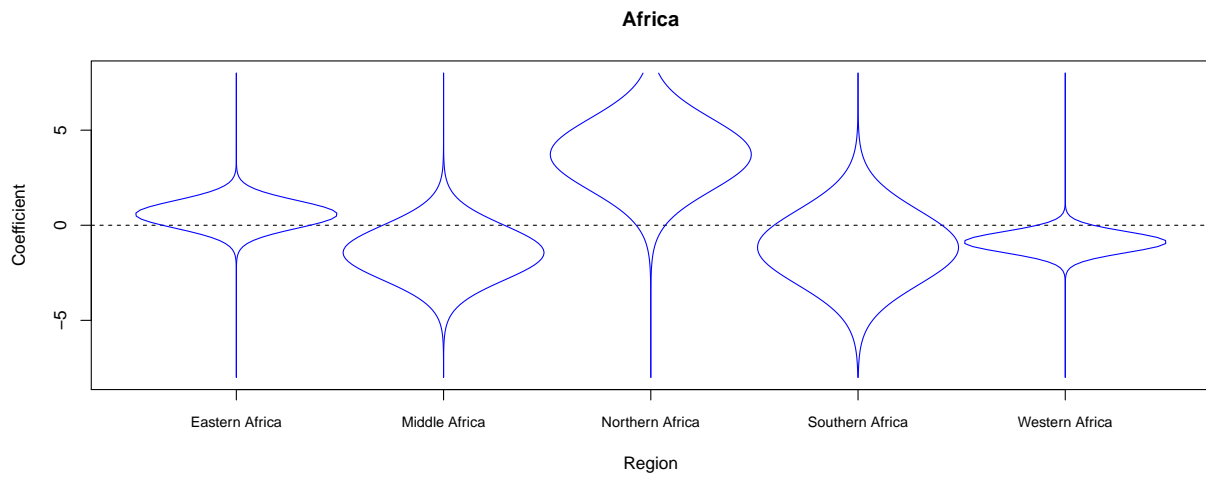
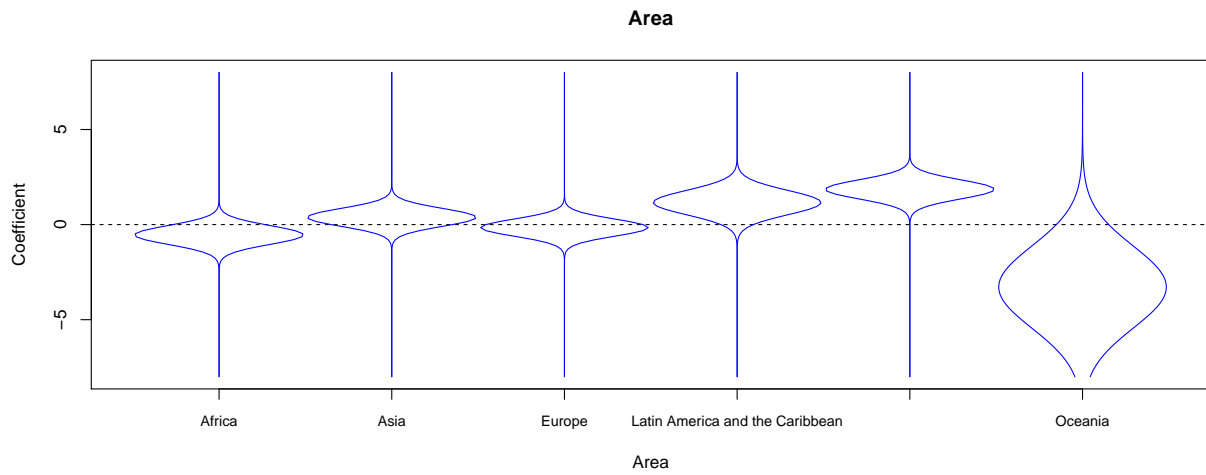
Reported coverages were bounded in $[0.001, 0.999]$ and then transformed using a logit transformation $(\log \frac{x}{1-x})$ so that they were unconstrained.

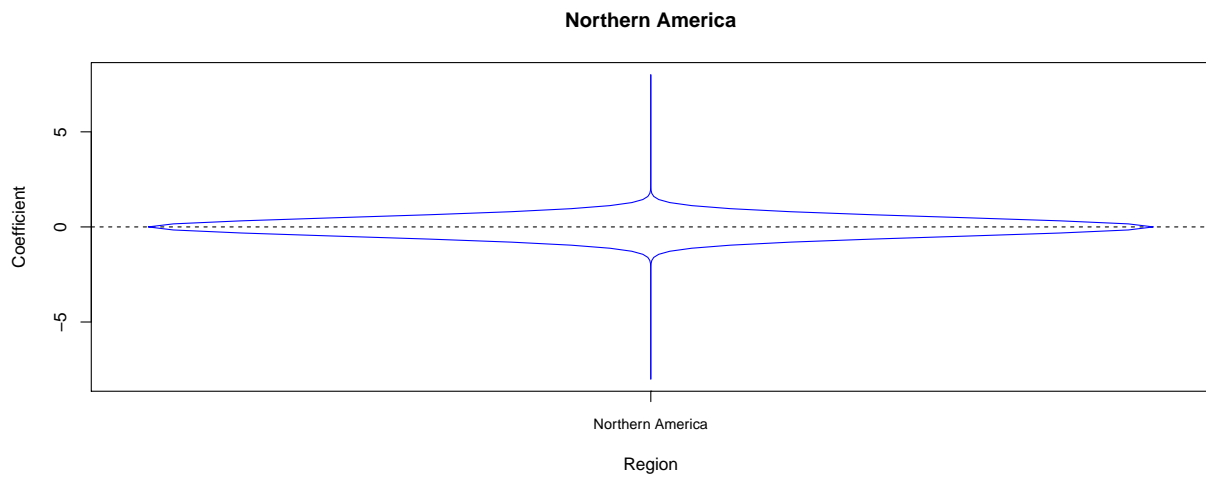
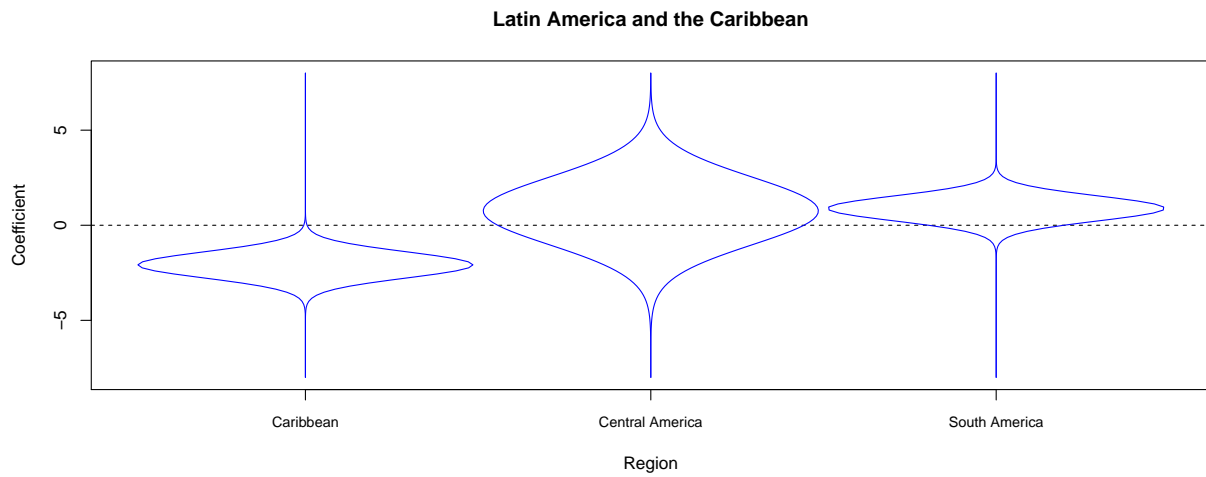
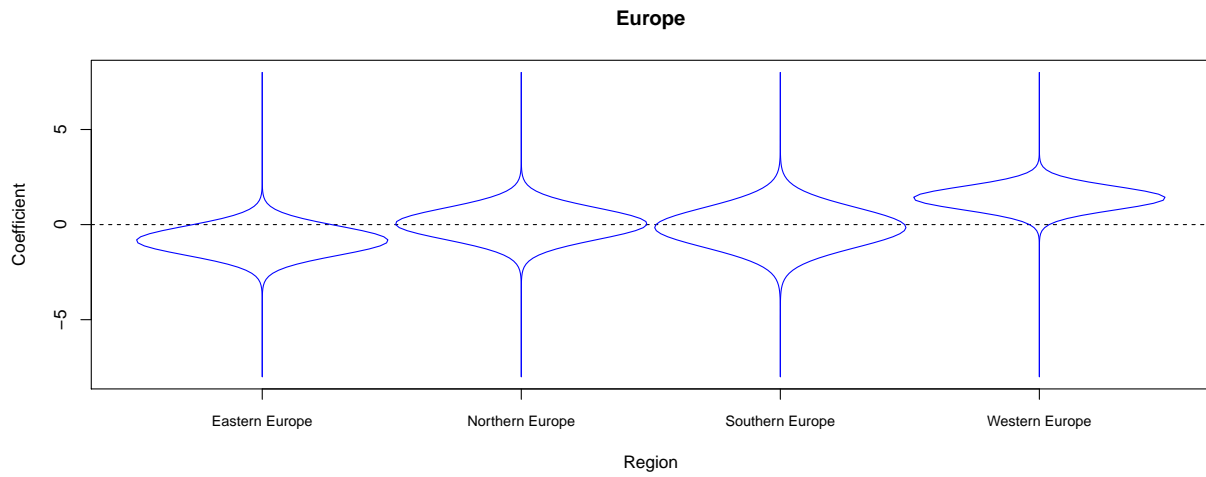
Reference: Atun R, Jaffray DA, Barton MB, et al. Expanding global access to radiotherapy. *Lancet Oncol* 2015; 16(10): 1153-86.

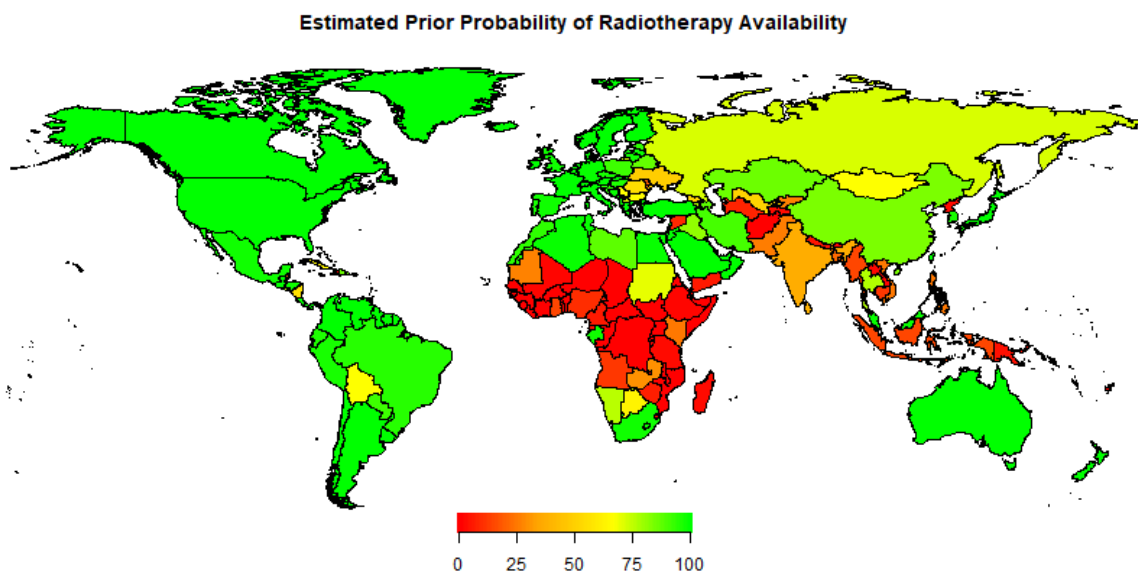
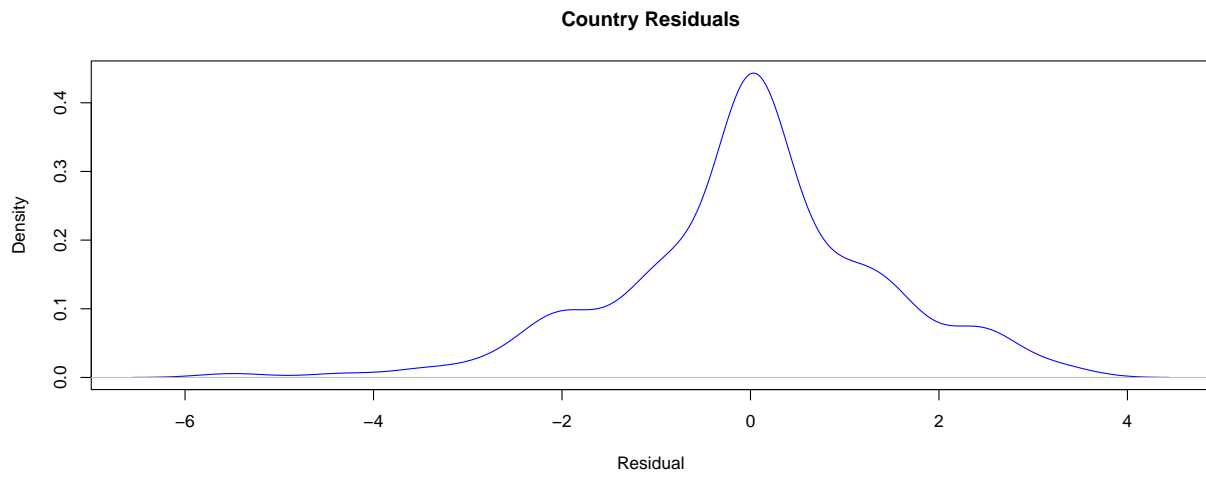
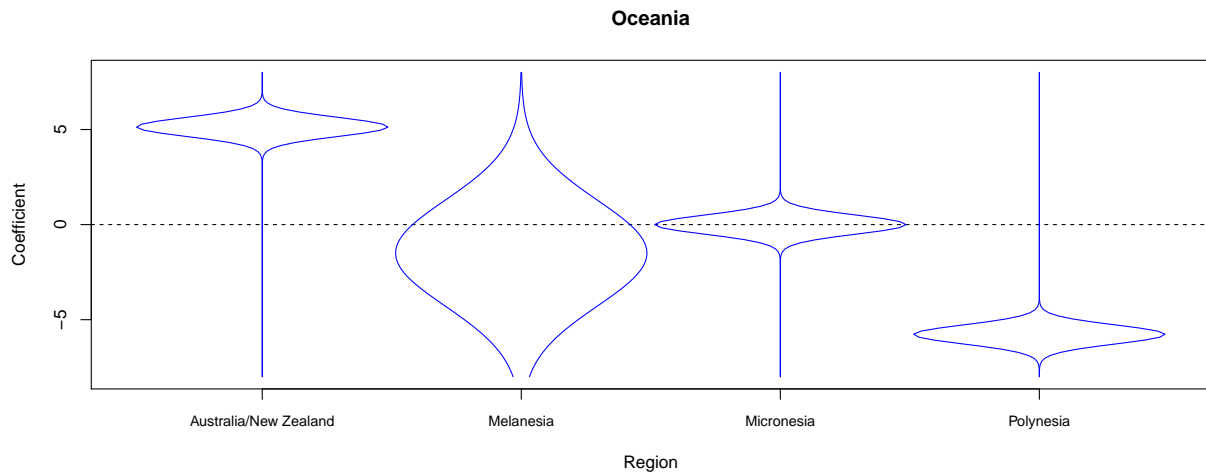


Here we plot the estimated prior distributions (in logit space).







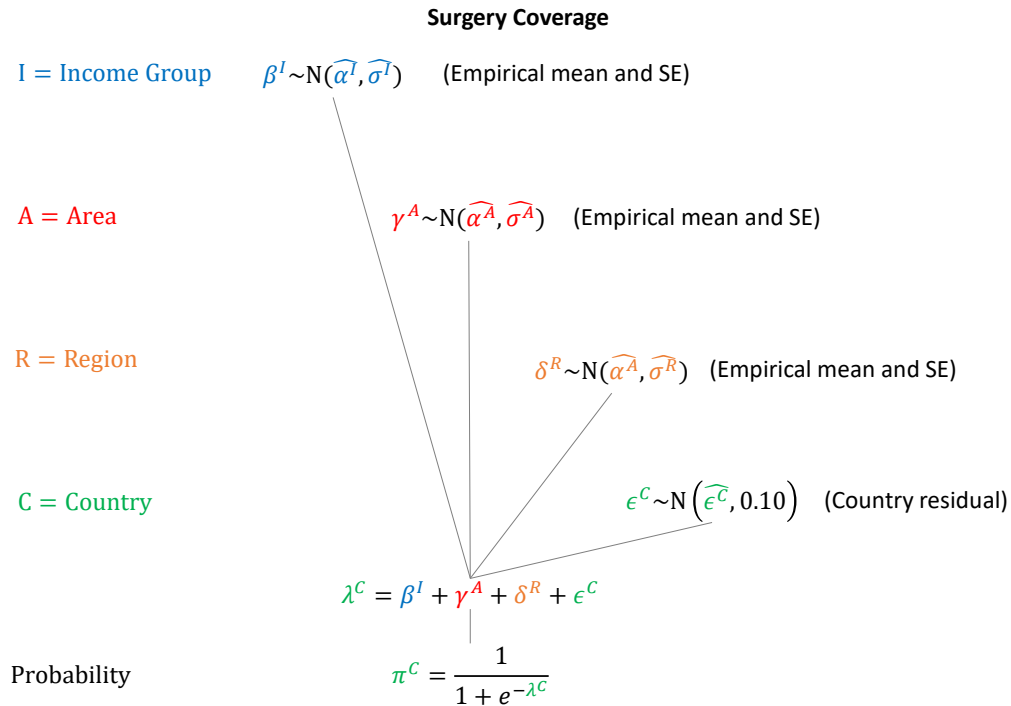


1.9 Surgery

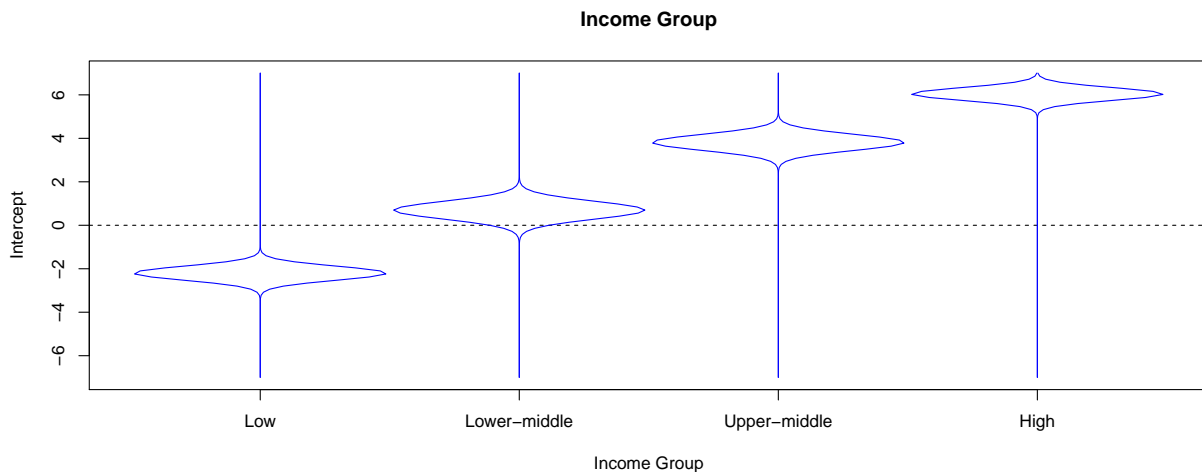
For surgery we used estimates from a modeling study of the Lancet Surgery Commission which had modeled estimates for 184 countries. We used the estimates that assumed ‘Capacity’ was the only barrier to surgery, since we are already modeling cancer treatment conditional on successful access and referral within the health system.

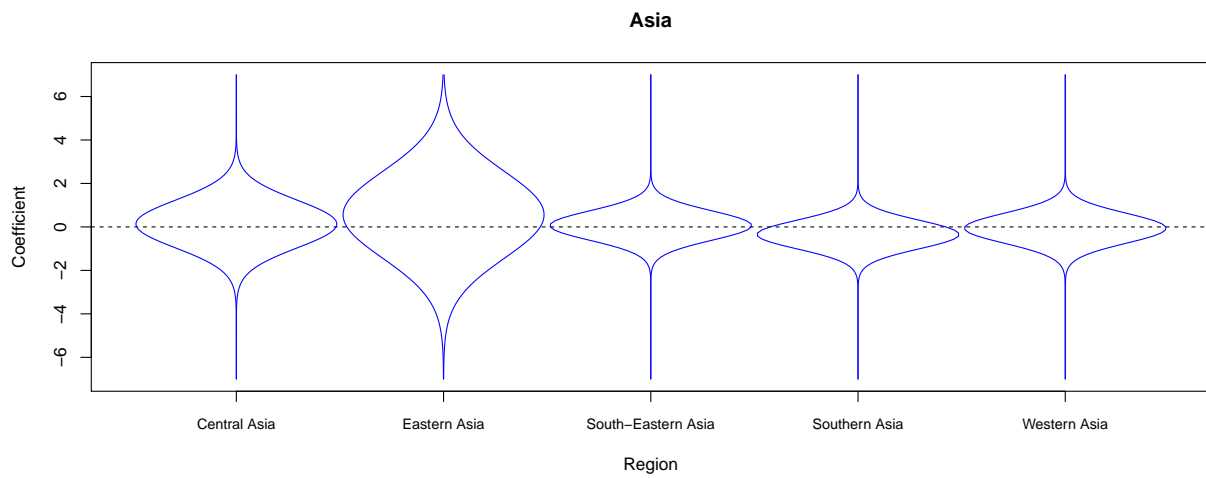
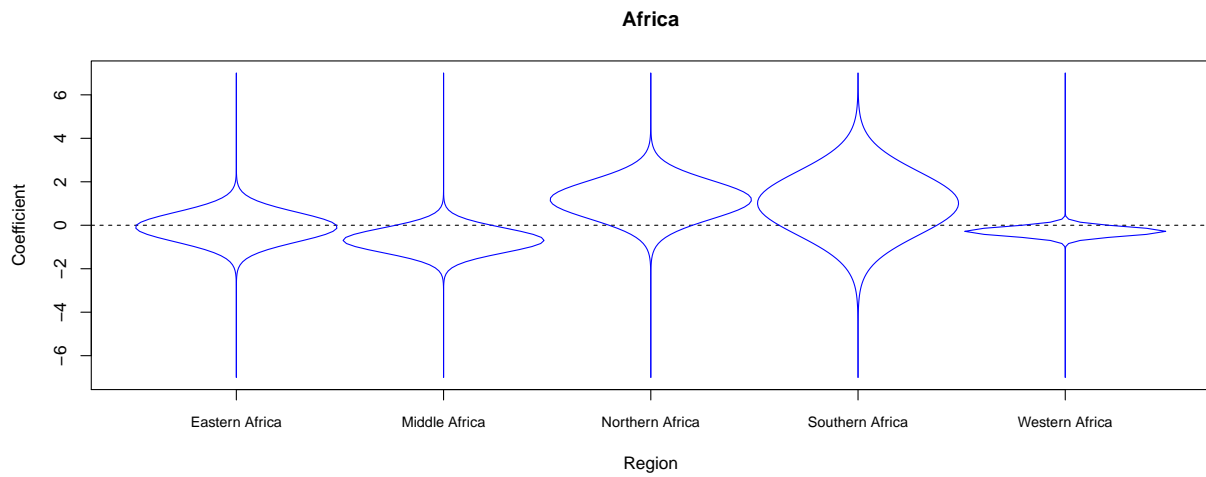
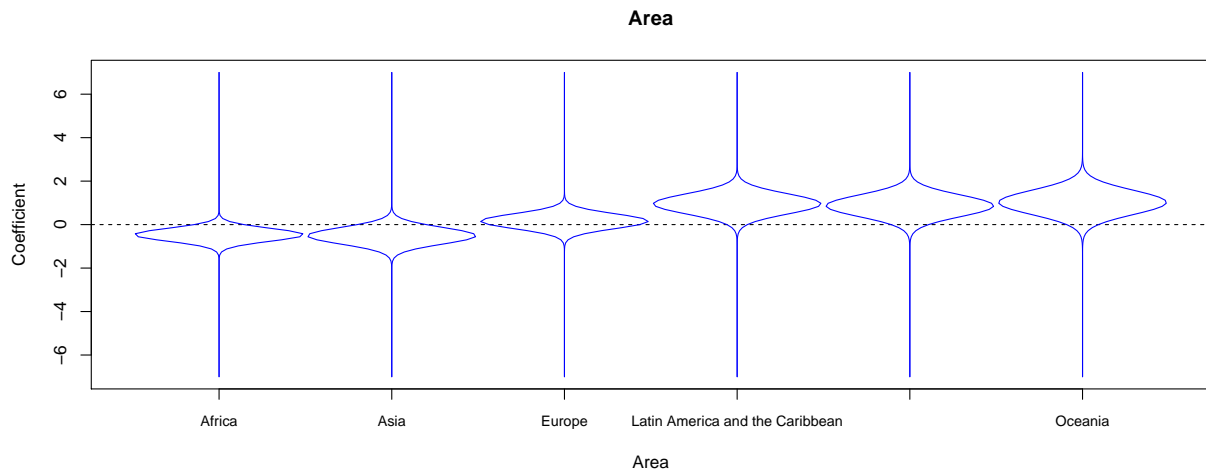
Reported estimates were bounded in $[0.001, 0.999]$ and then transformed using a logit transformation $(\log \frac{x}{1-x})$ so that they were unconstrained.

Reference: Alkire BC, Raykar NP, Shrima MG, et al. Global access to surgical care: a modelling study. Lancet Glob Health 2015; 3(6): e316-23.

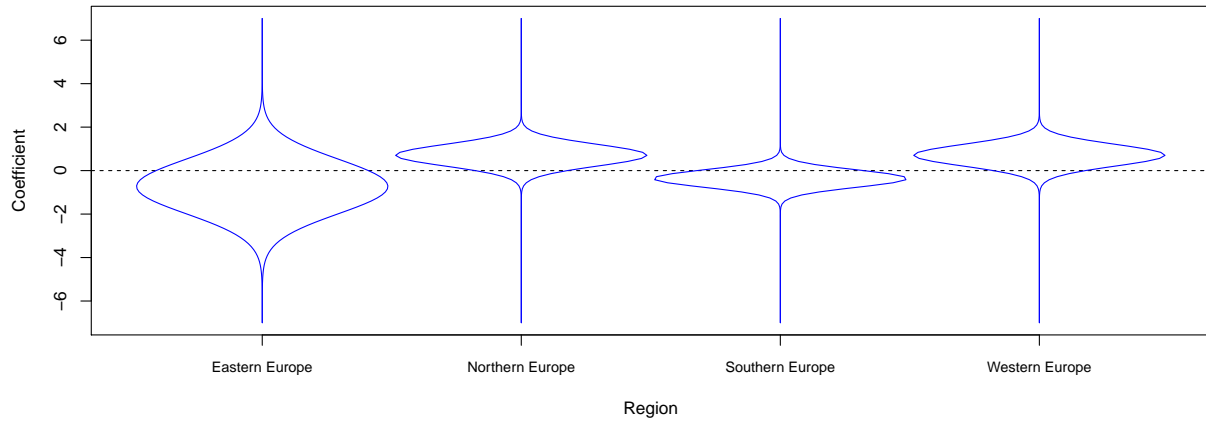


Here we plot the estimated prior distributions (in logit space).

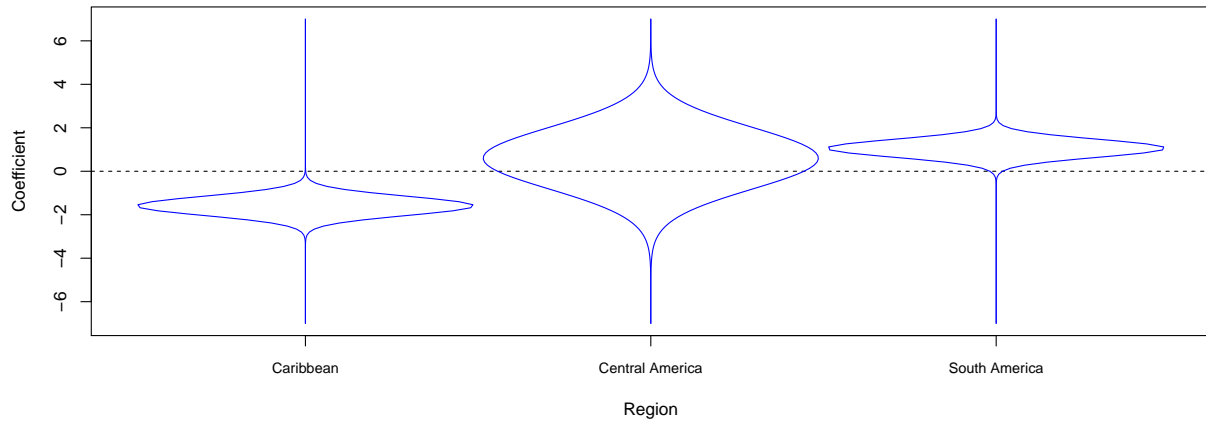




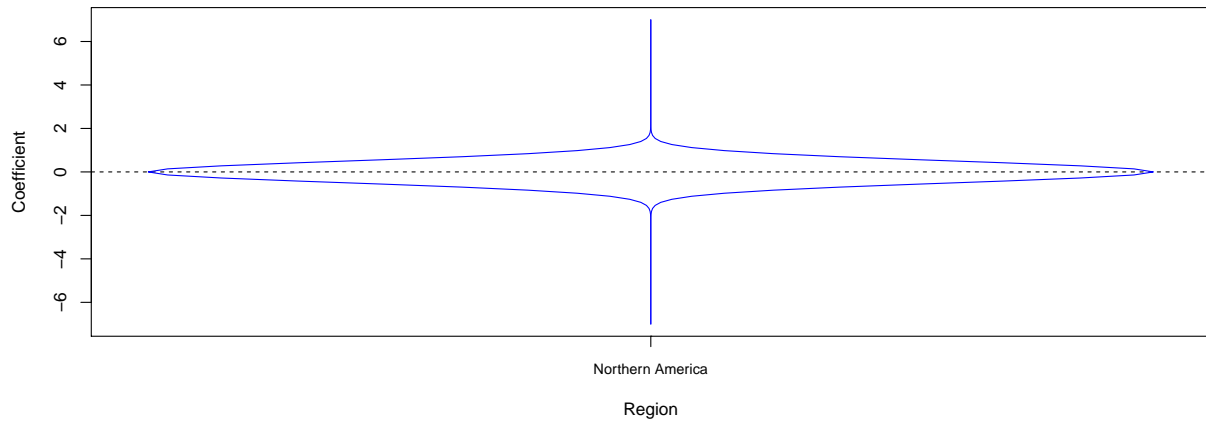
Europe

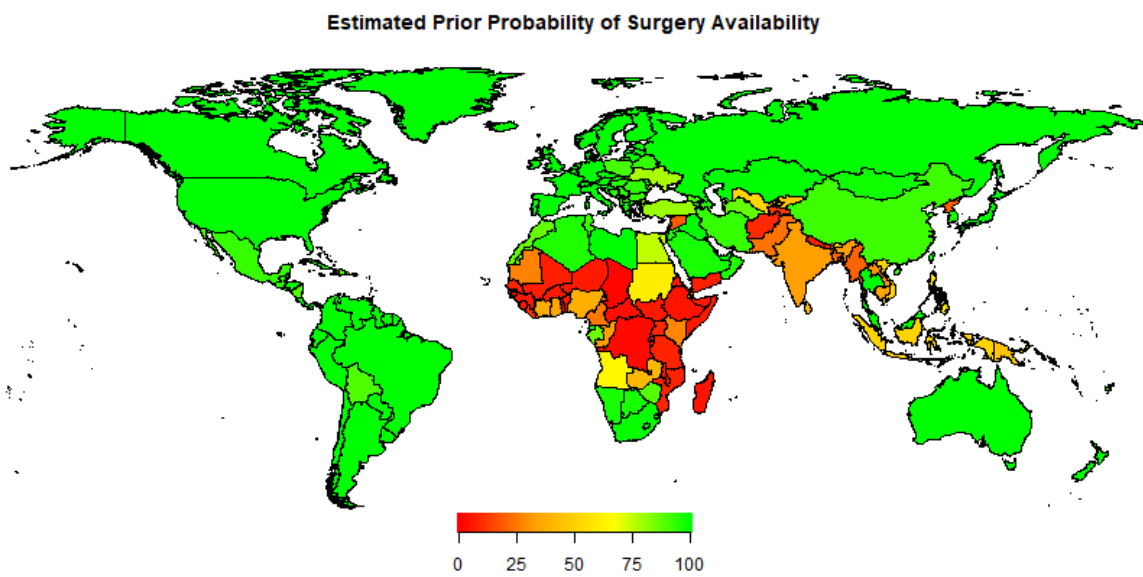
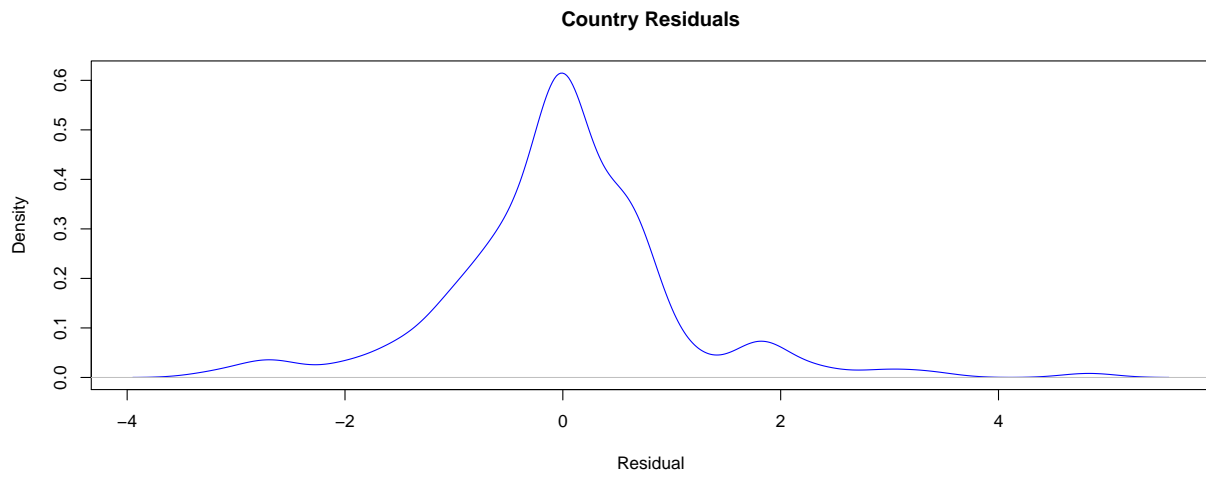
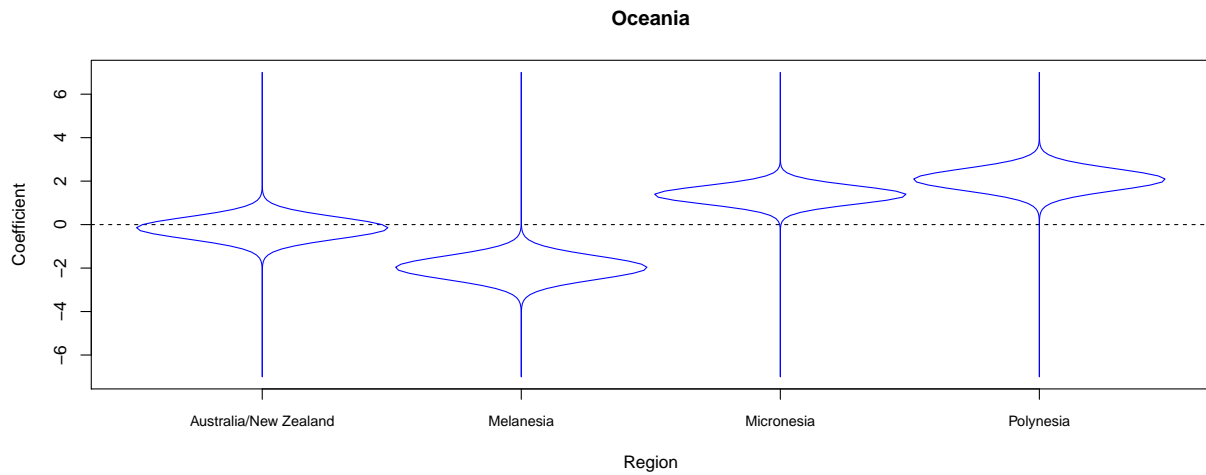


Latin America and the Caribbean



Northern America





1.10 Targeted Therapy

Data on the availability of targeted therapy in low- and middle-income countries are scarce, but estimates that are available suggest that patients have limited access to targeted therapy, usually because of the high cost of these therapies (Yip 2015). For example, among 49 new oncology medicines launched between 2010 and 2014, patients in only 6 countries had access to at least half of these drugs (IMS 2016). Furthermore, such drugs are often only accessible for a privileged minority of the population with private health insurance (Ruiz 2017).

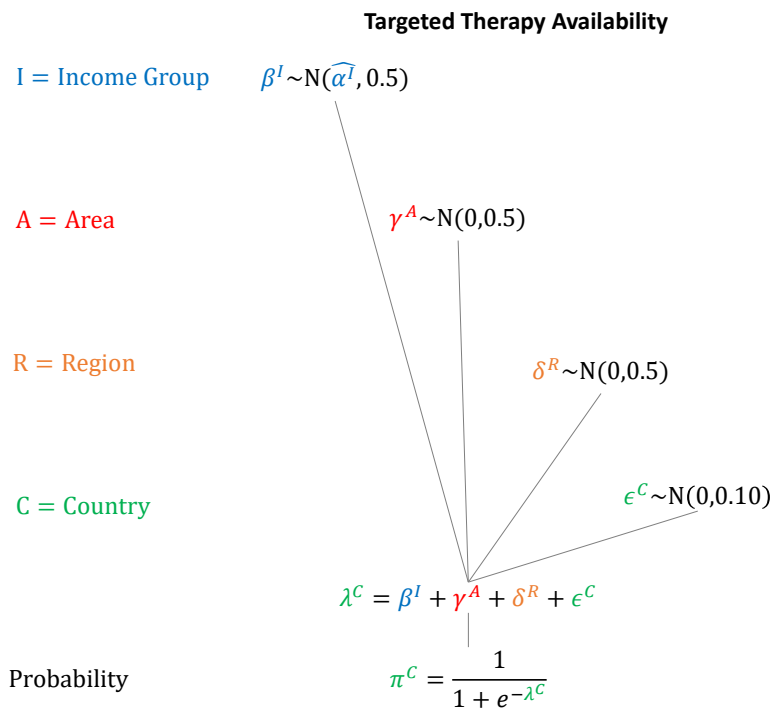
We therefore set wide priors by income group, centered at 5%, 25%, 75%, and 95%. When sampling parameters we ensured that the probabilities of targeted therapy availability were lower than for chemotherapy in each country to account for the lack of access to targeted therapy.

References:

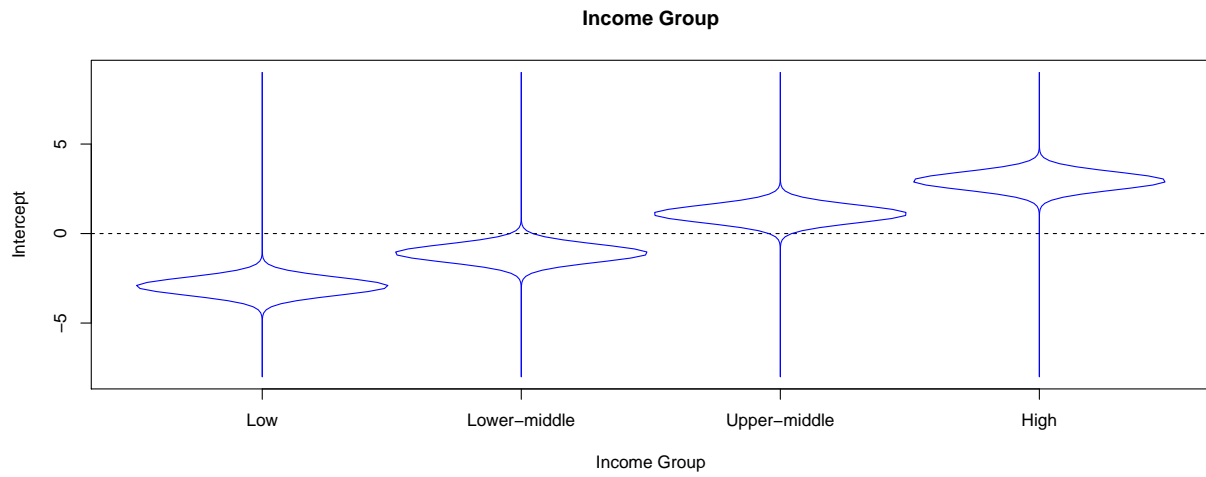
IMS Institute for Healthcare Informatics. Global Oncology Trend Report: A Review of 2015 and Outlook to 2020. 2016. Available at: <https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/global-oncology-trend-report-2016.pdf>.

Ruiz R, Strasser-Weippl K, Touya D, et al. Improving access to high-cost cancer drugs in Latin America: Much to be done. *Cancer* 2017; 123(8): 1313-1323.

Yip CH, Buccimazza I, Hartman M, Deo SV, Cheung PS. Improving outcomes in breast cancer for low and middle income countries. *World J Surg* 2015; 39(3): 686-92.



Here we plot the estimated prior distributions (in logit space).



1.11 Imaging

The IMAGINE database was created by the International Atomic Energy Agency (IAEA) to contain up-to-date information on medical imaging equipment and workforce at a global level. Data was obtained from IAEA staff and projects, UN partner organizations (e.g. WHO, IARC, UNSCEAR, UNDP and OECD), national and regional radiology and nuclear medicine professional organizations, expert contributors, and extensive literature reviews.

We obtained estimates of imaging equipment per 1 million population from the IAEA IMAGINE database (received on Jan 14, 2020). We put a floor of 0.001 on these estimates and log-transformed them.

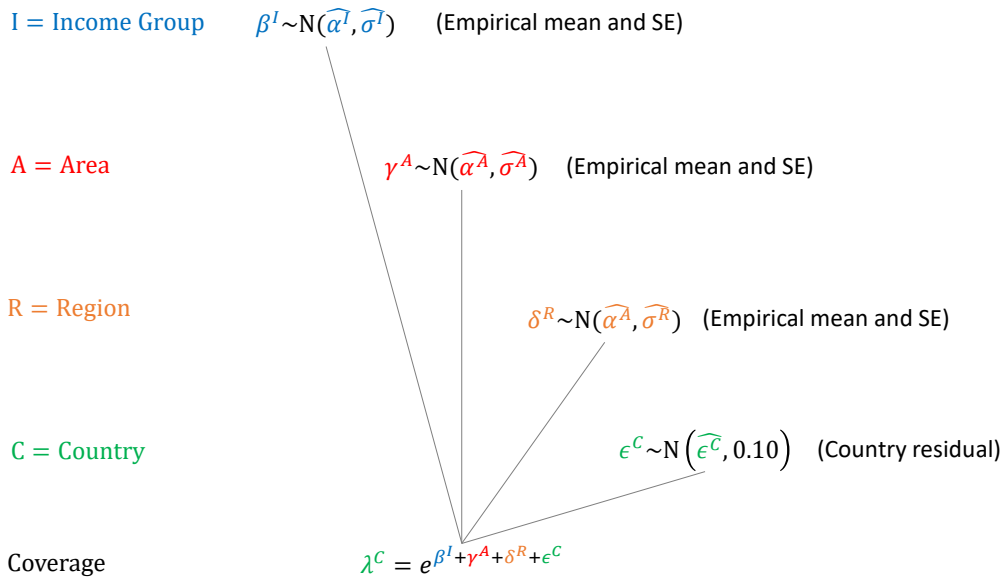
Estimates were available for the following number of countries included in the model:

Modality	# countries
Ultrasound	29
X-ray	65
CT	174
MRI	172
PET	186
SPECT	185

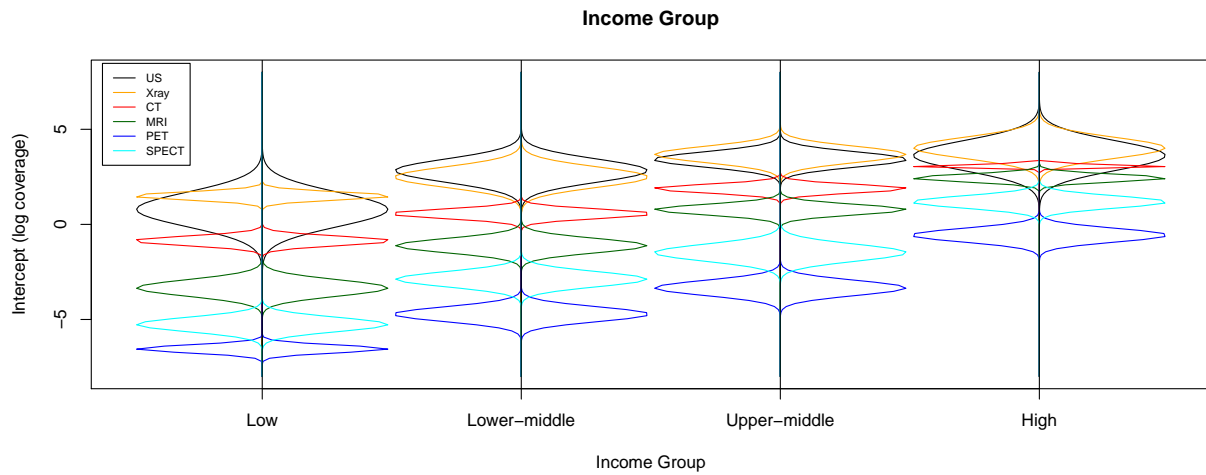
Because there are no general guidelines regarding the ideal number of imaging units per population, we set threshold assumptions based on observed data in high-income countries (HIC) with relatively low coverage so as not to overestimate the thresholds needed to ensure availability.

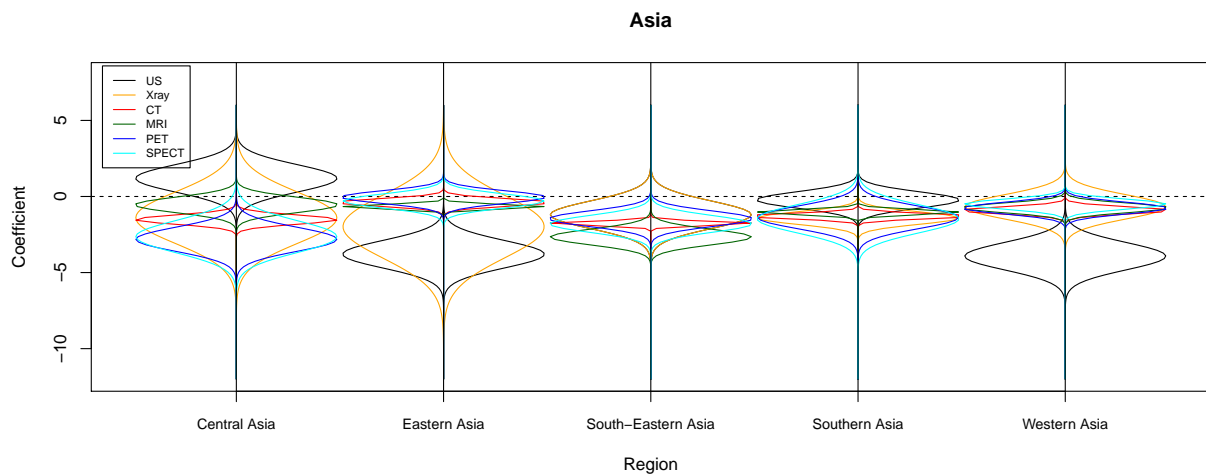
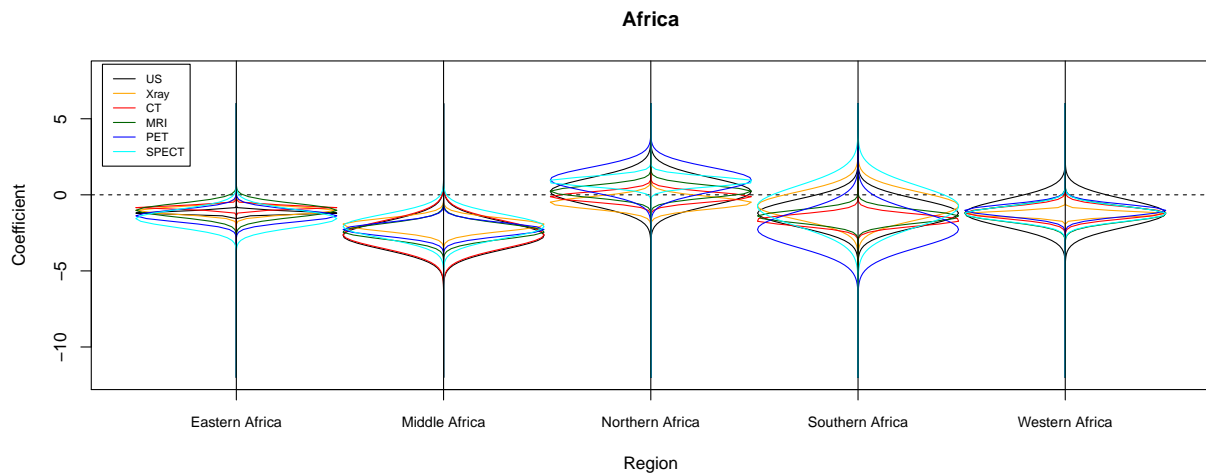
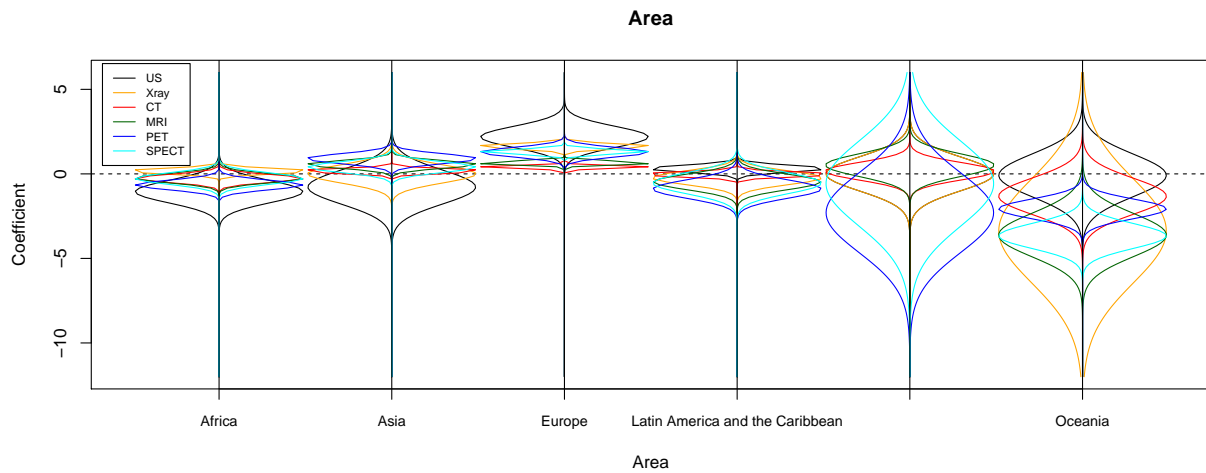
Modality	Threshold (per million)	HIC Mean	Examples
Ultrasound	40	132.0	Puerto Rico: 16.6, Bahamas 25.9
X-ray	30	110.2	Puerto Rico: 16.9, Trinidad and Tobago: 21.6
CT	10	25.4	Canada: 15.1, UK: 14.5
MRI	10	16.3	Canada: 9.9, Czechia: 10.4
PET	1	2.1	Canada: 1.5, UK: 0.5
SPECT	5	7.7	UK: 5.7, France: 6.1

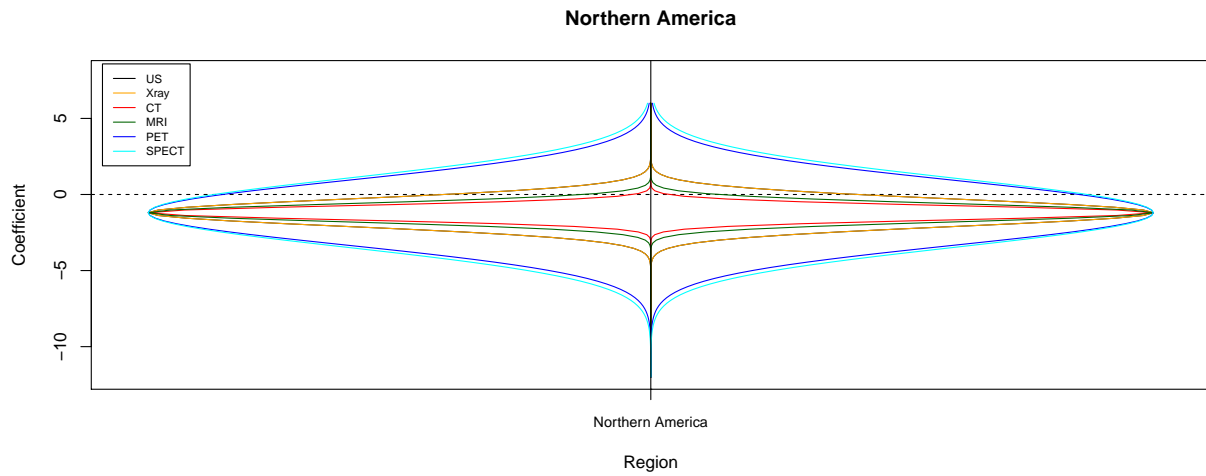
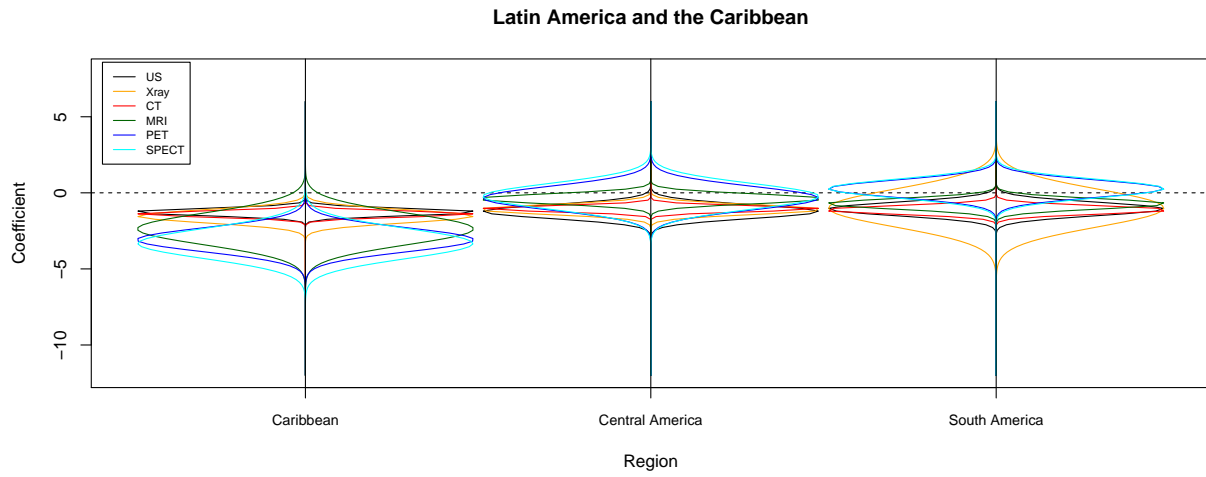
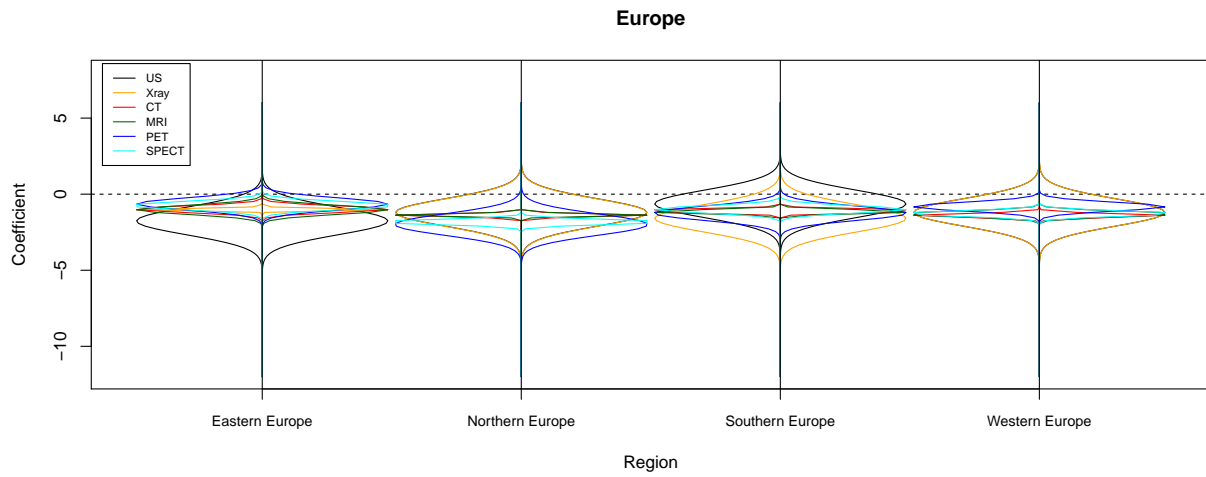
Imaging Equipment Coverage (per 1 million population)

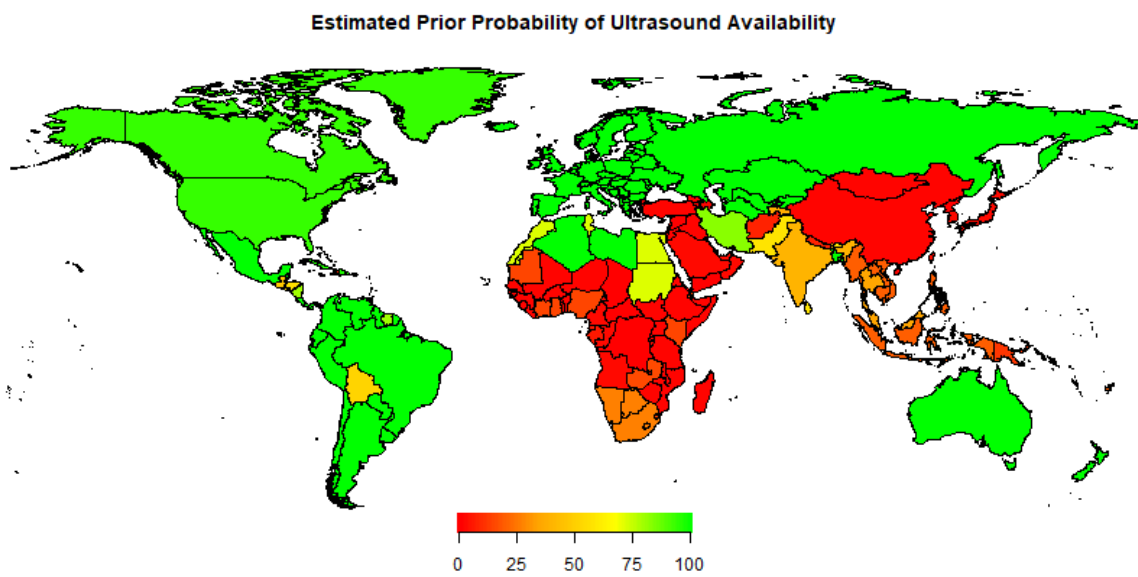
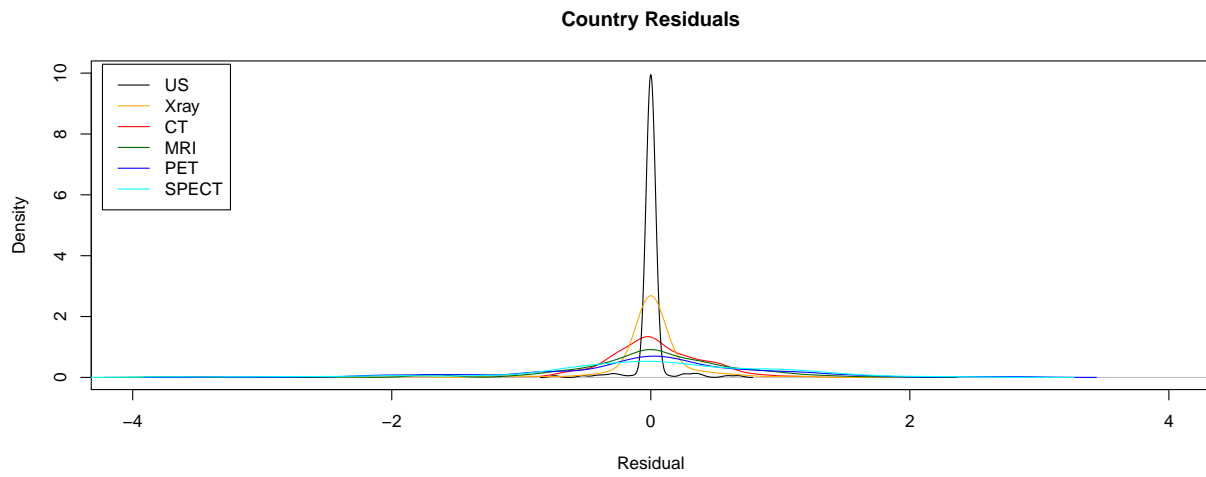
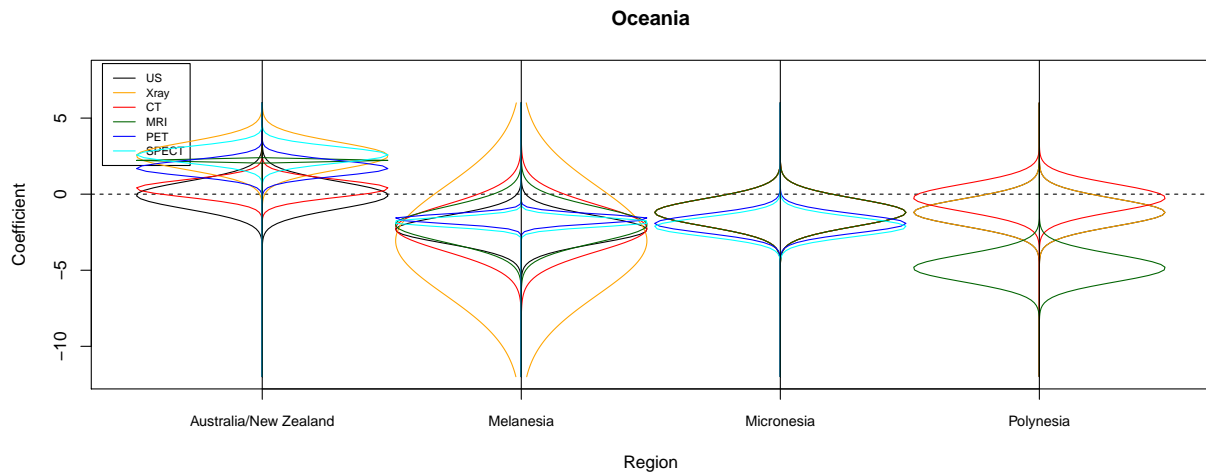


Here we plot the estimated prior distributions (in log space).

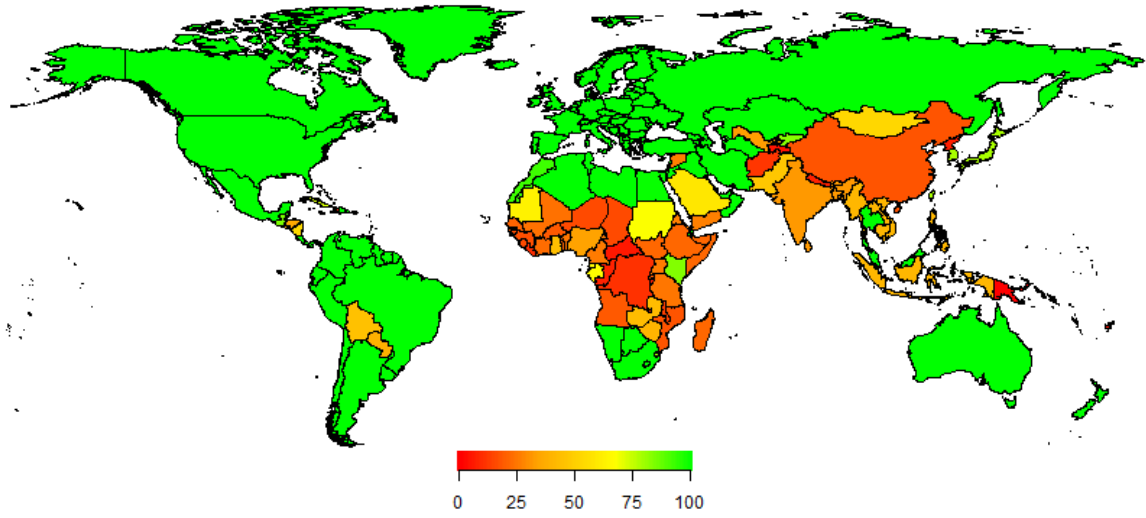




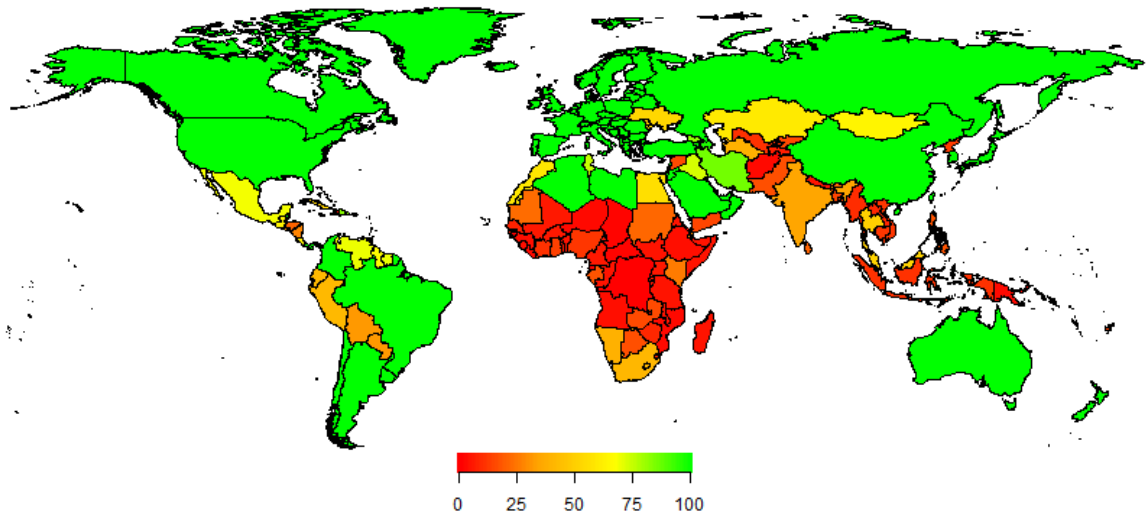




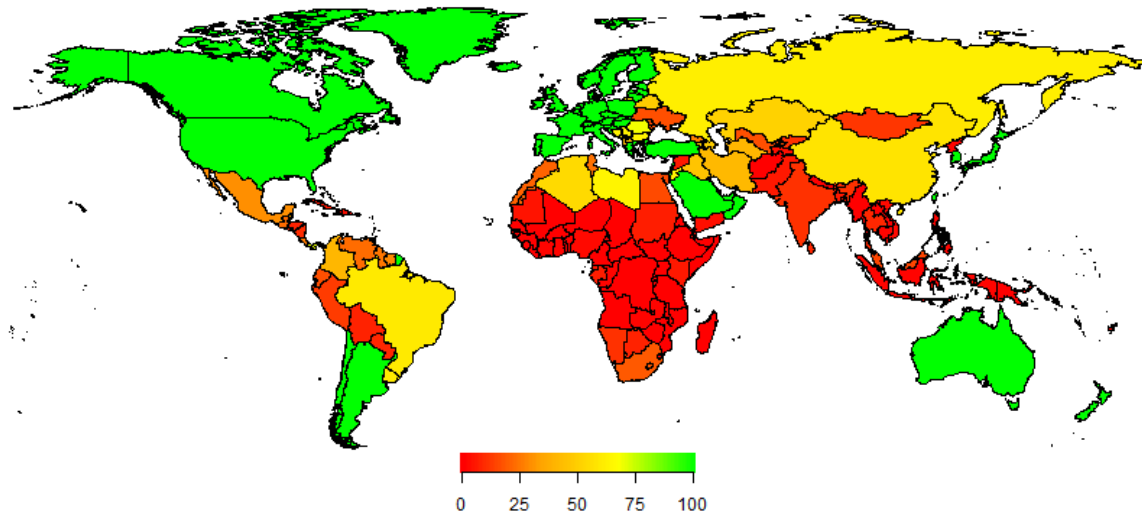
Estimated Prior Probability of Xray Availability



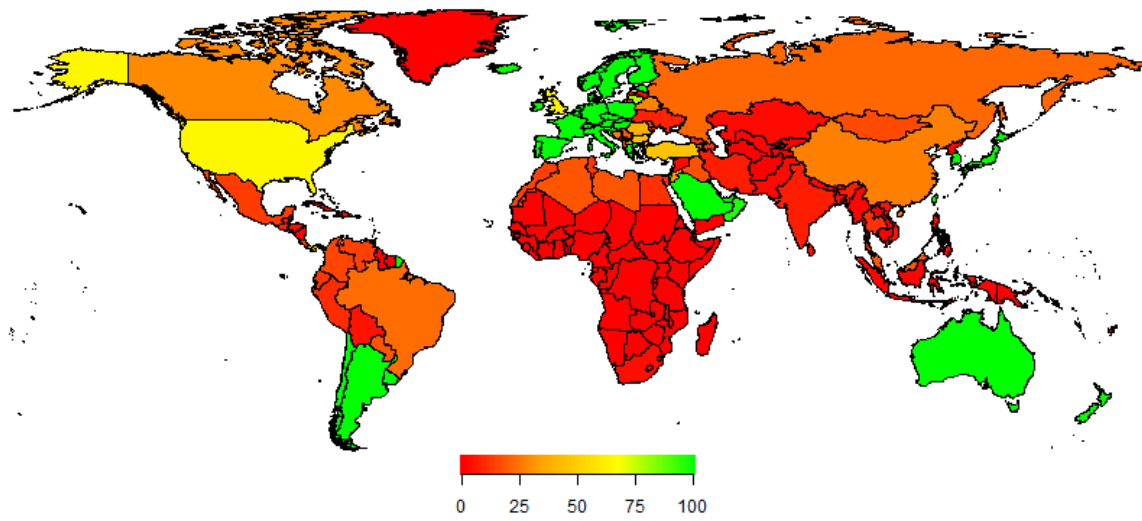
Estimated Prior Probability of CT Availability



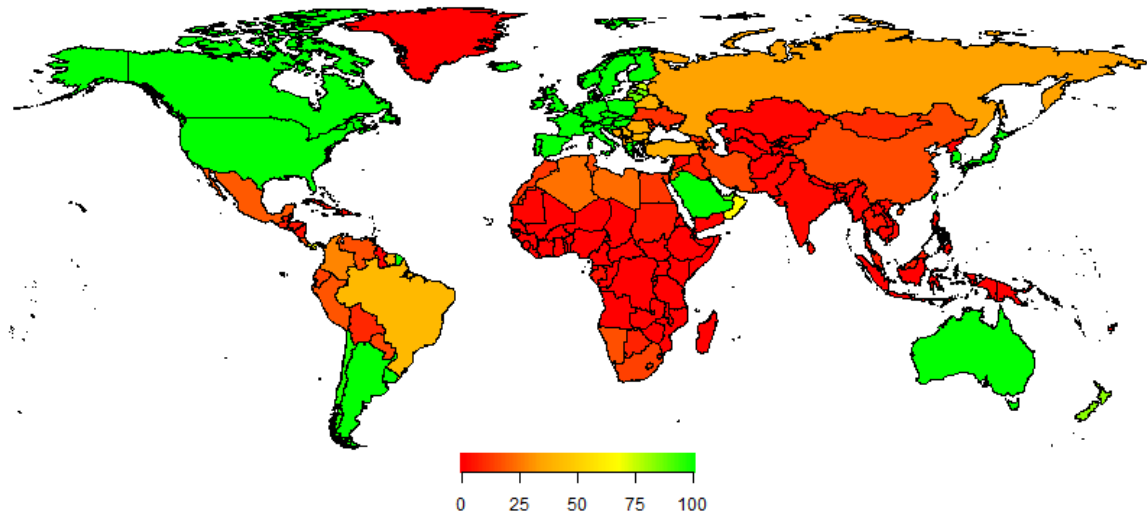
Estimated Prior Probability of MRI Availability



Estimated Prior Probability of PET Availability

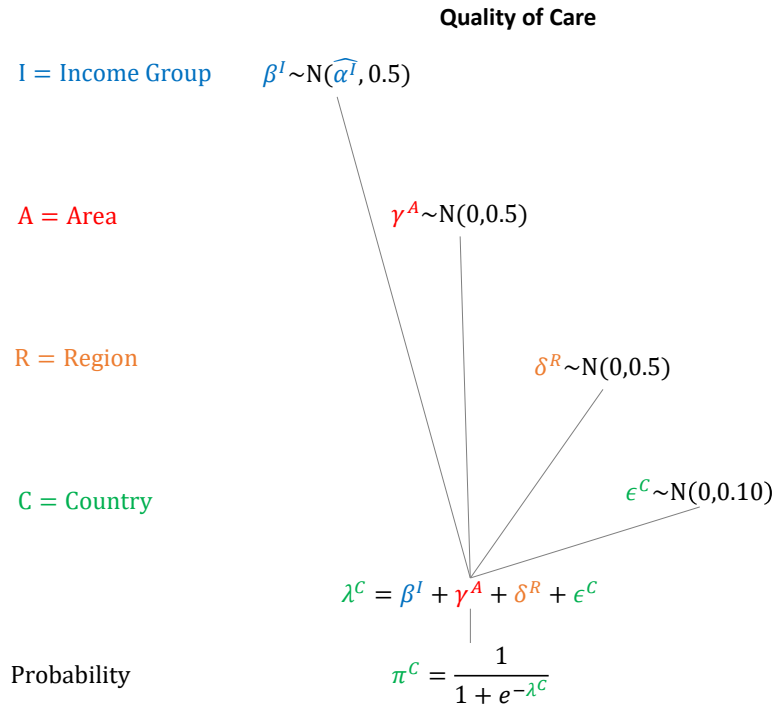


Estimated Prior Probability of SPECT Availability

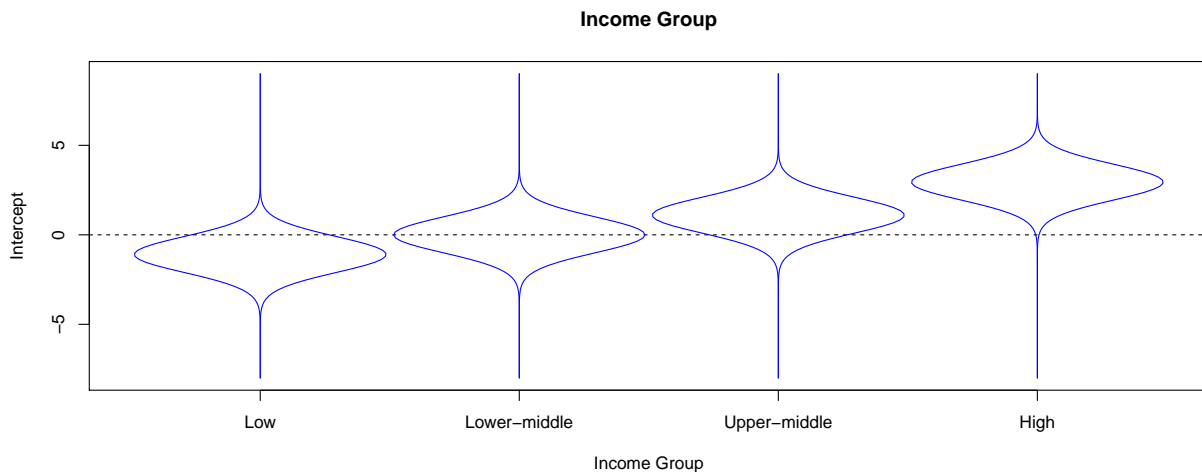


1.12 Quality

To account for other health-system and facility-level factors not explicitly modelled we included a parameter for ‘quality of care’. This parameter accounts for residual differences in survival not explained by cancer stage or treatment/imaging availability. We set wide priors with increasing probability of quality by income group (25%, 50%, 75%, 95%), and zero-mean priors for the other levels in the hierarchical model.



Here we plot the estimated prior distributions (in logit space).



2 Model Calibration

To ensure our model results were consistent with reported survival data, we calibrated the model to survival estimates from CONCORD-3. We calibrated the model using a Bayesian approach in which the observed data (i.e. CONCORD survival estimates) are considered fixed, and the model parameters are random variables. To fit the parameters we used a simulated annealing search algorithm (a stochastic optimization approach) to identify good-fitting parameter sets. A goodness-of-fit score for each proposed parameter set was calculated as the sum of the squared distance between the predicted and reported 5-year survival estimates. We weighted each survival target inversely proportional to the width of its confidence interval to allow more precise estimates to have larger influence in the calibration.

2.1 Survival Targets

We obtained country-specific 5-year net survival estimates for the 11 cancers included in the model from CONCORD. The following diagnoses were available in both GLOBOCAN and CONCORD:

Cancer	GLOBOCAN	
	Codes	CONCORD Codes
Oesophagus	C15	C15.0–C15.5, C15.8–C15.9
Stomach	C16	C16.0–C16.6, C16.8–C16.9
Colon	C18	C18.0–C18.9, C19.9 (Colon and rectosigmoid junction)
Rectum + Anus	C19-20, C21	C20.9, C21.0–C21.2, C21.8 (Rectum, anus, and anal canal)
Liver	C22	C22.0–C22.1 (Liver and intrahepatic bile ducts)
Pancreas	C25	C25.0–C25.4, C25.7–C25.9
Lung	C33-34	C34.0–C34.3, C34.8–C34.9 (Lung and bronchus)
Breast	C50	C50.0–C50.6, C50.8–C50.9
Cervix uteri	C53	C53.0–C53.1, C53.8–C53.9
Prostate	C61	C61.9 (Prostate gland)

Note that the CONCORD survival estimates combine rectum and anus cancers into one group, while we simulate anus cancer separately in the model. We therefore pooled the anus and rectum cancer patients in the model when calculating the goodness-of-fit score for calibration. Anus-specific results are presented otherwise in the model however.

We removed targets with 0 CI width (i.e. 0 survival and reported CIs 0-0) to avoid dividing by 0 when calculating the goodness-of-fit score. We also removed 2 targets with implausibly high reported breast cancer survival, possibly due to selection bias:

- Morocco (Casablanca): 99.7 (95% CI 95.8-100), 2010-2014
- Nigeria (Ibadan): 97.5 (95% CI 89.9-100), 2010-2014

Our final set included 583 targets in total.

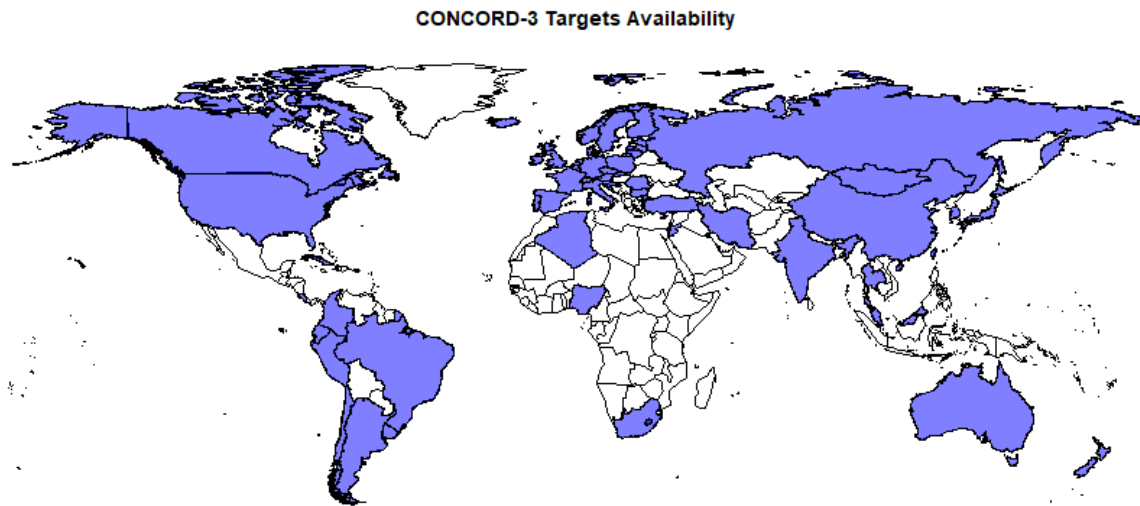
Cancer	# Countries
Oesophagus	57
Stomach	59
Colon	61
Rectum + Anus	60
Liver	55
Pancreas	55
Lung	58
Breast	59
Cervix	60
Prostate	59

We used CONCORD-3 estimates produced for 2010-14 where available ($n=576$), and a few estimates produced for 2005-09 ($n=7$) when more recent estimates were not available. The time period for each estimate is noted in the Appendix sections below (2.4 and 2.5).

To maximize the amount of data available for model calibration, we used all estimates available from CONCORD-3, including estimates that were flagged due to concerns around data quality. Survival estimates were flagged due to insufficient sample size to allow for age-standardisation, or because the estimates were derived from data with other quality issues (see Allemani 2018 for details on CONCORD data quality considerations). We present these estimates in the appendix as posterior predictive checks to evaluate the fit of our calibrated model, but care should be taken when interpreting these plots.

To evaluate the predictive accuracy of our model, we removed 50 targets at random as a validation test set. We therefore calibrated the model to 533 targets.

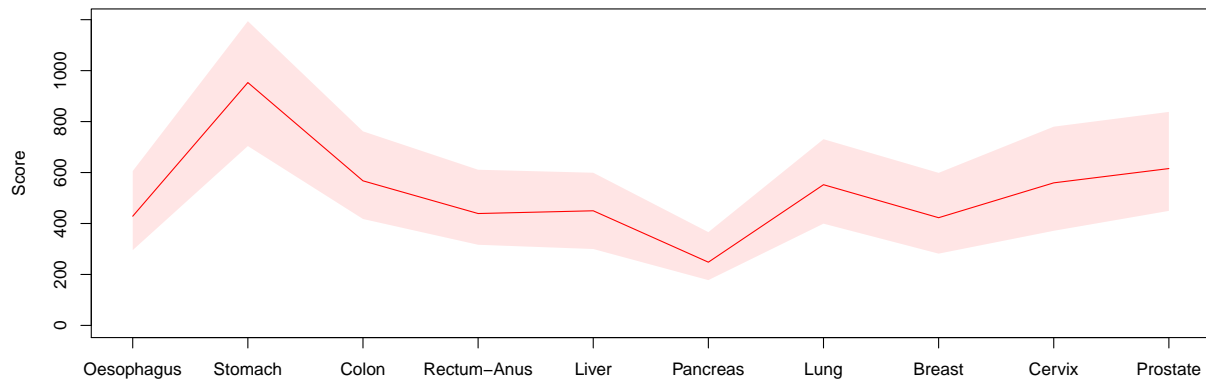
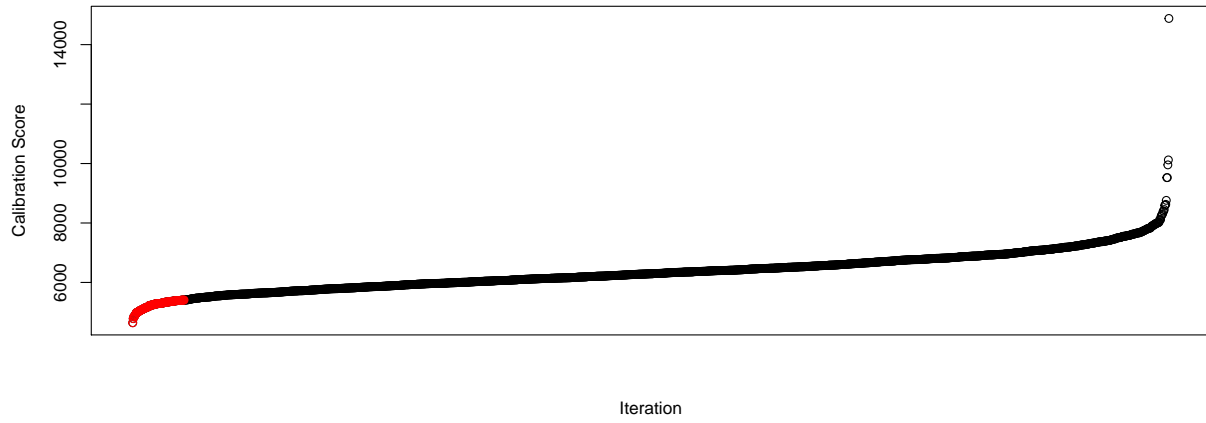
Reference: Allemani C, Matsuda T, Di Carlo V, et al. Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. *Lancet* 2018; 391: 1023–75.



2.2 Scores

We ran 2,000 independent search chains of 1,000 iterations each, and selected the final 100 best-fitting parameter sets to account for uncertainty around the model parameters. Here we plot the distribution of calibration scores, with the best 100 shown in red. We also plot the goodness-of-fit scores by cancer (mean and 95% UI) among the best 100 sets.

Calibration Scores



2.3 Summary Goodness-of-Fit Indicators

Here we report summary goodness-of-fit indicators by continent for our calibration targets and validation checks.

- **Overlap:** How often the model prediction intervals (95% UI) overlapped the CONCORD 95% CIs
- **Coverage:** How often the model prediction intervals contained the reported point estimate
- **Correlation:** Pearson’s r correlation coefficient of predicted means vs reported estimates
- R^2 : Generalized coefficient of determination (see definition below)
- **Mean Error:** Mean absolute error of predicted vs reported estimates

The generalized R^2 was calculated as one minus the fraction of unexplained variance: $R^2 = 1 - \frac{SS_{err}}{SS_{tot}}$, where SS_{err} is the residual sum of squares: $\sum_{i=1}^N (y_i - \hat{y}_i)^2$, and SS_{tot} is the total sum of squares: $\sum_{i=1}^N (y_i - \bar{y})^2$.

Calibration Targets

Area	Overlap	Coverage	Correlation	R^2	Mean Error
Africa	96.3%	63.0%	0.840	0.536	13.68
Asia	88.4%	71.3%	0.948	0.891	6.36
Europe	95.3%	87.5%	0.992	0.985	2.69
Latin America and the Caribbean	87.1%	75.3%	0.970	0.940	5.24
North America	100%	95.0%	0.998	0.996	1.55
Oceania	100%	94.1%	0.993	0.986	2.38

Validation Checks

Area	Overlap	Coverage	Correlation	R^2	Mean Error
Africa	83.3%	66.7%	0.797	0.070	15.02
Asia	93.8%	75.0%	0.980	0.955	4.87
Europe	100%	90.5%	0.989	0.973	3.27
Latin America and the Caribbean	100%	100%	0.995	0.978	3.00
Oceania	100%	66.7%	0.999	0.930	6.52

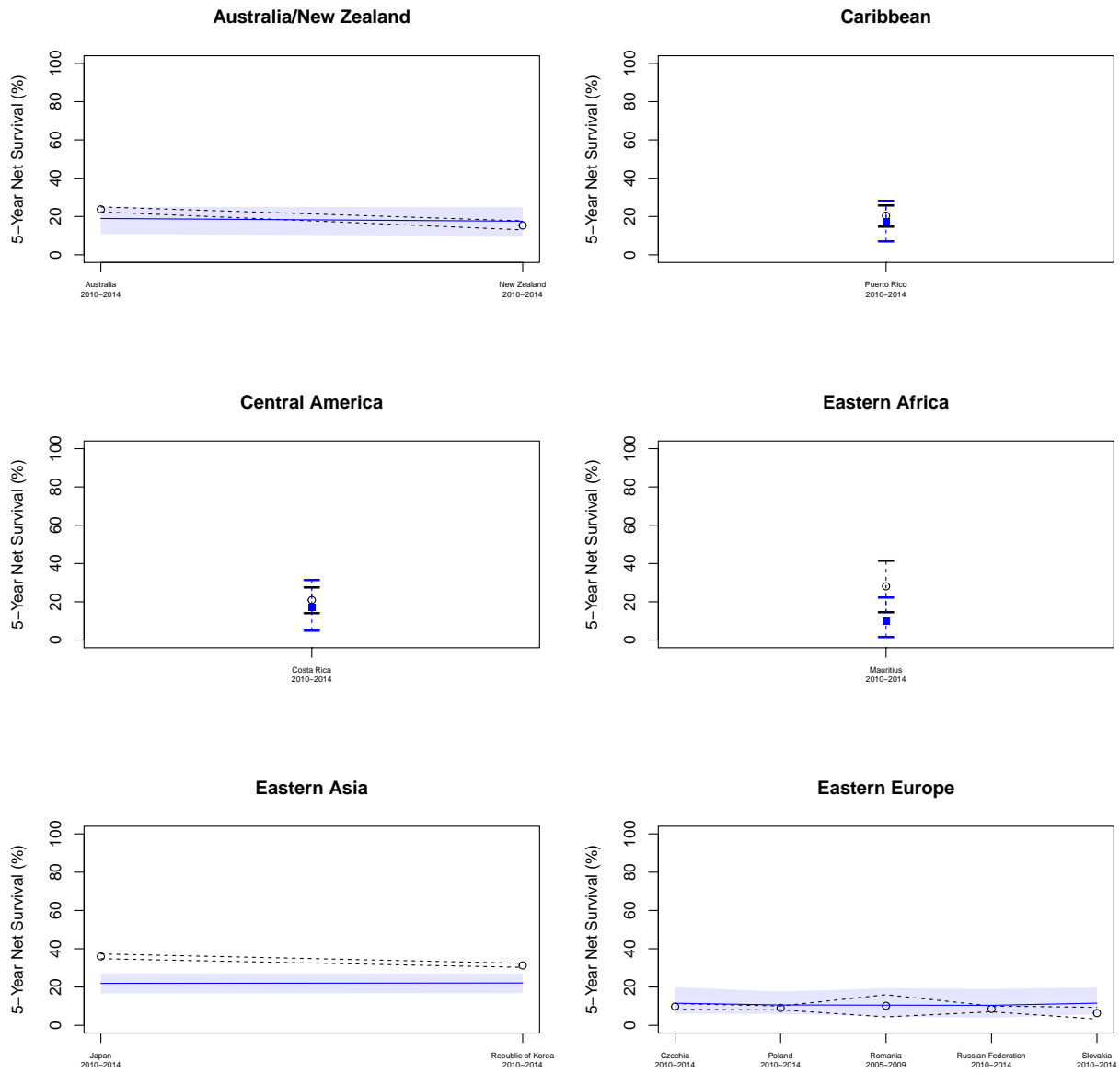
Note: No North America targets were sampled as part of the test set.

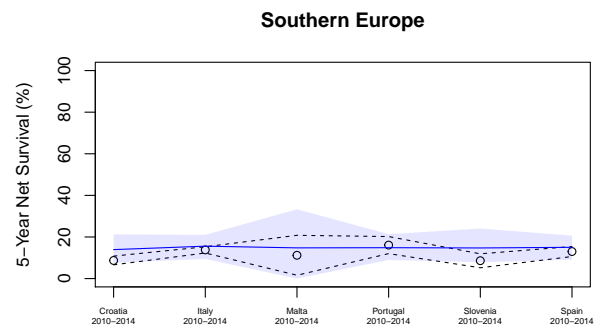
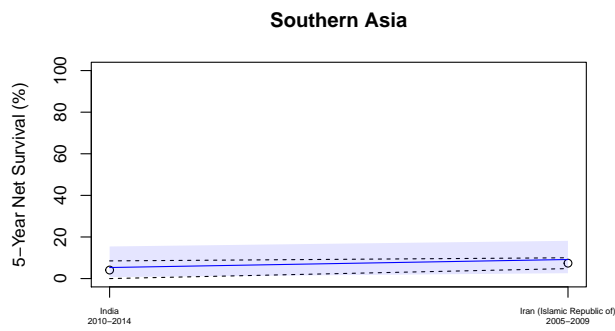
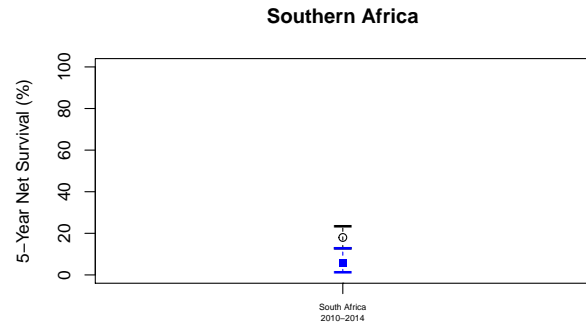
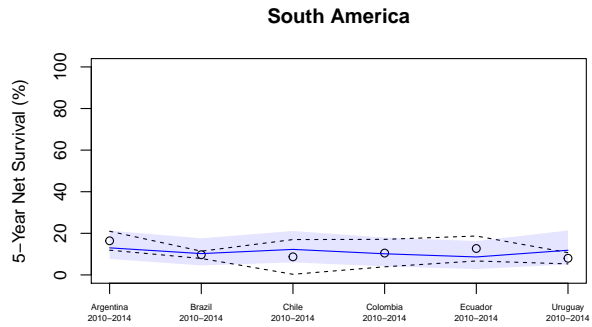
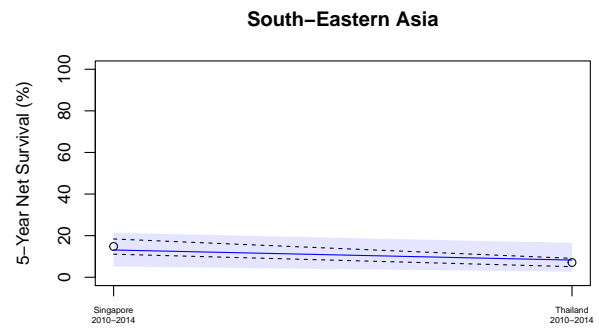
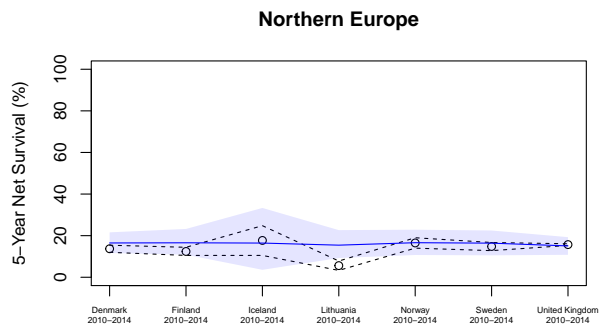
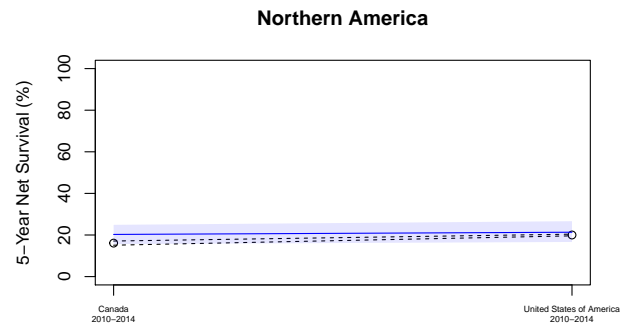
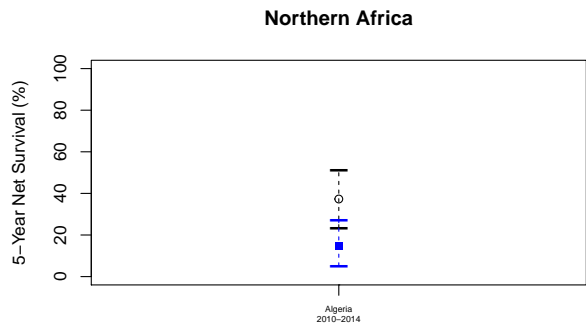
2.4 Calibration Target Comparisons

Here we plot our modeled survival estimates (mean and 95% UI of the posterior predicted estimates) compared to the CONCORD estimates used to calibrate the model (i.e. training set).

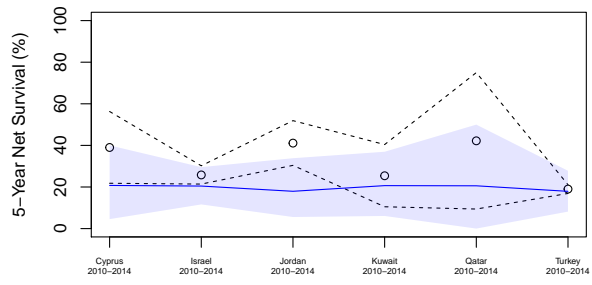
Black lines indicate CONCORD estimates and 95% CI. Blue lines and shaded regions indicate modeled means and 95% UI.

2.4.1 Oesophagus

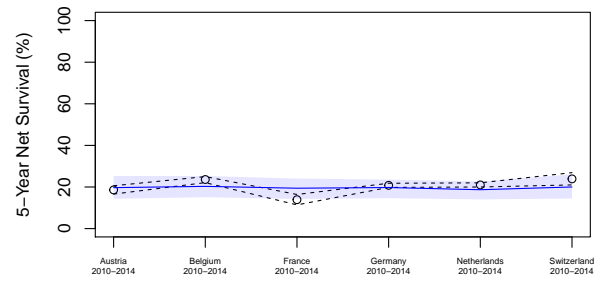




Western Asia

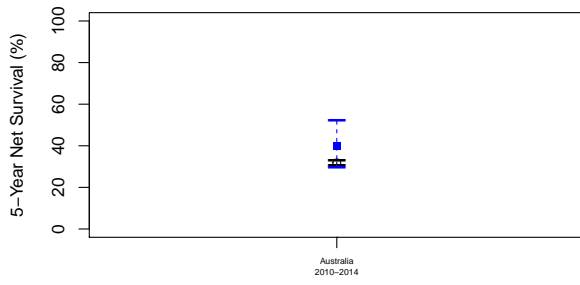


Western Europe

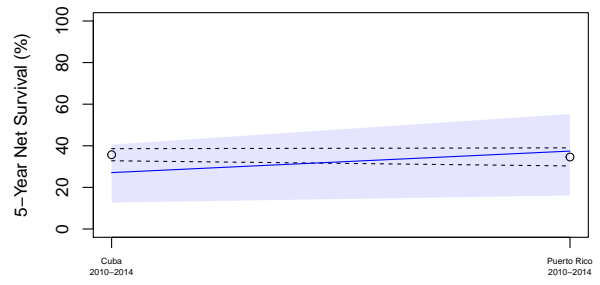


2.4.2 Stomach

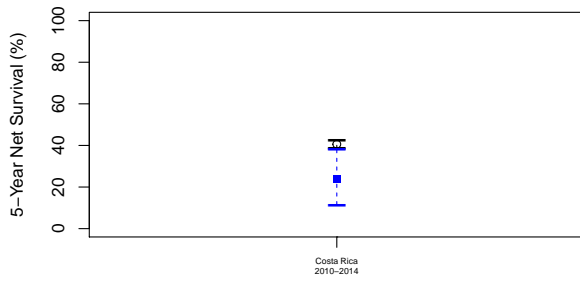
Australia/New Zealand



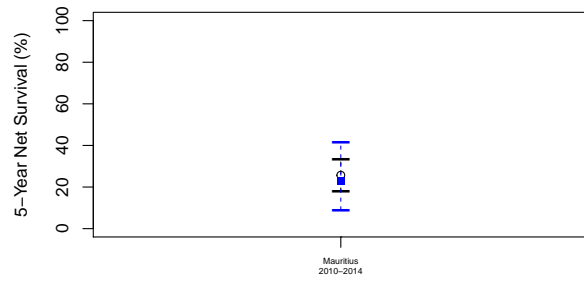
Caribbean



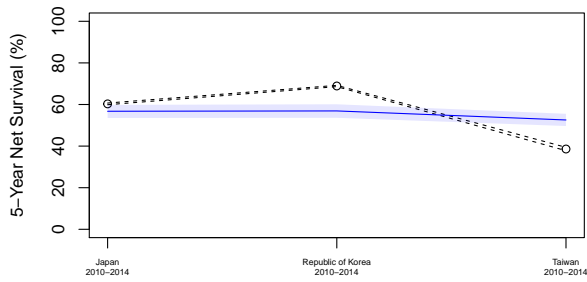
Central America



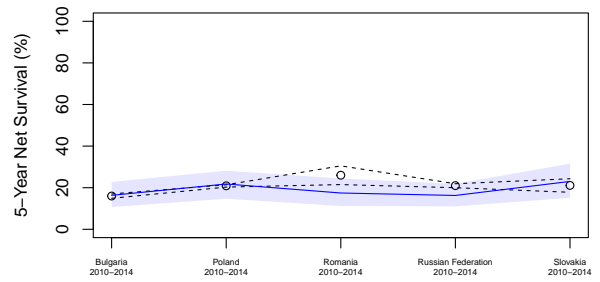
Eastern Africa



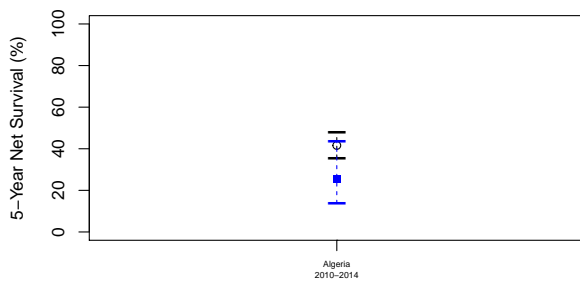
Eastern Asia



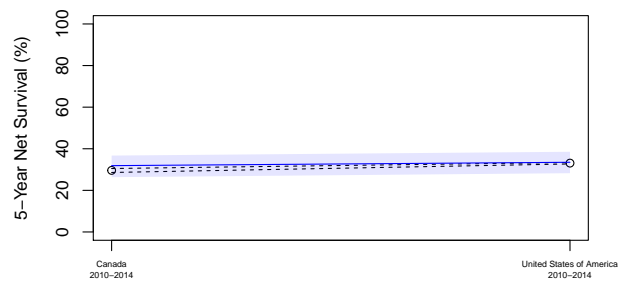
Eastern Europe



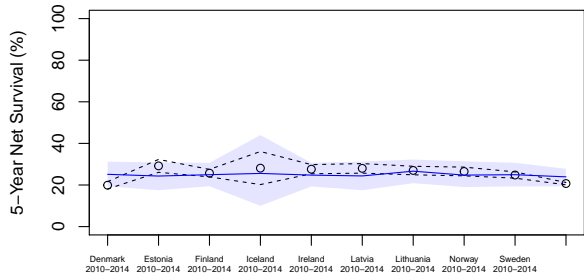
Northern Africa



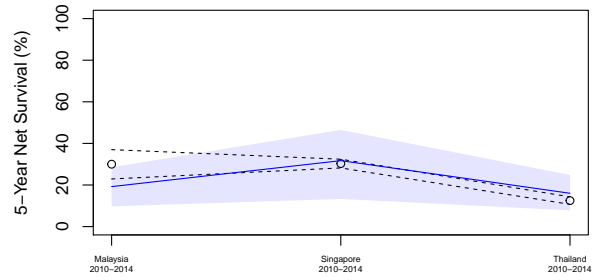
Northern America



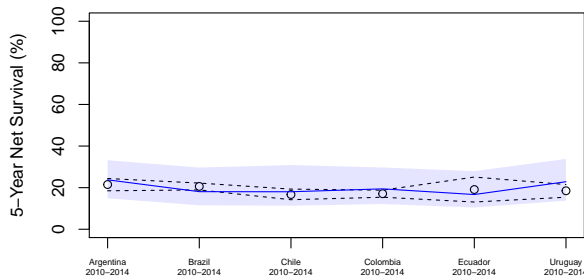
Northern Europe



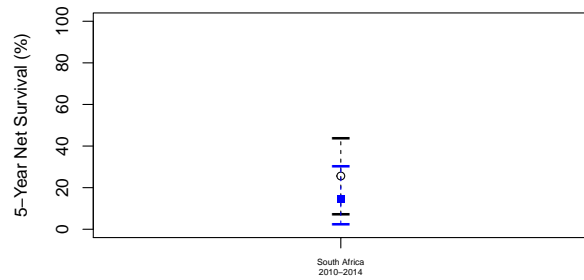
South-Eastern Asia



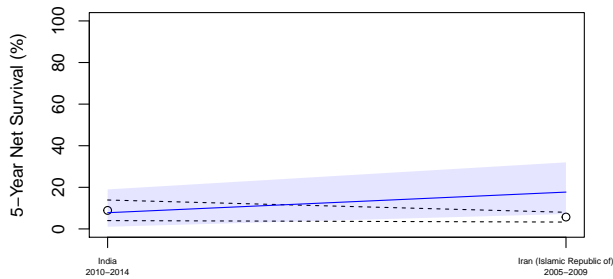
South America



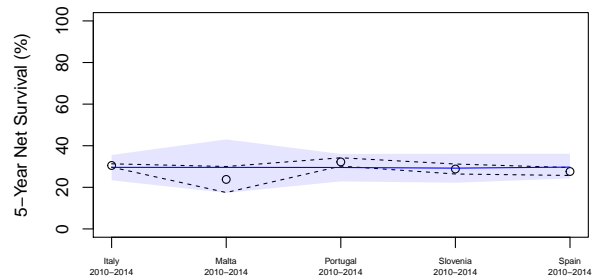
Southern Africa



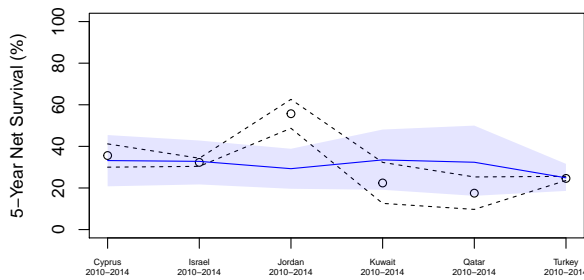
Southern Asia



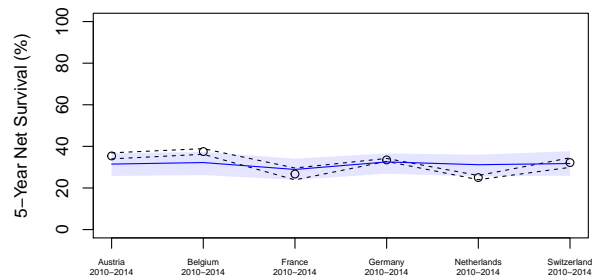
Southern Europe



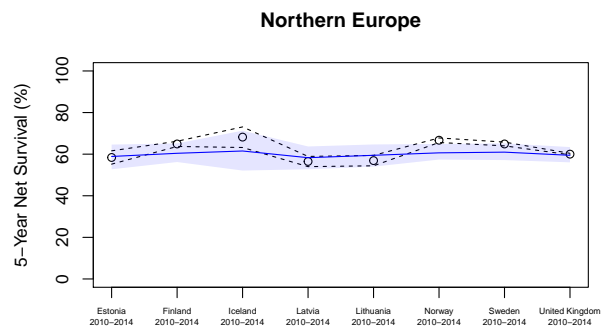
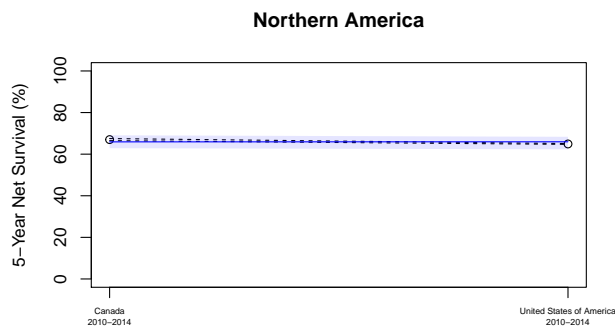
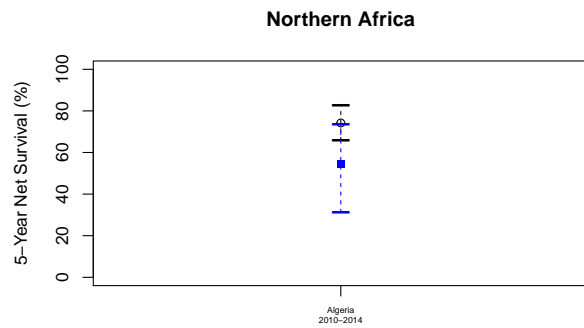
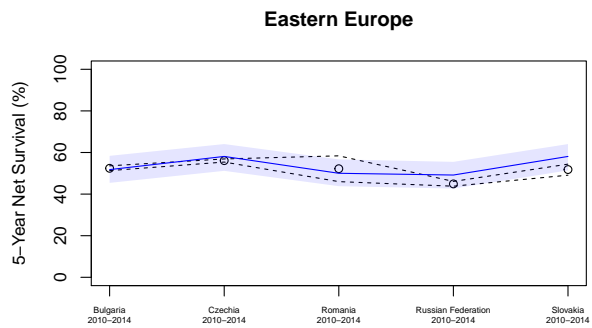
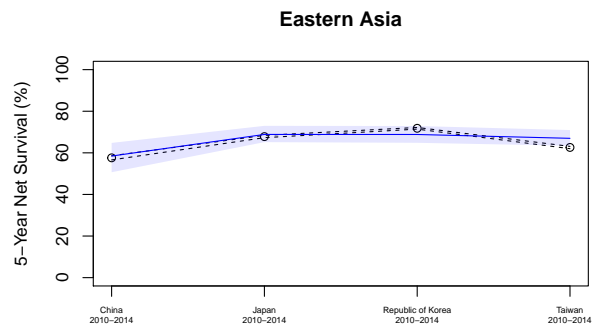
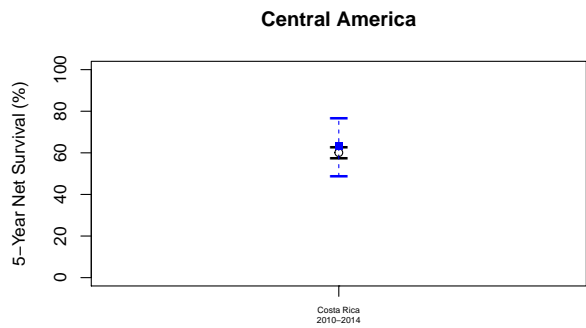
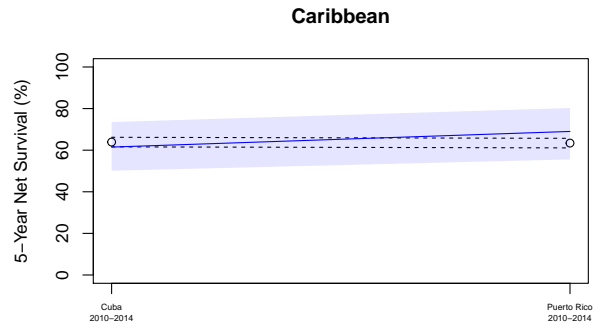
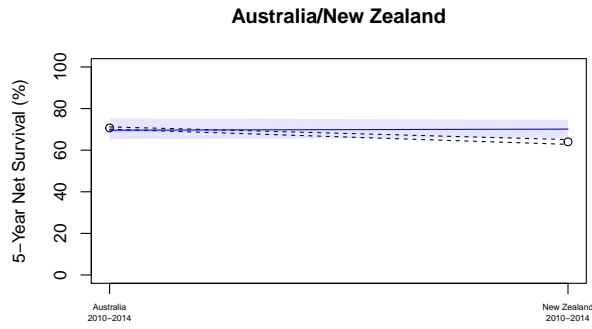
Western Asia



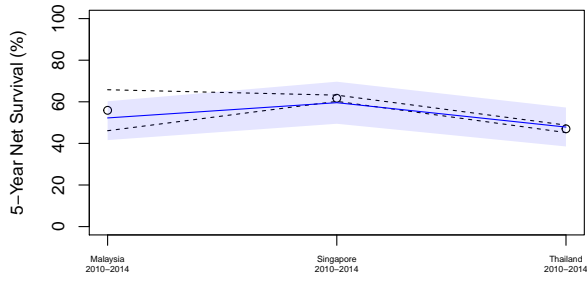
Western Europe



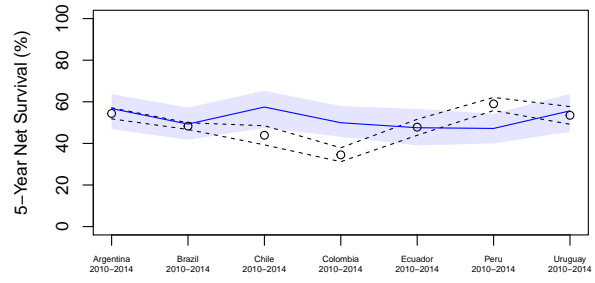
2.4.3 Colon



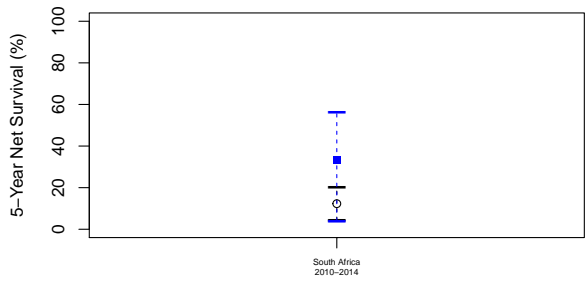
South-Eastern Asia



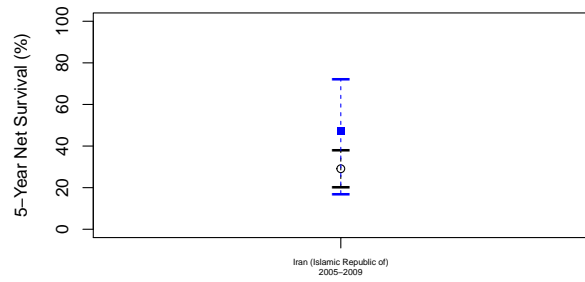
South America



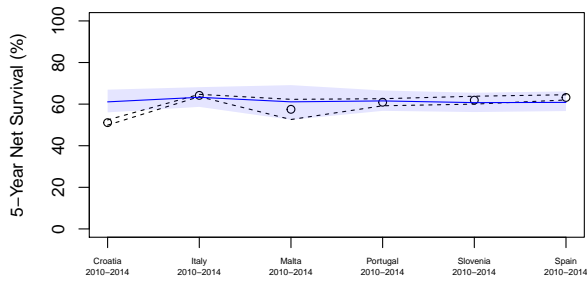
Southern Africa



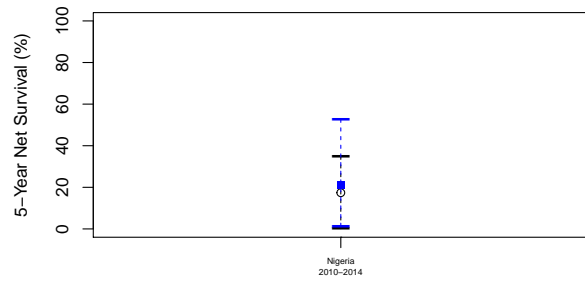
Southern Asia



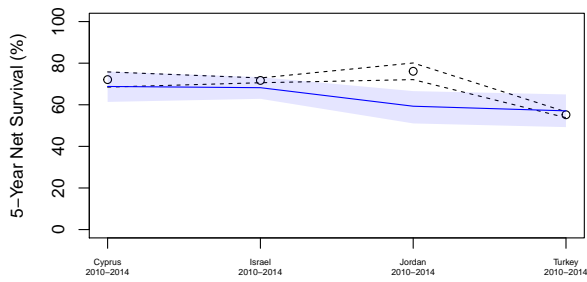
Southern Europe



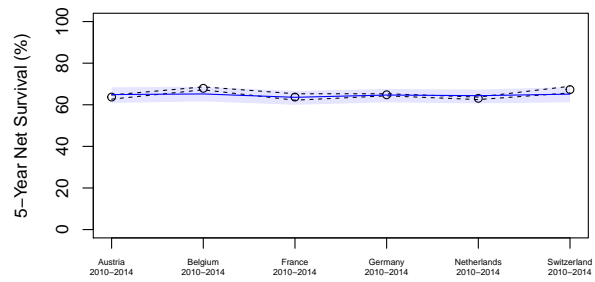
Western Africa



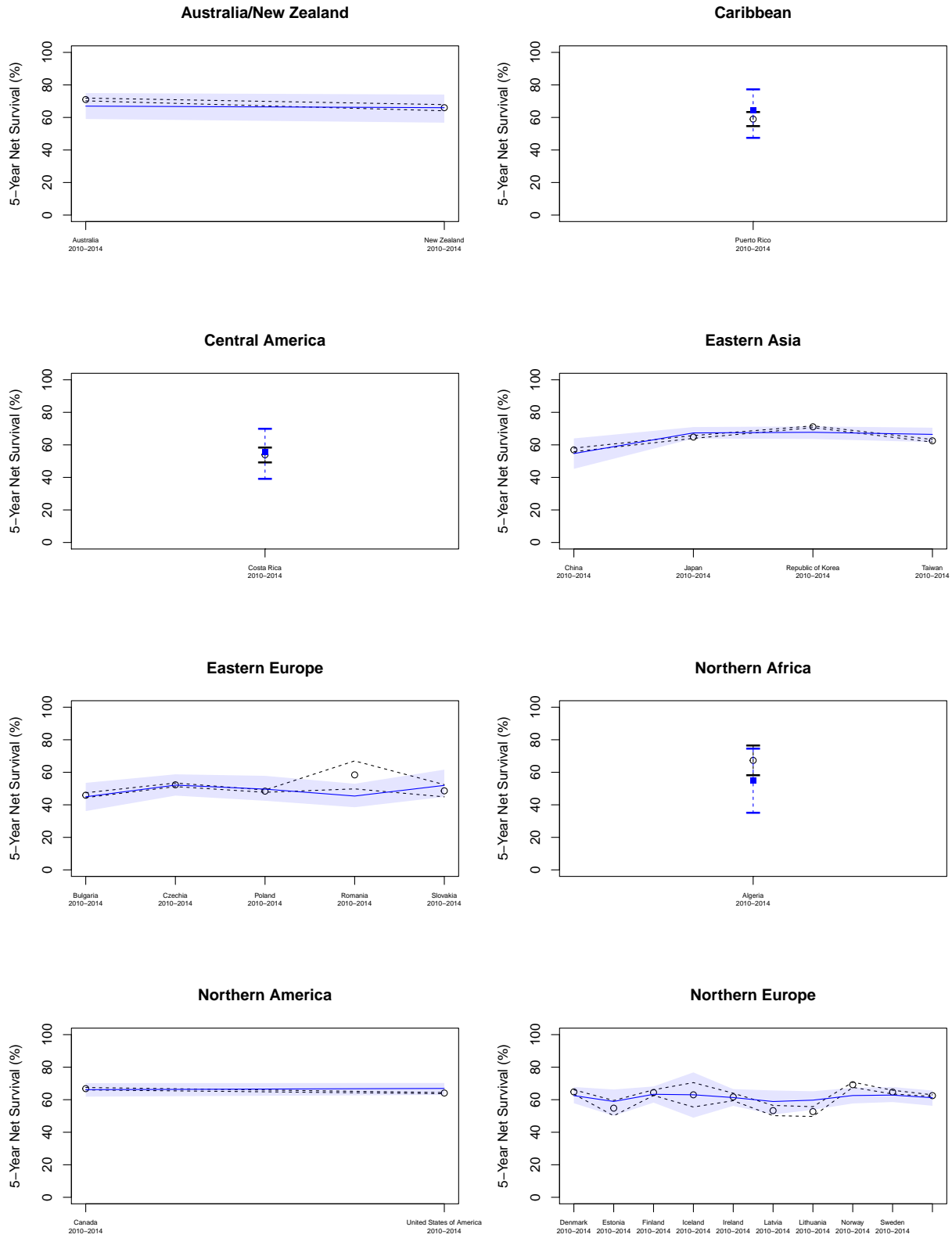
Western Asia



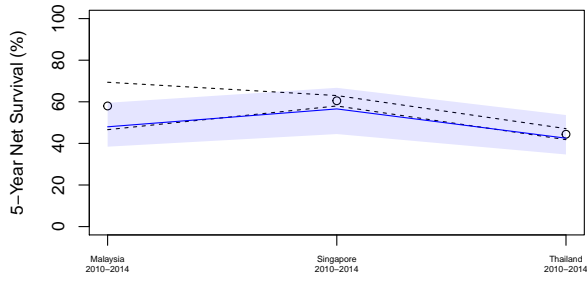
Western Europe



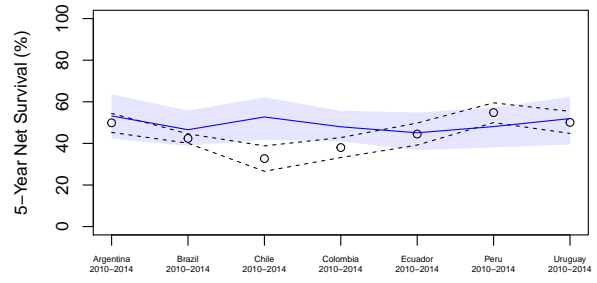
2.4.4 Rectum-Anus



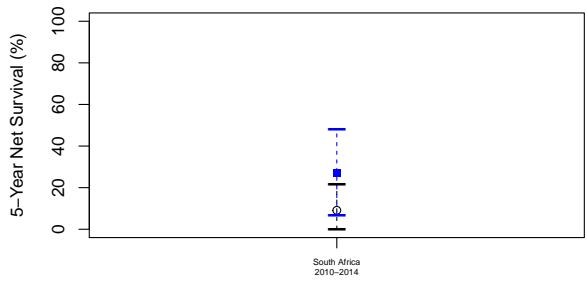
South-Eastern Asia



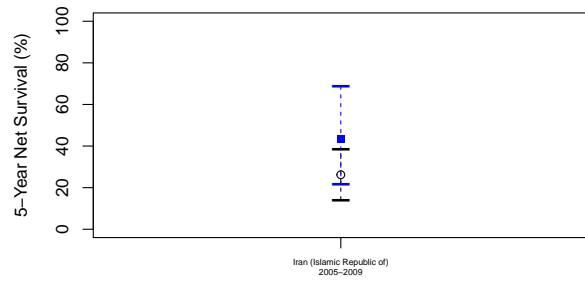
South America



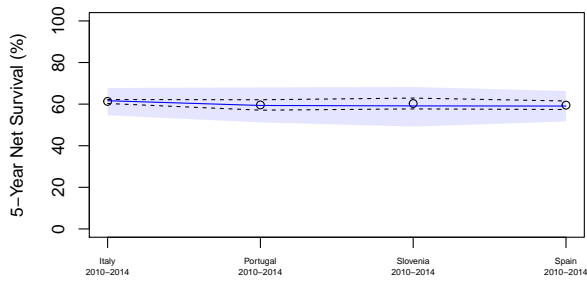
Southern Africa



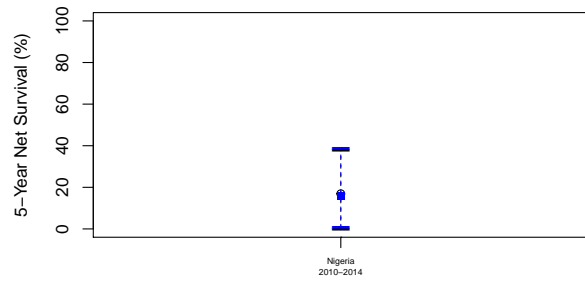
Southern Asia



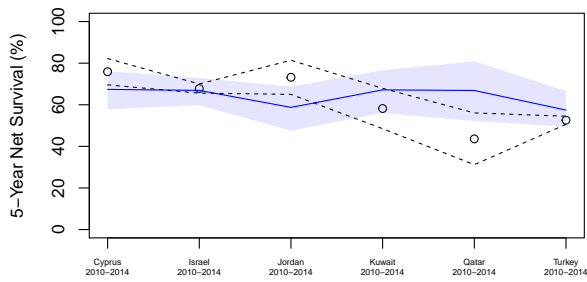
Southern Europe



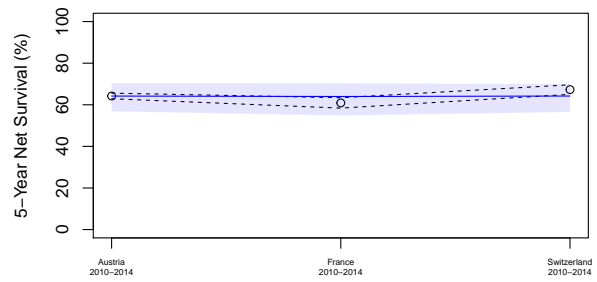
Western Africa



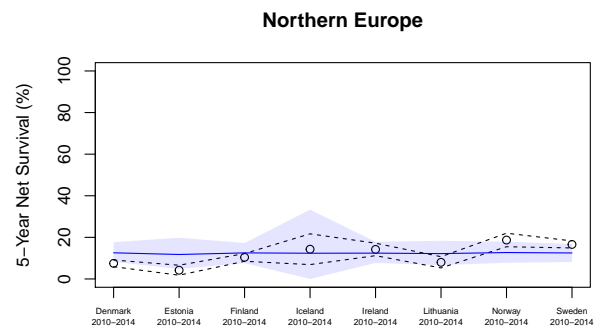
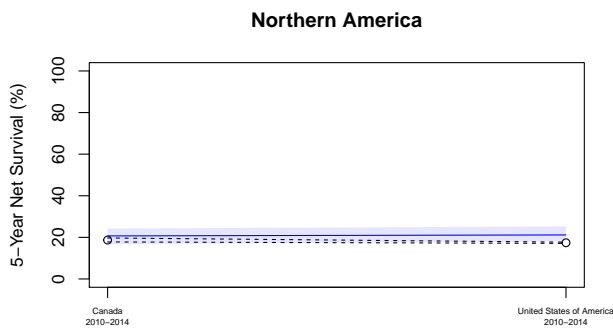
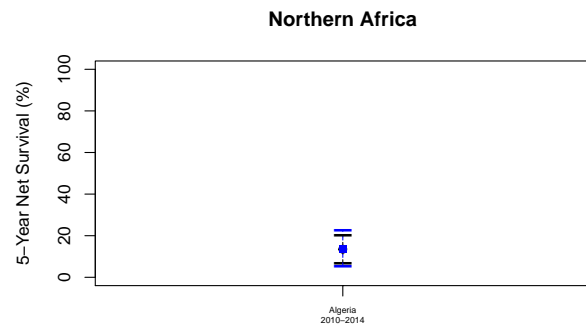
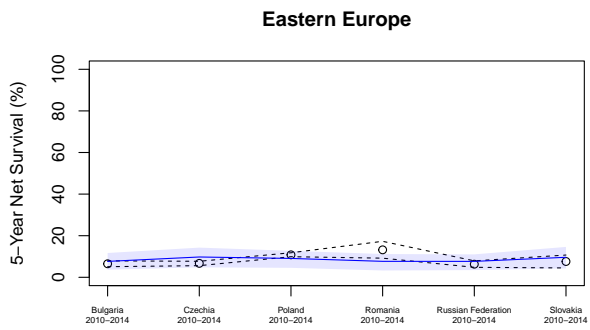
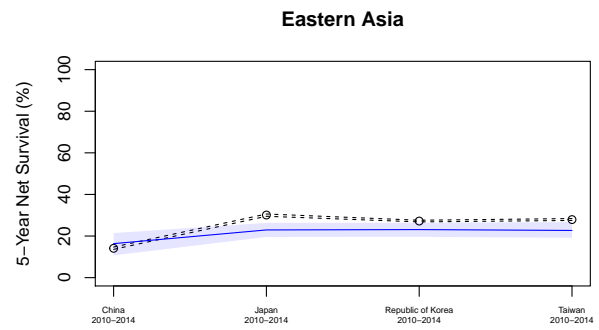
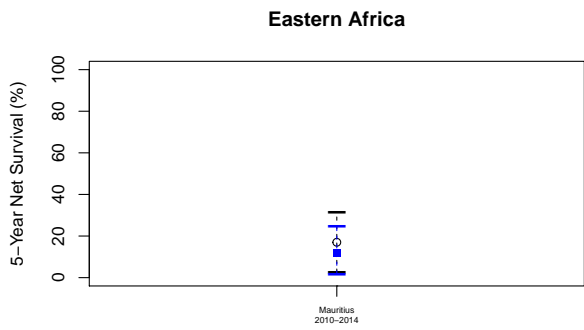
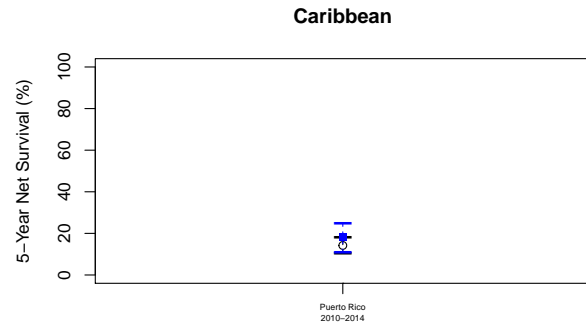
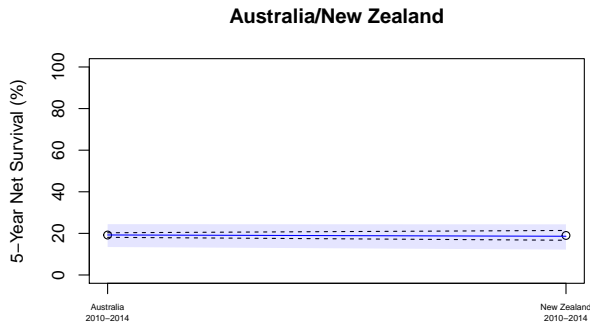
Western Asia



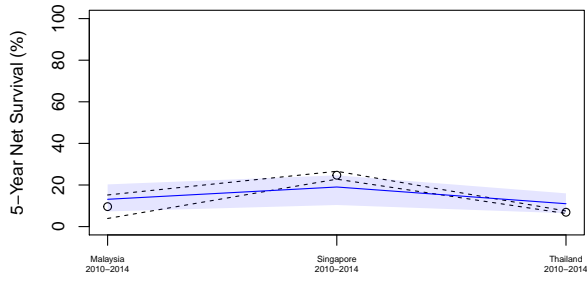
Western Europe



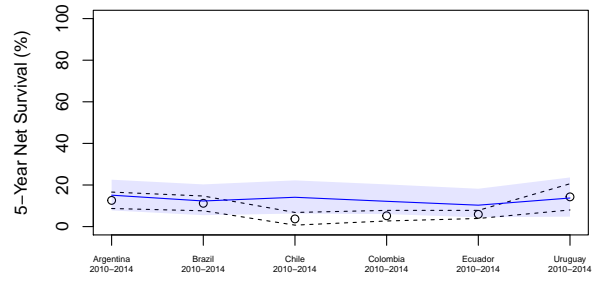
2.4.5 Liver



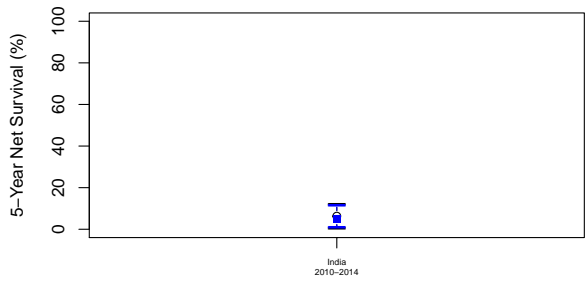
South-Eastern Asia



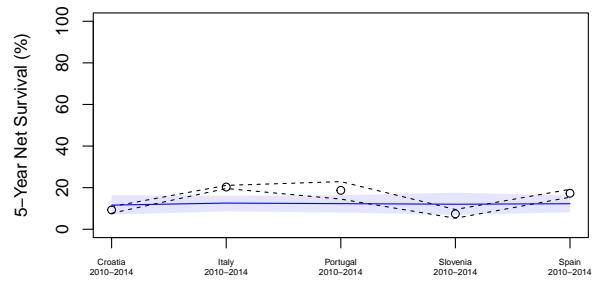
South America



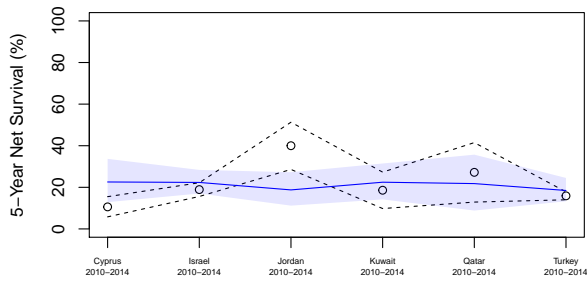
Southern Asia



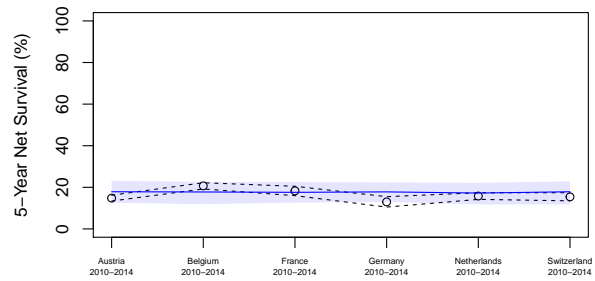
Southern Europe



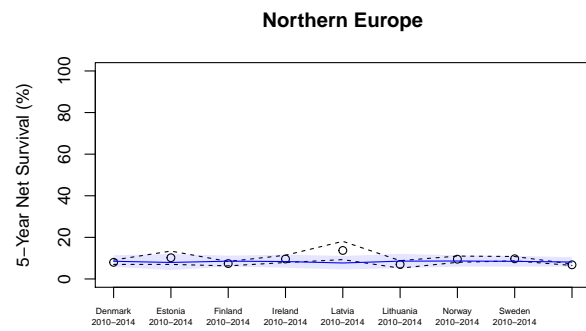
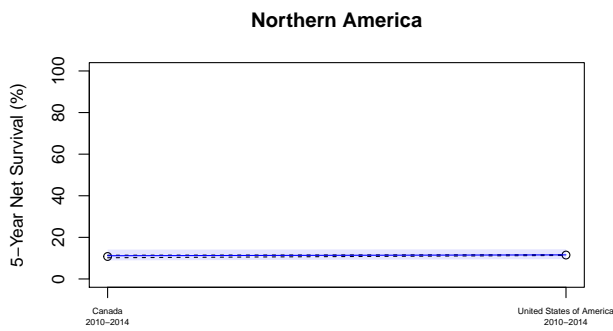
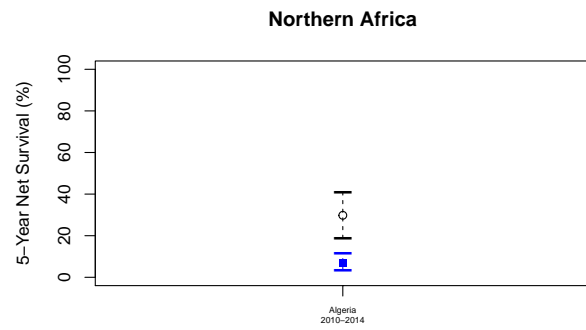
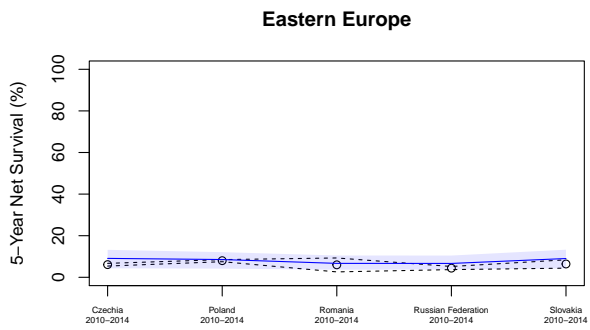
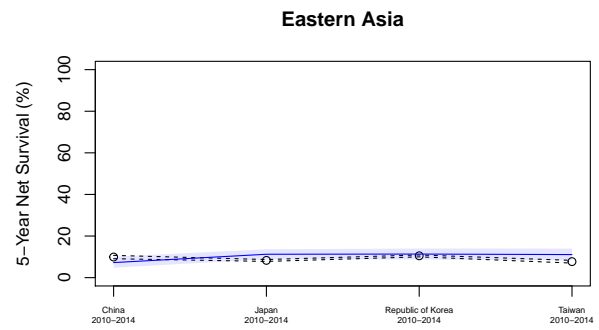
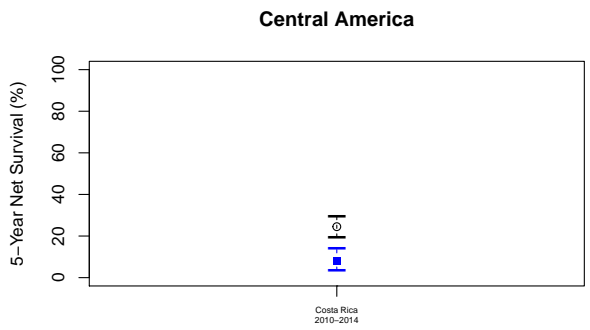
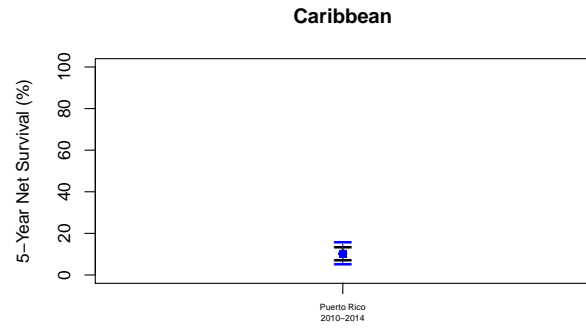
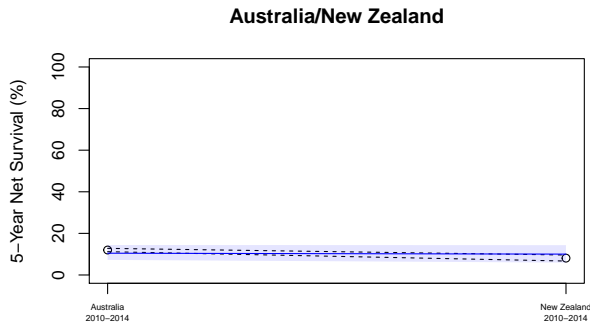
Western Asia



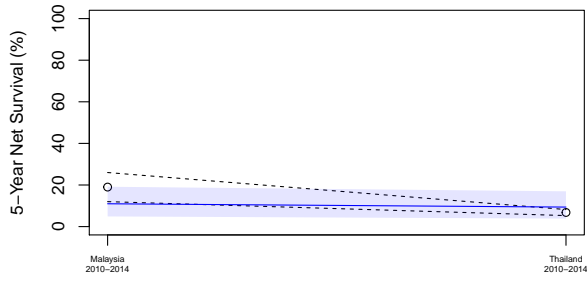
Western Europe



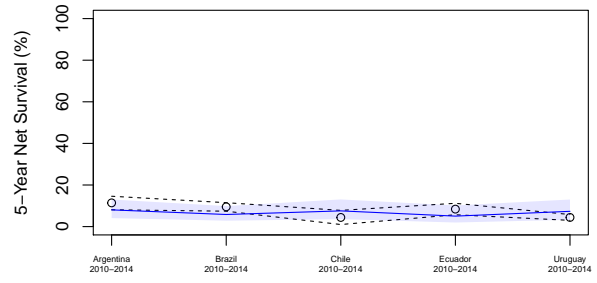
2.4.6 Pancreas



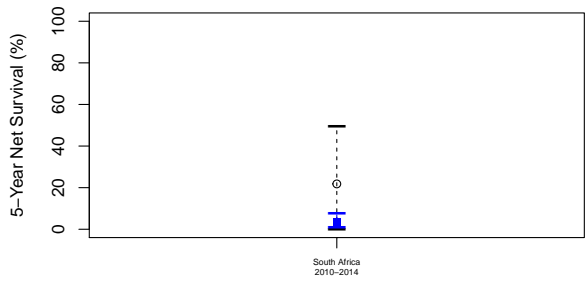
South-Eastern Asia



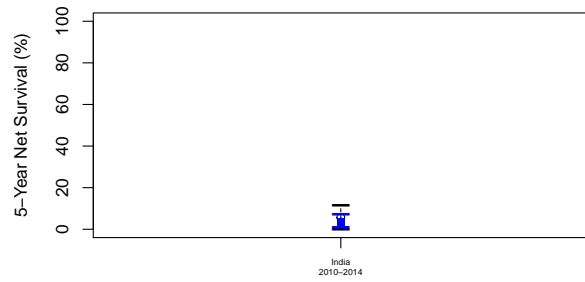
South America



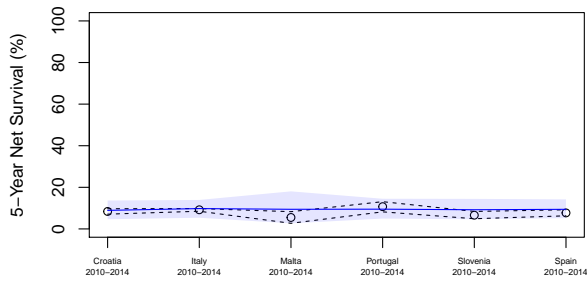
Southern Africa



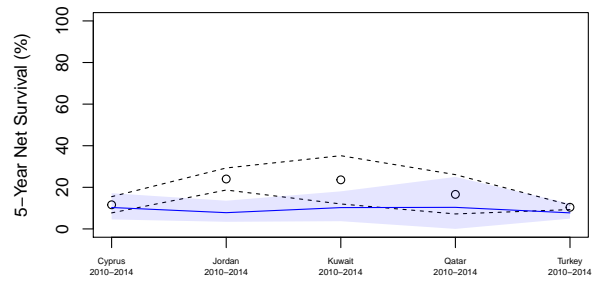
Southern Asia



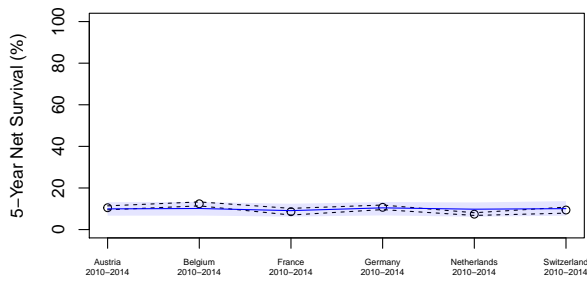
Southern Europe



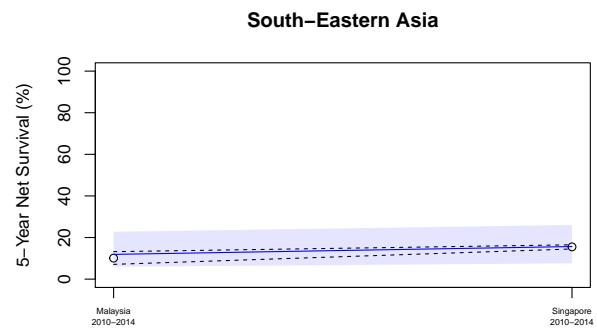
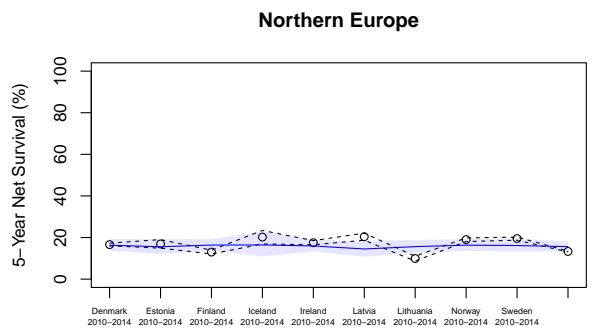
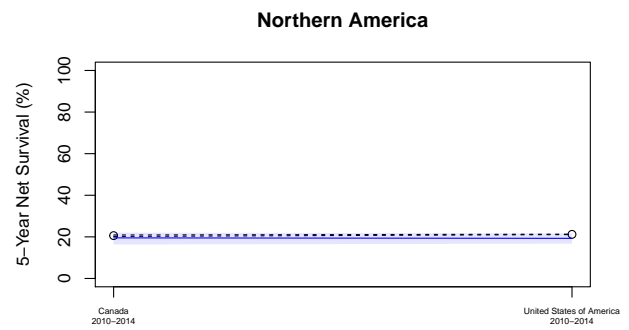
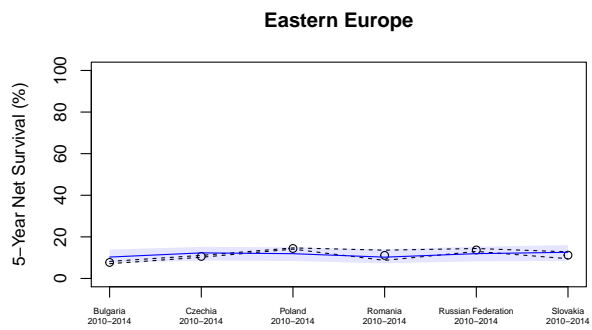
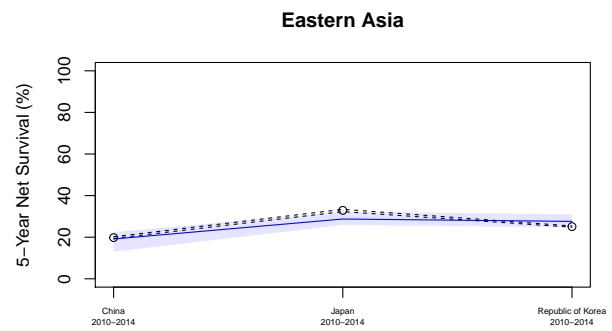
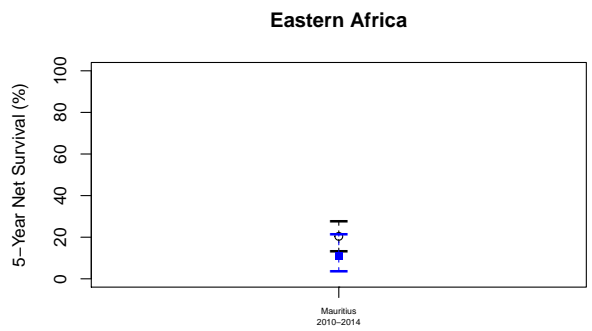
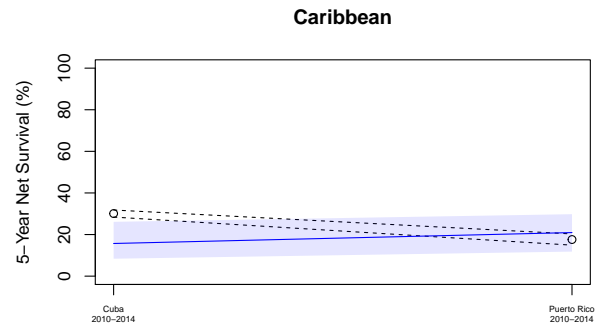
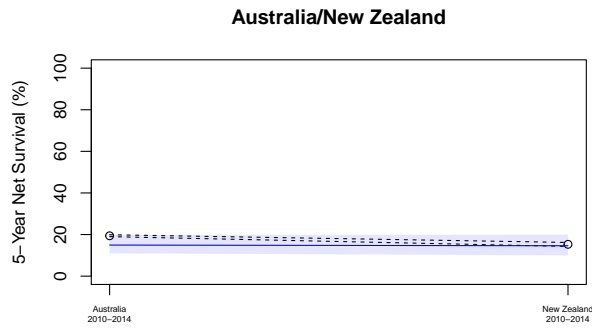
Western Asia



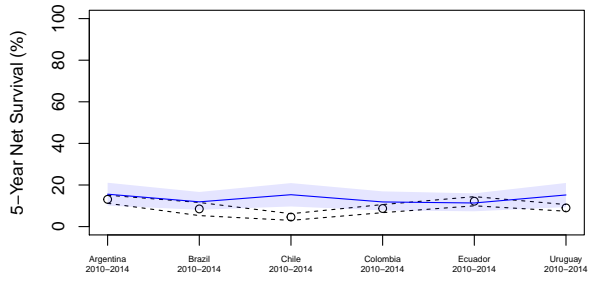
Western Europe



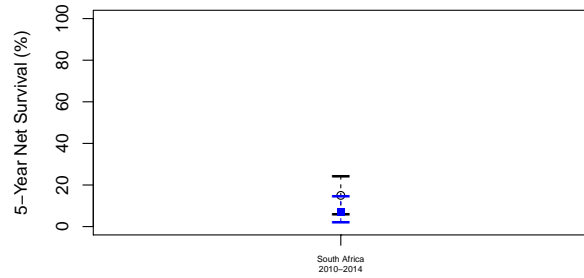
2.4.7 Lung



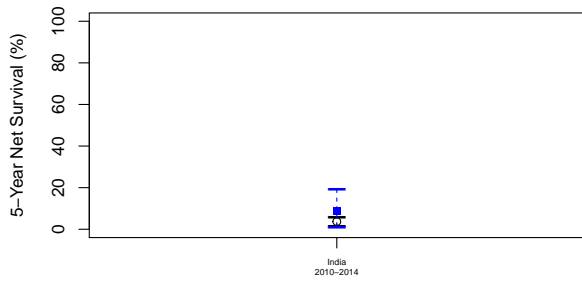
South America



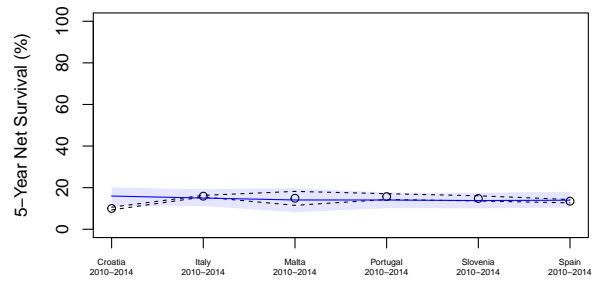
Southern Africa



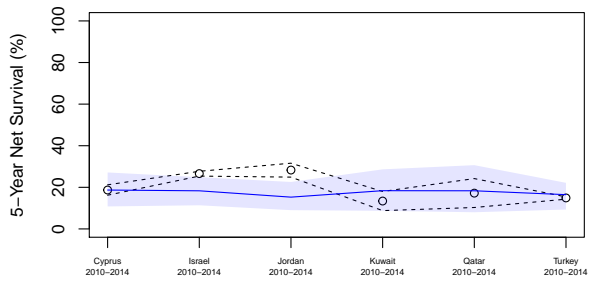
Southern Asia



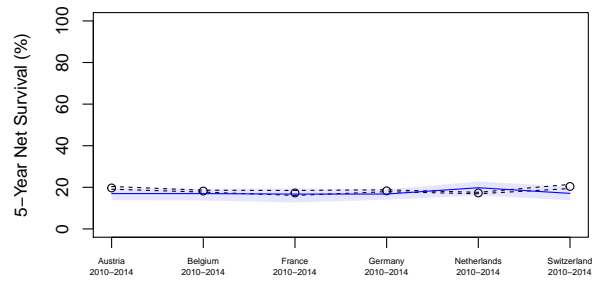
Southern Europe



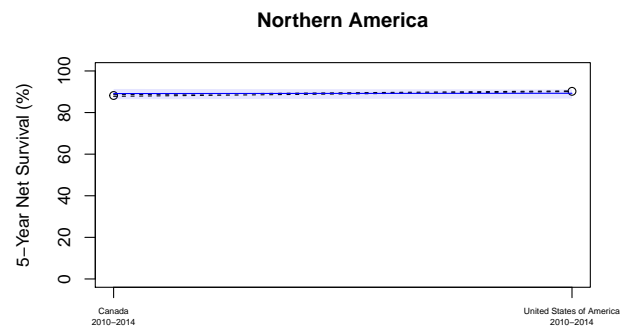
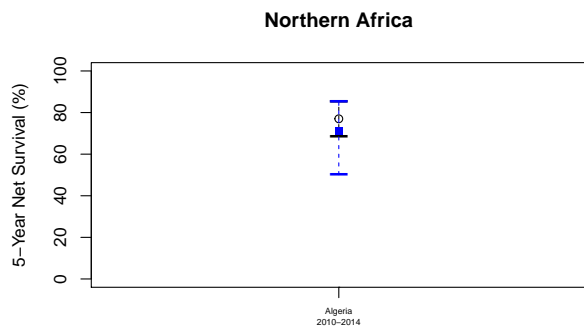
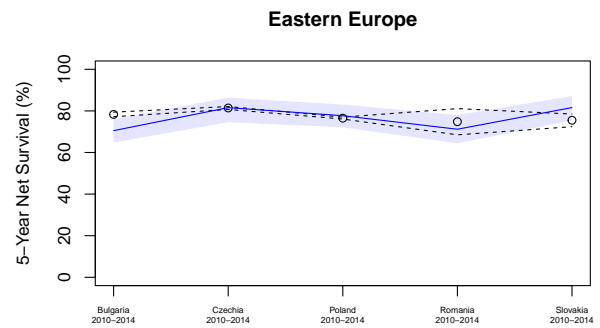
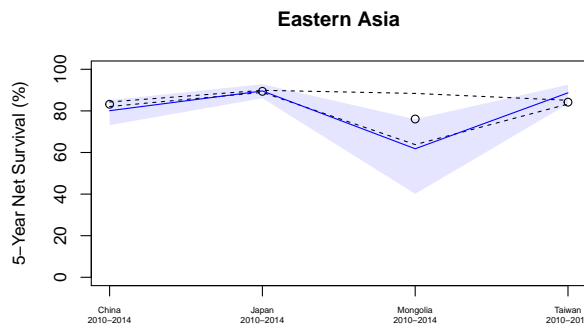
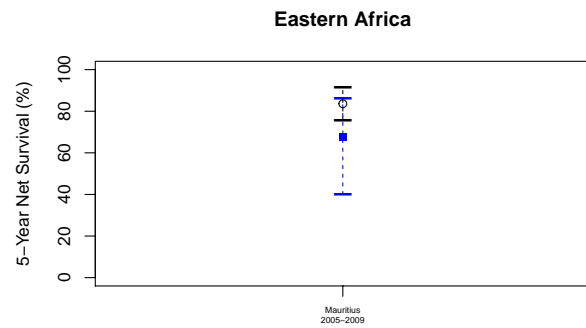
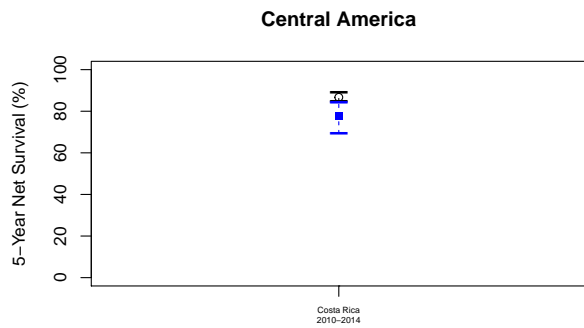
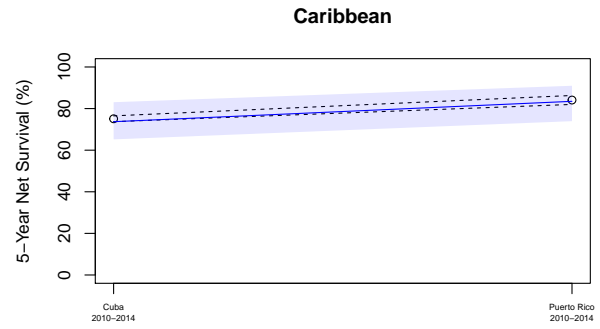
Western Asia



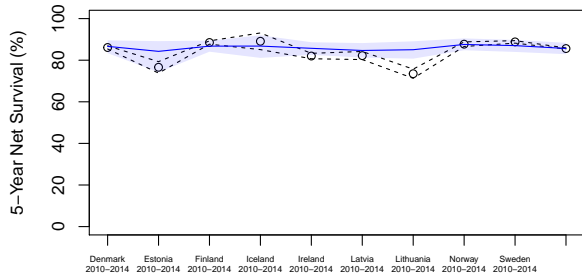
Western Europe



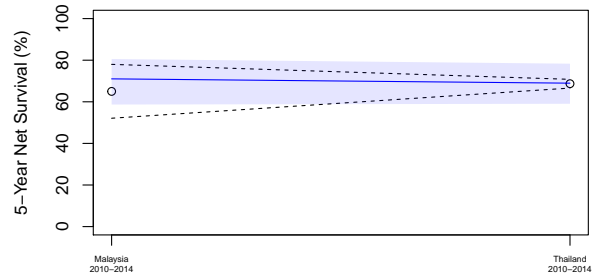
2.4.8 Breast



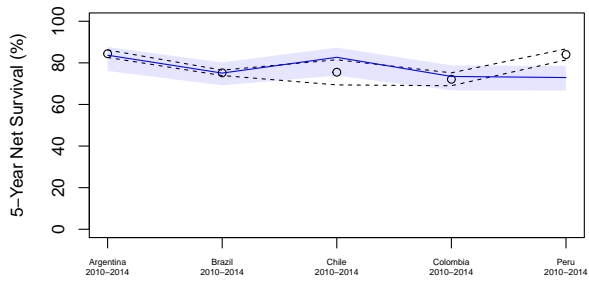
Northern Europe



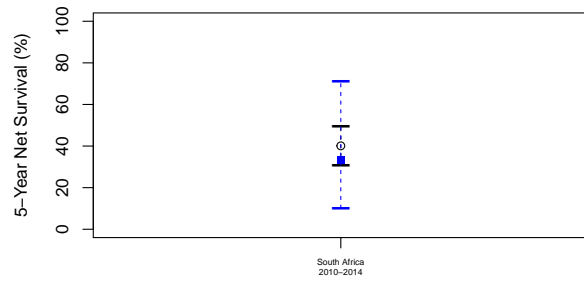
South-Eastern Asia



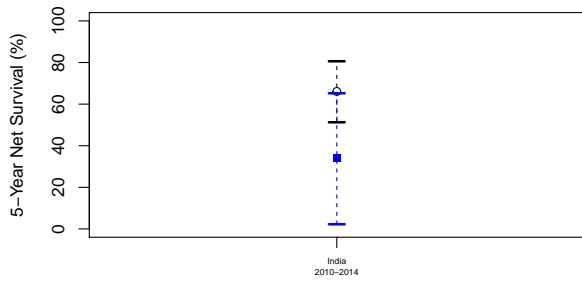
South America



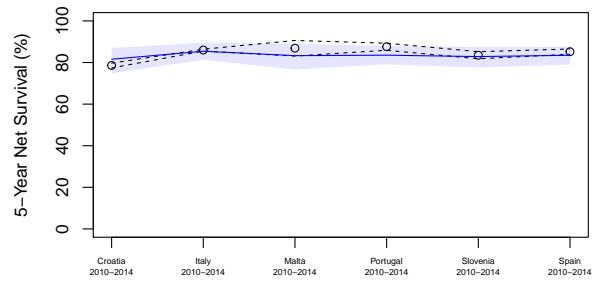
Southern Africa



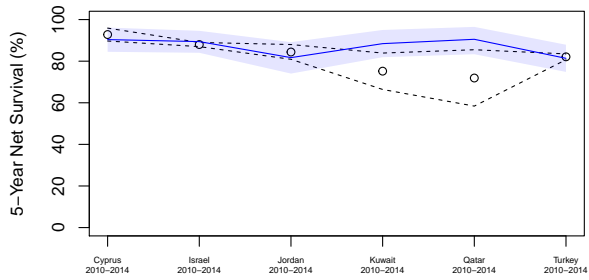
Southern Asia



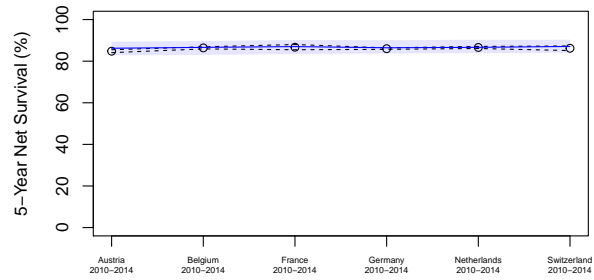
Southern Europe



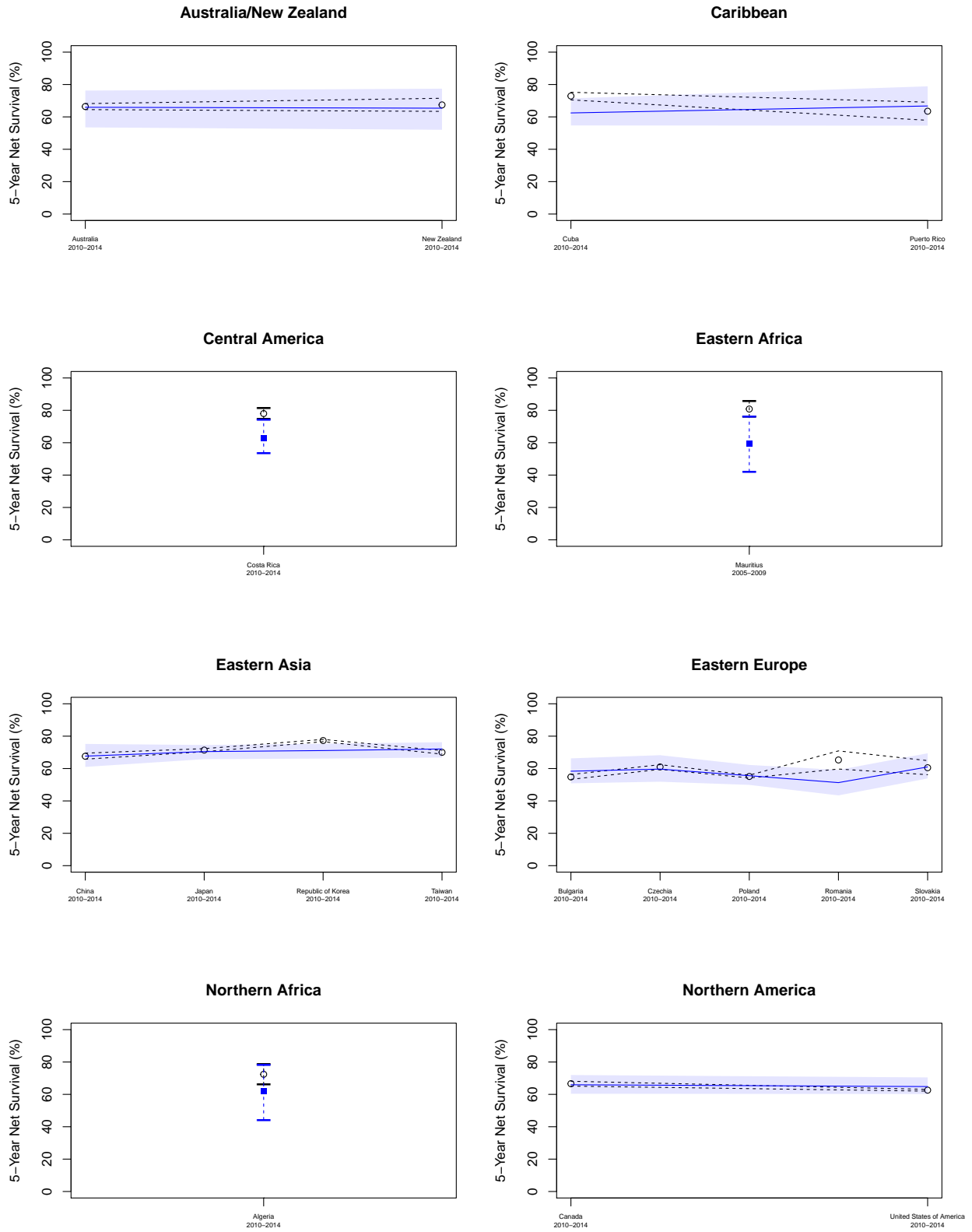
Western Asia



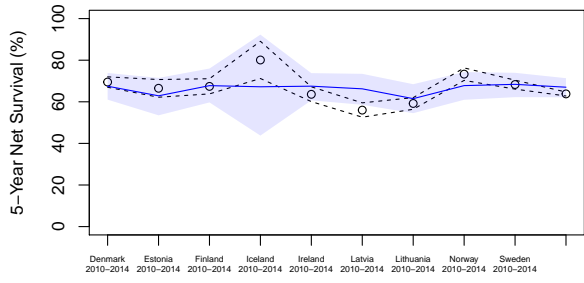
Western Europe



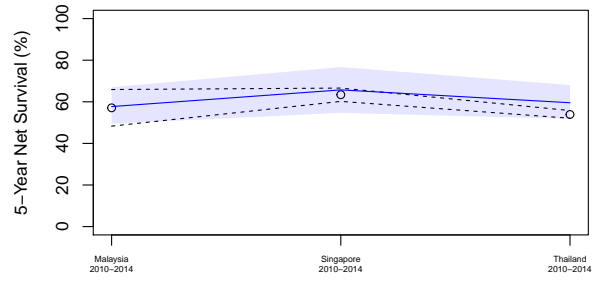
2.4.9 Cervix



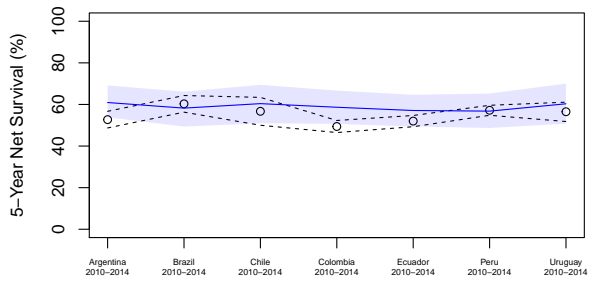
Northern Europe



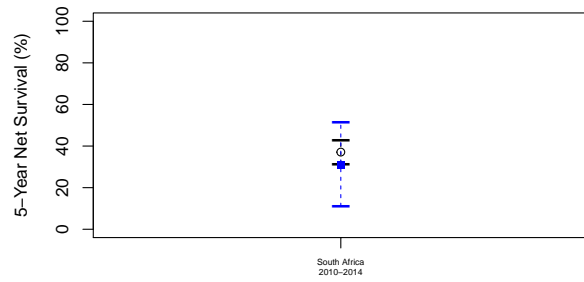
South-Eastern Asia



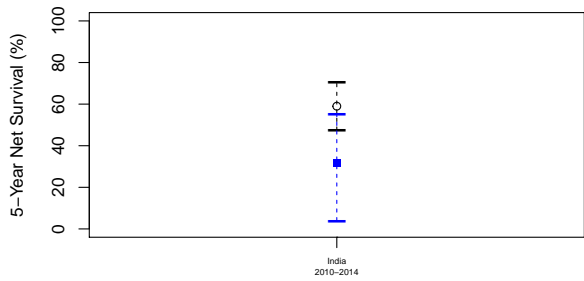
South America



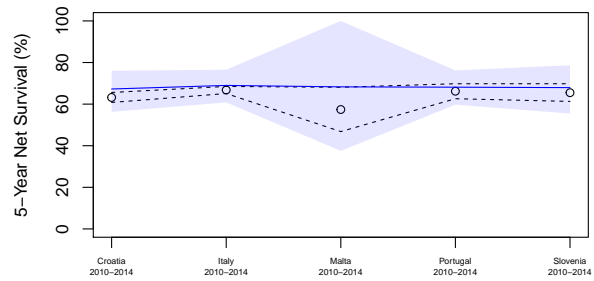
Southern Africa



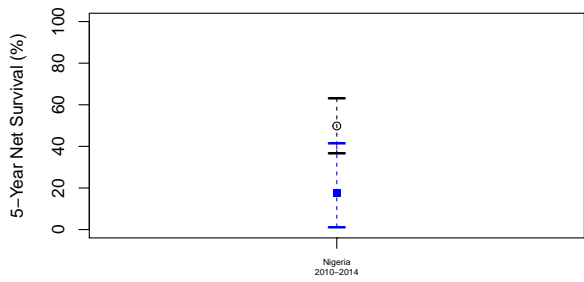
Southern Asia



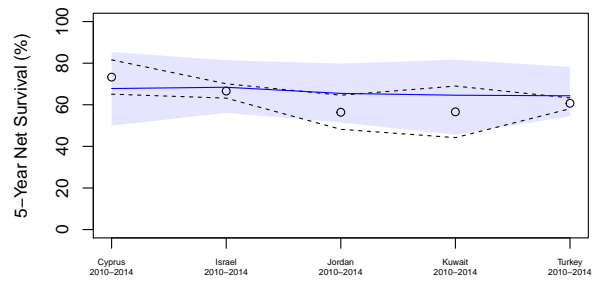
Southern Europe



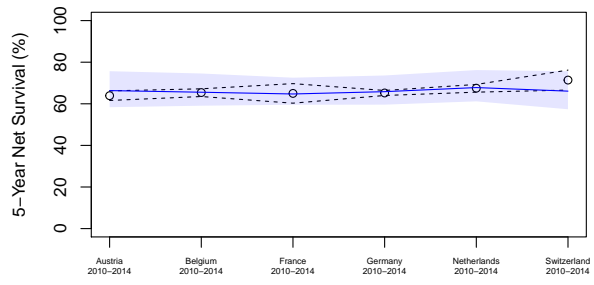
Western Africa



Western Asia

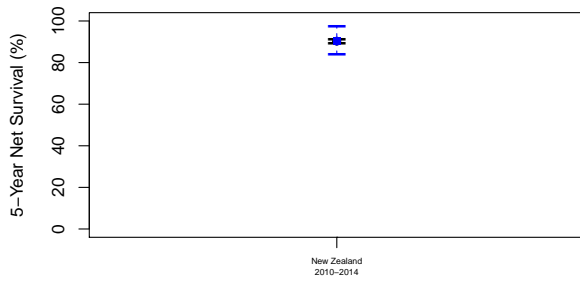


Western Europe

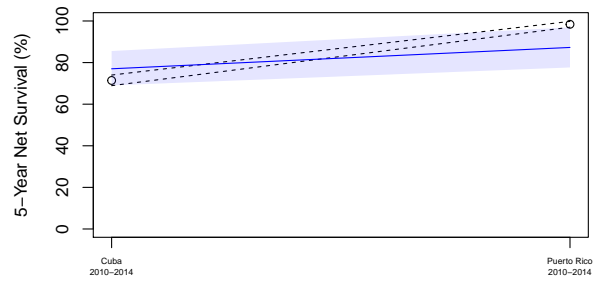


2.4.10 Prostate

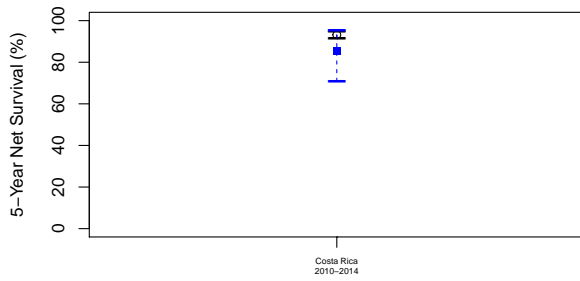
Australia/New Zealand



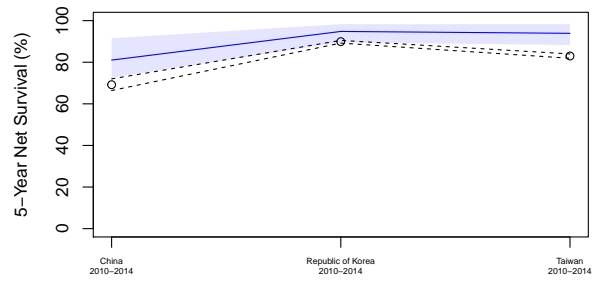
Caribbean



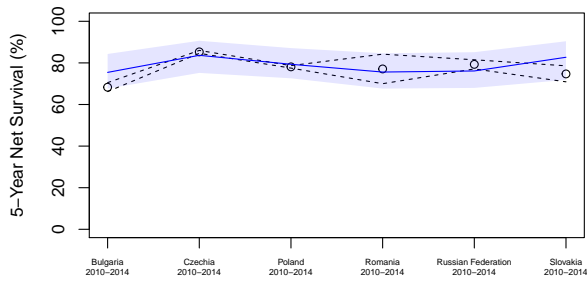
Central America



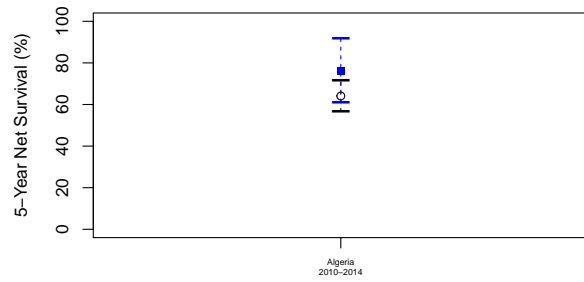
Eastern Asia



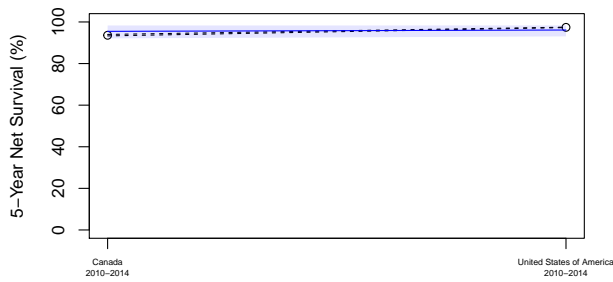
Eastern Europe



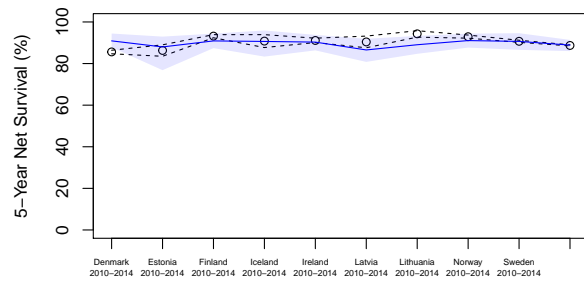
Northern Africa



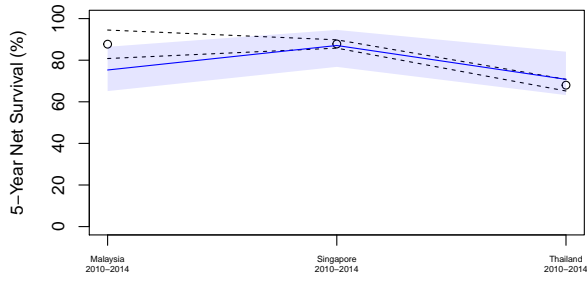
Northern America



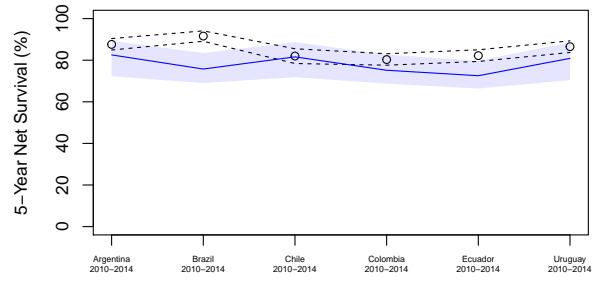
Northern Europe



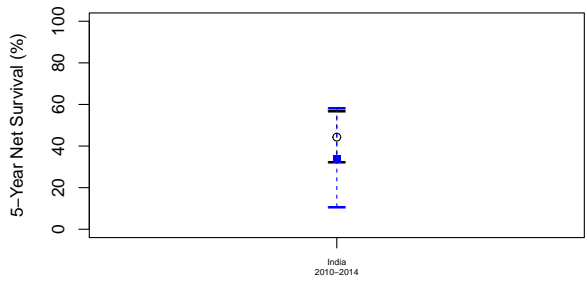
South-Eastern Asia



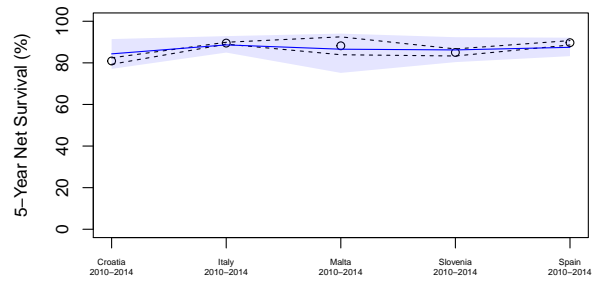
South America



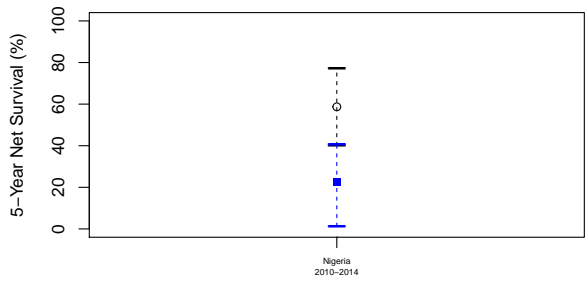
Southern Asia



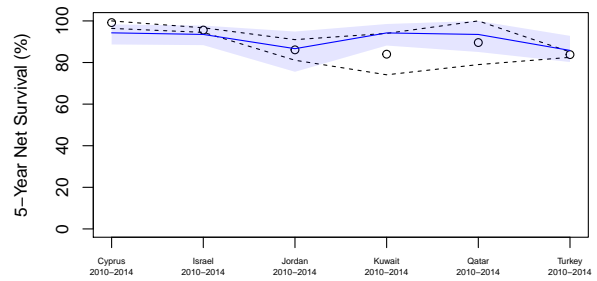
Southern Europe



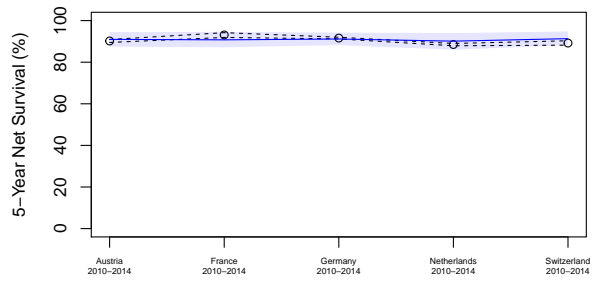
Western Africa



Western Asia

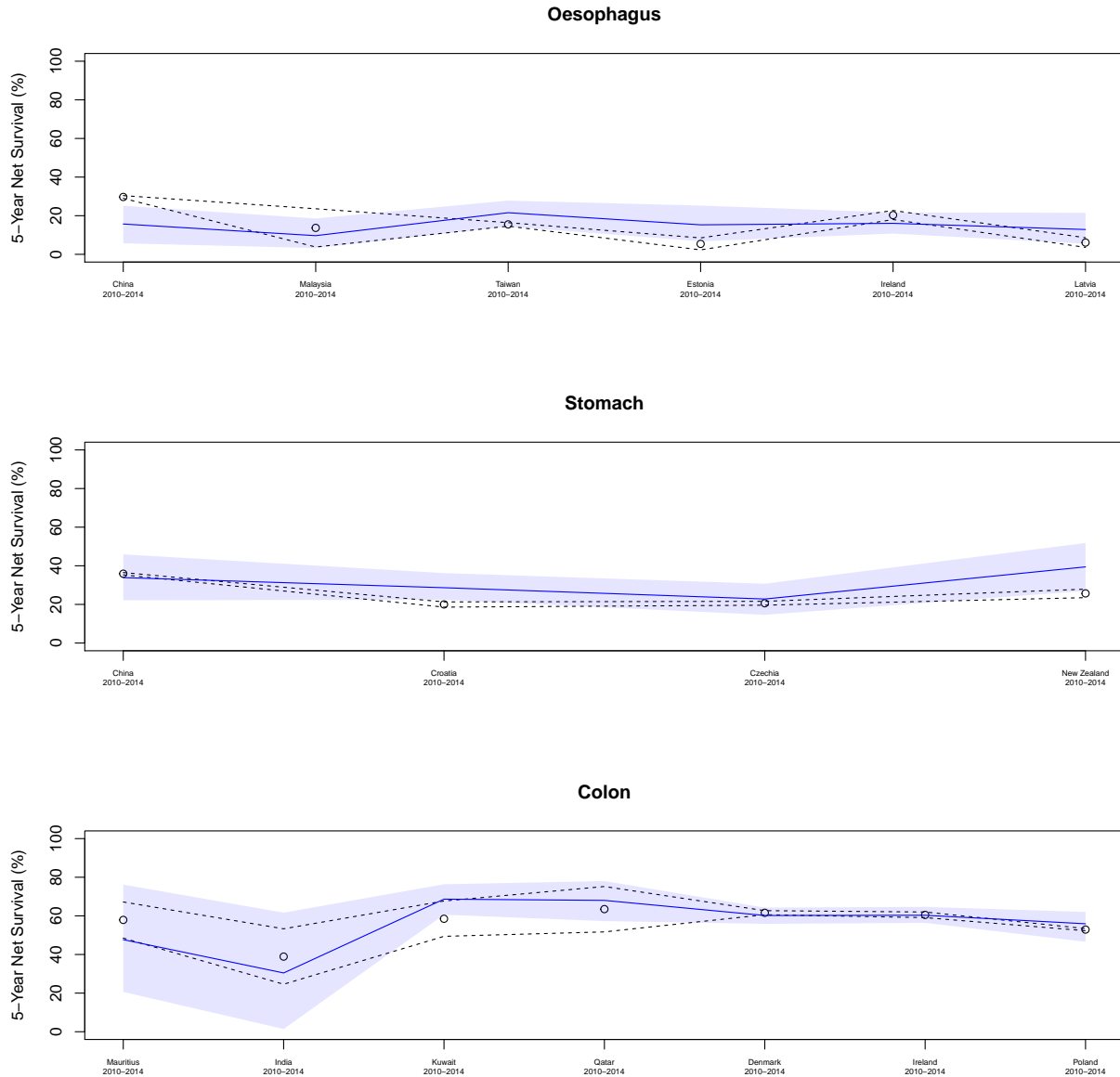


Western Europe

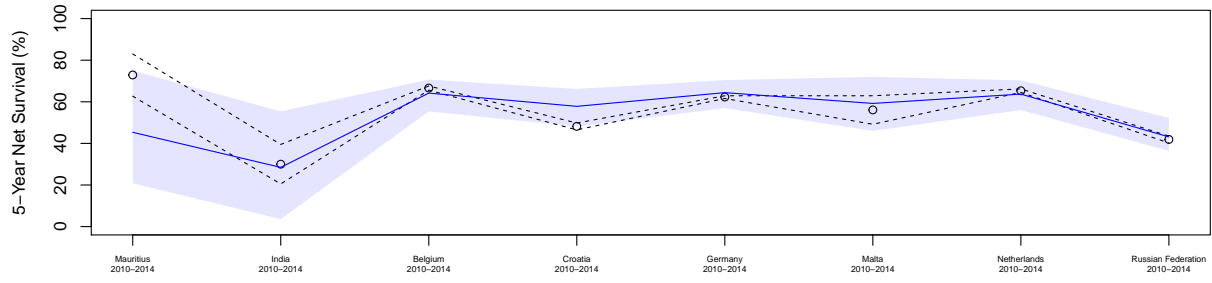


2.5 Validation Checks

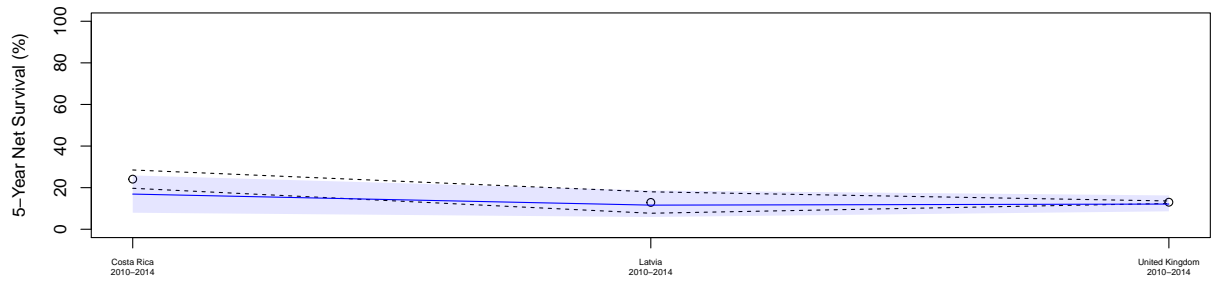
Here we plot our modeled survival estimates (mean and 95% UI of the posterior predicted estimates) compared to the 50 randomly selected CONCORD estimates not used to calibrate the model (i.e. testing set). Black lines indicate CONCORD estimates and 95% CI. Blue lines and shaded regions indicate modeled means and 95% UI.



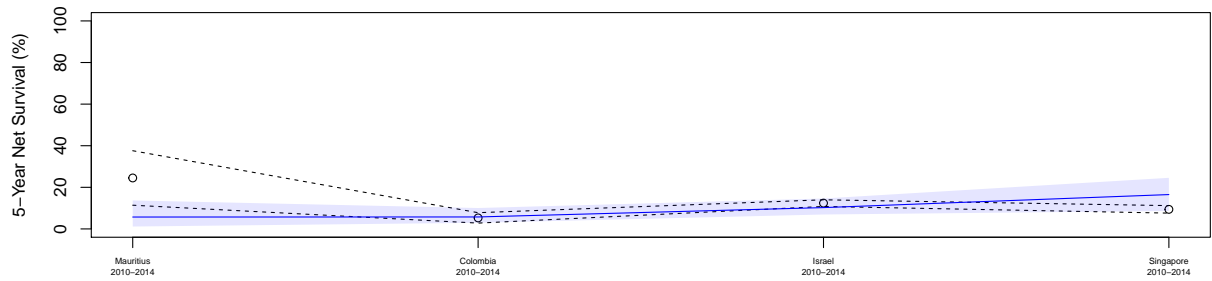
Rectum-Anus



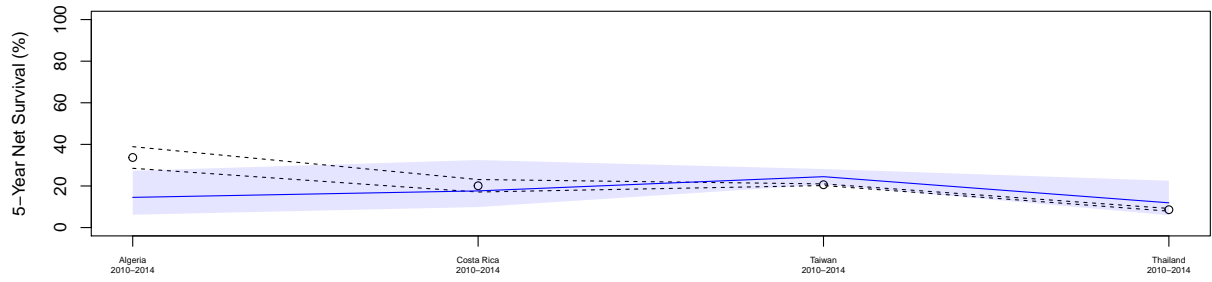
Liver



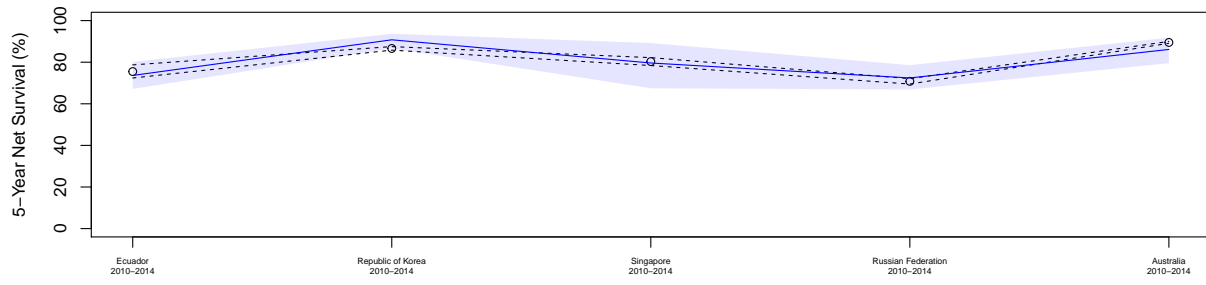
Pancreas



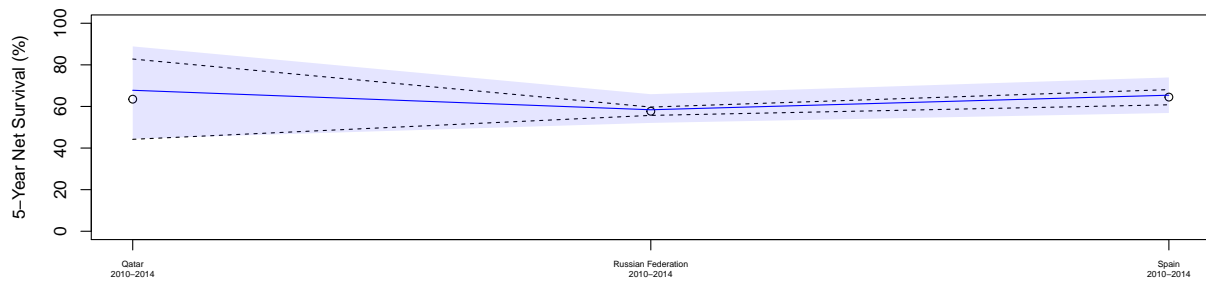
Lung



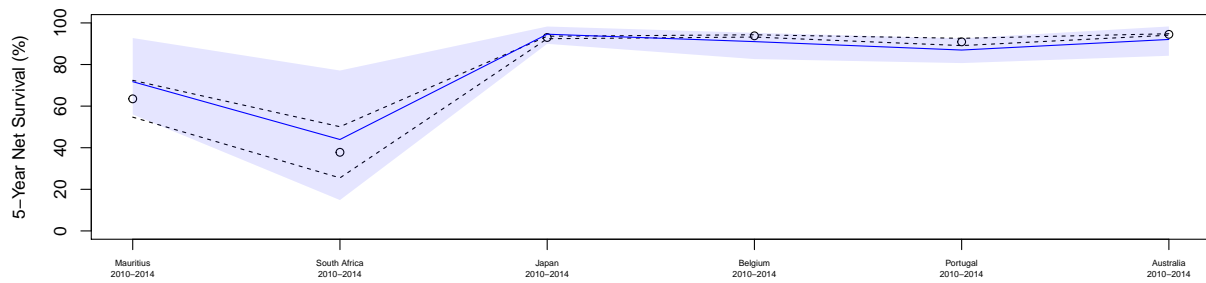
Breast



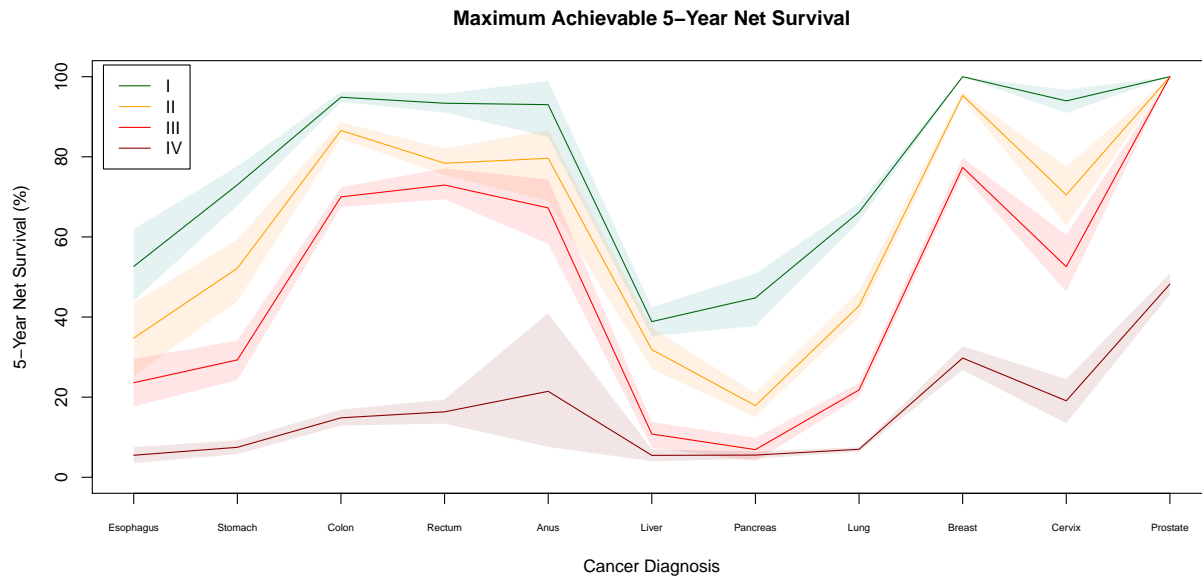
Cervix



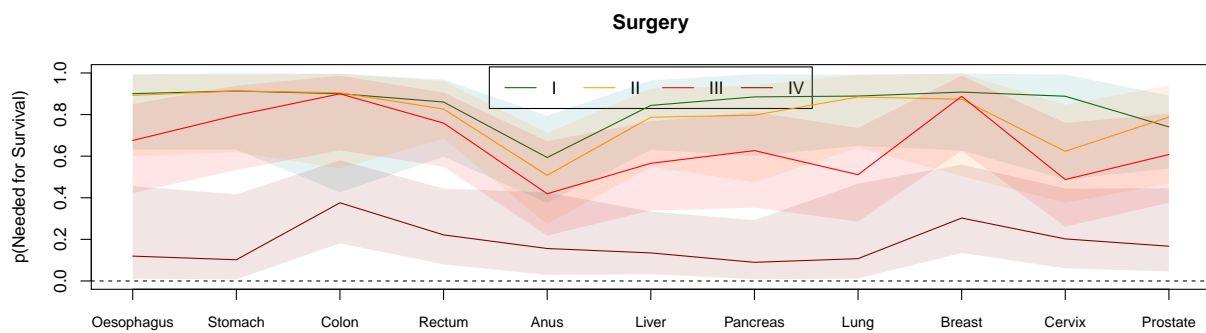
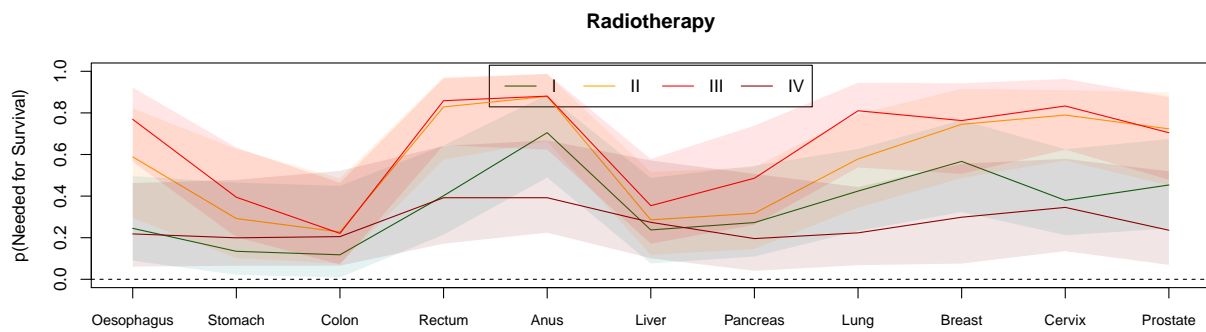
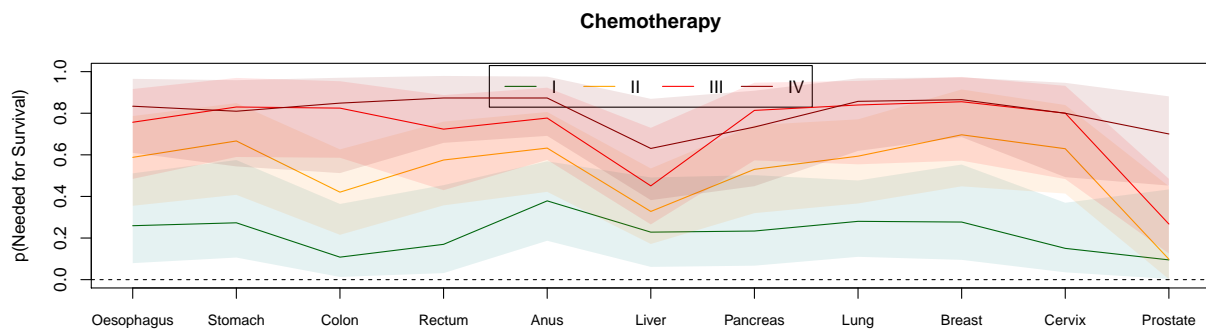
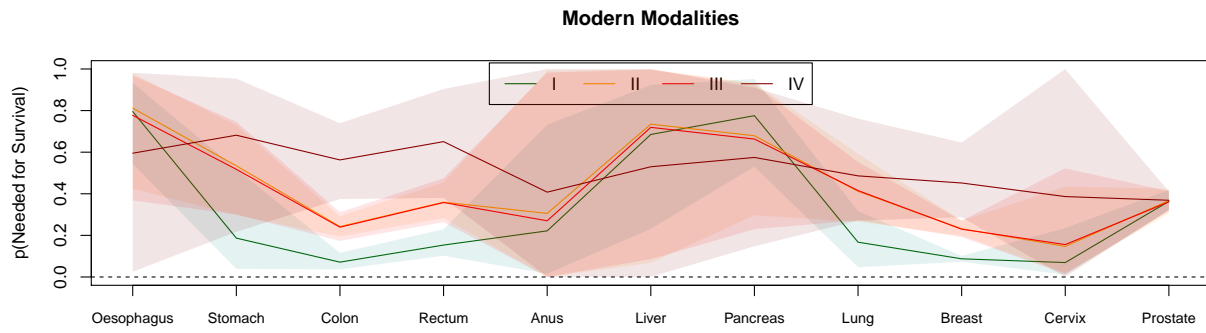
Prostate

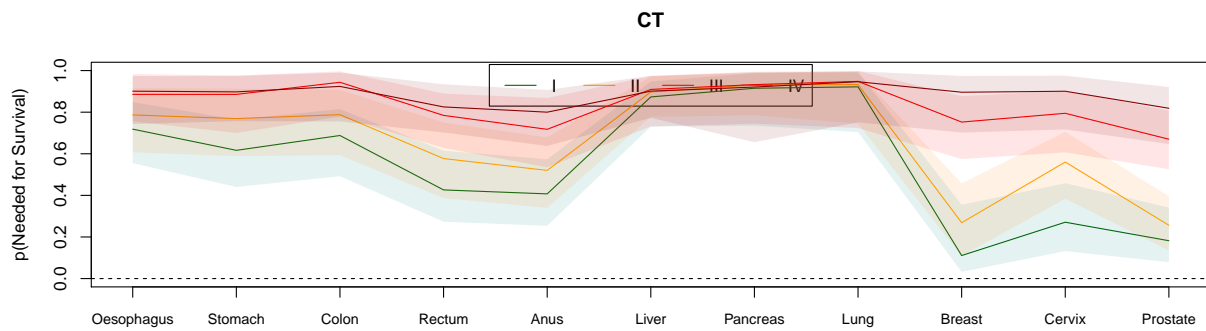
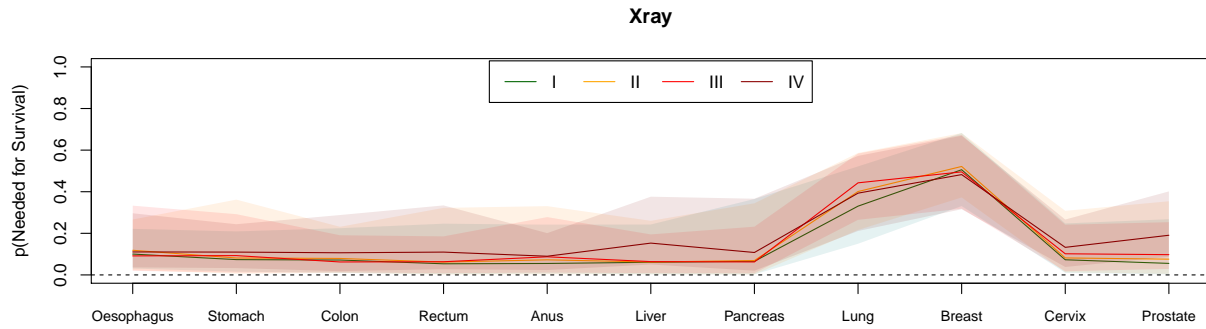
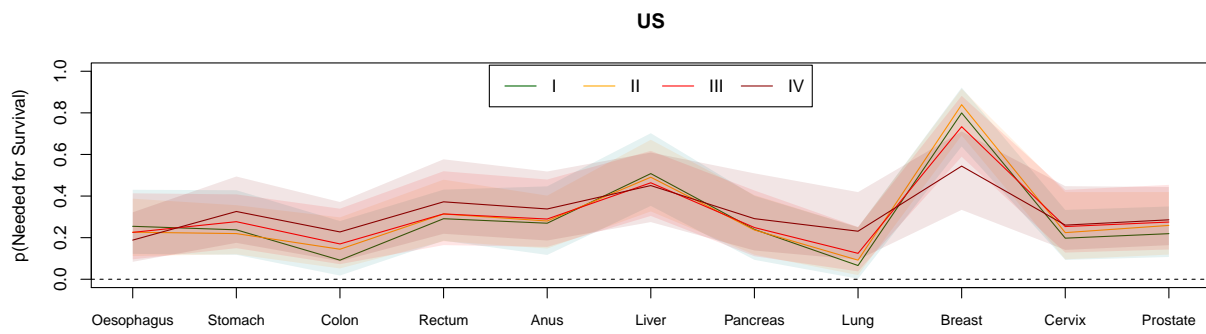
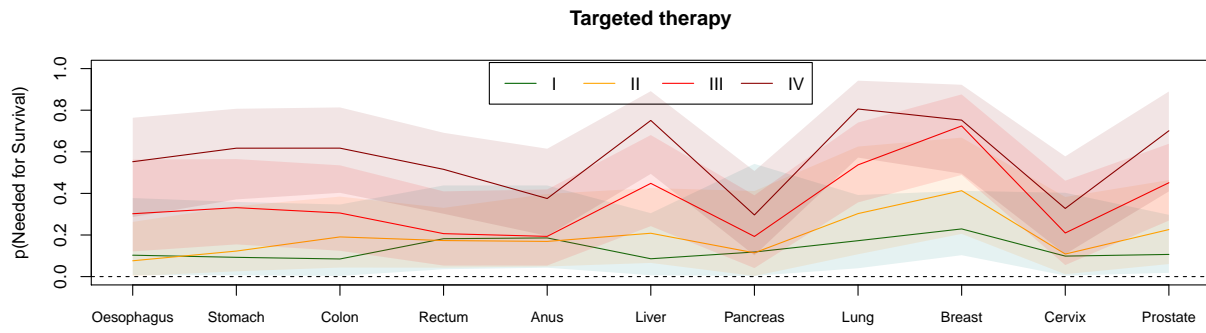


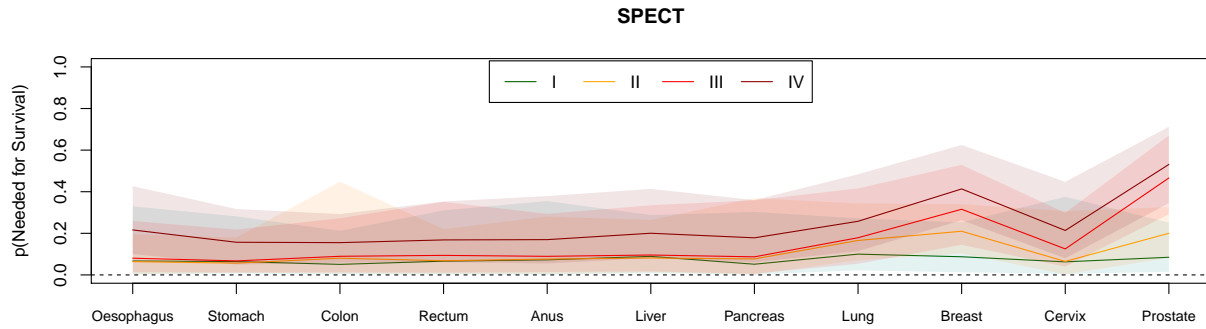
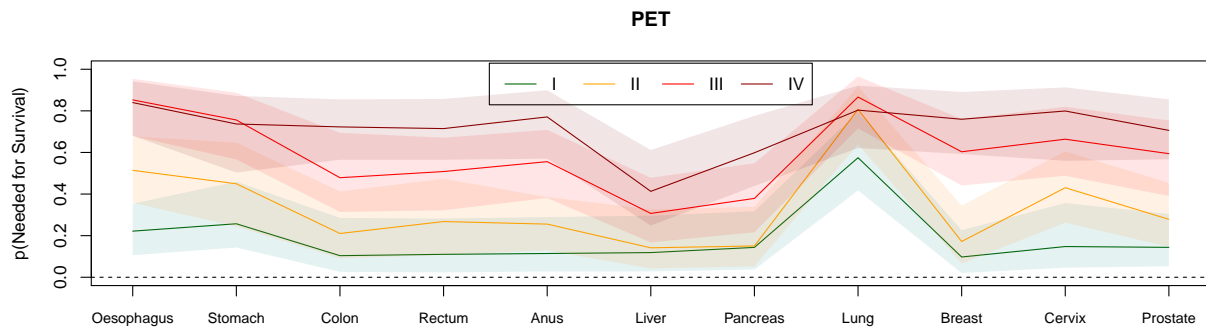
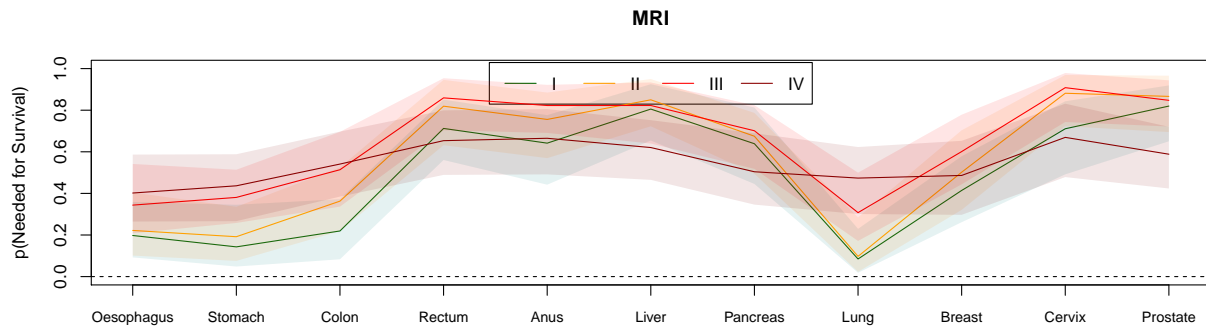
2.6 Maximum Achievable Survival - Posteriors



2.7 Treatment Effects - Posteriors





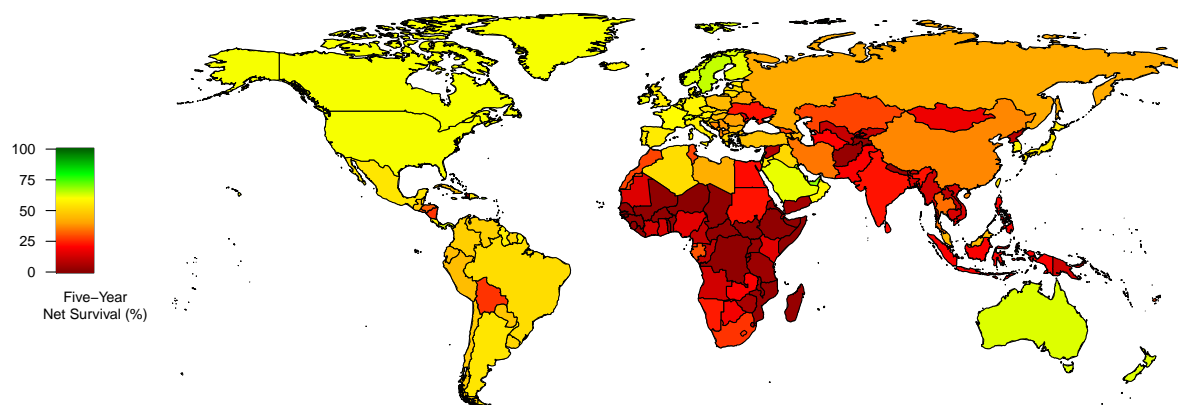


3 Additional Results

3.1 Policy Intervention Scenarios

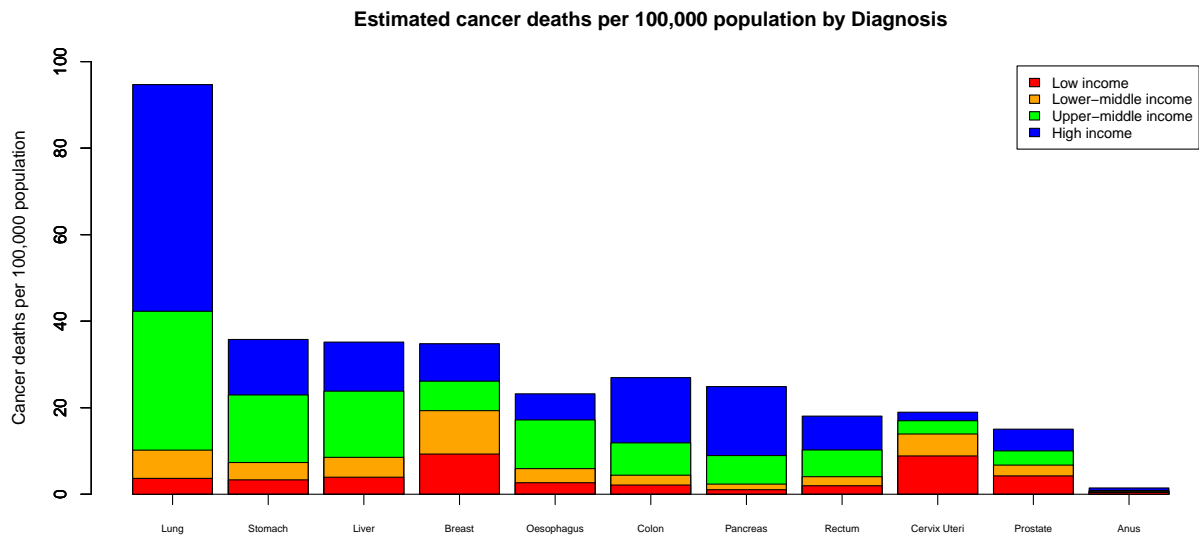
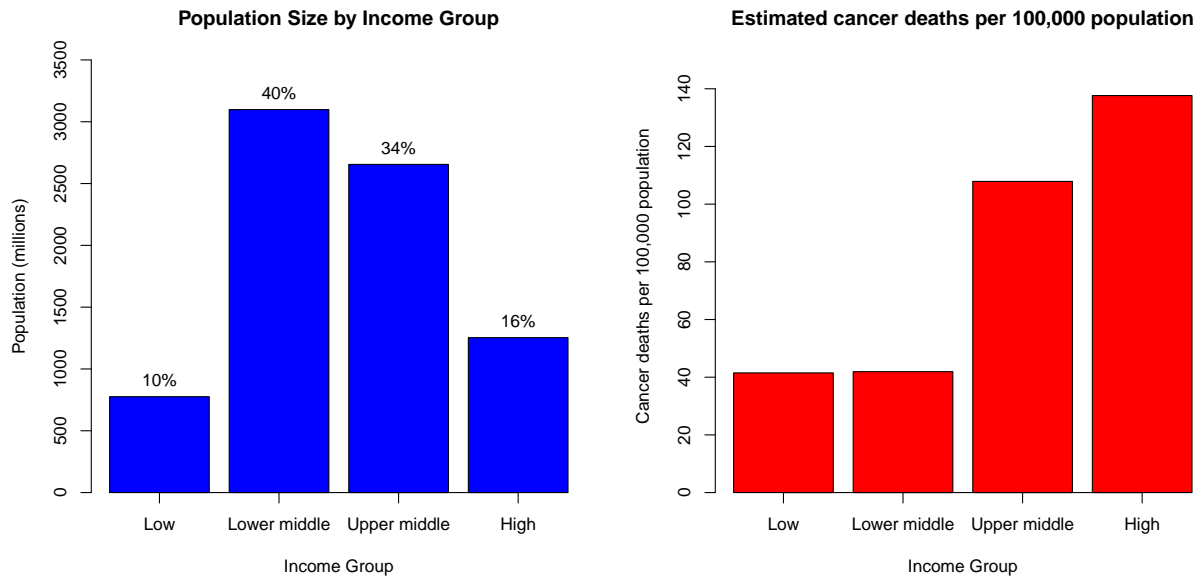
Scenario	Scale to Mean of High-Income Countries										Quality of Care
	Treatment Modalities				Imaging Modalities						
	Chemotherapy	Radiotherapy	Surgery	Targeted Therapy	Ultrasound	X-ray	CT	MRI	PET	SPECT	
Baseline											
<i>Individual Treatment Policies</i>											
Chemotherapy	X										
Radiotherapy		X									
Surgery			X								
Targeted therapy				X							
Quality											X
<i>Individual Imaging Policies</i>											
Ultrasound					X						
X-ray						X					
CT							X				
MRI								X			
PET									X		
SPECT										X	
<i>Policy Packages</i>											
Treatment Only - No Quality	X	X	X	X							
Imaging Only - No Quality					X	X	X	X	X	X	
Comprehensive - No Quality	X	X	X	X	X	X	X	X	X	X	
Treatment Only + Quality	X	X	X	X							X
Imaging Only + Quality					X	X	X	X	X	X	X
Comprehensive + No Quality	X	X	X	X	X	X	X	X	X	X	X
Treatment (Traditional)	X	X	X								X
Imaging (Traditional)					X	X					X
Treatment (Traditional) + Imaging (Traditional)	X	X	X		X	X					X
Treatment (Traditional) + Imaging (Traditional) + CT	X	X	X		X	X	X				X

3.2 Estimated 5-Year Net Survival by Country for Cancers Diagnosed in 2018, 11 Modeled Cancers Combined

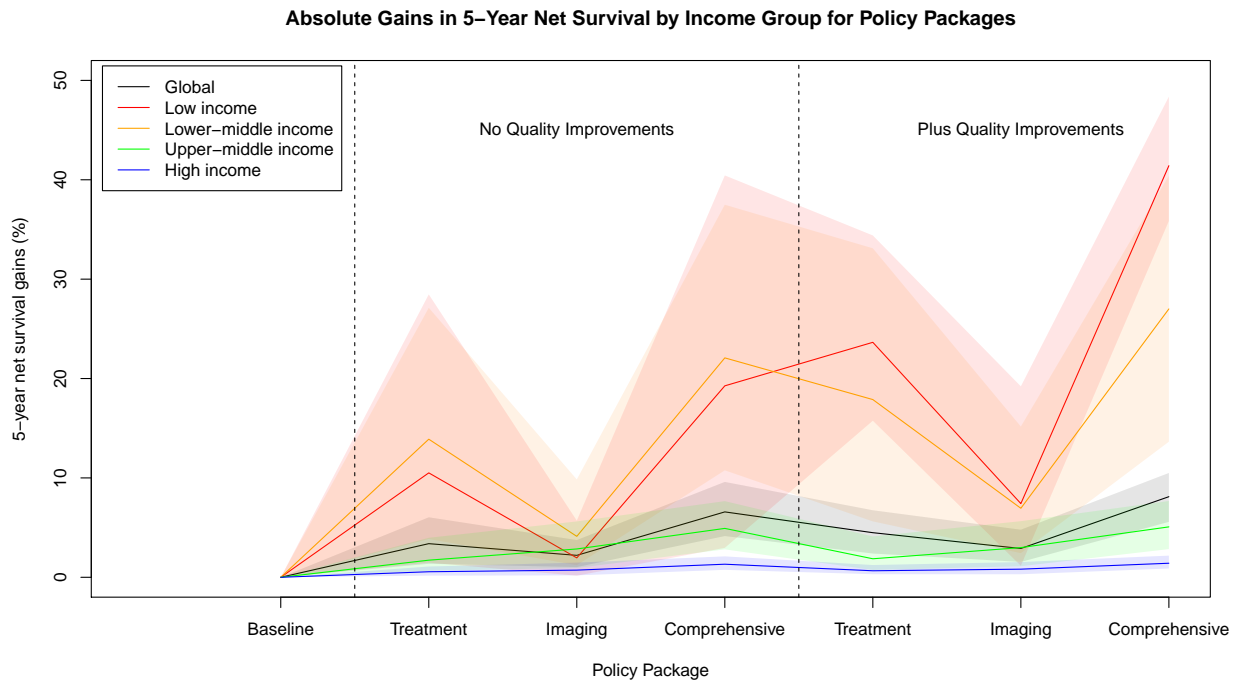
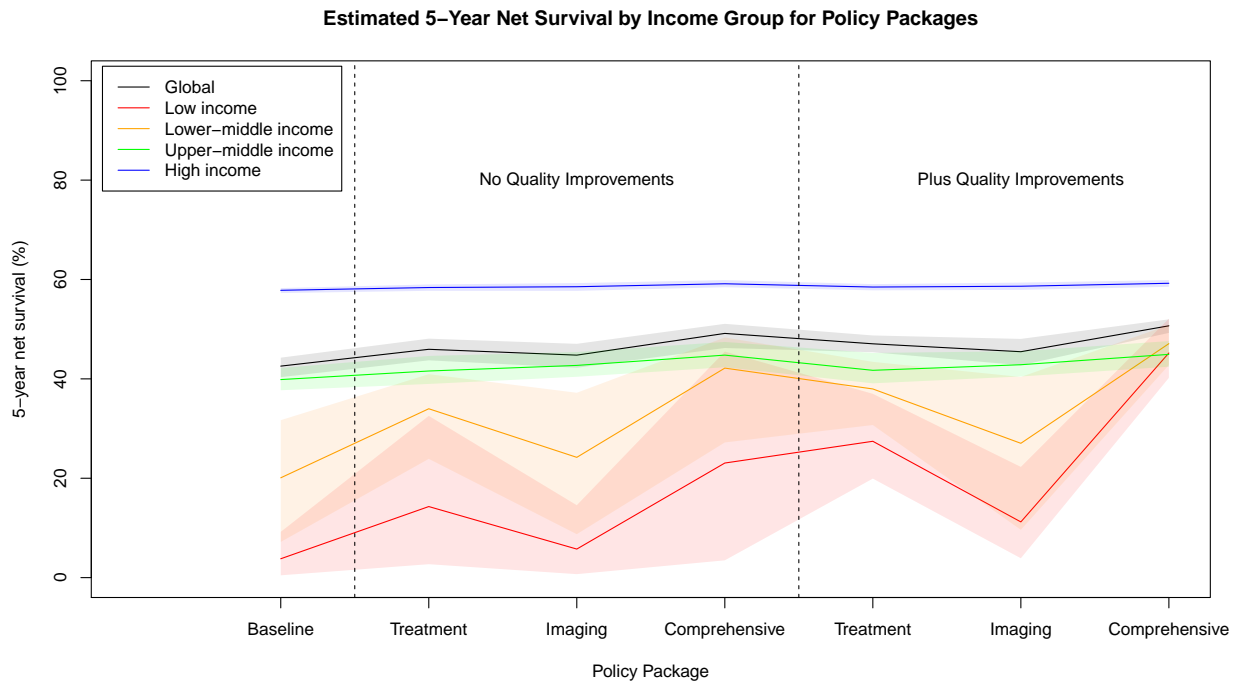


3.3 Cancer Deaths by Income Group

Here we plot the population size by income group and the number of estimated cancer deaths per 100,000 population. We see that low income countries comprise only 10% of the global population, which partly explains why the total cancer deaths in low income countries is a small proportion of total cancer deaths. In addition, higher competing risks (i.e. other causes of mortality) mean that the population is generally younger in low income countries, and thus cancer incidence is lower. Also, it is important to note that these estimates are based on reported (diagnosed) cases of cancer, and thus likely underestimate total cancer cases and deaths in the population that are not diagnosed due to health system weaknesses, especially in low income countries.



3.4 Estimated Absolute Survival Gains from Policy Package Interventions



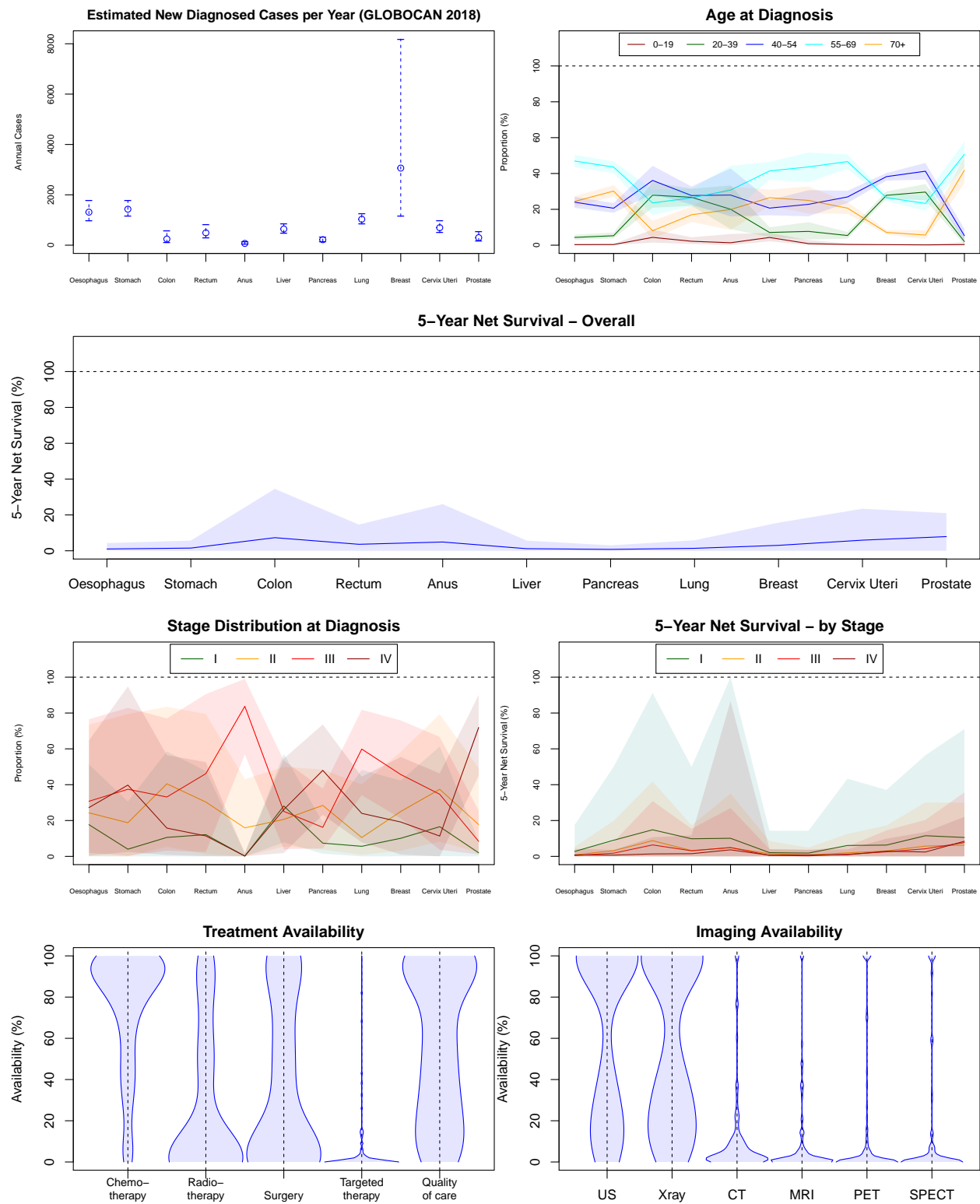
4 Country Profiles

Here we plot the estimated incidence and survival by cancer for each country, as well as the calibrated model parameters of treatment and imaging availability. Specifically, the following plots are provided:

Plot Title	Description
Estimated new diagnosed cases per year (GLOBOCAN 2018)	Estimated number of incident (diagnosed) cases from GLOBOCAN 2018. Circles represent point estimates. Dotted lines represent 95% uncertainty intervals
Age at diagnosis	Estimated proportion of incident cases by age group, according to GLOBOCAN 2018. Shaded areas represent 95% uncertainty intervals
5-year net survival – overall	Modeled survival by cancer site. Shaded areas represent 95% uncertainty intervals
Stage distribution at diagnosis	Modeled stage distribution at diagnosis by cancer site. Shaded areas represent 95% uncertainty intervals
5-year net survival – by stage	Modeled stage-specific survival by cancer site. Shaded areas represent 95% uncertainty intervals
Treatment availability	Calibrated parameters of treatment availability. Vertical density plots display the posterior probability density of each parameter
Imaging availability	Calibrated parameters of imaging availability. Vertical density plots display the posterior probability density of each parameter

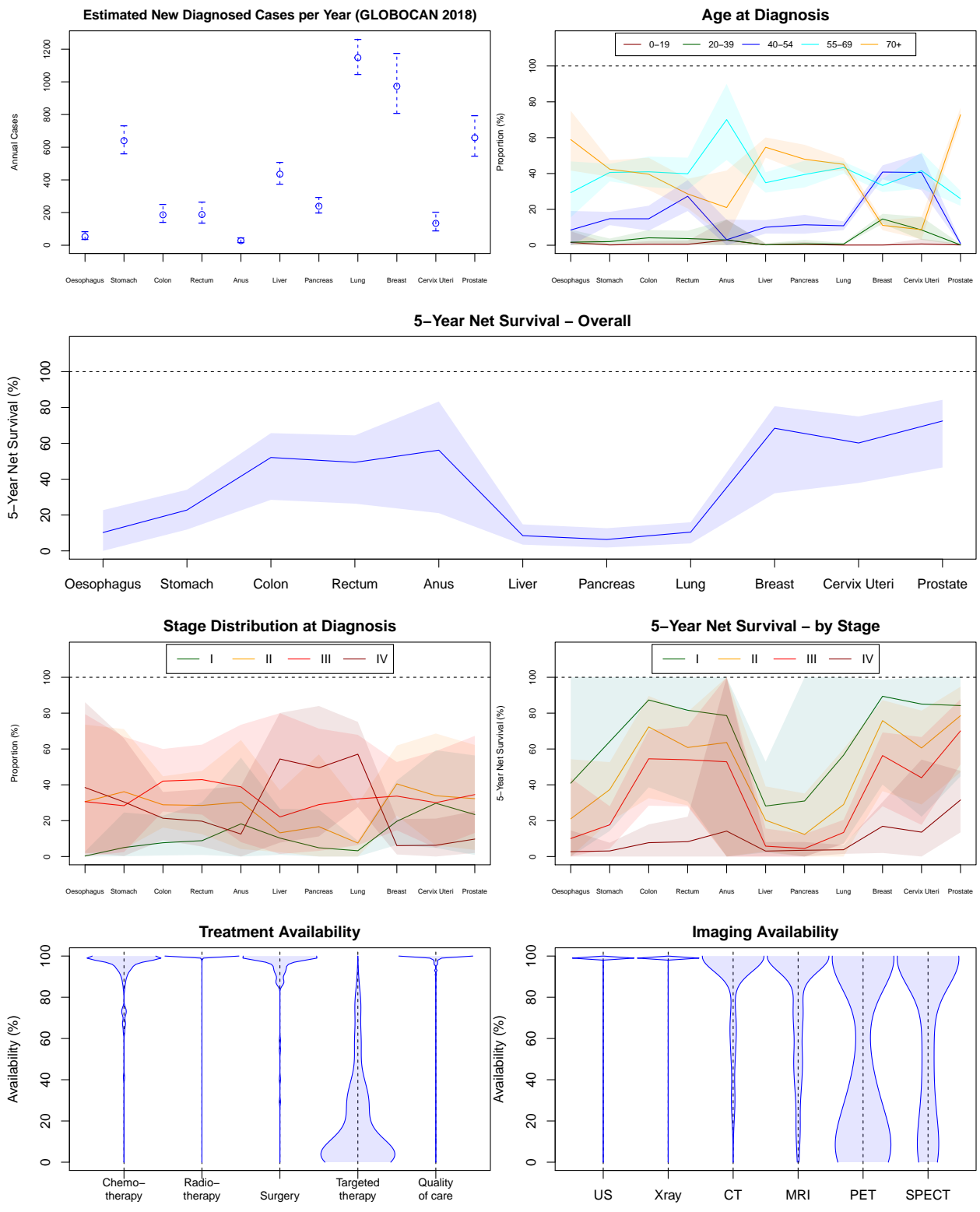
Afghanistan

ISO Code	Region	Area	Income Group
AFG	Southern Asia	Asia	Low income



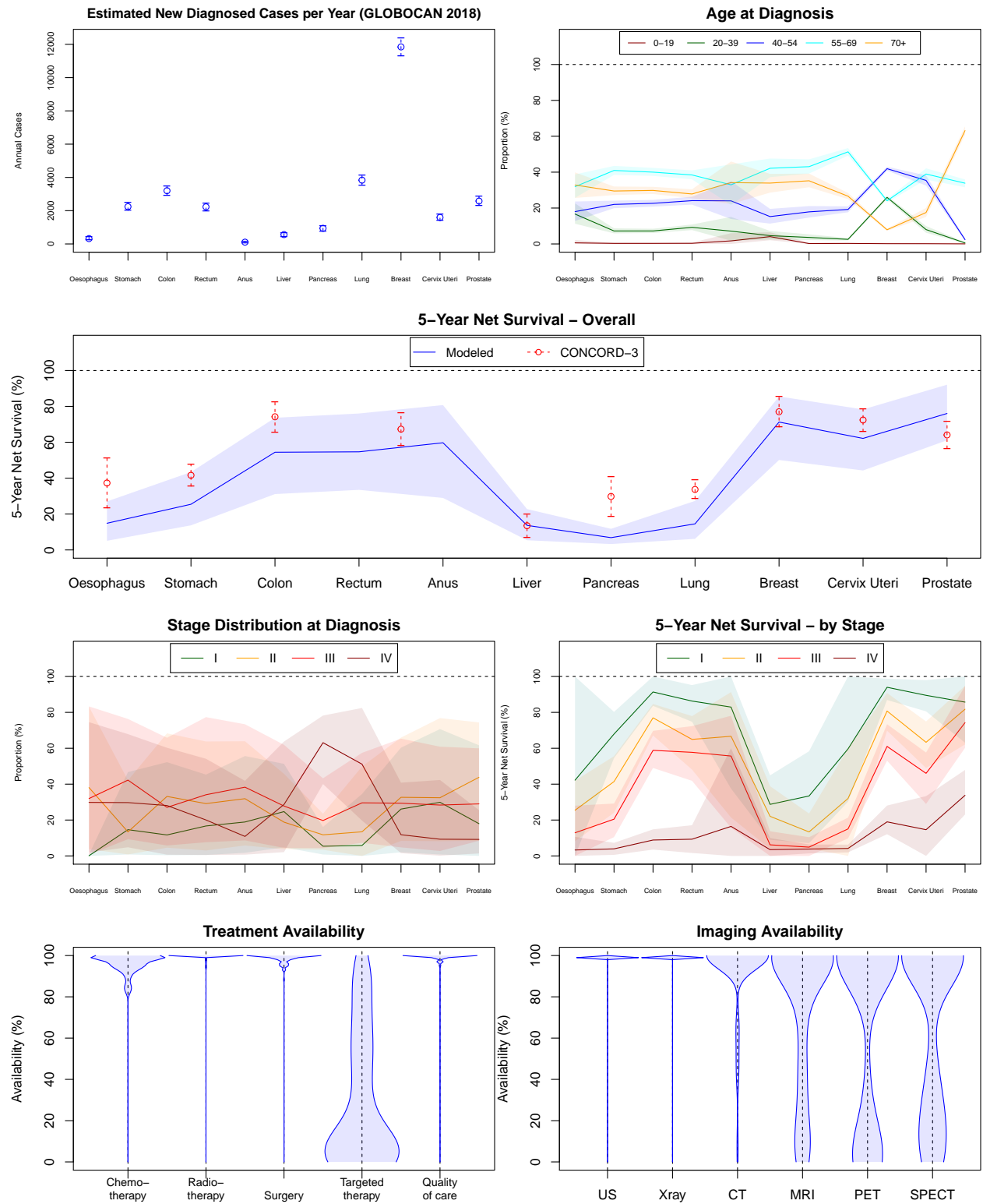
Albania

ISO Code	Region	Area	Income Group
ALB	Southern Europe	Europe	Upper middle income



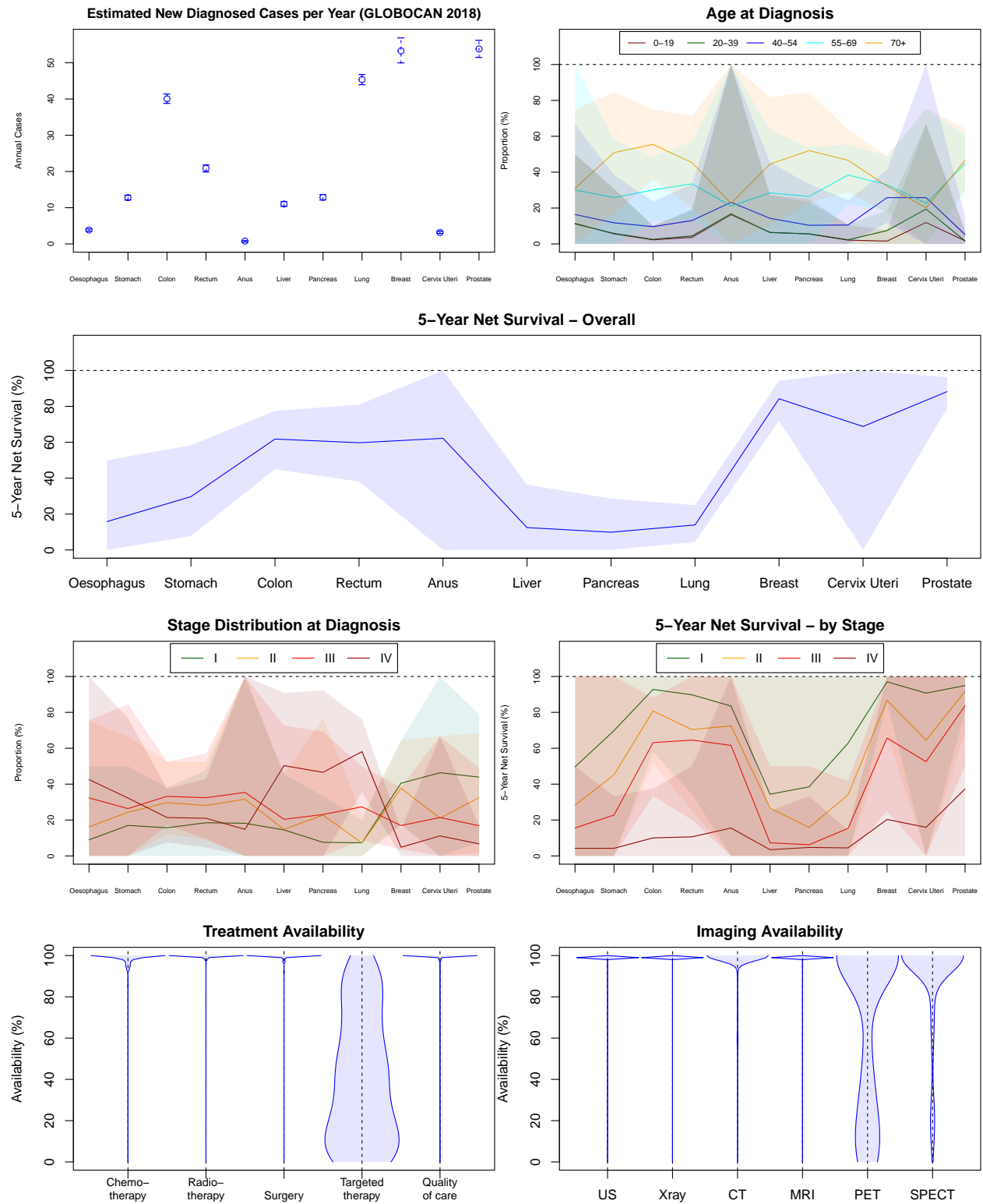
Algeria

ISO Code	Region	Area	Income Group
DZA	Northern Africa	Africa	Upper middle income



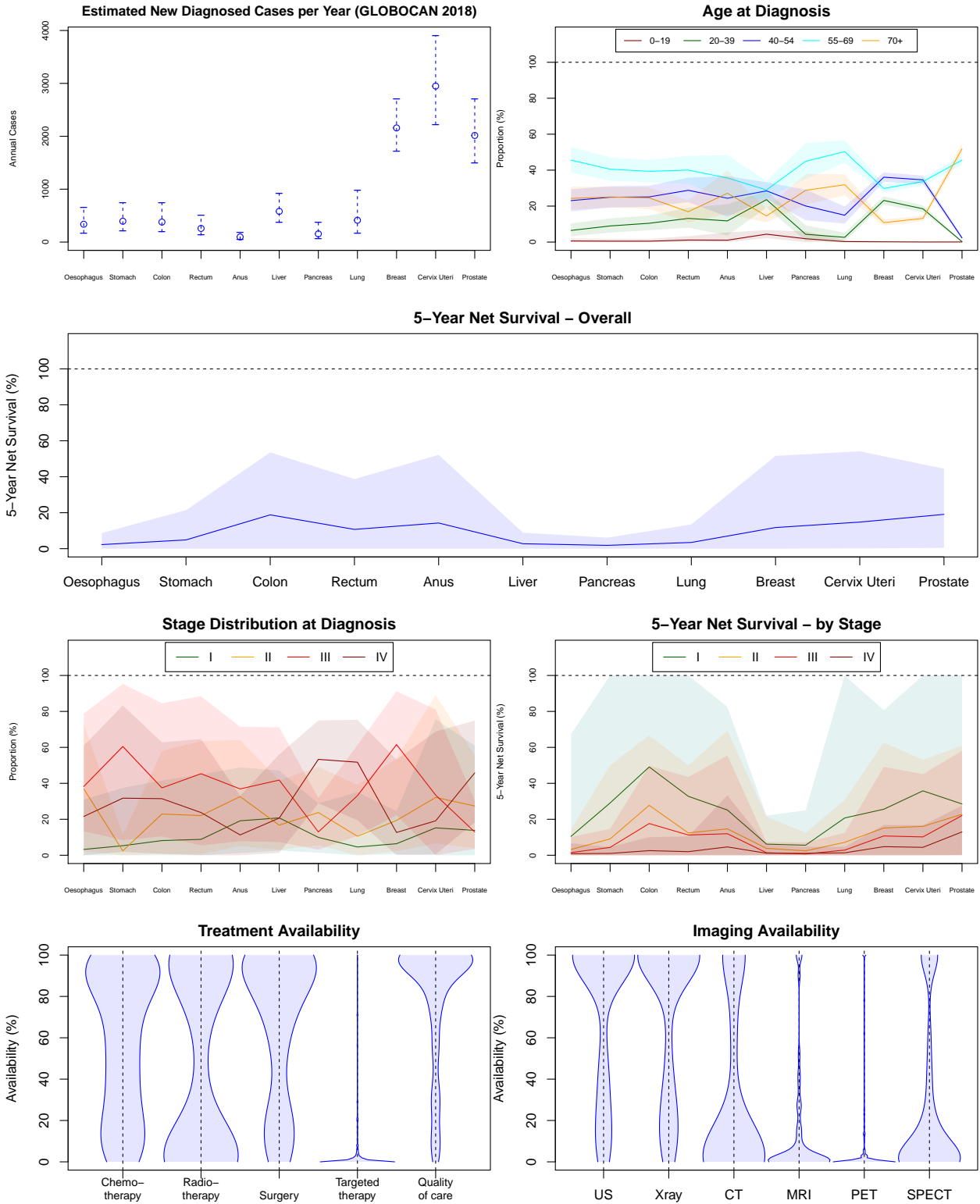
Andorra

ISO Code	Region	Area	Income Group
AND	Southern Europe	Europe	High income



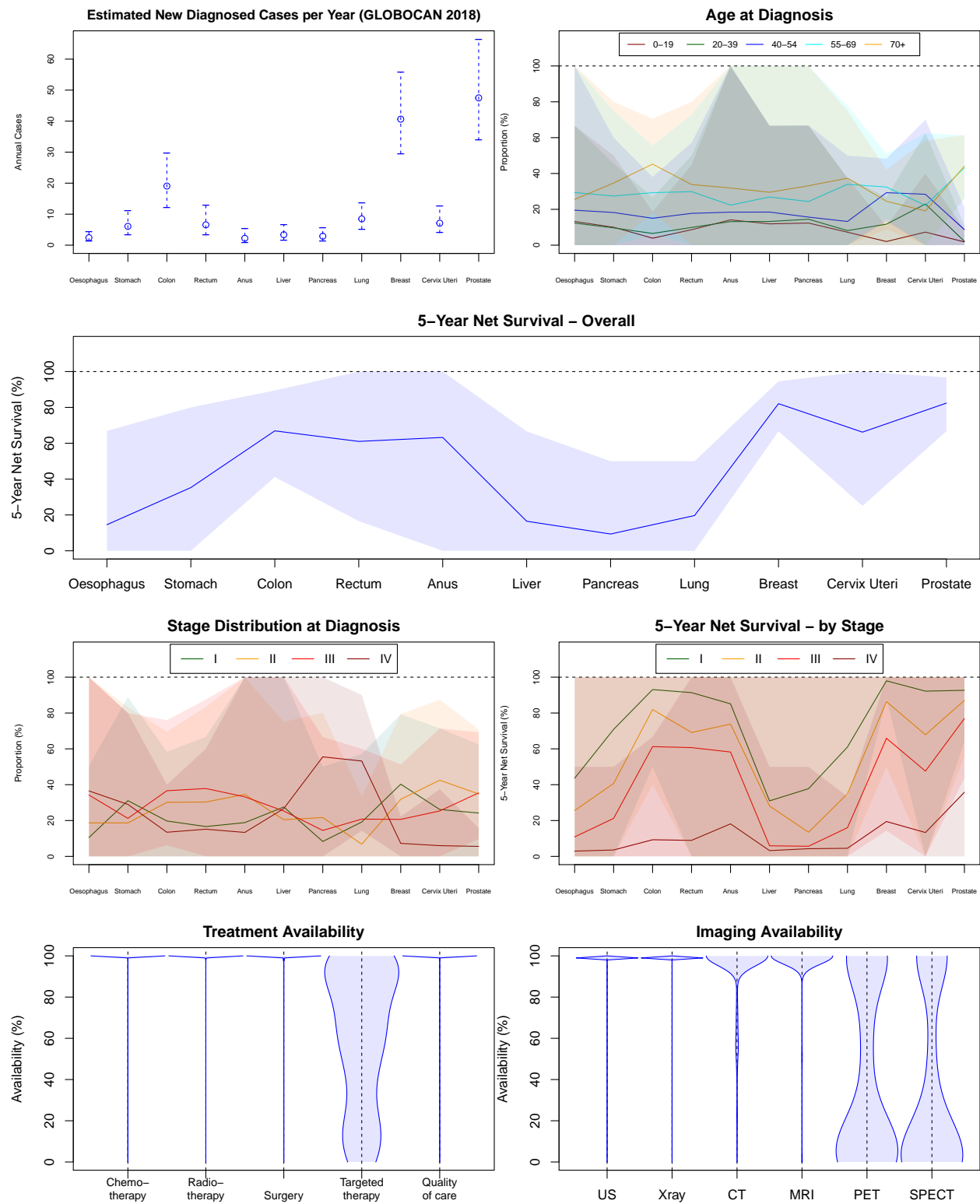
Angola

ISO Code	Region	Area	Income Group
AGO	Middle Africa	Africa	Lower middle income



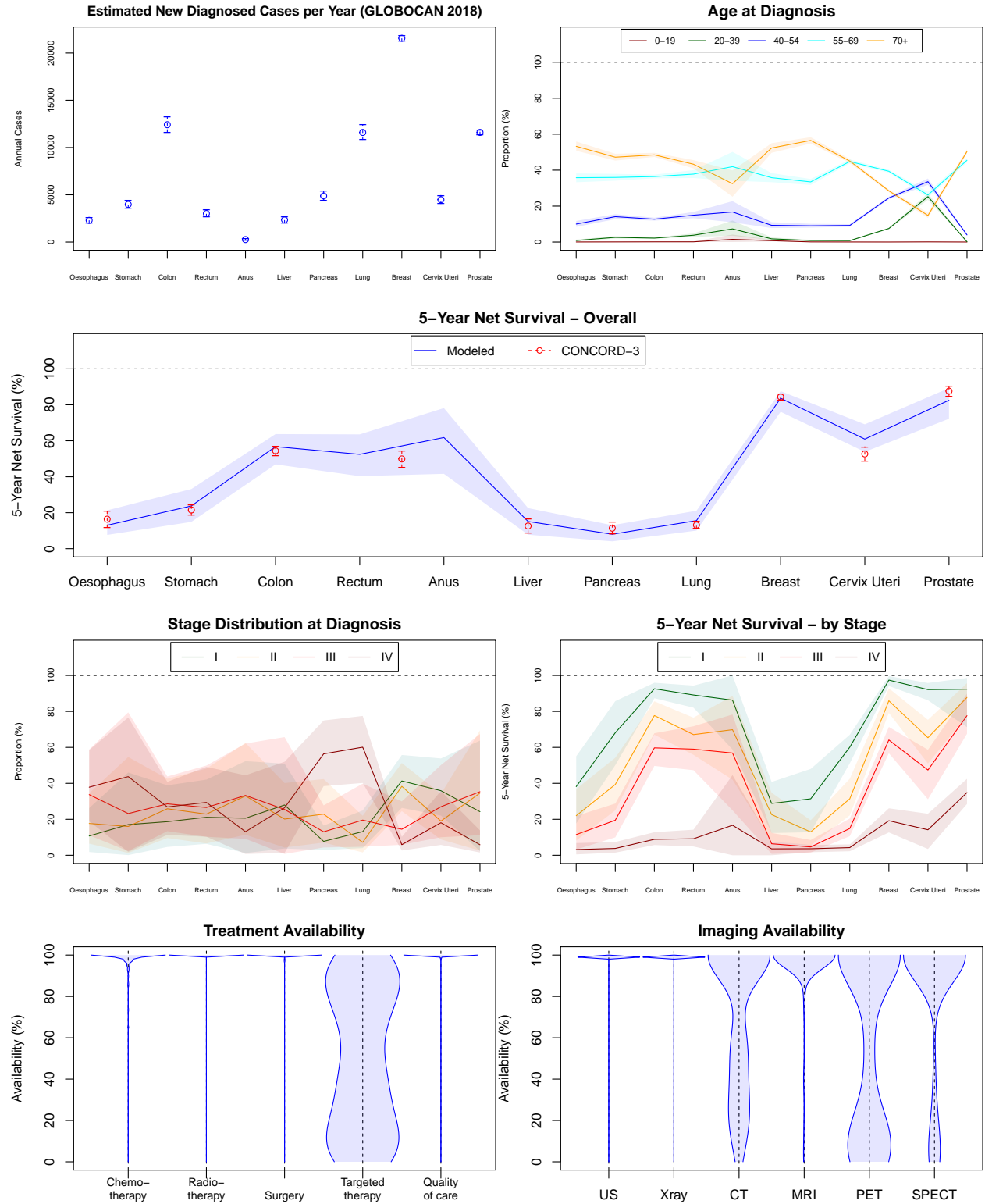
Antigua and Barbuda

ISO Code	Region	Area	Income Group
ATG	Caribbean	Latin America and the Caribbean	High income



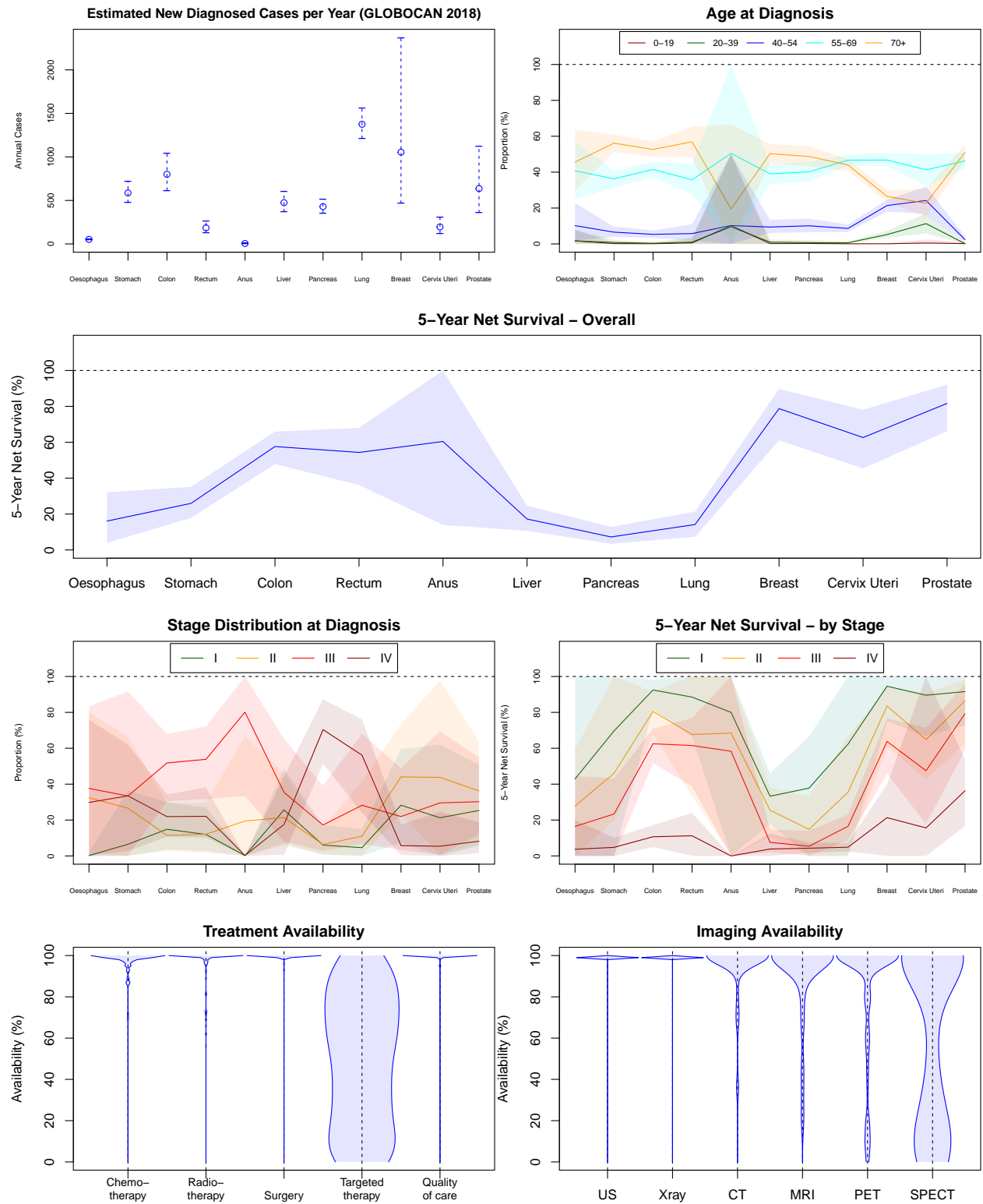
Argentina

ISO Code	Region	Area	Income Group
ARG	South America	Latin America and the Caribbean	High income



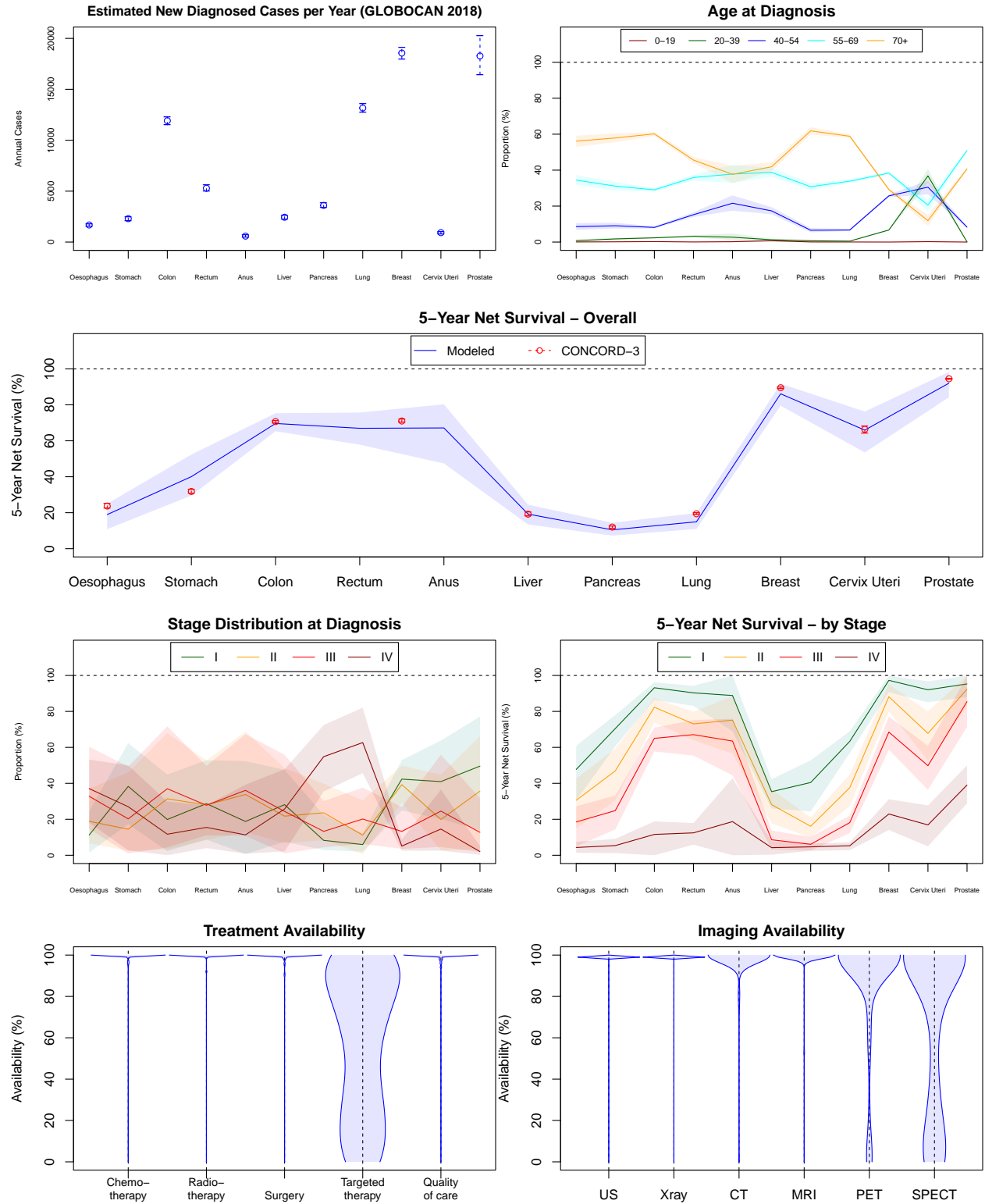
Armenia

ISO Code	Region	Area	Income Group
ARM	Western Asia	Asia	Upper middle income



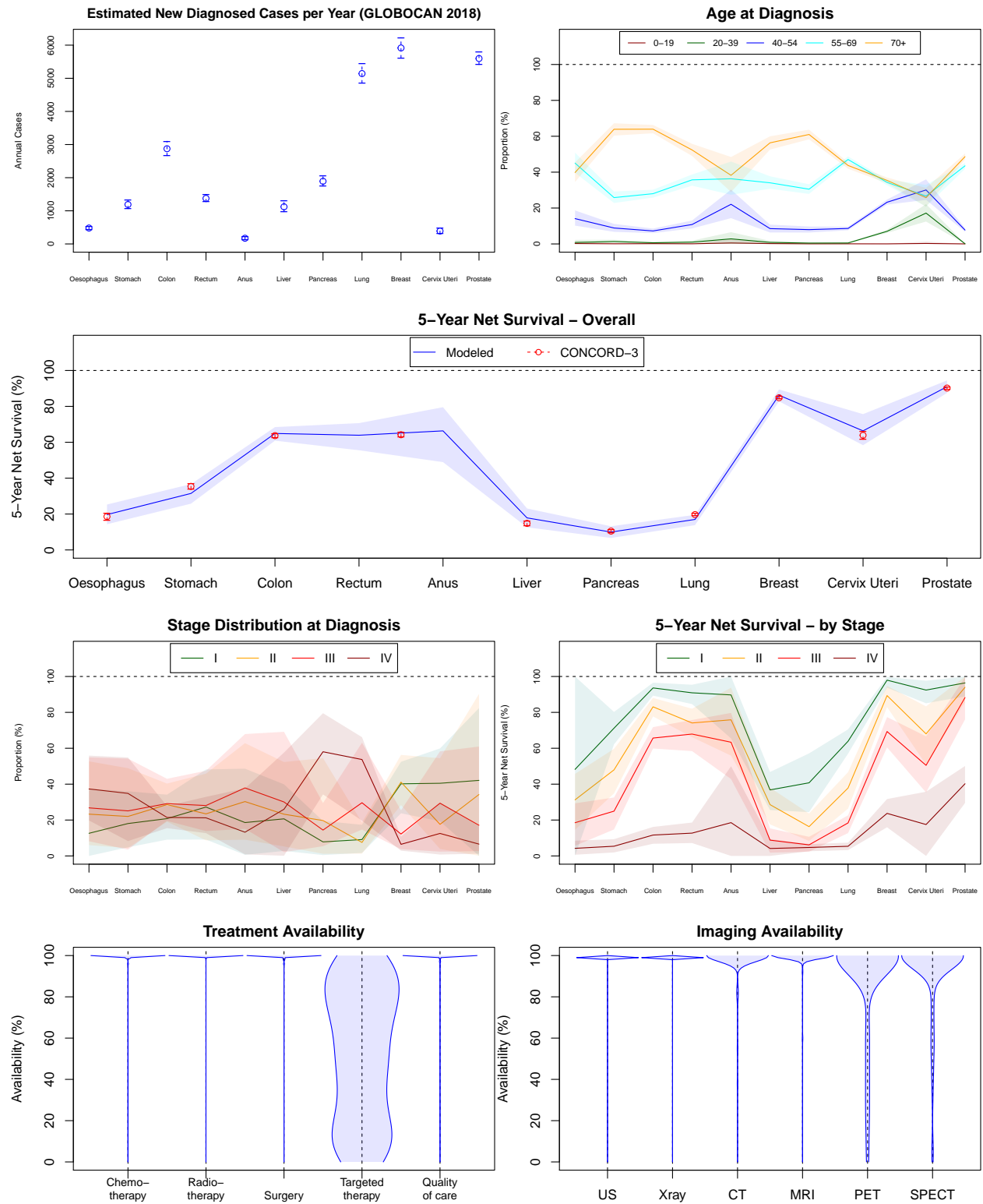
Australia

ISO Code	Region	Area	Income Group
AUS	Australia/New Zealand	Oceania	High income



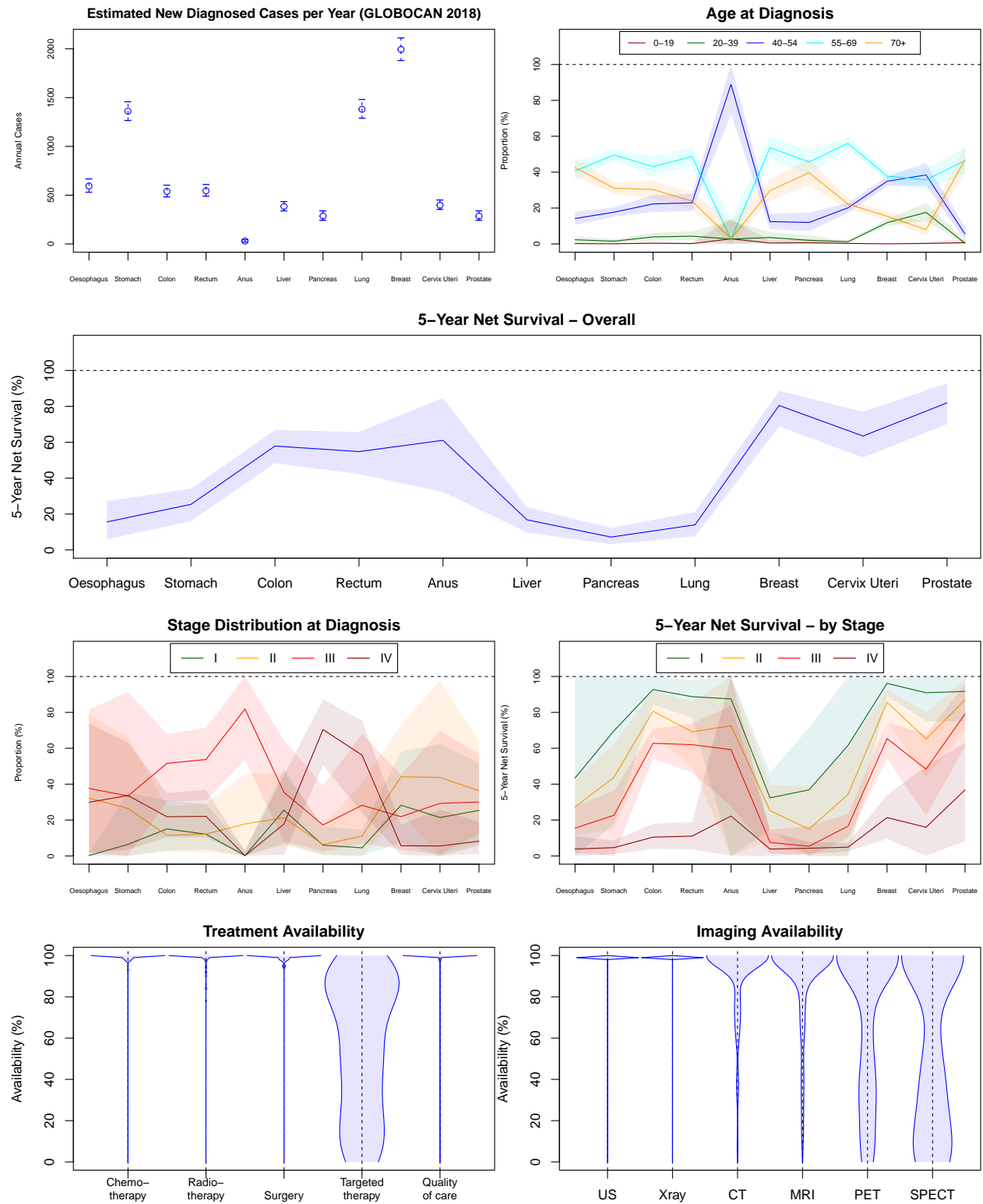
Austria

ISO Code	Region	Area	Income Group
AUT	Western Europe	Europe	High income



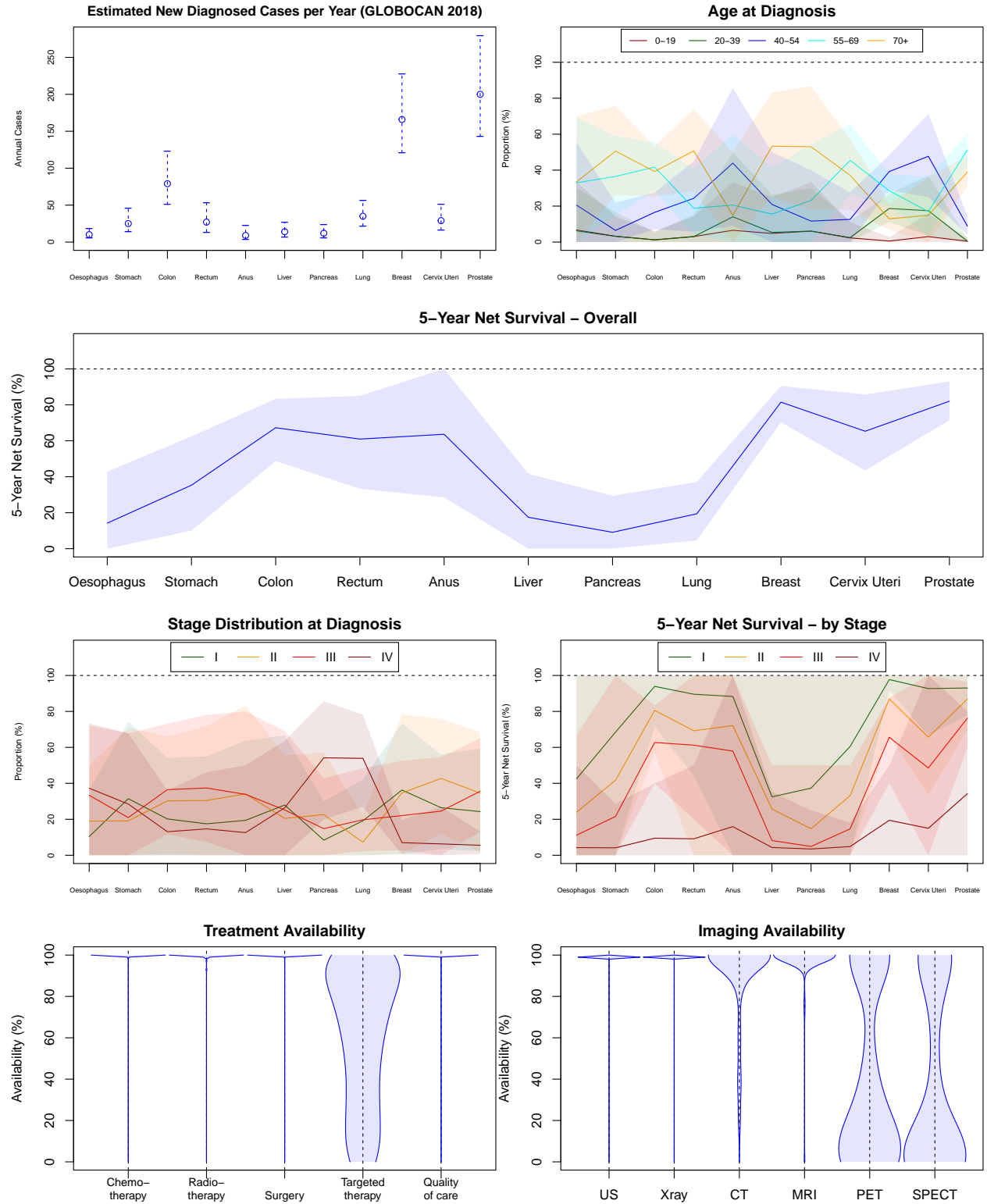
Azerbaijan

ISO Code	Region	Area	Income Group
AZE	Western Asia	Asia	Upper middle income



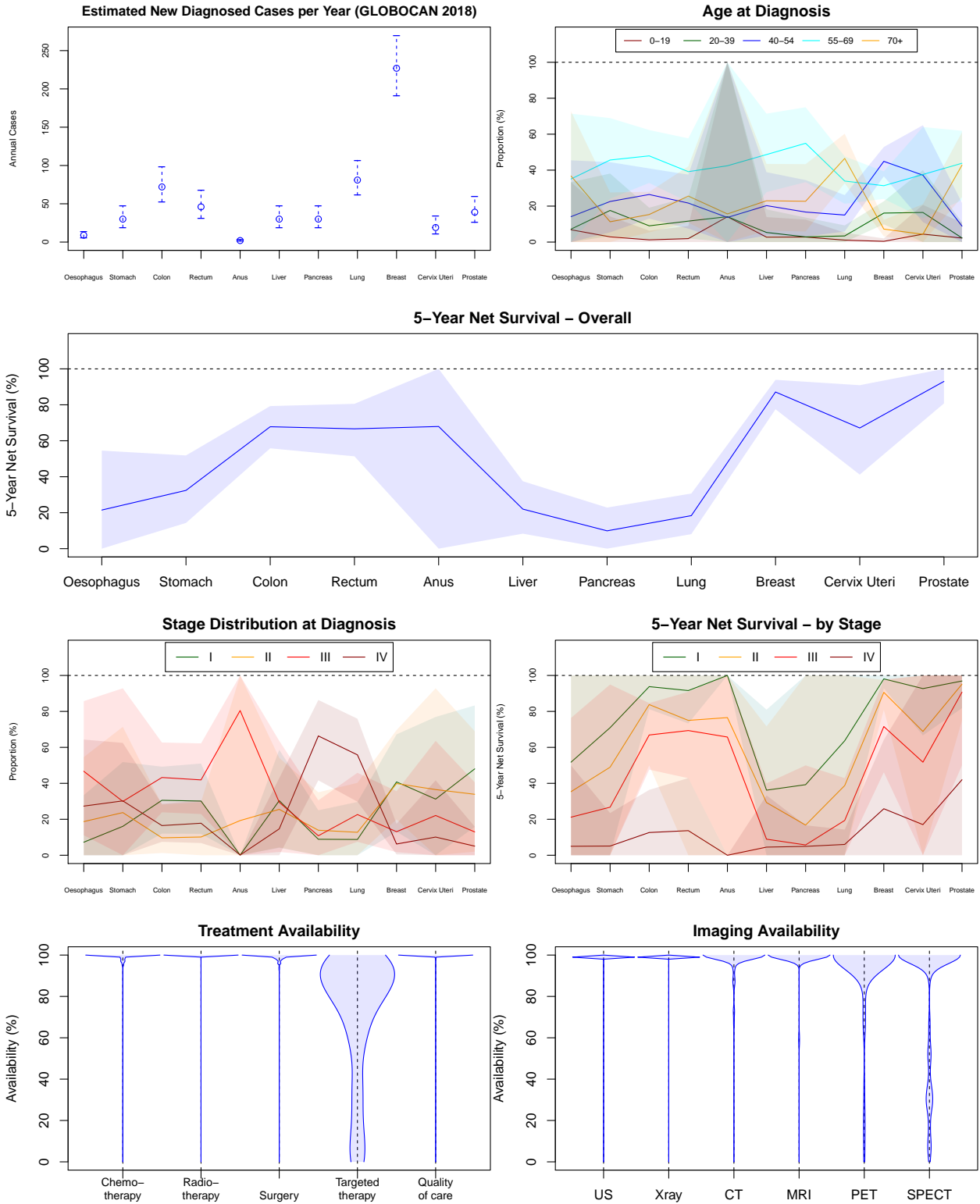
Bahamas

ISO Code	Region	Area	Income Group
BHS	Caribbean	Latin America and the Caribbean	High income



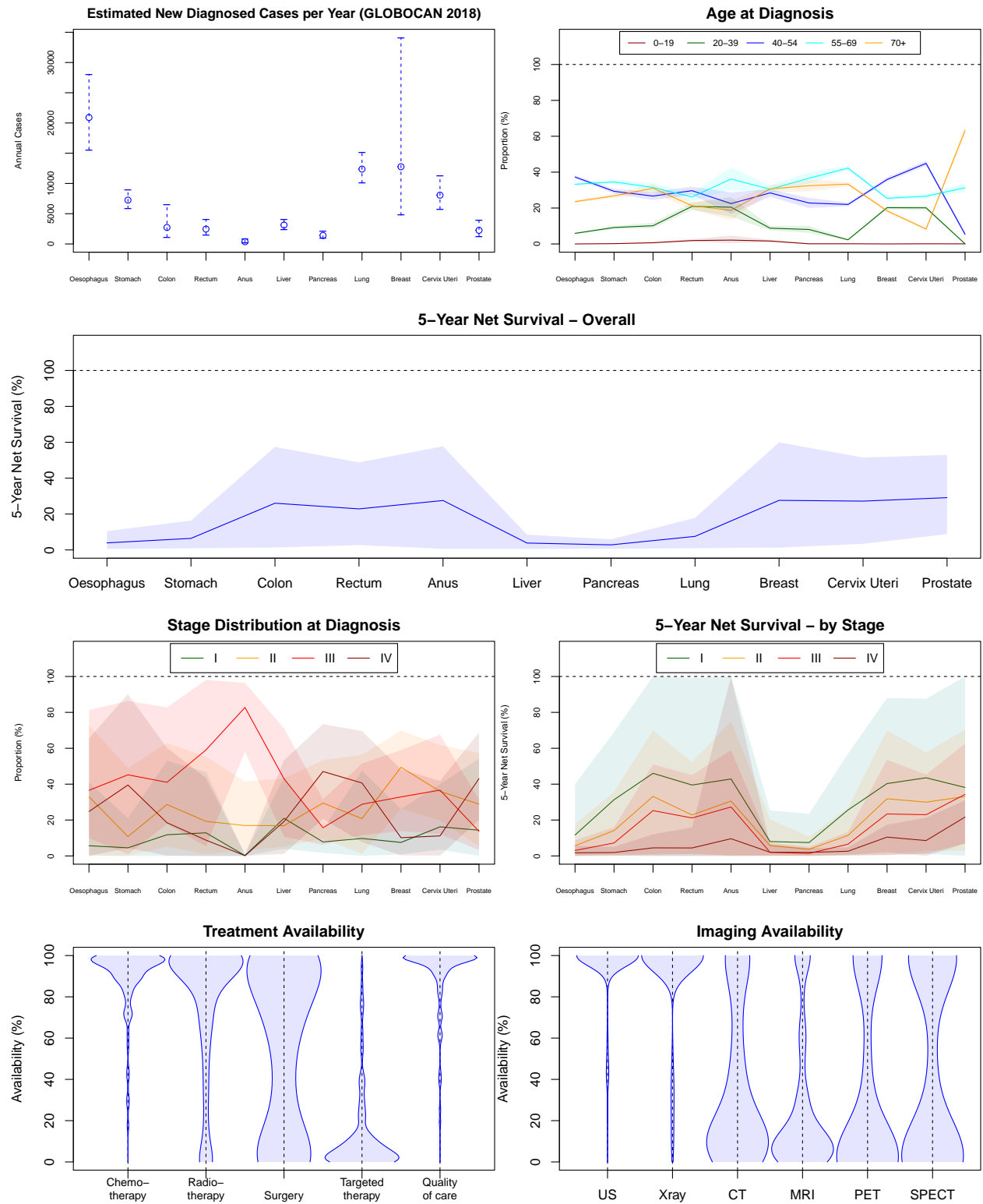
Bahrain

ISO Code	Region	Area	Income Group
BHR	Western Asia	Asia	High income



Bangladesh

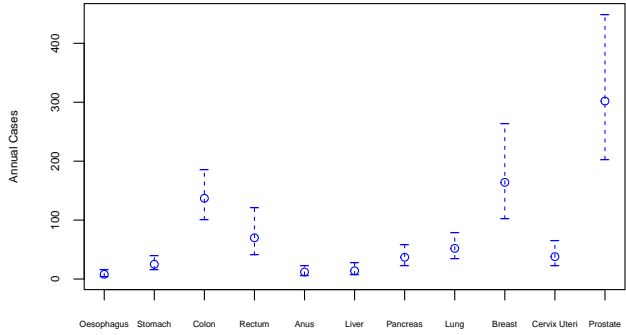
ISO Code	Region	Area	Income Group
BGD	Southern Asia	Asia	Lower middle income



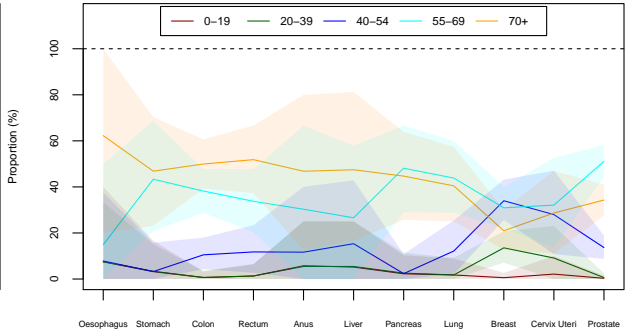
Barbados

ISO Code	Region	Area	Income Group
BRB	Caribbean	Latin America and the Caribbean	High income

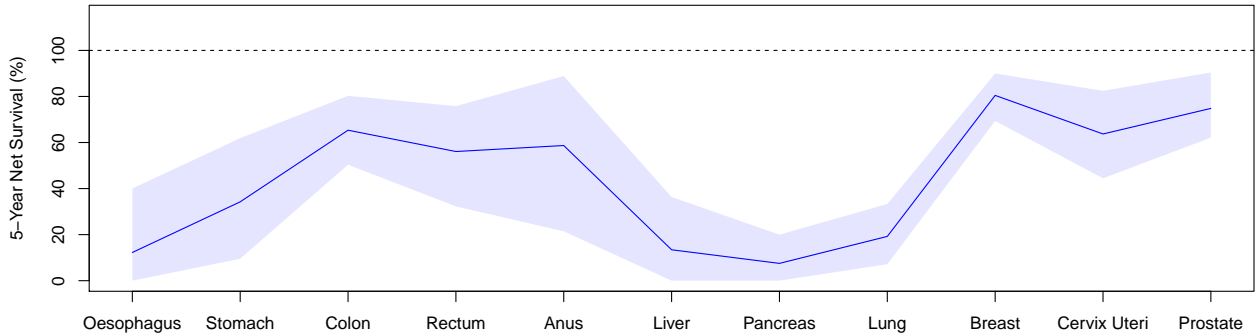
Estimated New Diagnosed Cases per Year (GLOBOCAN 2018)



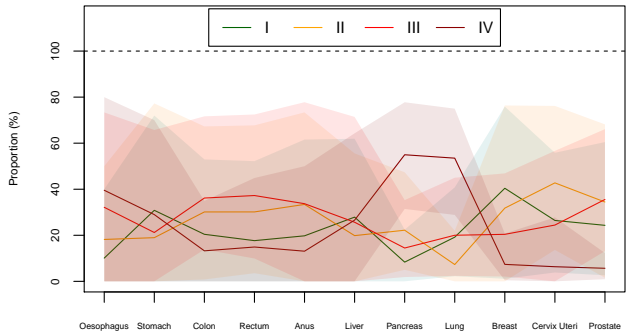
Age at Diagnosis



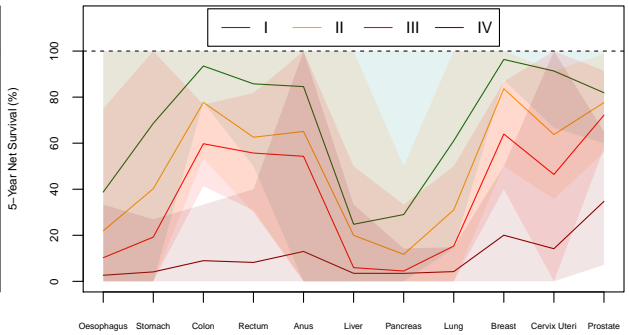
5-Year Net Survival – Overall



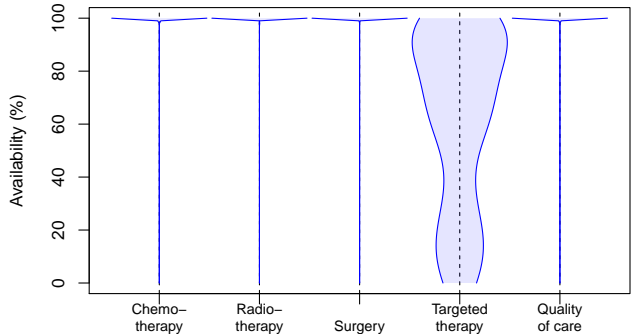
Stage Distribution at Diagnosis



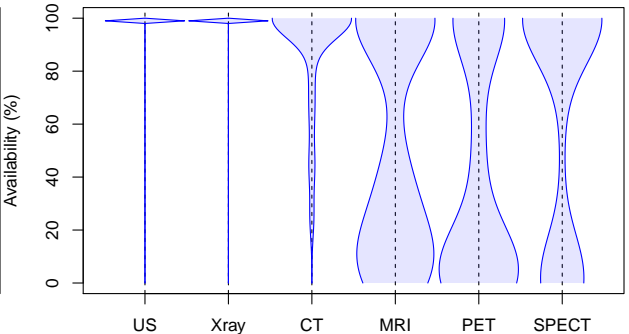
5-Year Net Survival – by Stage



Treatment Availability

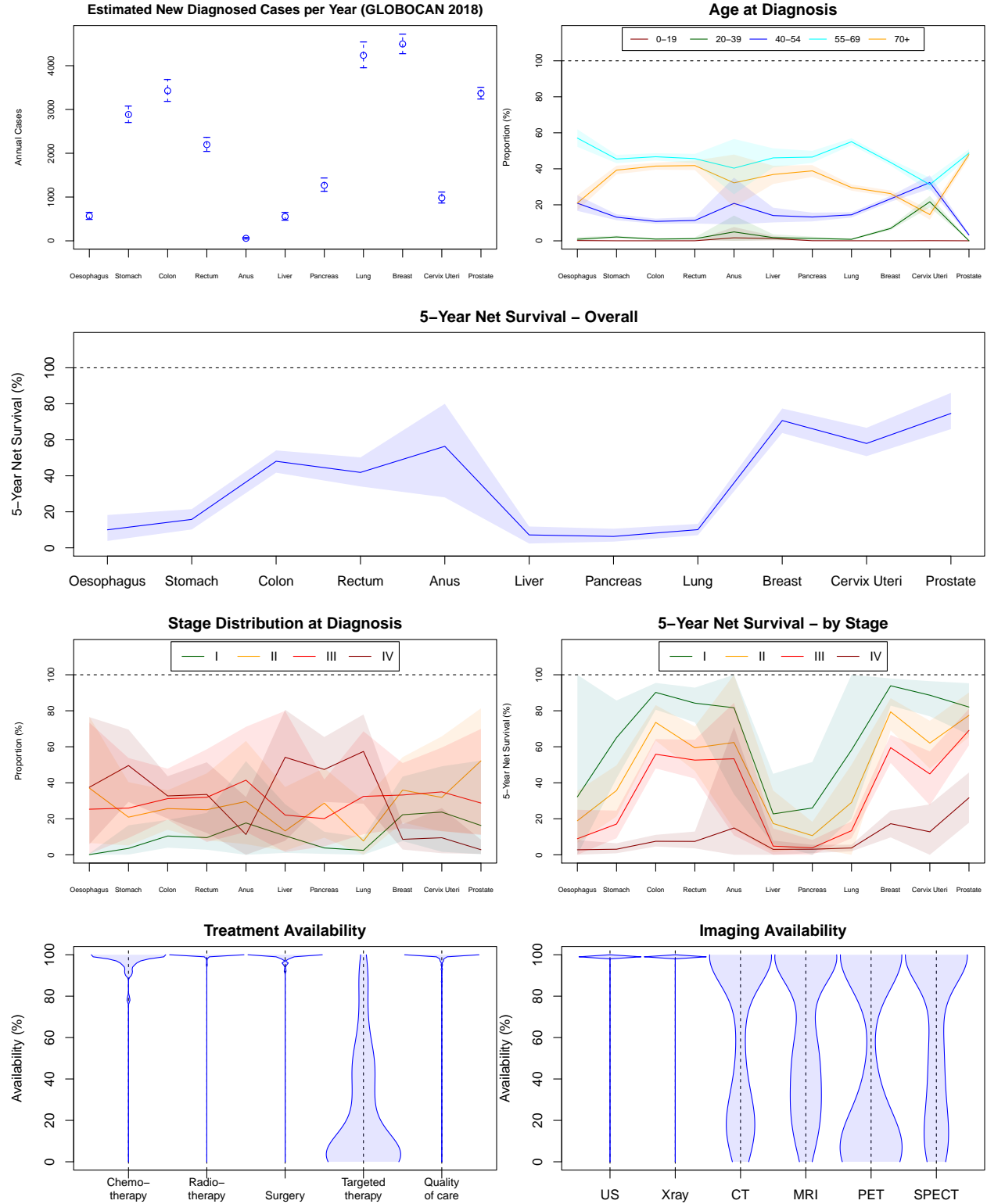


Imaging Availability



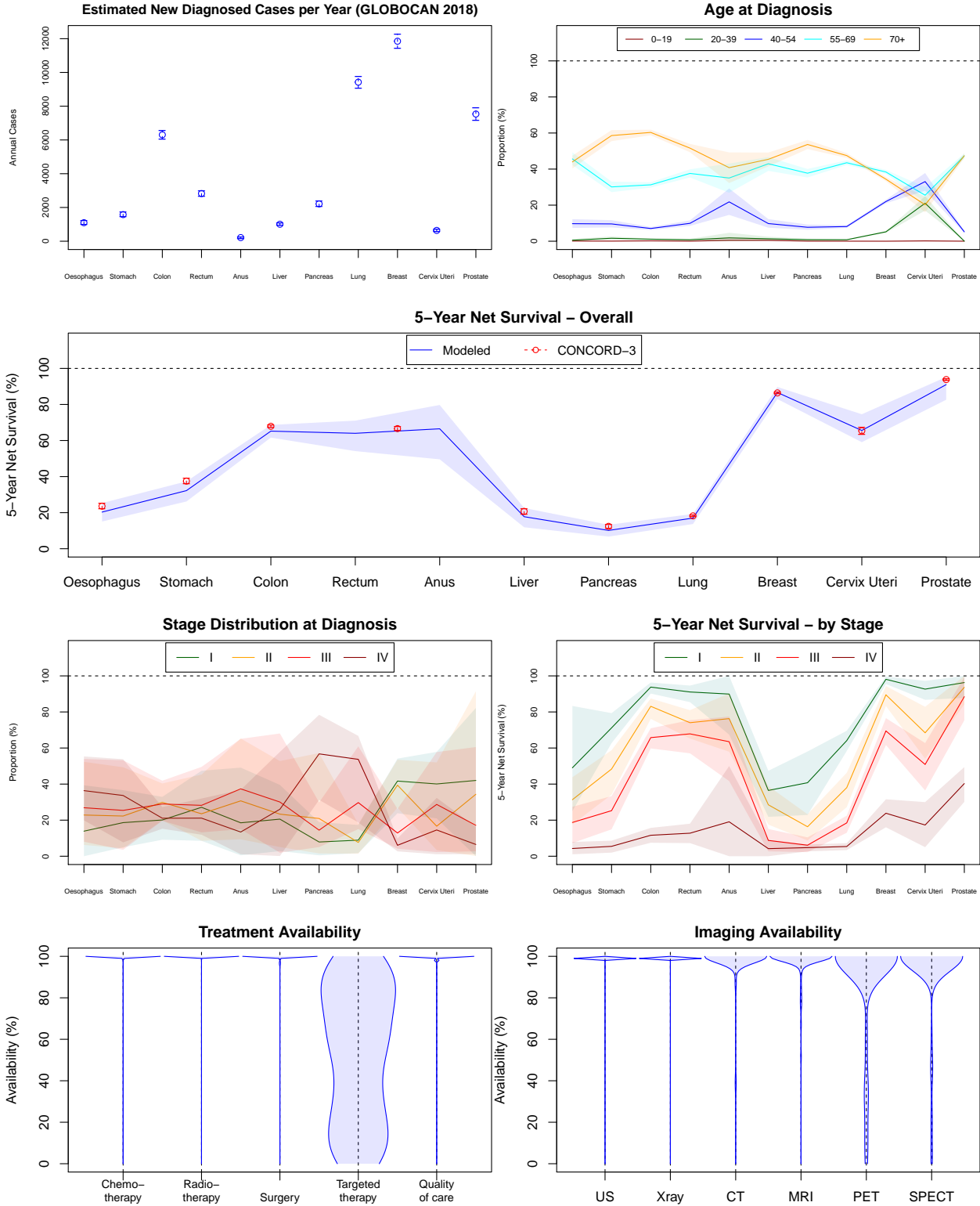
Belarus

ISO Code	Region	Area	Income Group
BLR	Eastern Europe	Europe	Upper middle income



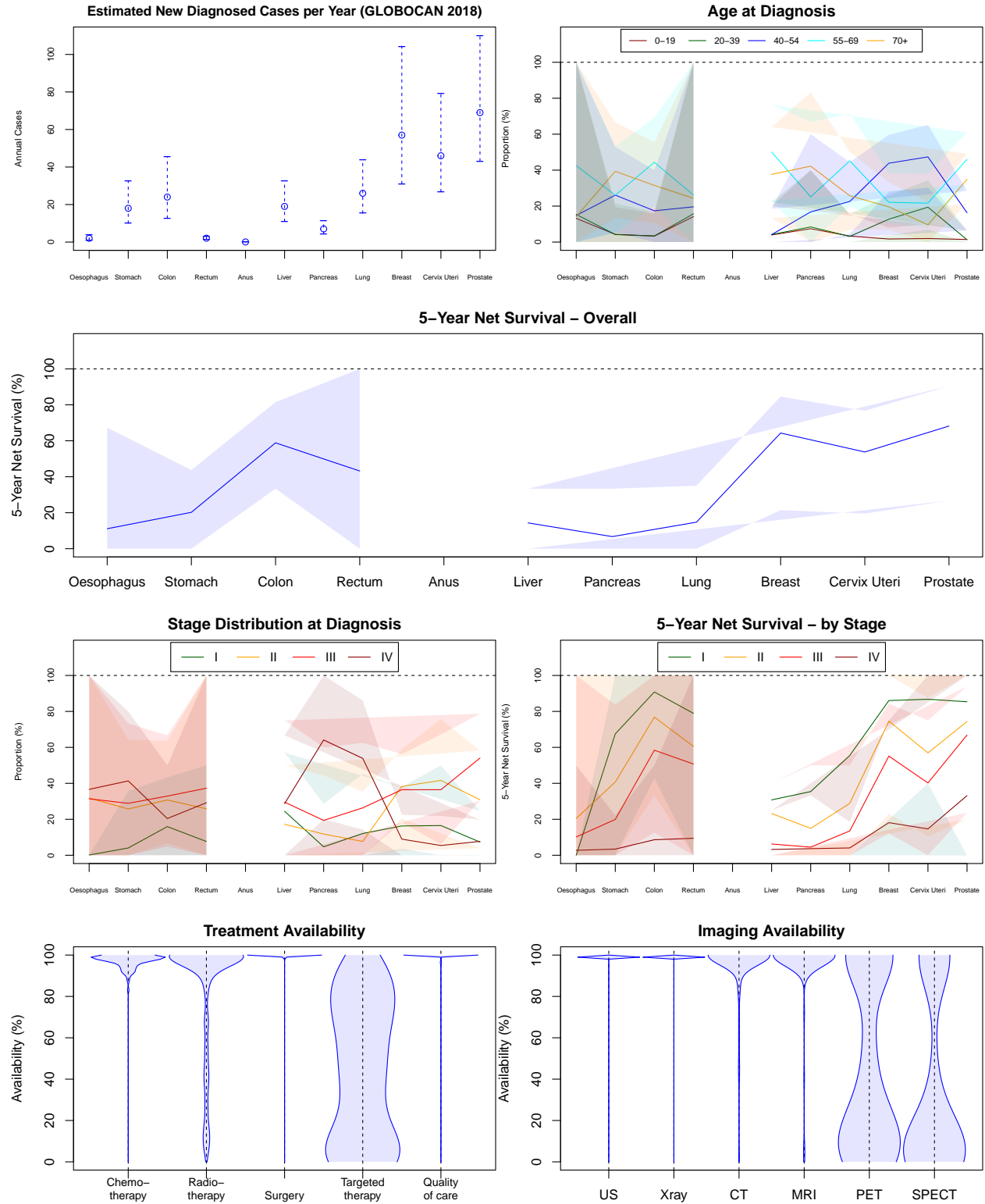
Belgium

ISO Code	Region	Area	Income Group
BEL	Western Europe	Europe	High income



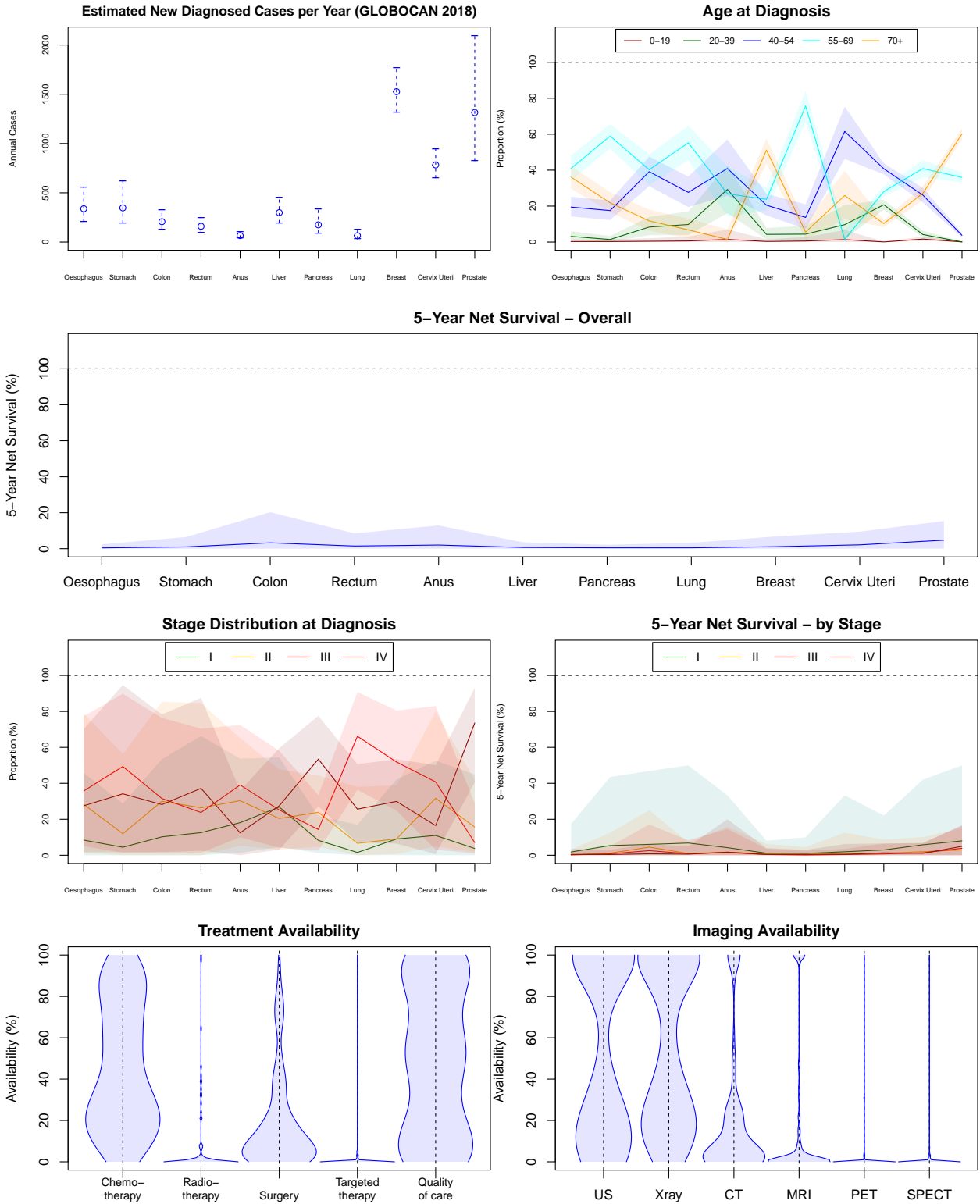
Belize

ISO Code	Region	Area	Income Group
BLZ	Central America	Latin America and the Caribbean	Upper middle income



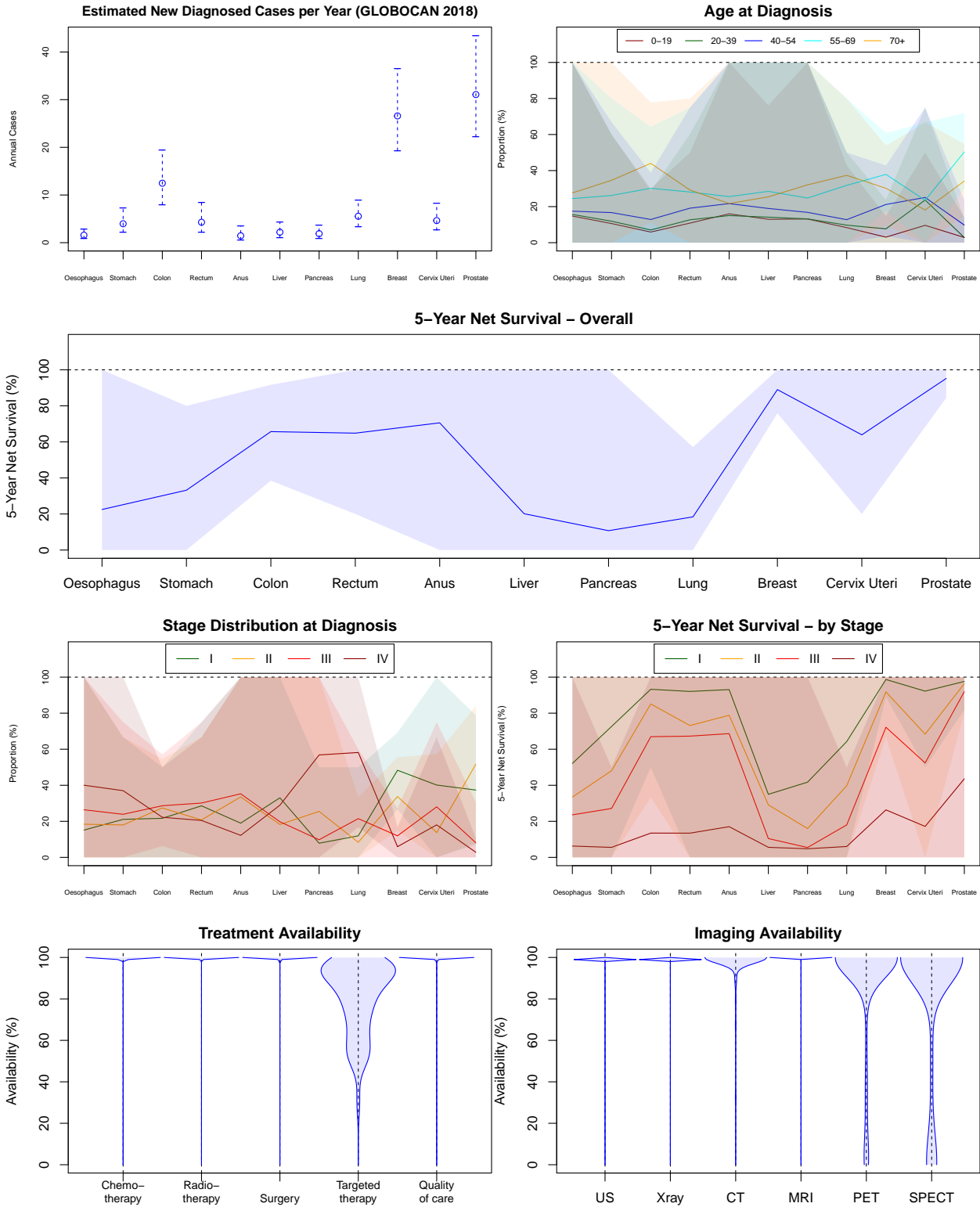
Benin

ISO Code	Region	Area	Income Group
BEN	Western Africa	Africa	Low income



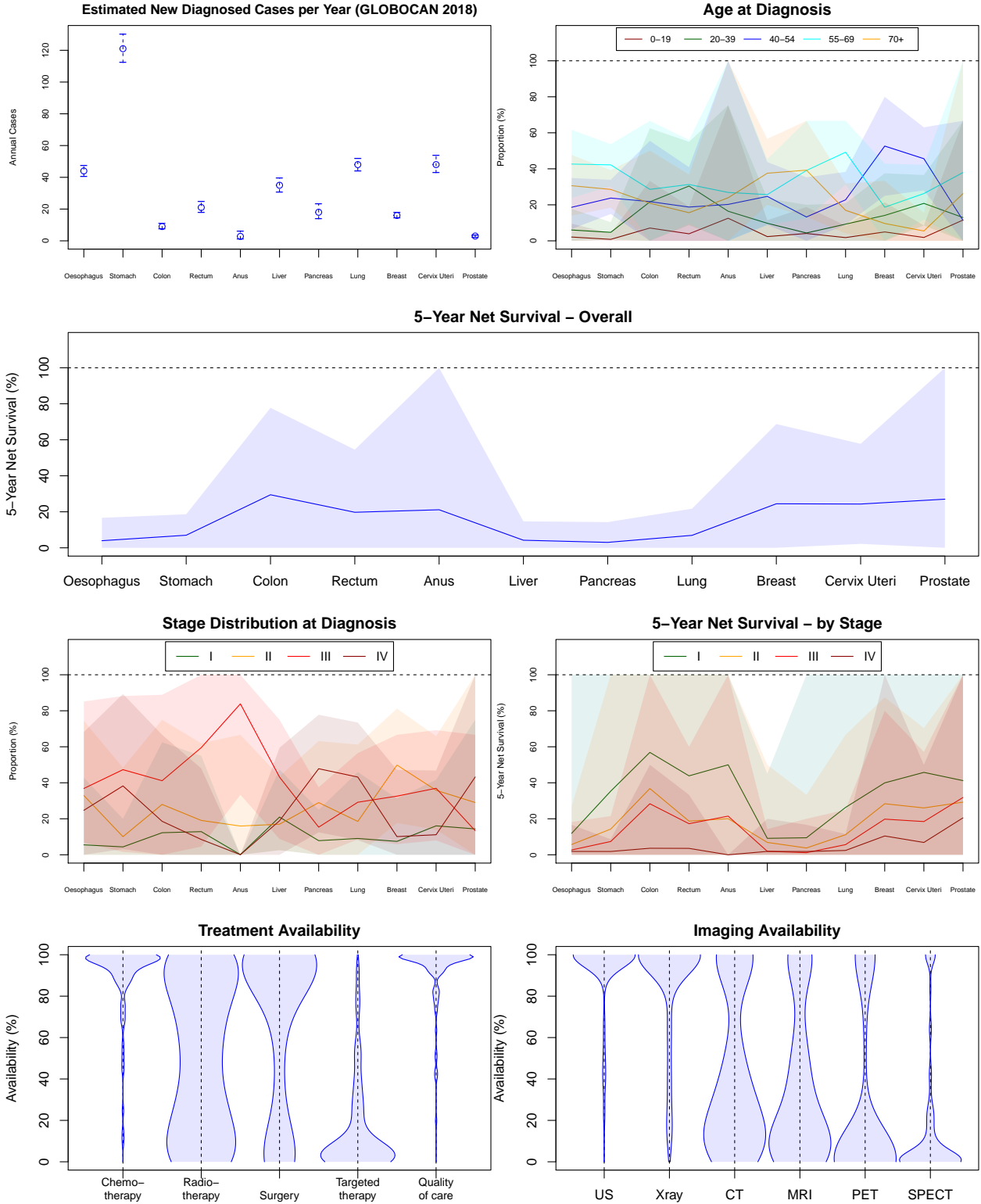
Bermuda

ISO Code	Region	Area	Income Group
BMU	Northern America	Northern America	High income



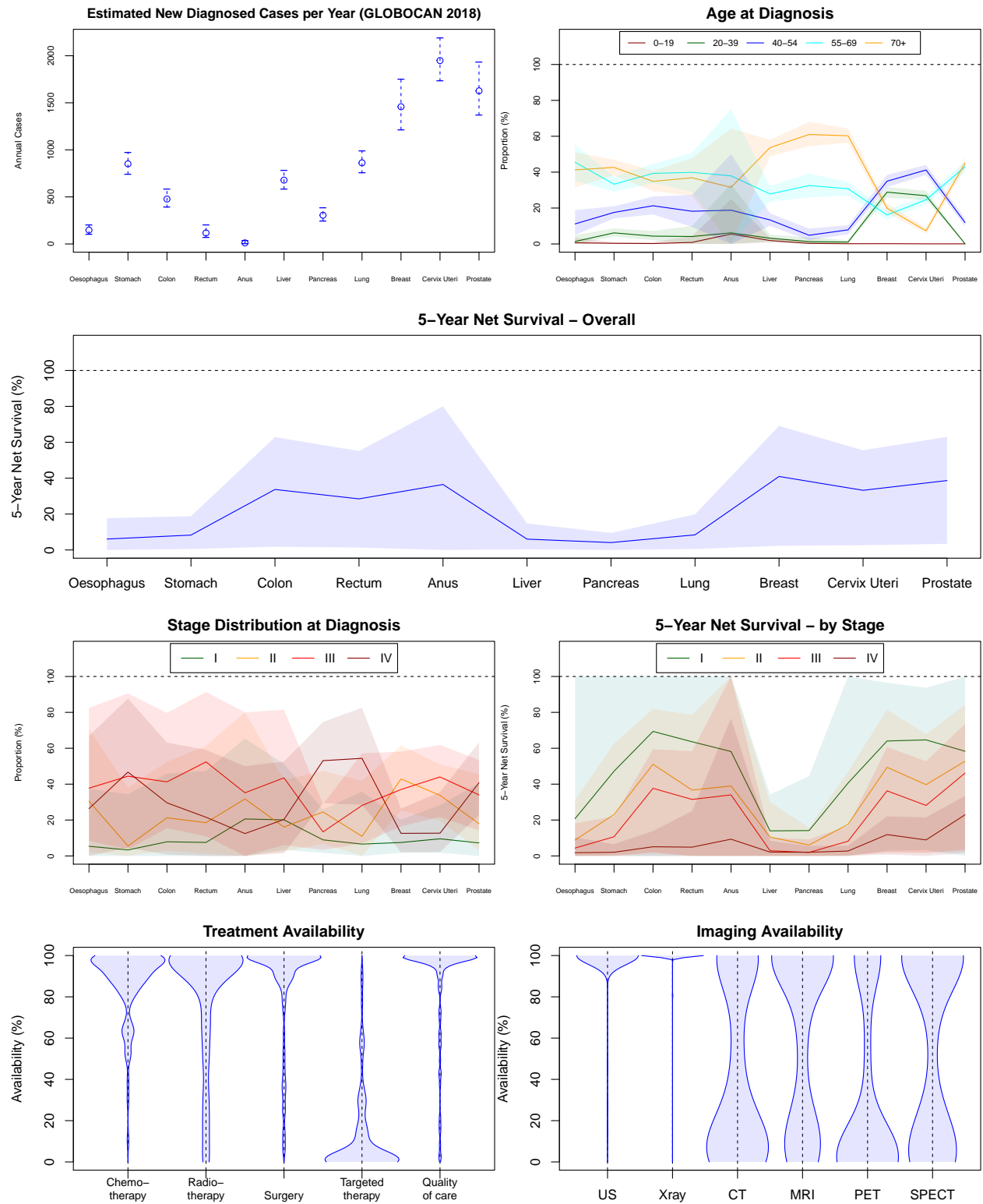
Bhutan

ISO Code	Region	Area	Income Group
BTN	Southern Asia	Asia	Lower middle income



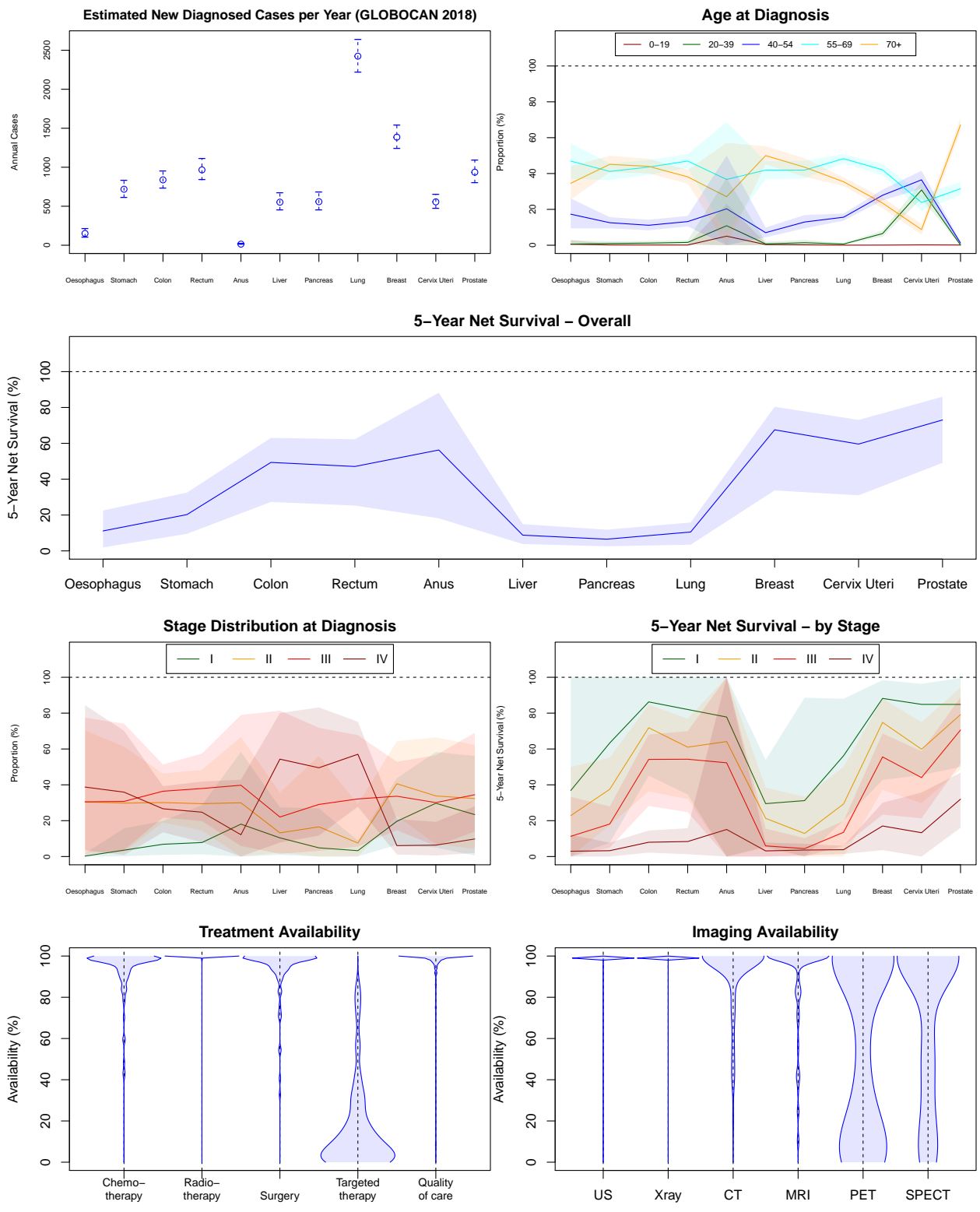
Bolivia (Plurinational State of)

ISO Code	Region	Area	Income Group
BOL	South America	Latin America and the Caribbean	Lower middle income



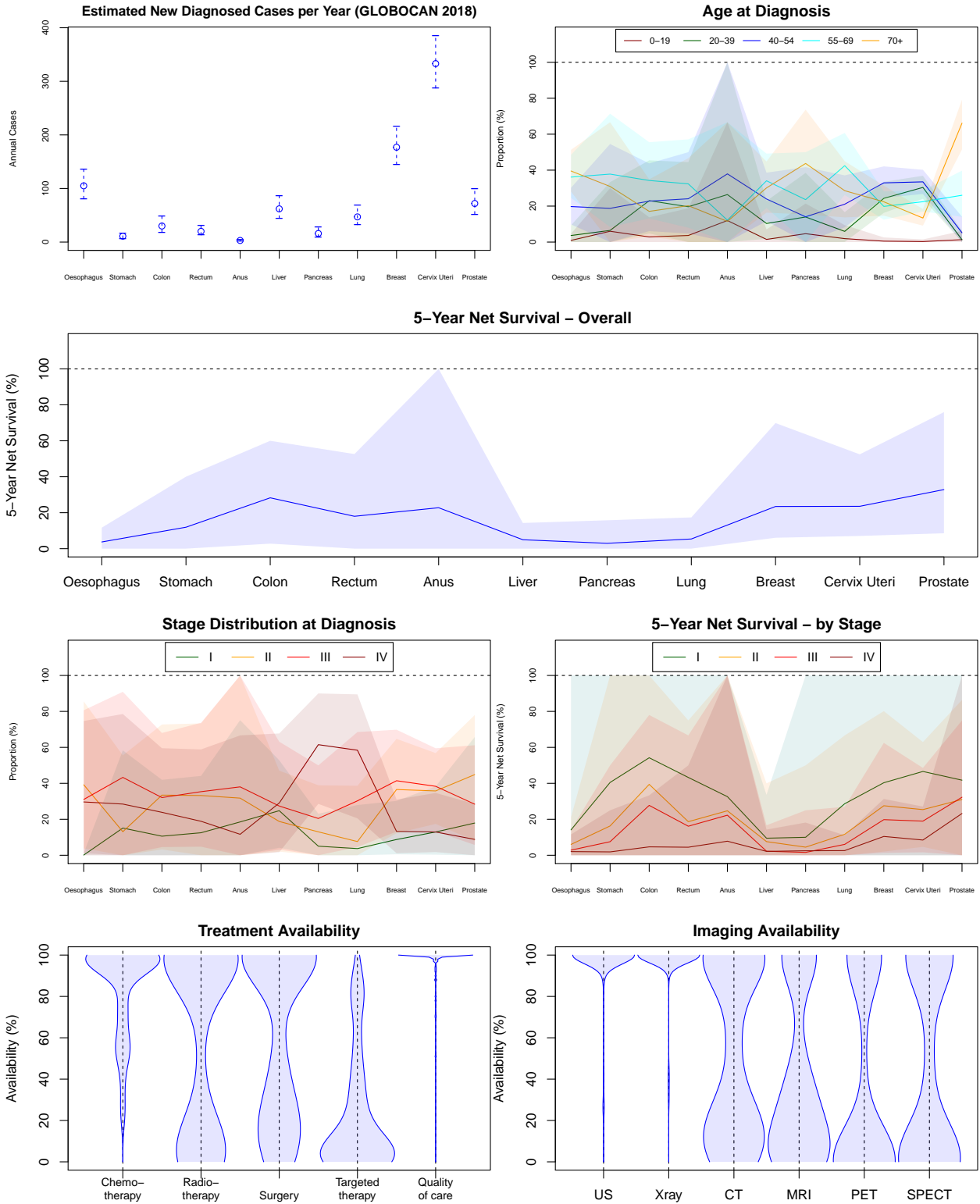
Bosnia and Herzegovina

ISO Code	Region	Area	Income Group
BIH	Southern Europe	Europe	Upper middle income



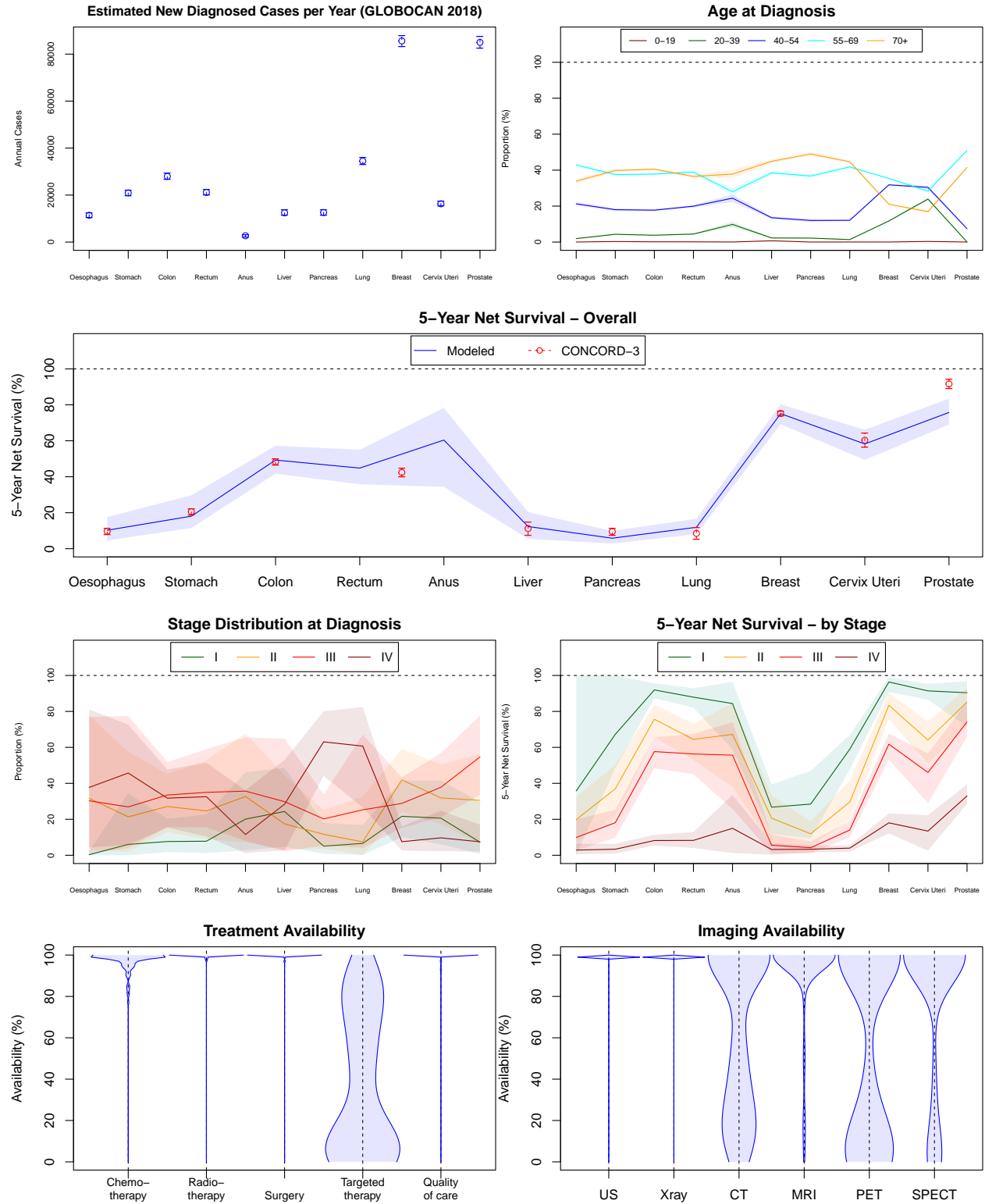
Botswana

ISO Code	Region	Area	Income Group
BWA	Southern Africa	Africa	Upper middle income



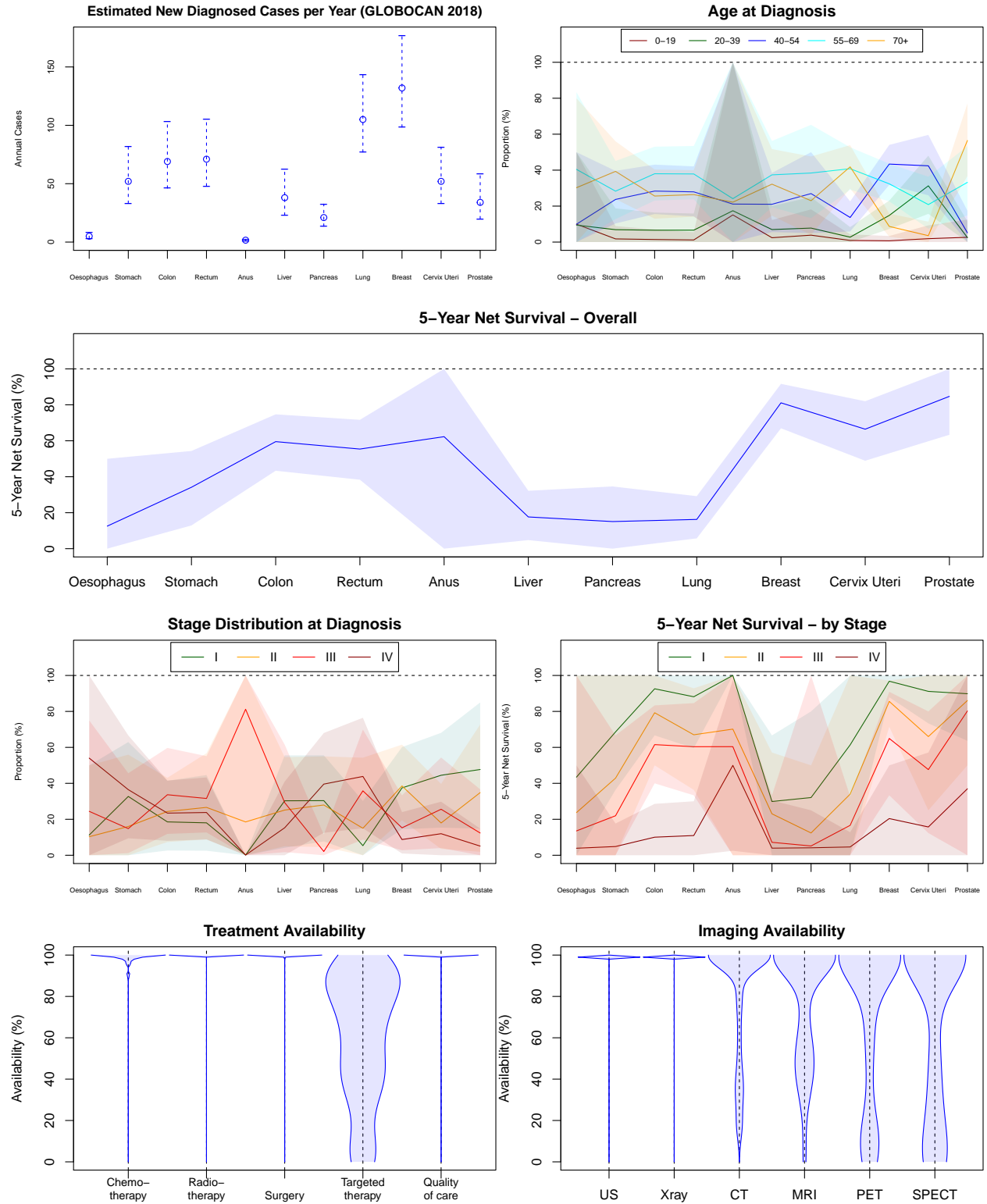
Brazil

ISO Code	Region	Area	Income Group
BRA	South America	Latin America and the Caribbean	Upper middle income



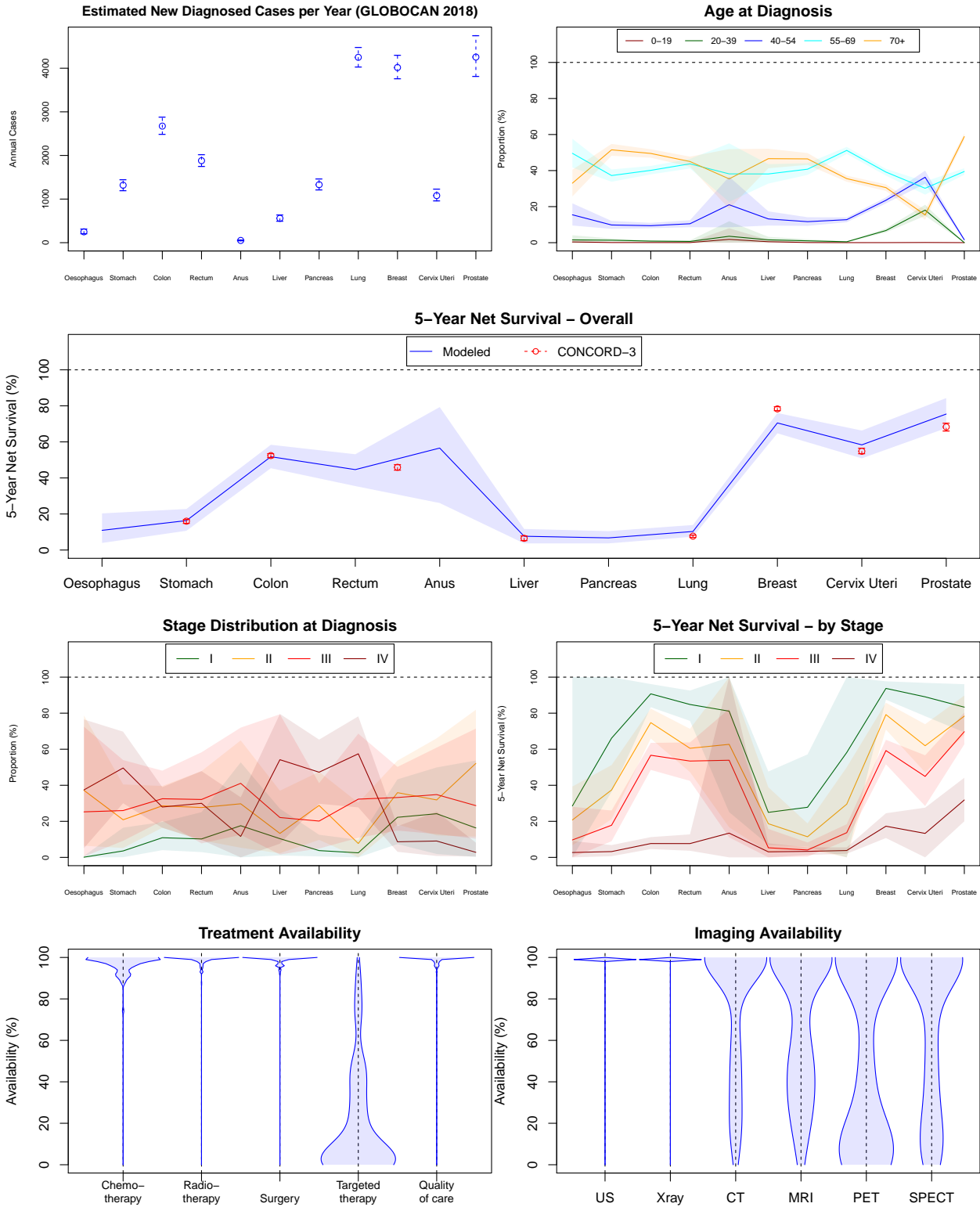
Brunei Darussalam

ISO Code	Region	Area	Income Group
BRN	South-Eastern Asia	Asia	High income



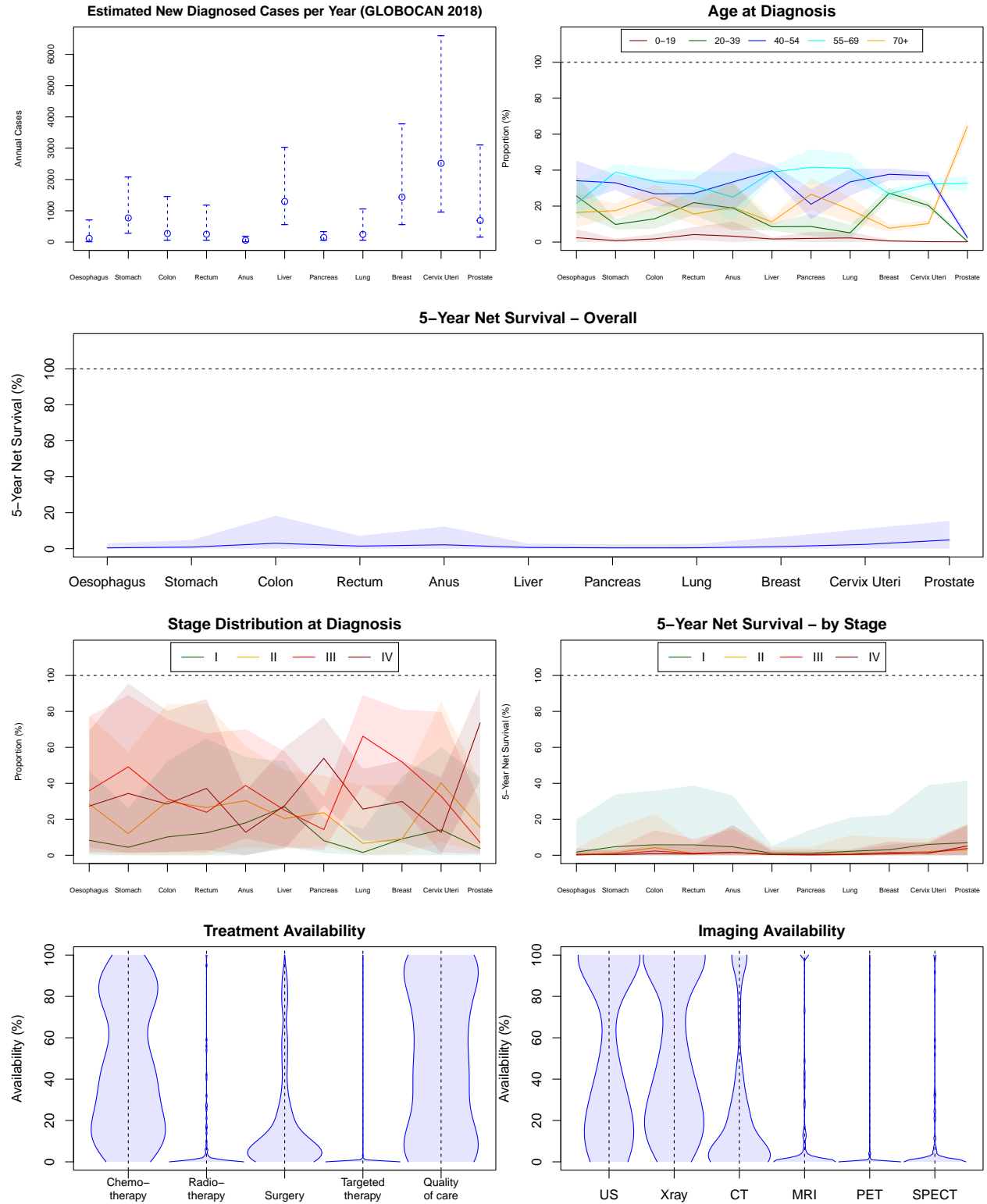
Bulgaria

ISO Code	Region	Area	Income Group
BGR	Eastern Europe	Europe	Upper middle income



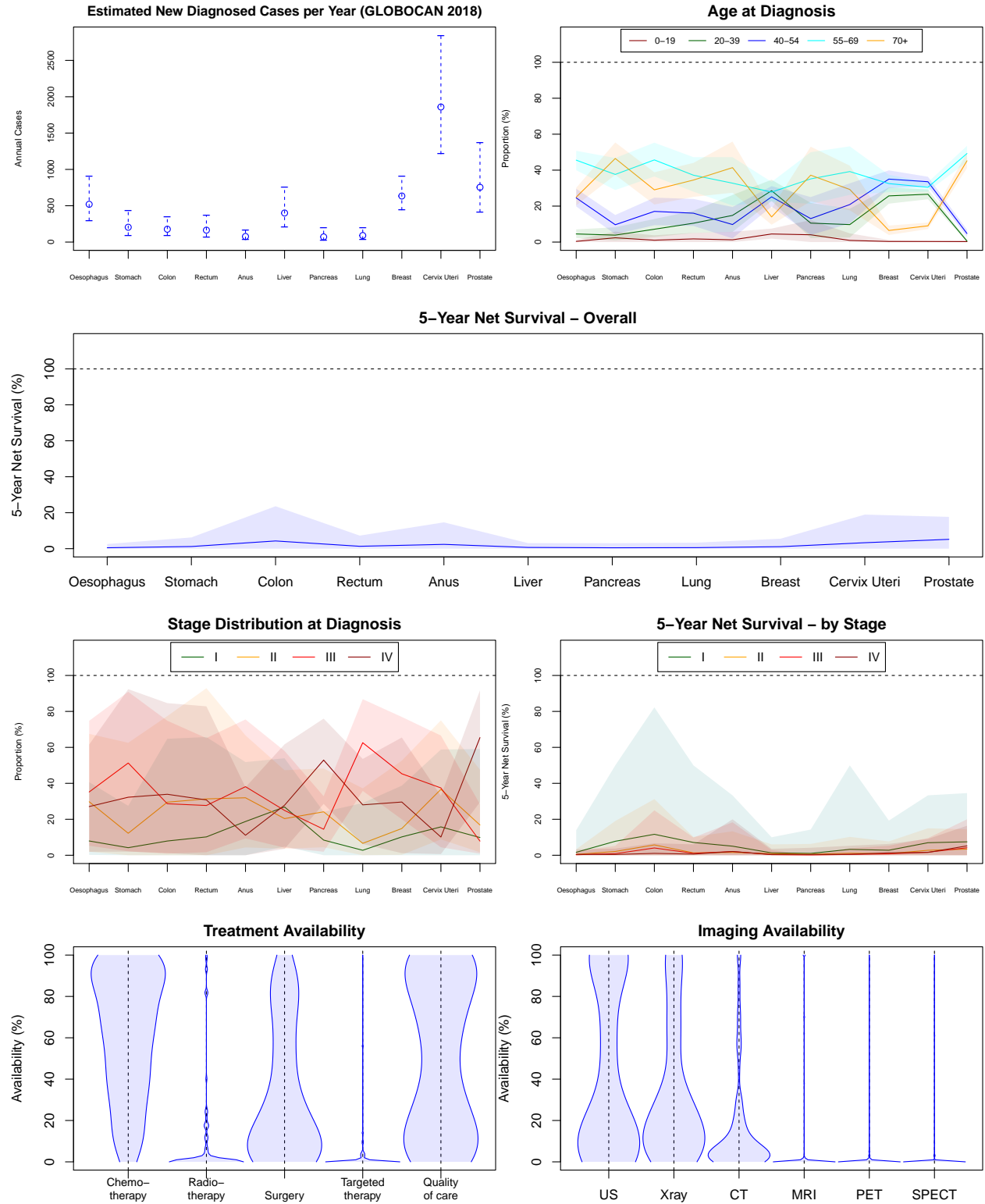
Burkina Faso

ISO Code	Region	Area	Income Group
BFA	Western Africa	Africa	Low income



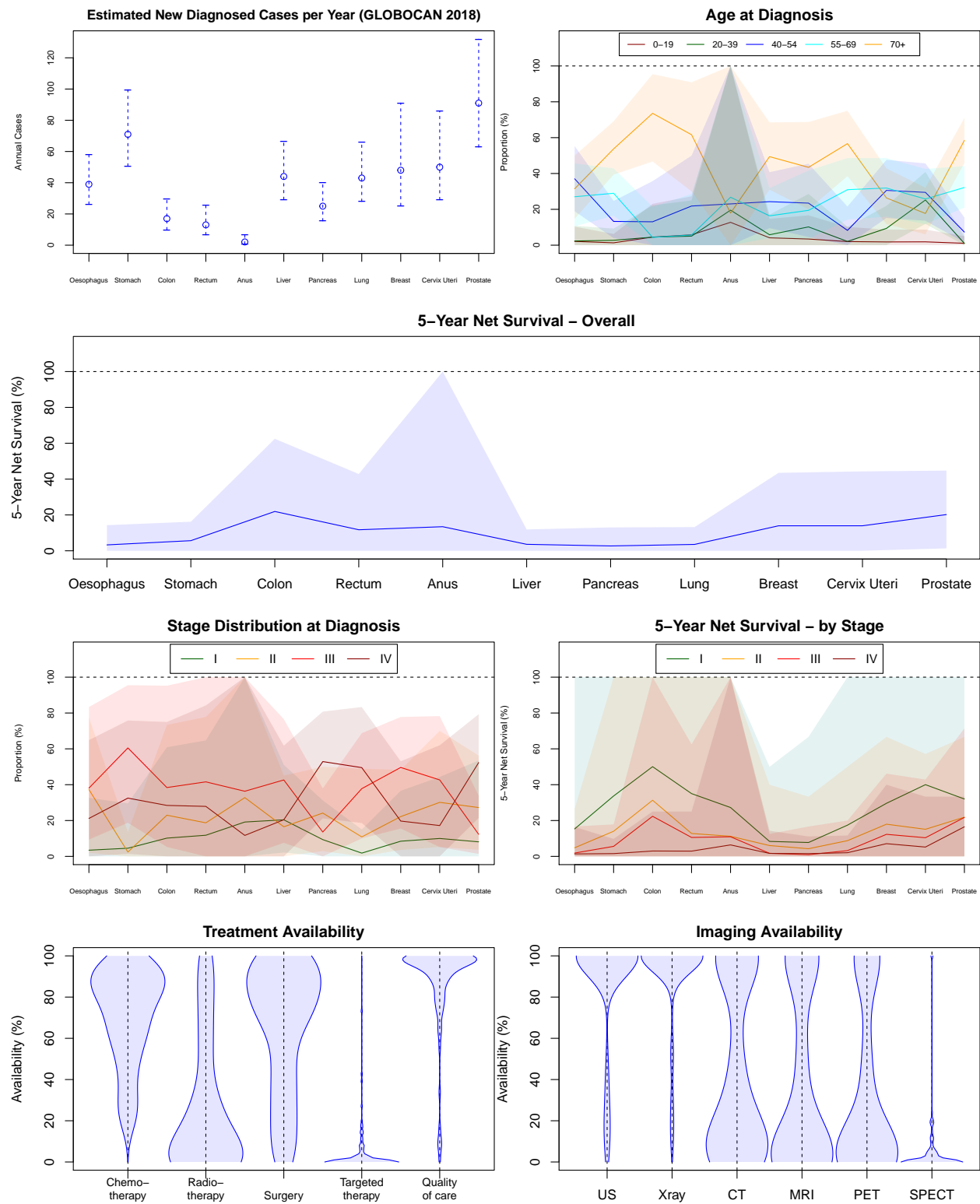
Burundi

ISO Code	Region	Area	Income Group
BDI	Eastern Africa	Africa	Low income



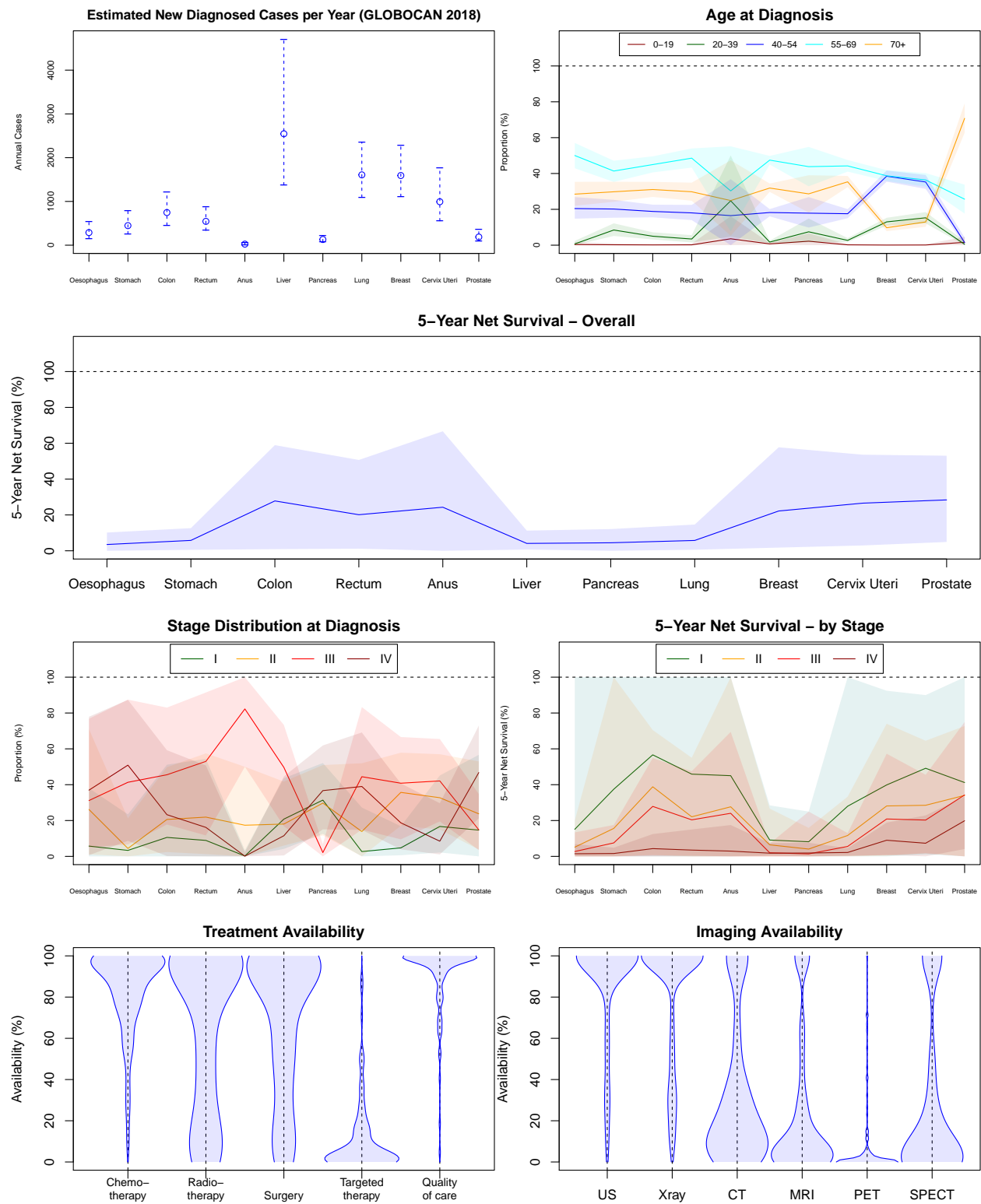
Cabo Verde

ISO Code	Region	Area	Income Group
CPV	Western Africa	Africa	Lower middle income



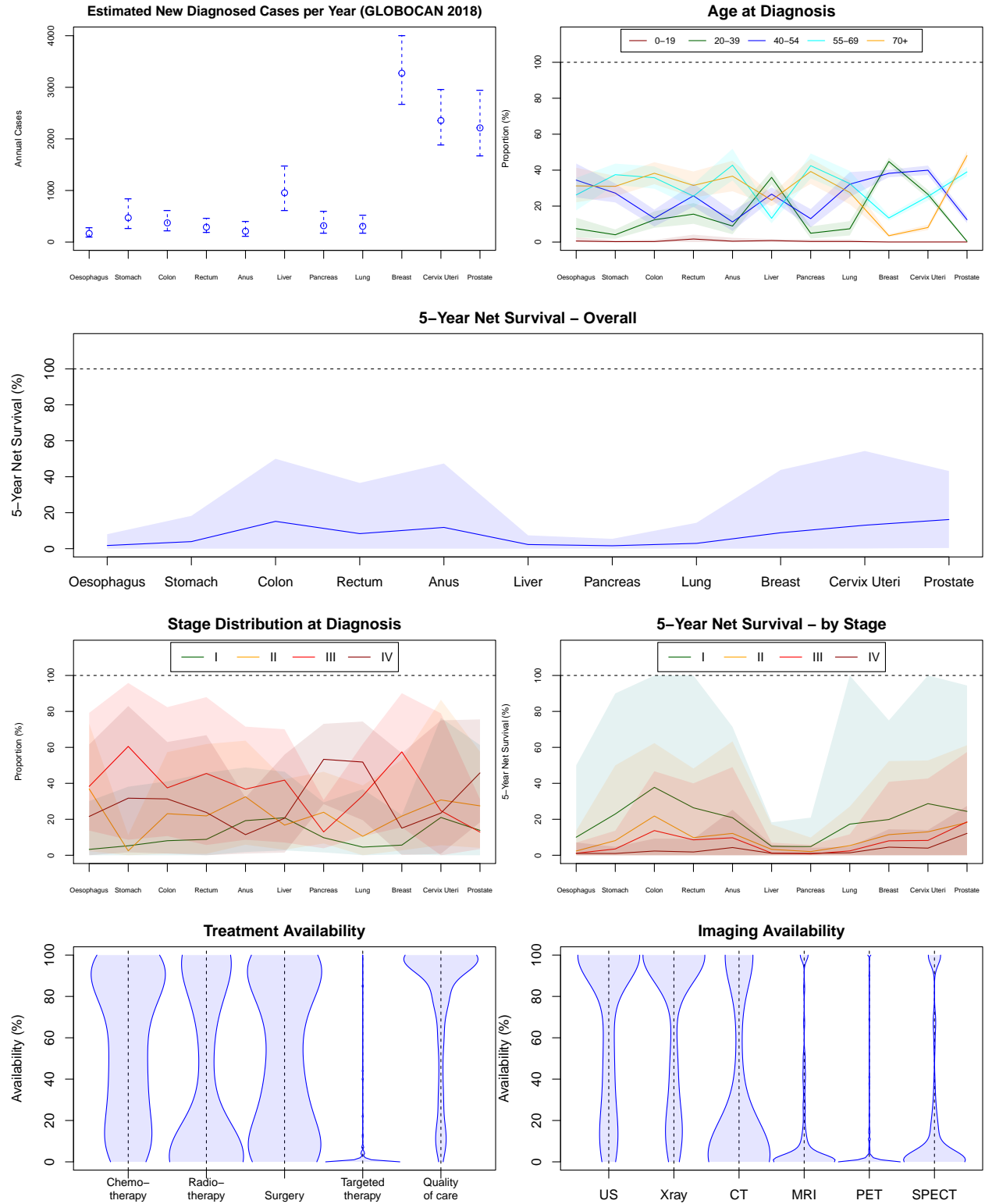
Cambodia

ISO Code	Region	Area	Income Group
KHM	South-Eastern Asia	Asia	Lower middle income



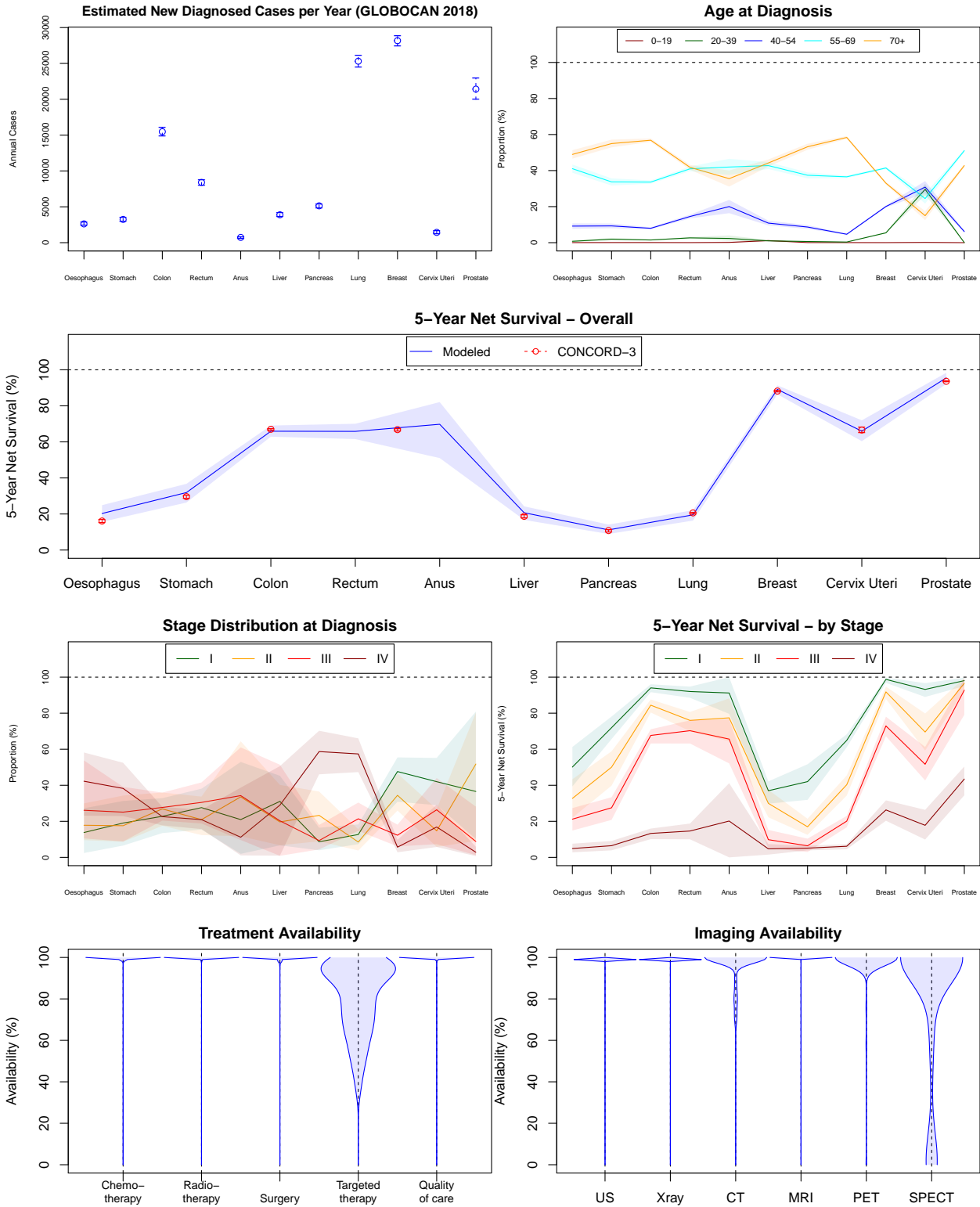
Cameroon

ISO Code	Region	Area	Income Group
CMR	Middle Africa	Africa	Lower middle income



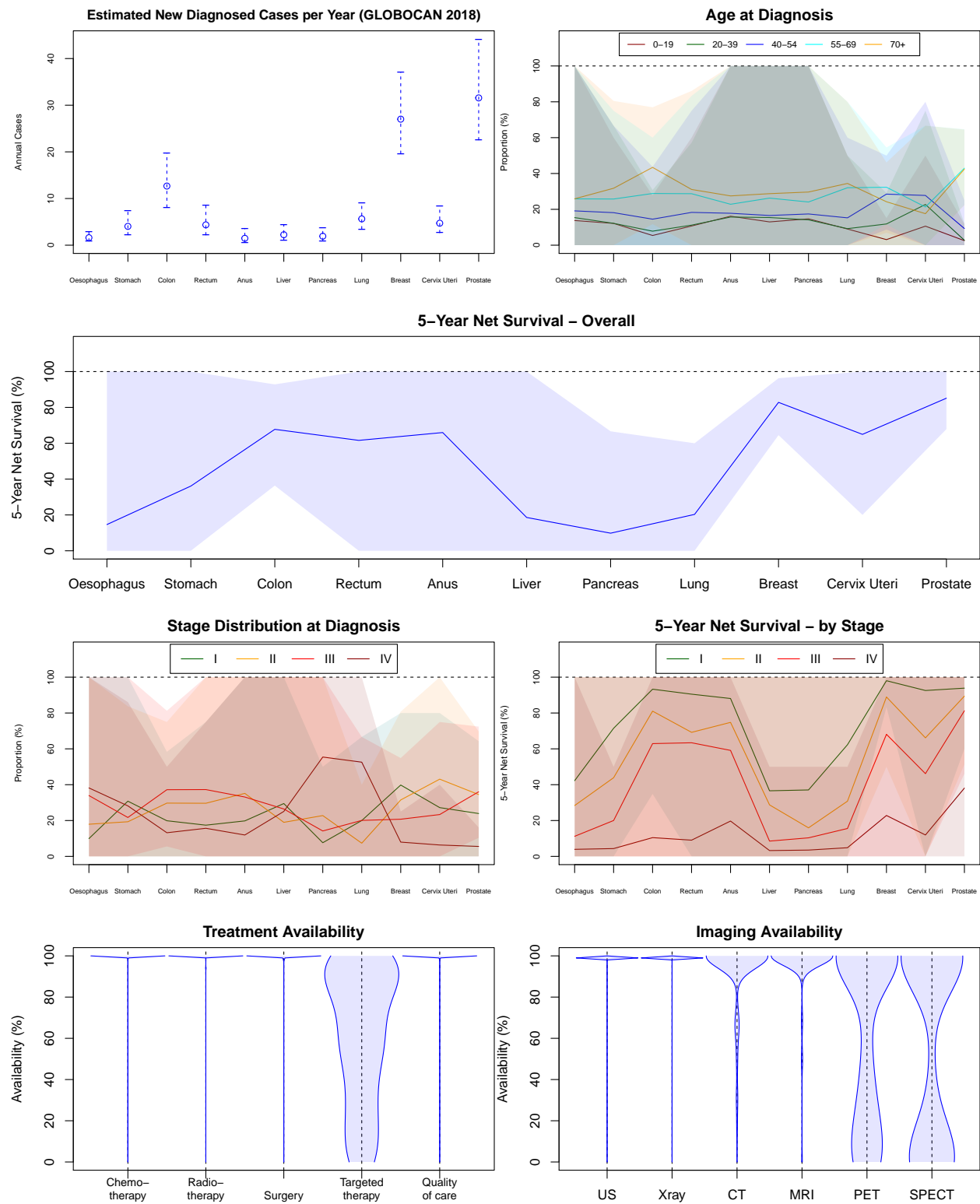
Canada

ISO Code	Region	Area	Income Group
CAN	Northern America	Northern America	High income



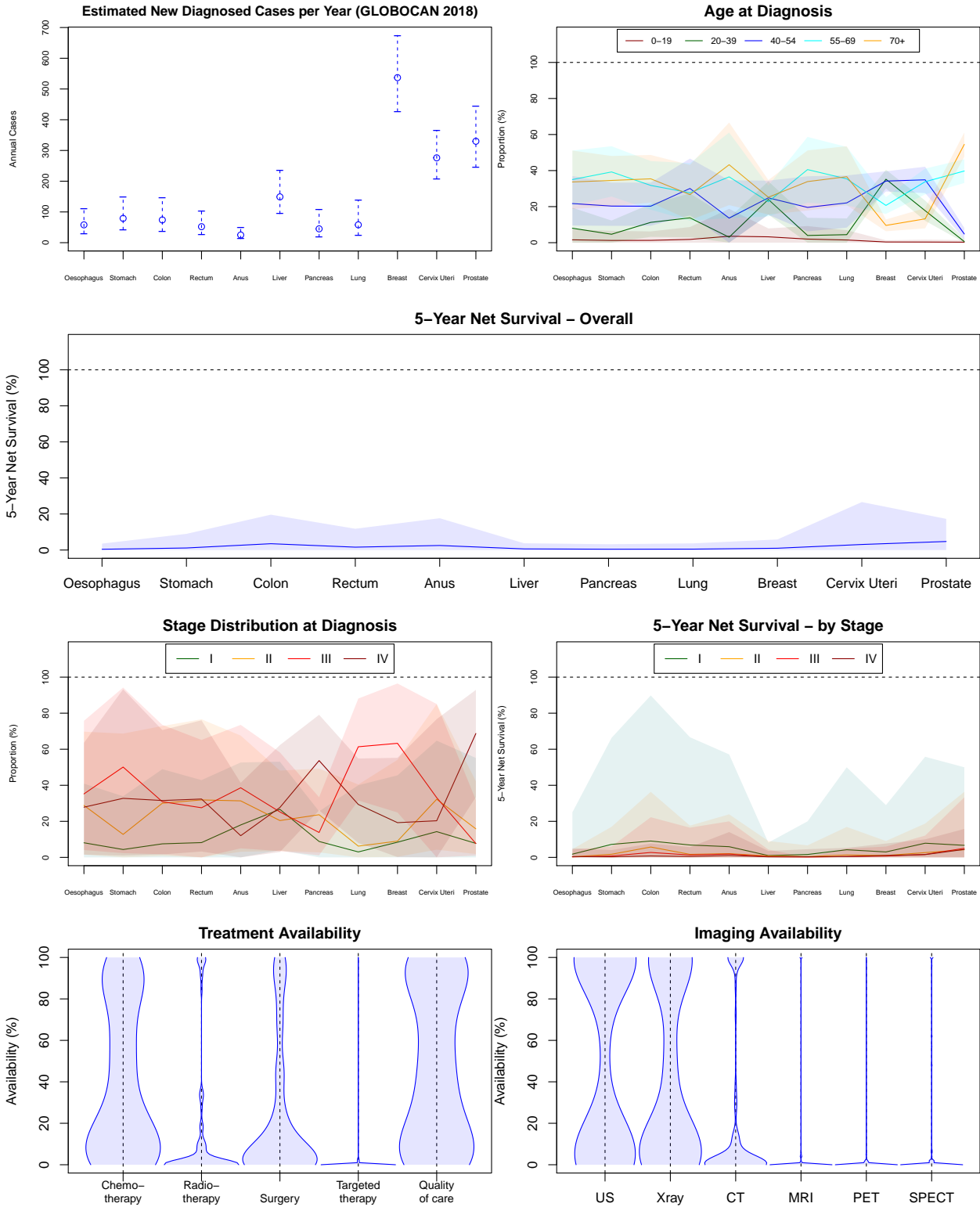
Cayman Islands

ISO Code	Region	Area	Income Group
CYM	Caribbean	Latin America and the Caribbean	High income



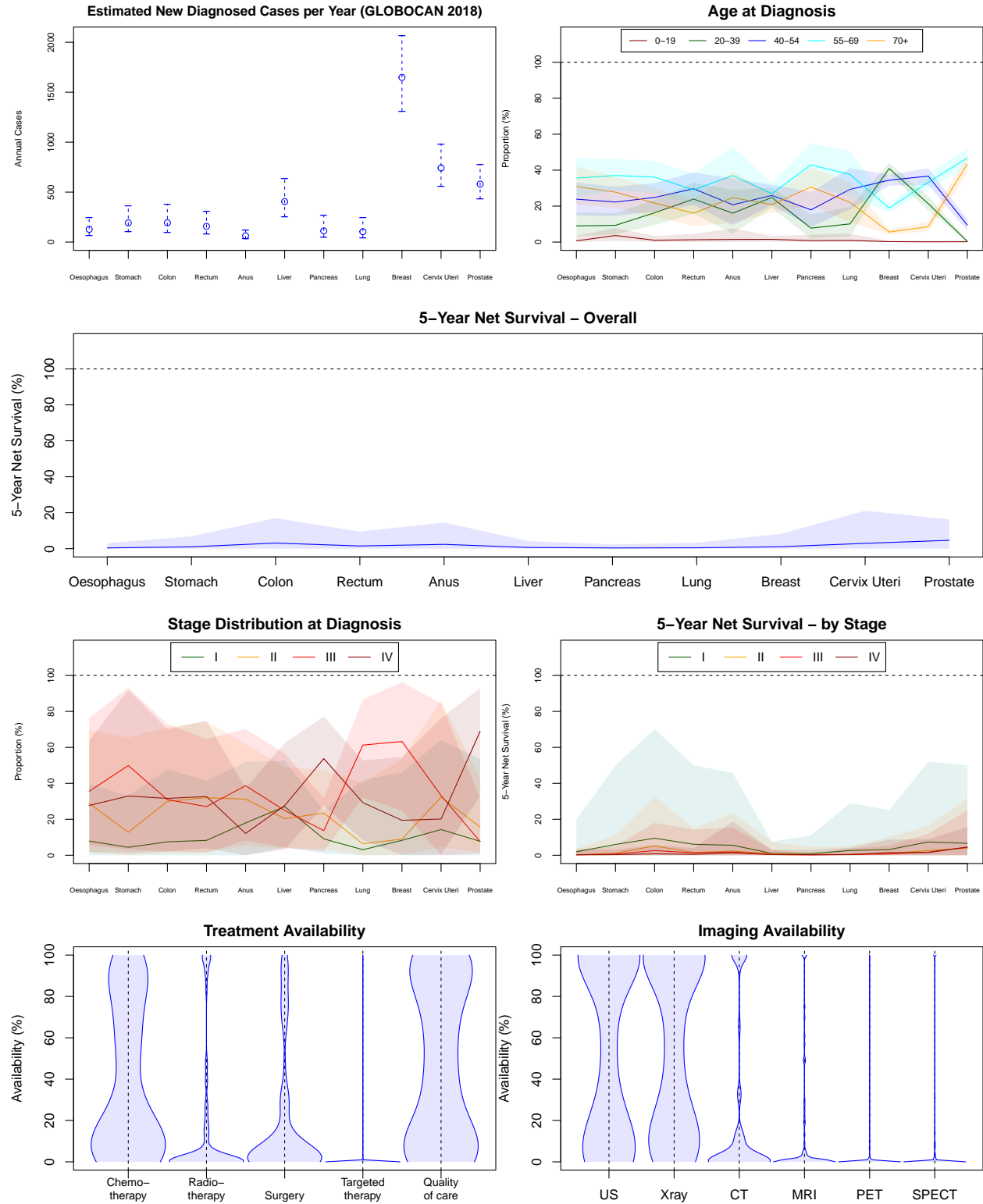
Central African Republic

ISO Code	Region	Area	Income Group
CAF	Middle Africa	Africa	Low income



Chad

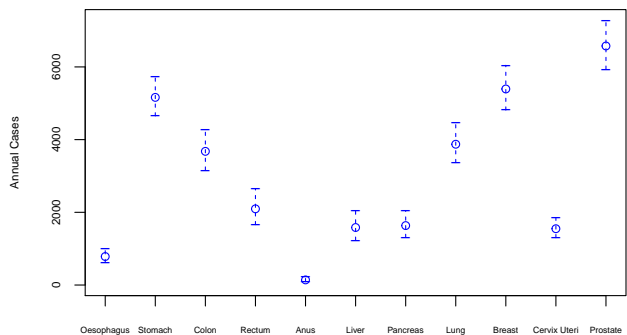
ISO Code	Region	Area	Income Group
TCD	Middle Africa	Africa	Low income



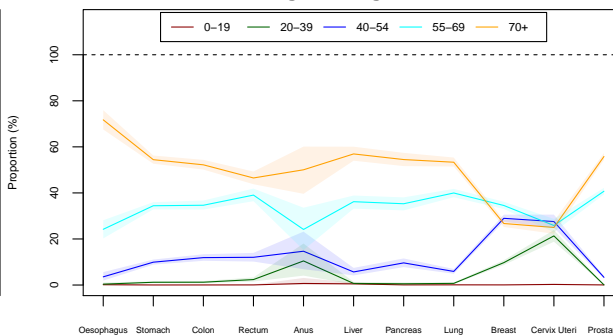
Chile

ISO Code	Region	Area	Income Group
CHL	South America	Latin America and the Caribbean	High income

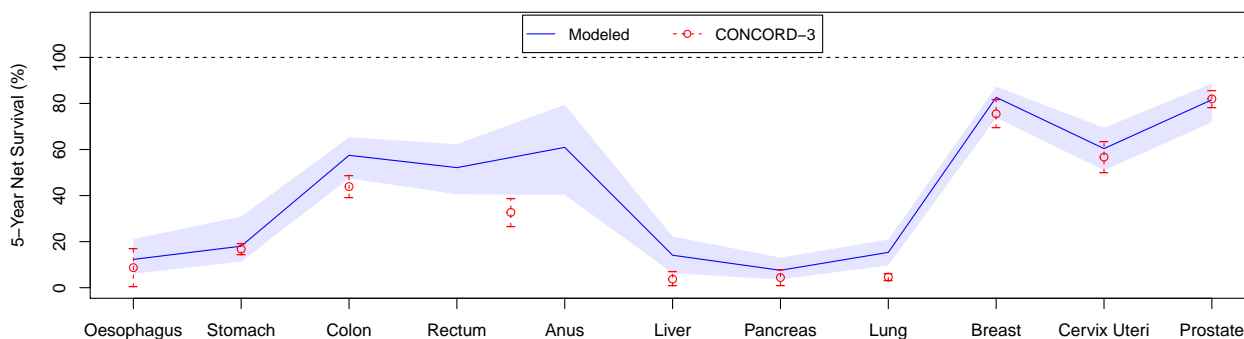
Estimated New Diagnosed Cases per Year (GLOBOCAN 2018)



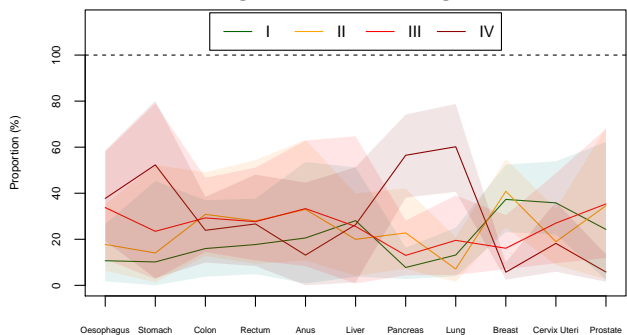
Age at Diagnosis



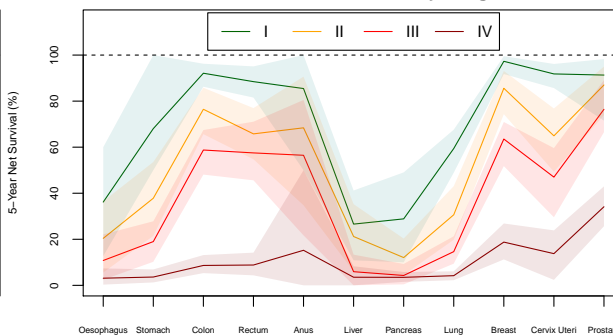
5-Year Net Survival – Overall



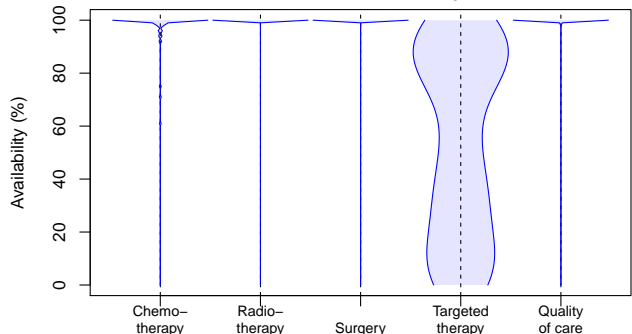
Stage Distribution at Diagnosis



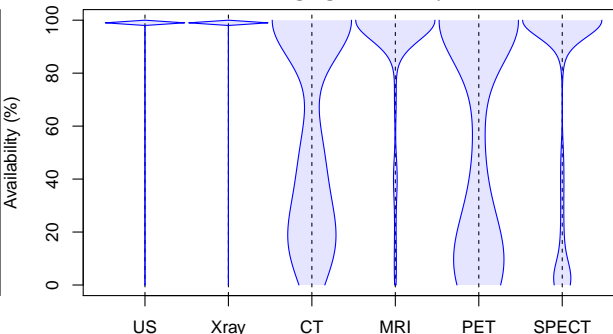
5-Year Net Survival – by Stage



Treatment Availability



Imaging Availability



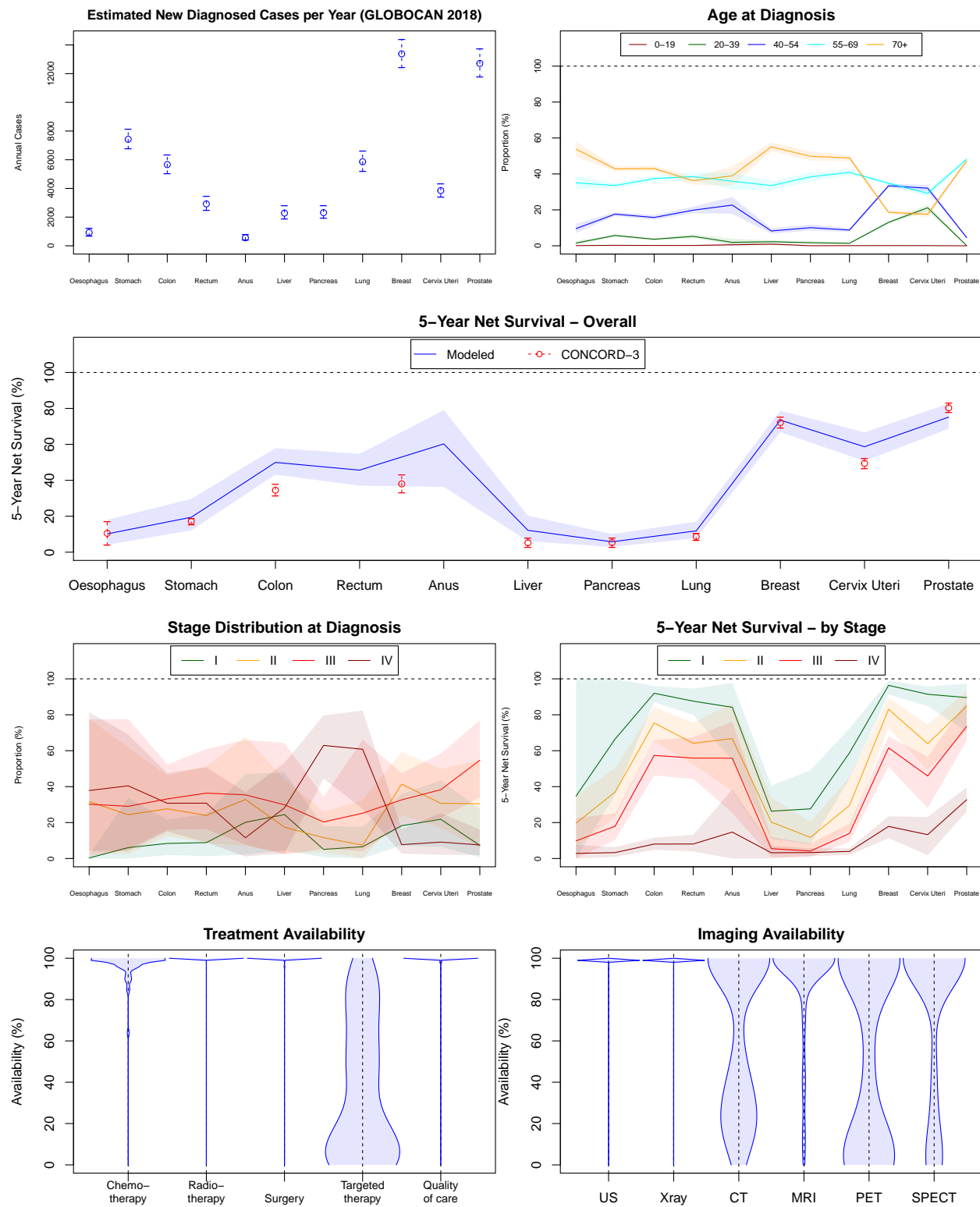
China

ISO Code	Region	Area	Income Group
CHN	Eastern Asia	Asia	Upper middle income



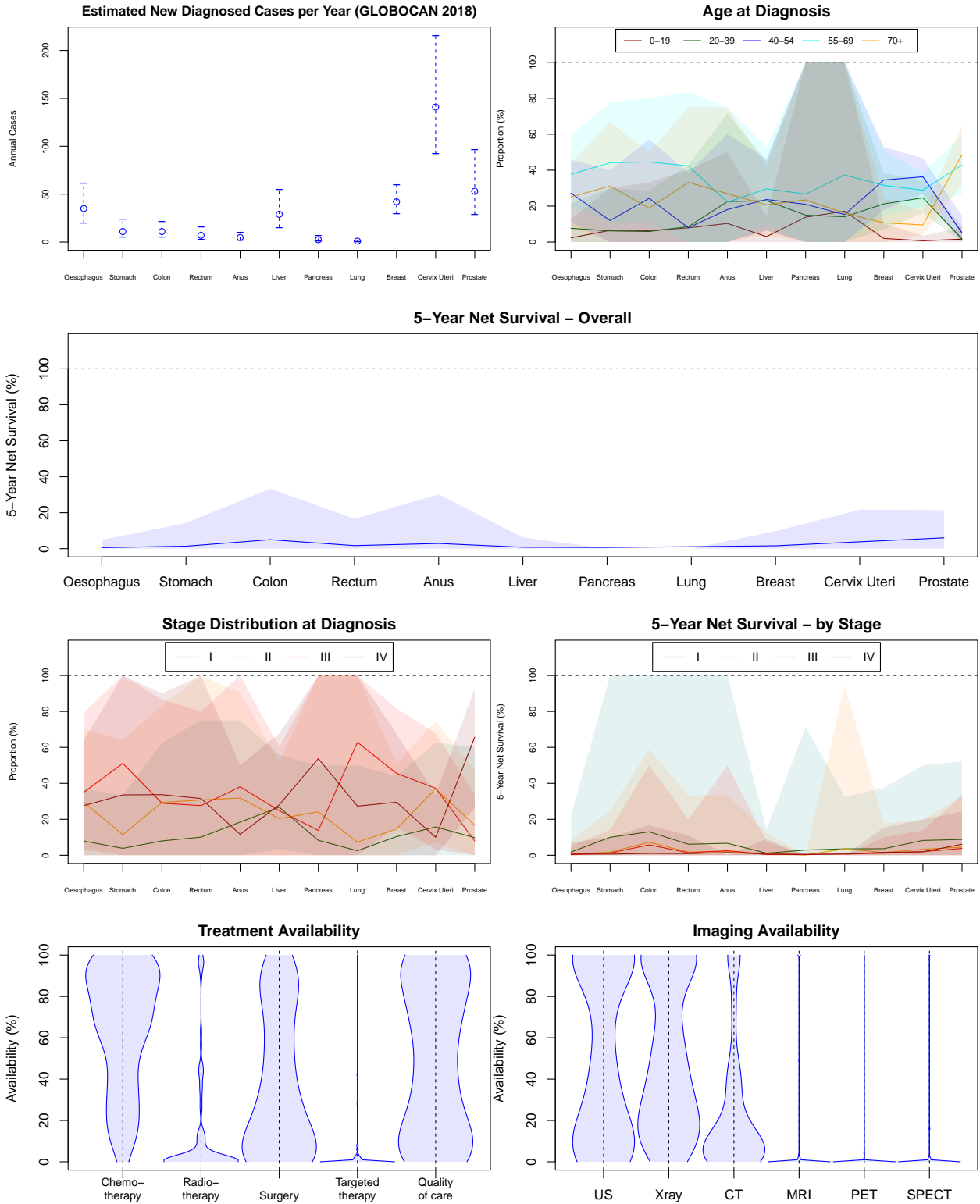
Colombia

ISO Code	Region	Area	Income Group
COL	South America	Latin America and the Caribbean	Upper middle income



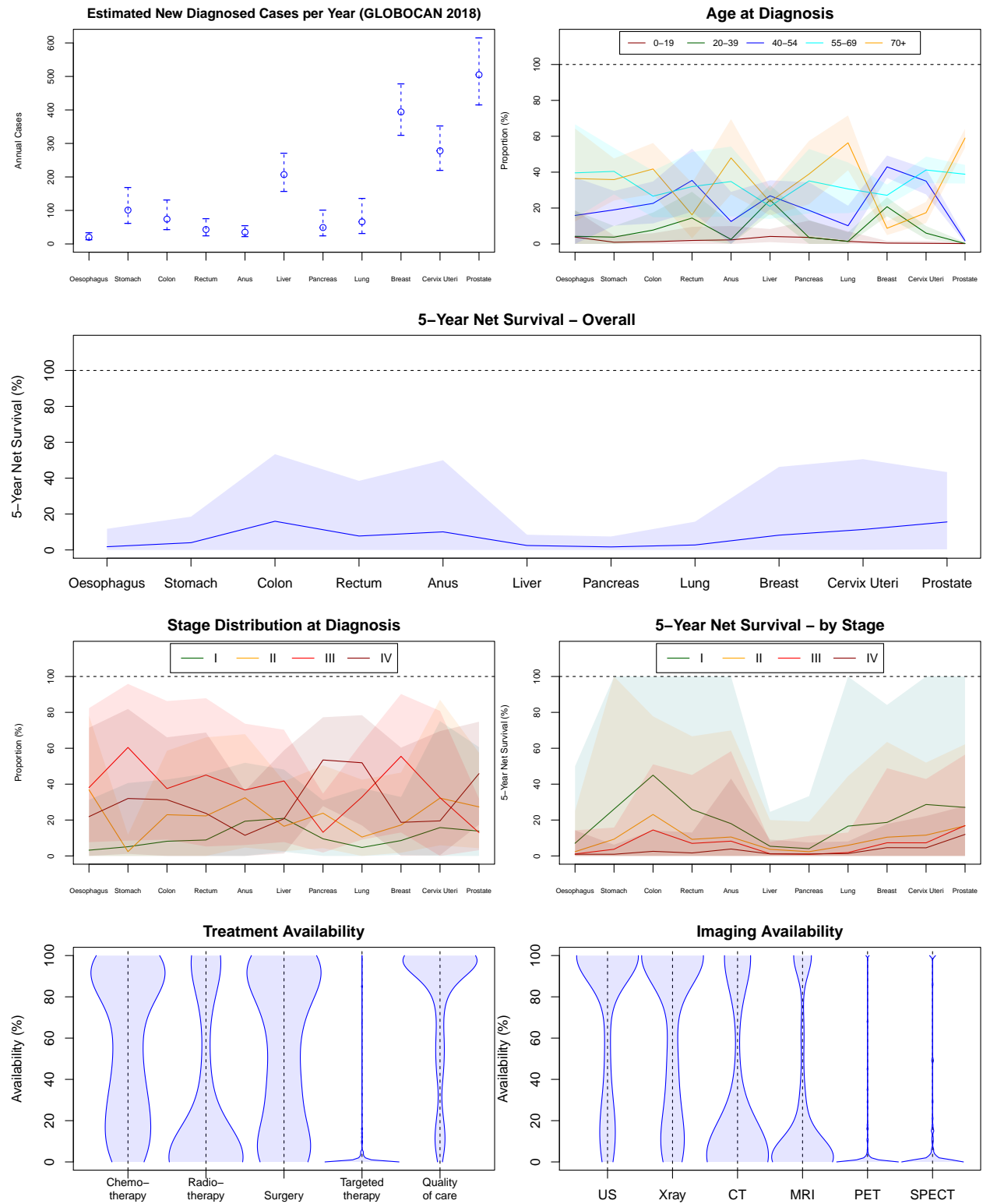
Comoros

ISO Code	Region	Area	Income Group
COM	Eastern Africa	Africa	Low income



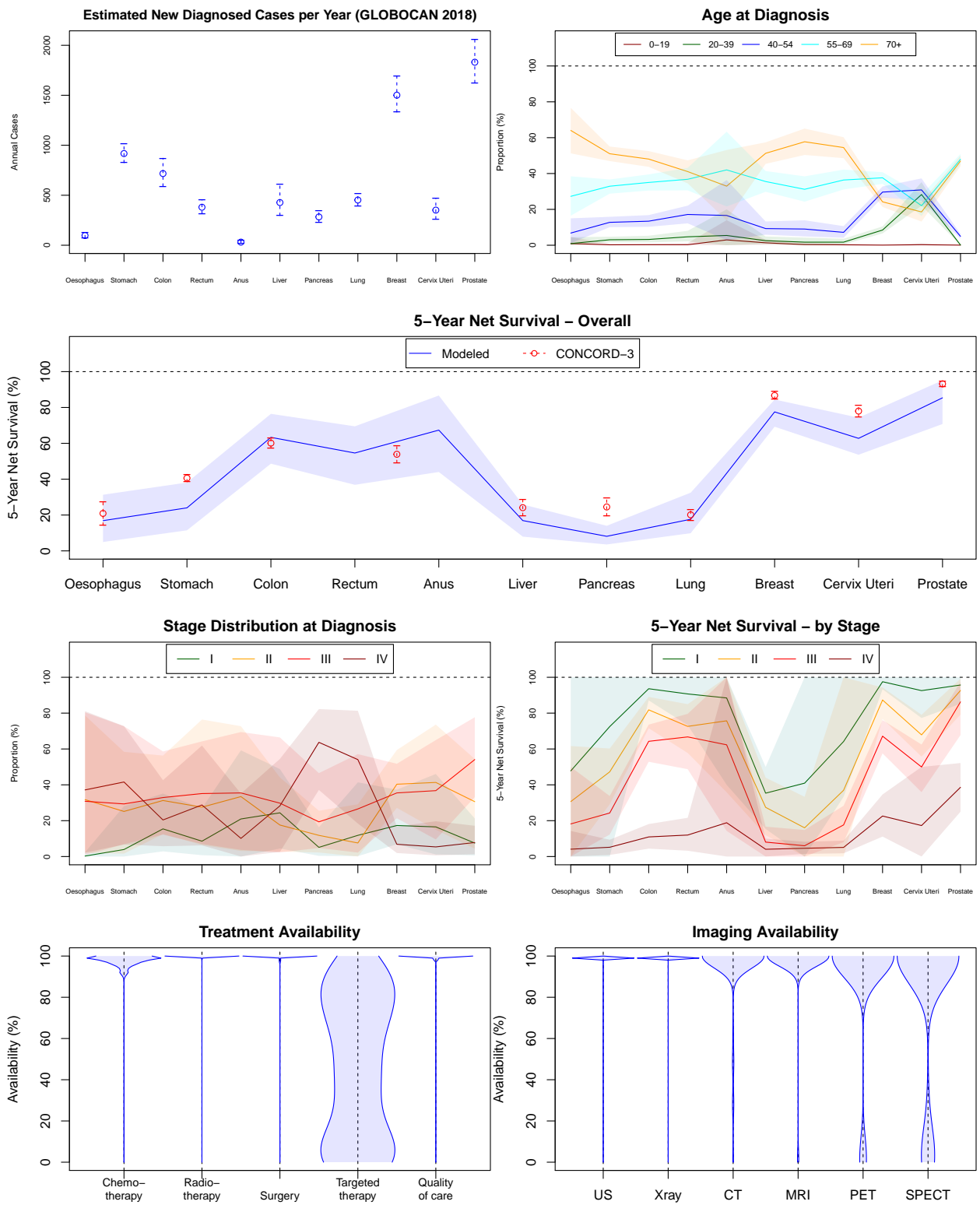
Congo

ISO Code	Region	Area	Income Group
COG	Middle Africa	Africa	Lower middle income



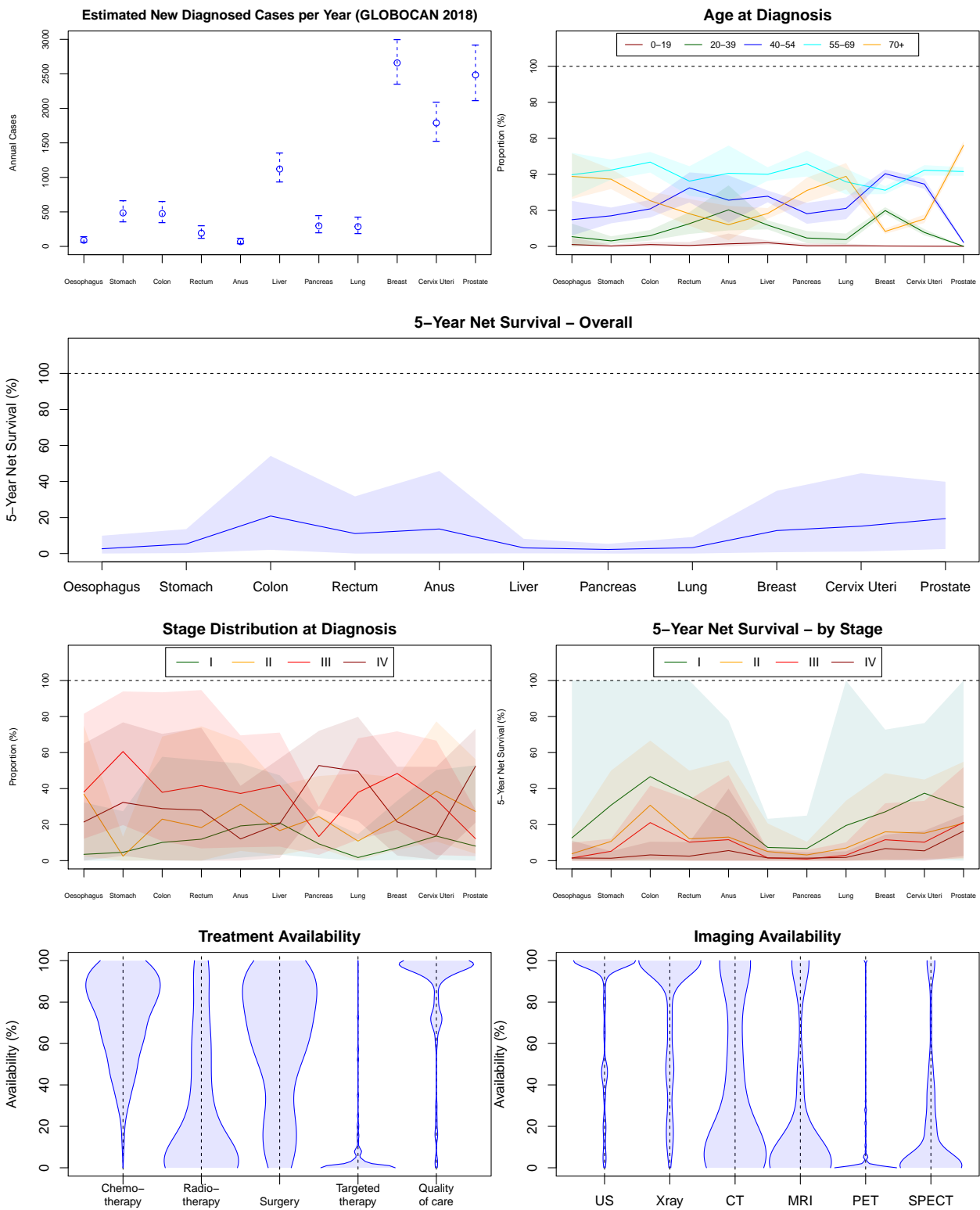
Costa Rica

ISO Code	Region	Area	Income Group
CRI	Central America	Latin America and the Caribbean	Upper middle income



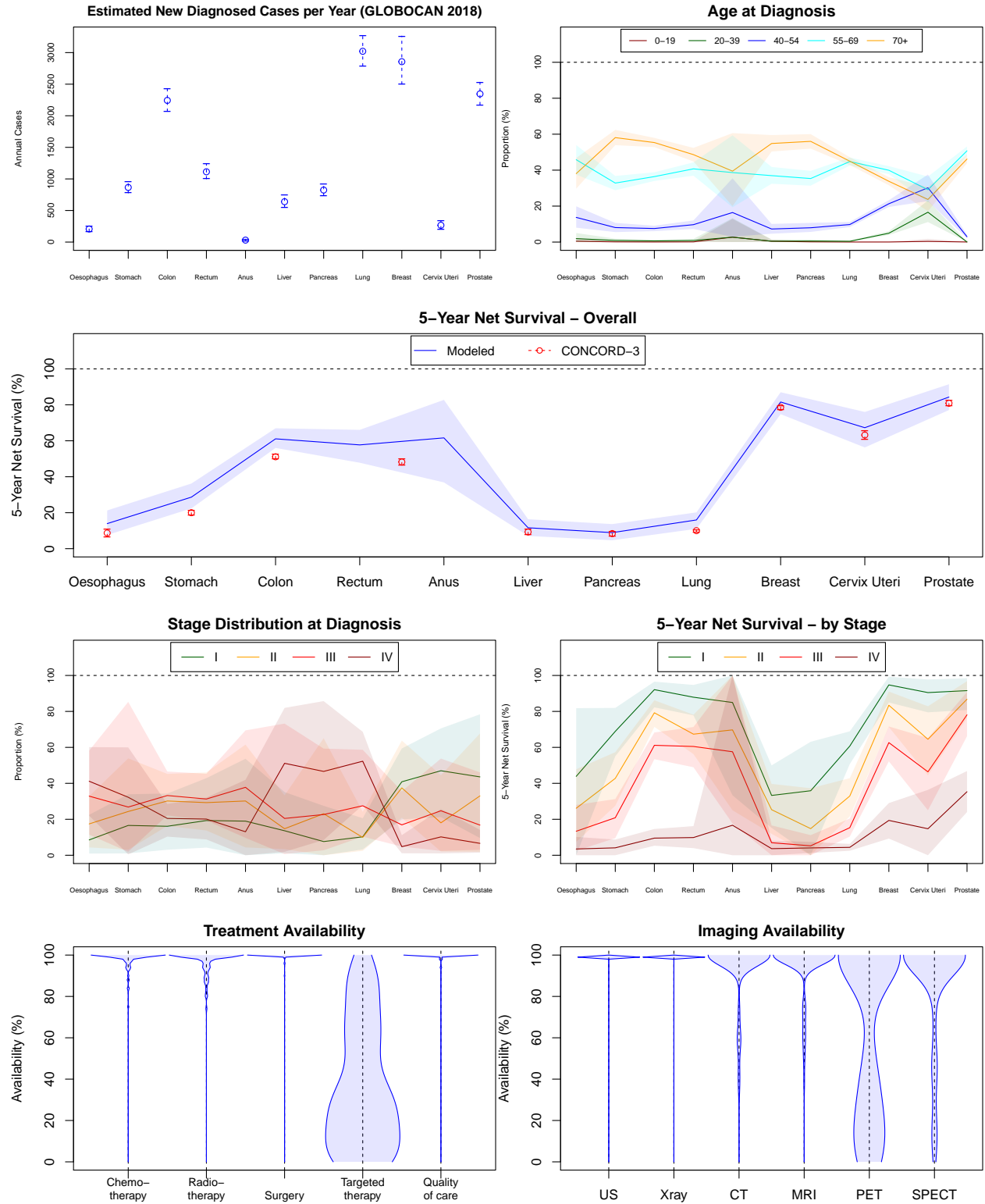
Côte d'Ivoire

ISO Code	Region	Area	Income Group
CIV	Western Africa	Africa	Lower middle income



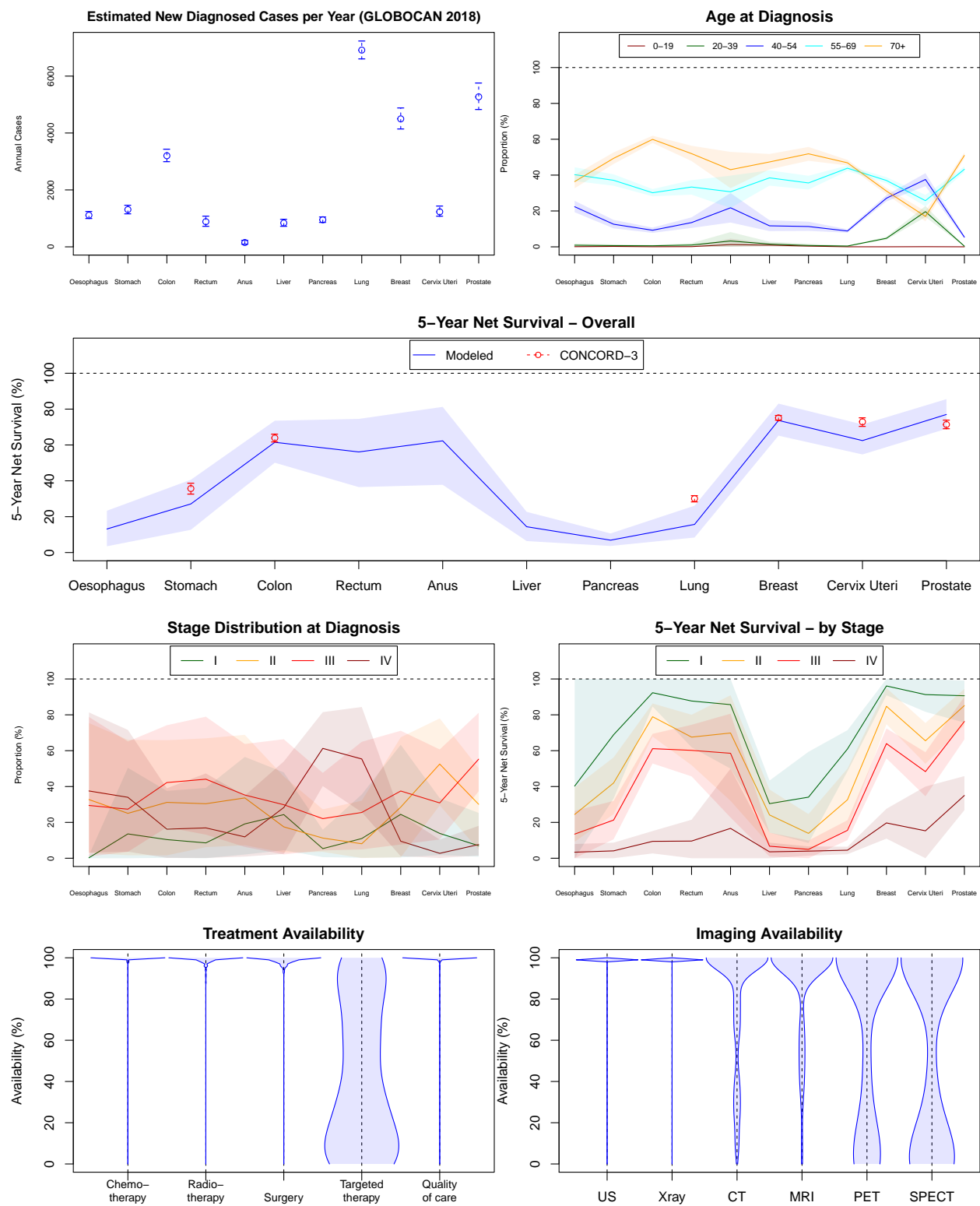
Croatia

ISO Code	Region	Area	Income Group
HRV	Southern Europe	Europe	High income



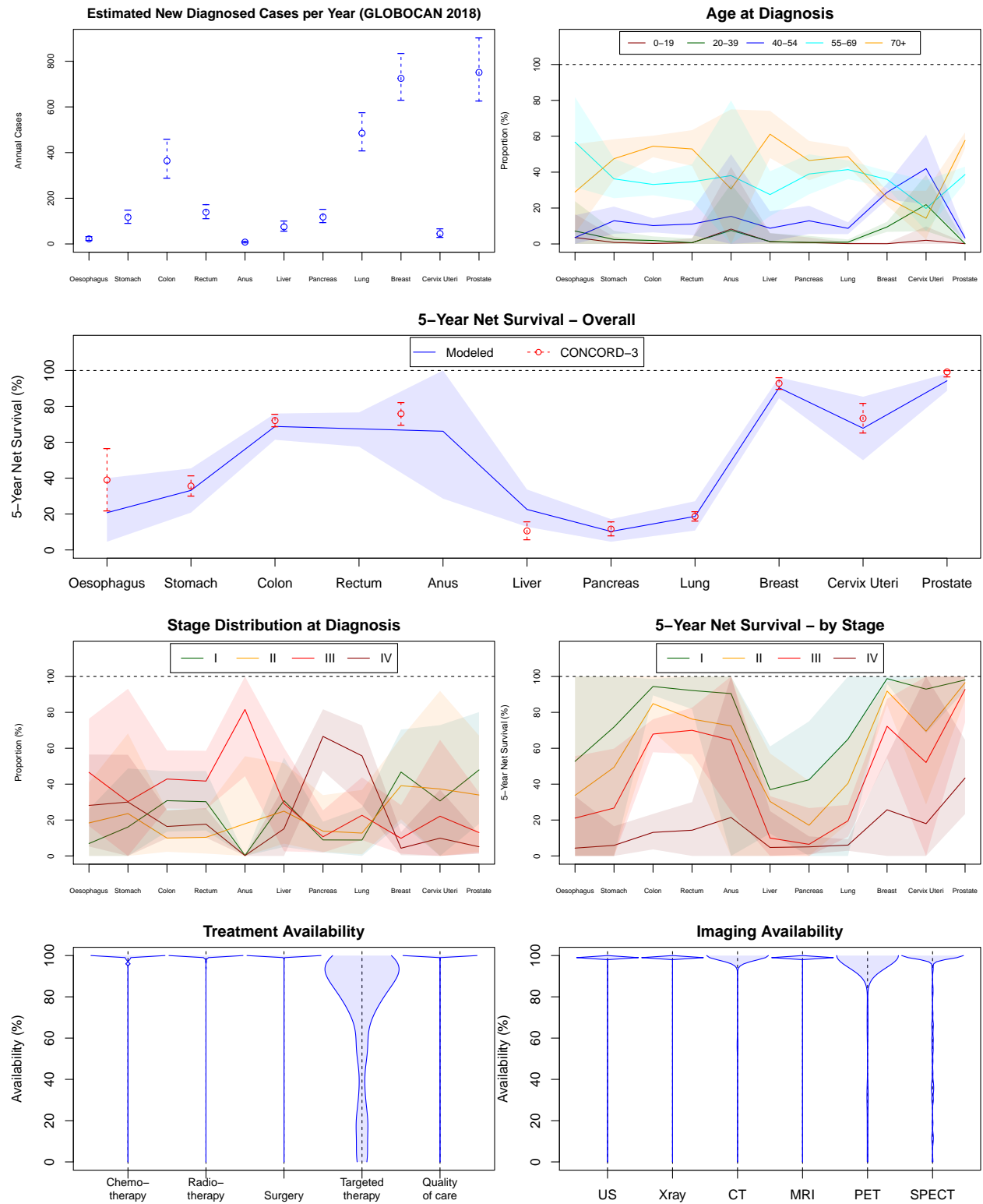
Cuba

ISO Code	Region	Area	Income Group
CUB	Caribbean	Latin America and the Caribbean	Upper middle income



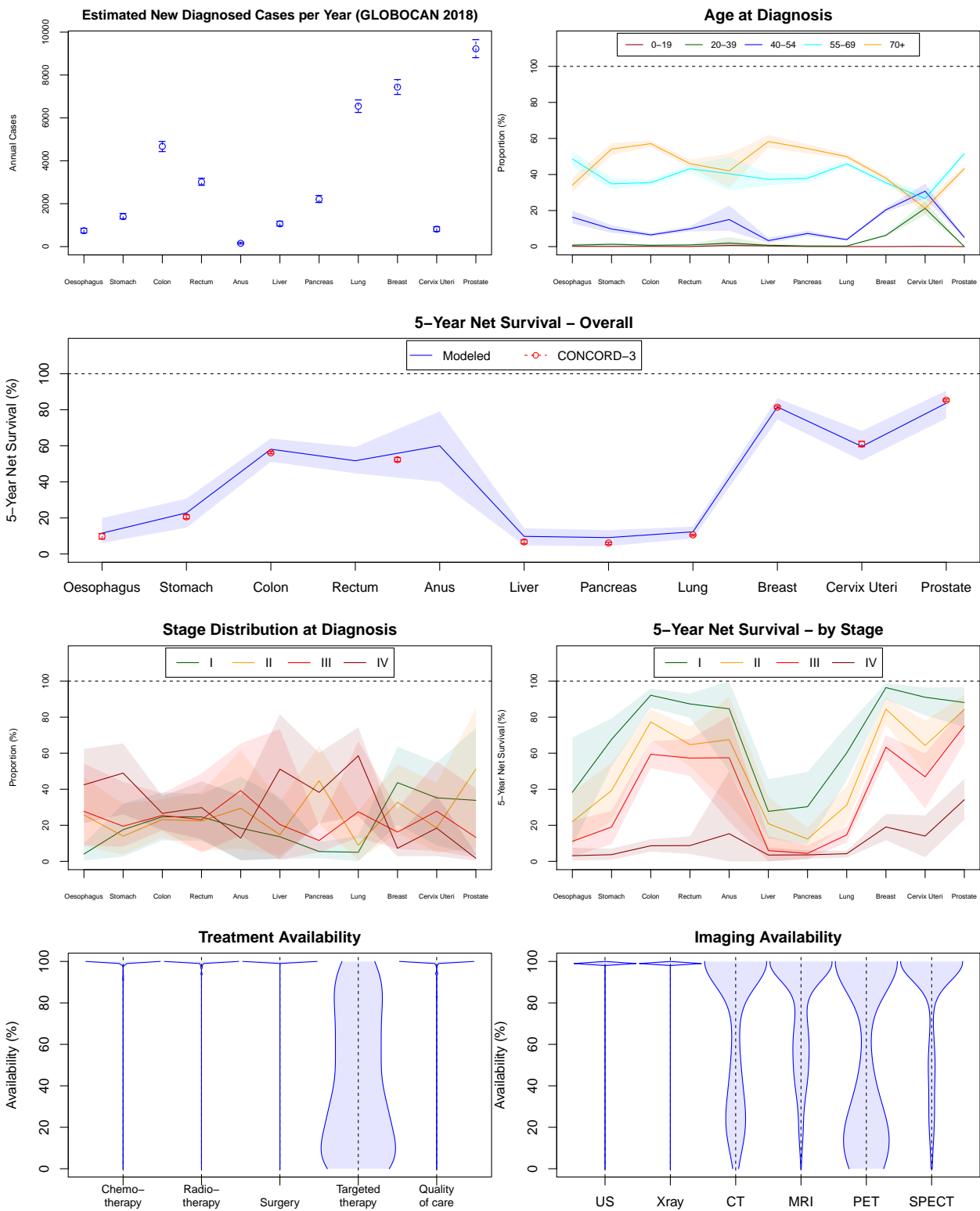
Cyprus

ISO Code	Region	Area	Income Group
CYP	Western Asia	Asia	High income



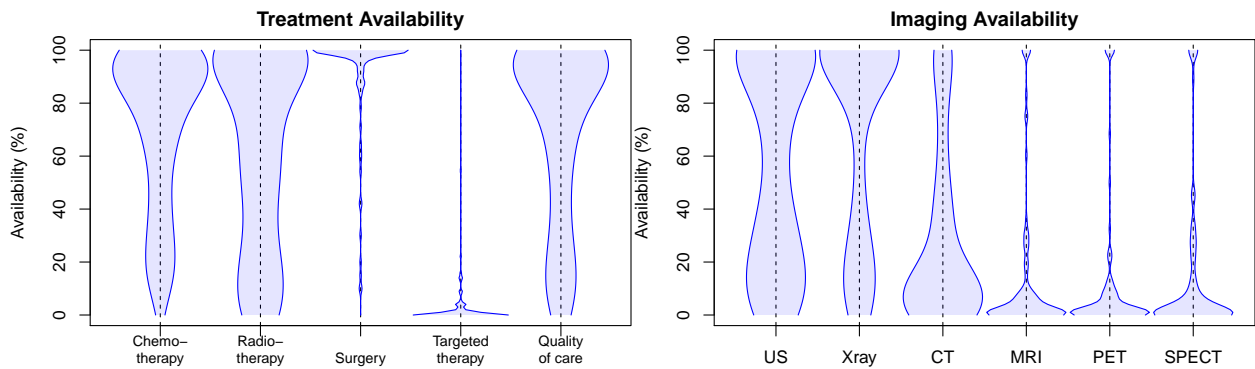
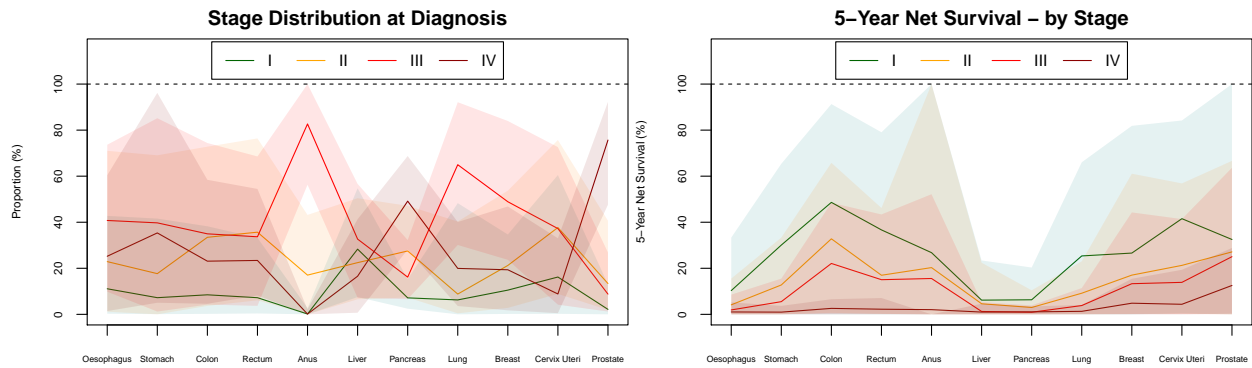
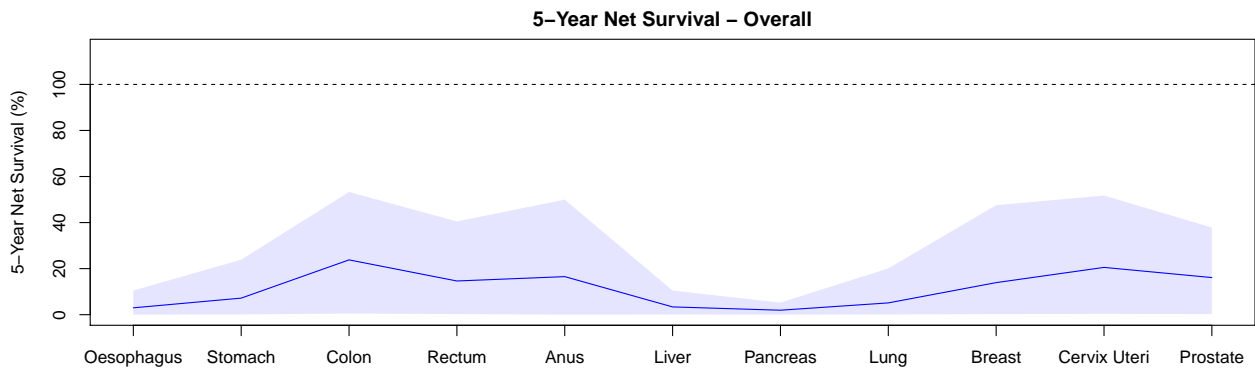
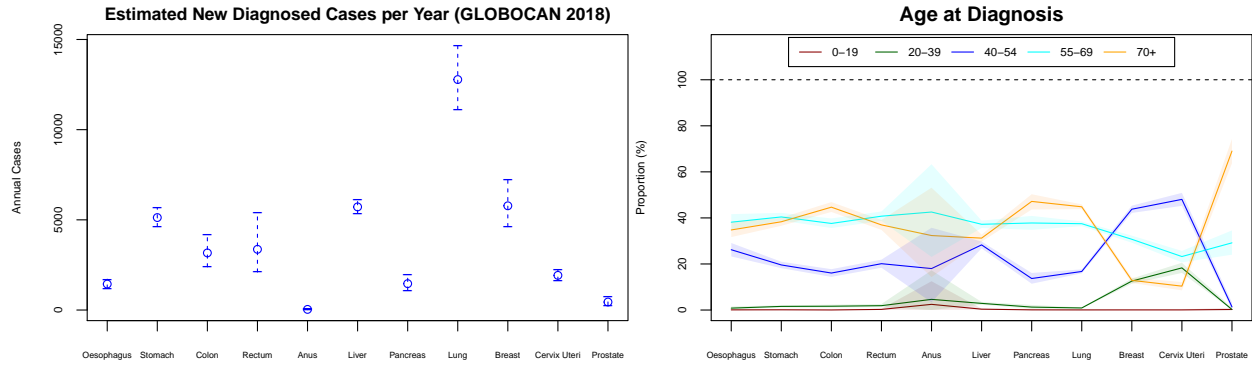
Czechia

ISO Code	Region	Area	Income Group
CZE	Eastern Europe	Europe	High income



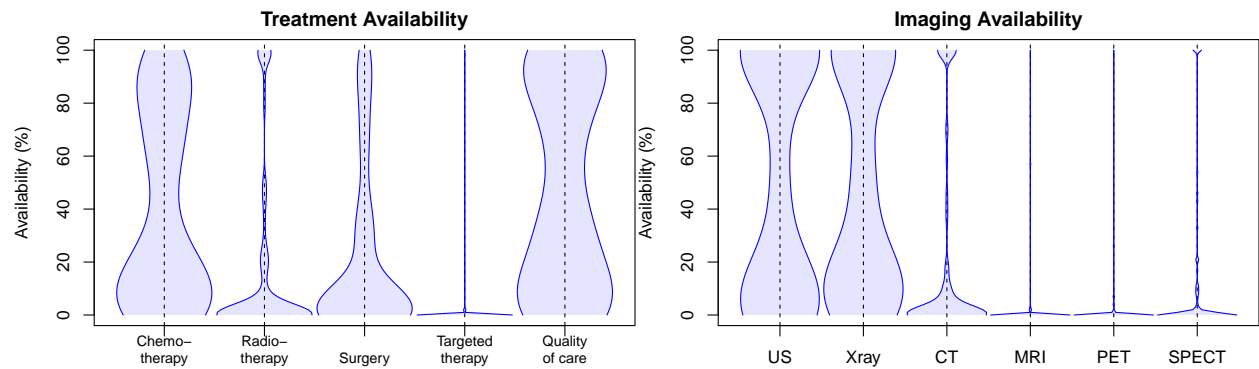
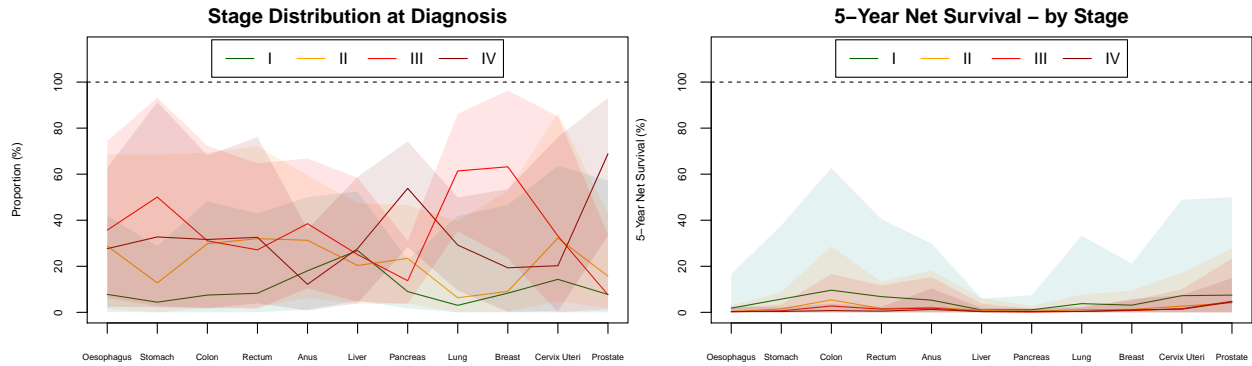
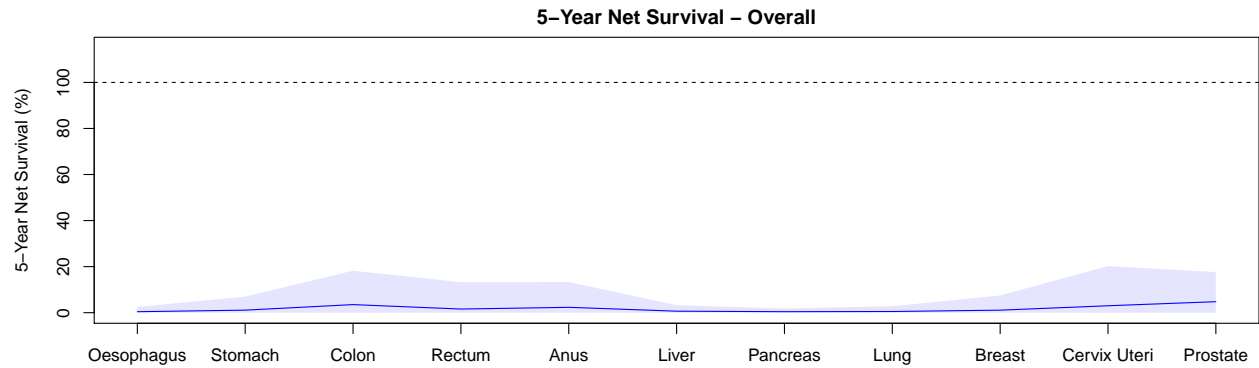
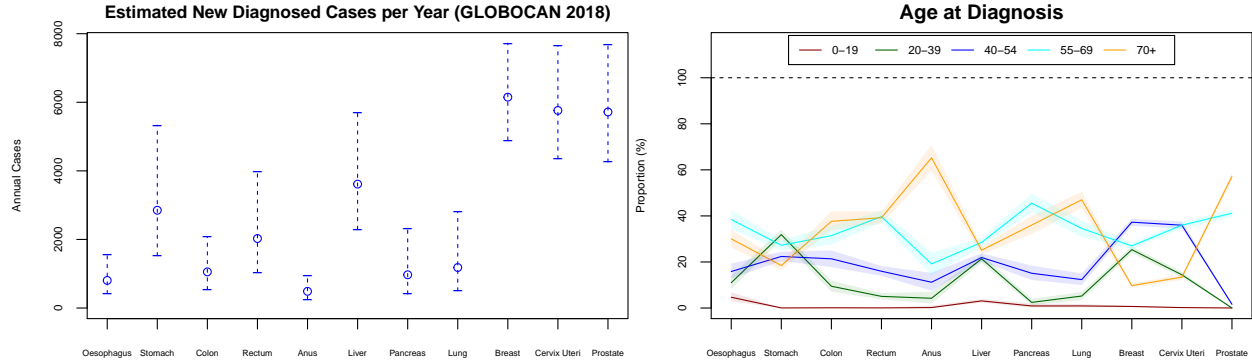
Dem. People's Republic of Korea

ISO Code	Region	Area	Income Group
PRK	Eastern Asia	Asia	Low income



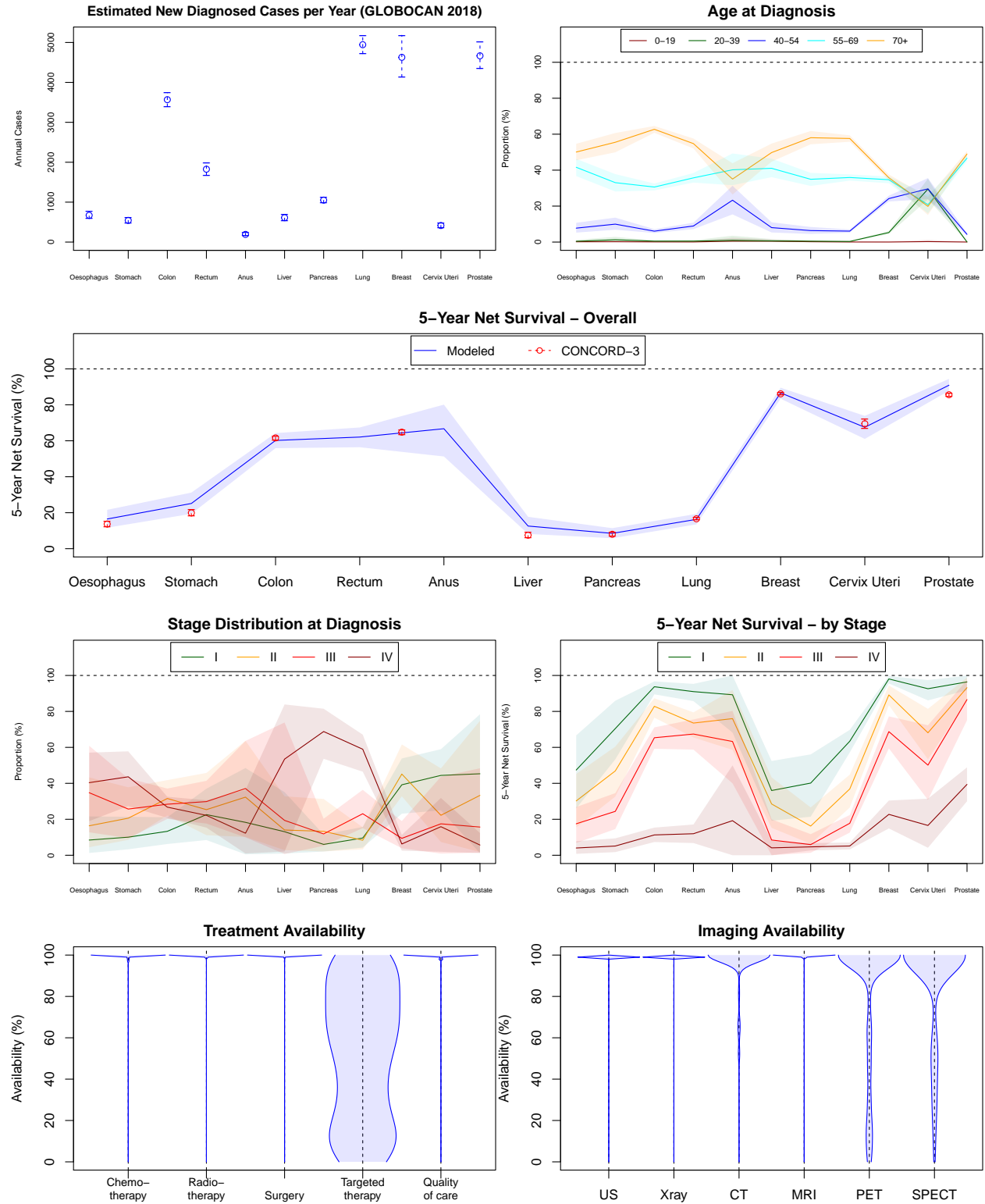
Democratic Republic of the Congo

ISO Code	Region	Area	Income Group
COD	Middle Africa	Africa	Low income



Denmark

ISO Code	Region	Area	Income Group
DNK	Northern Europe	Europe	High income



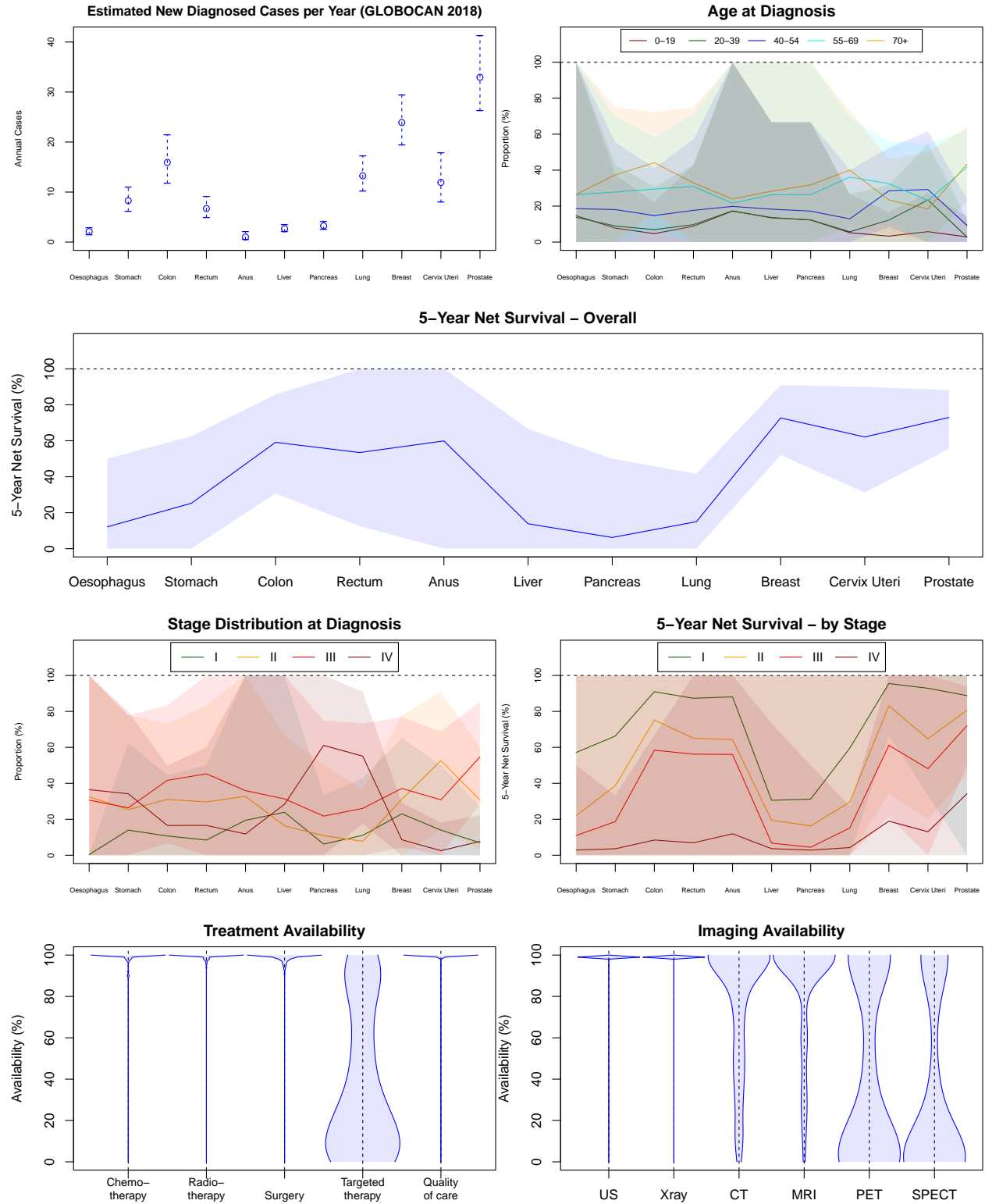
Djibouti

ISO Code	Region	Area	Income Group
DJI	Eastern Africa	Africa	Lower middle income



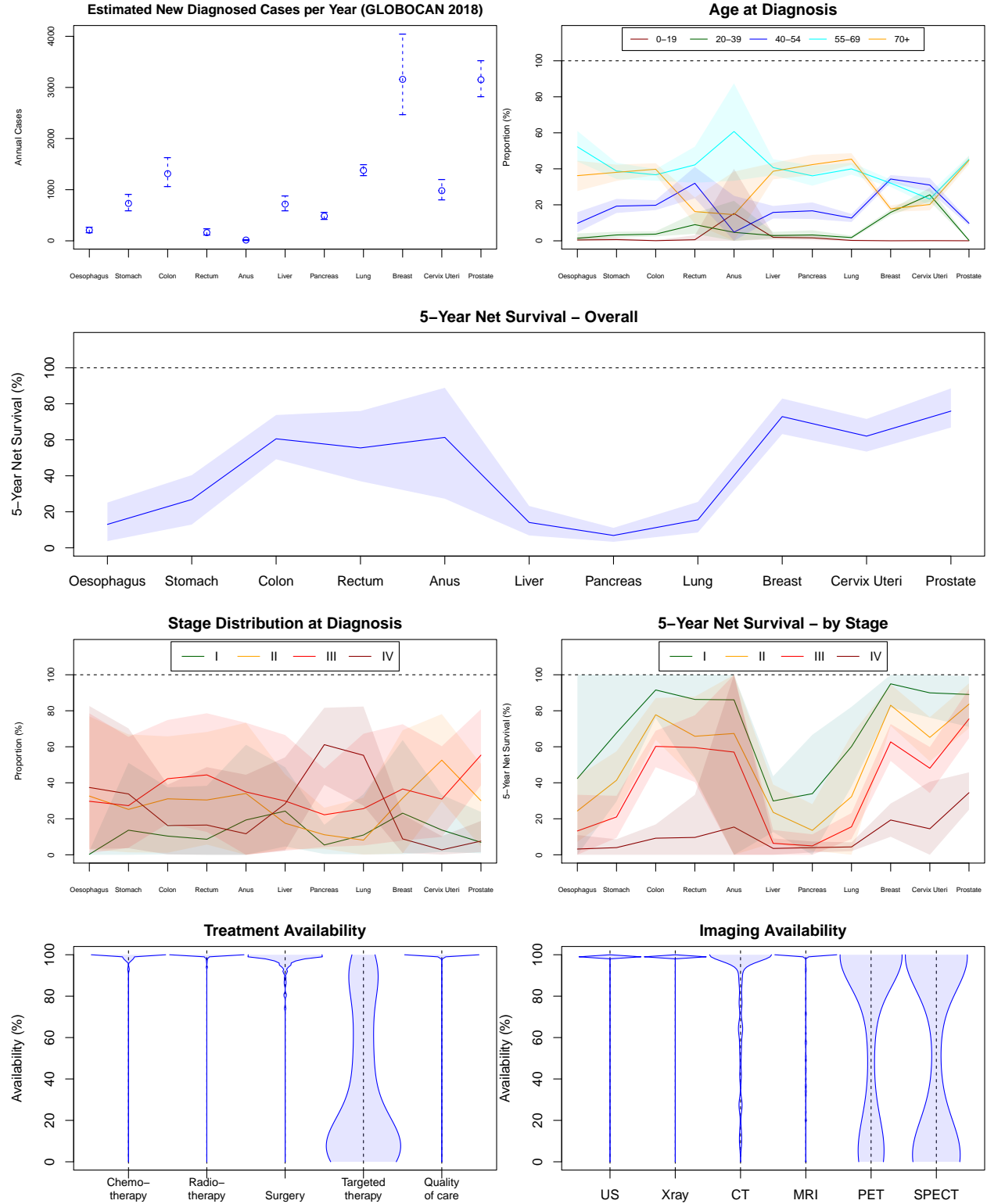
Dominica

ISO Code	Region	Area	Income Group
DMA	Caribbean	Latin America and the Caribbean	Upper middle income



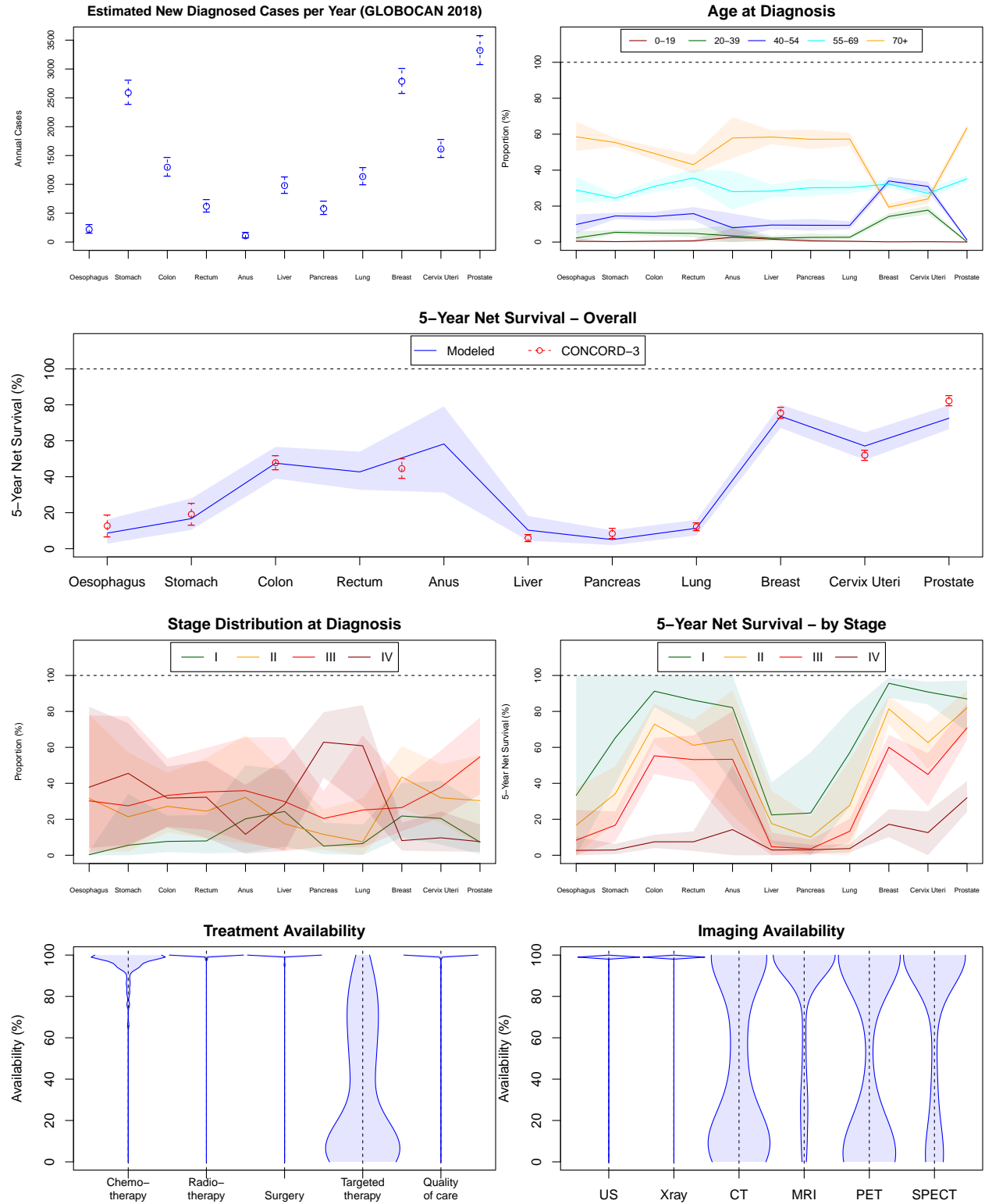
Dominican Republic

ISO Code	Region	Area	Income Group
DOM	Caribbean	Latin America and the Caribbean	Upper middle income



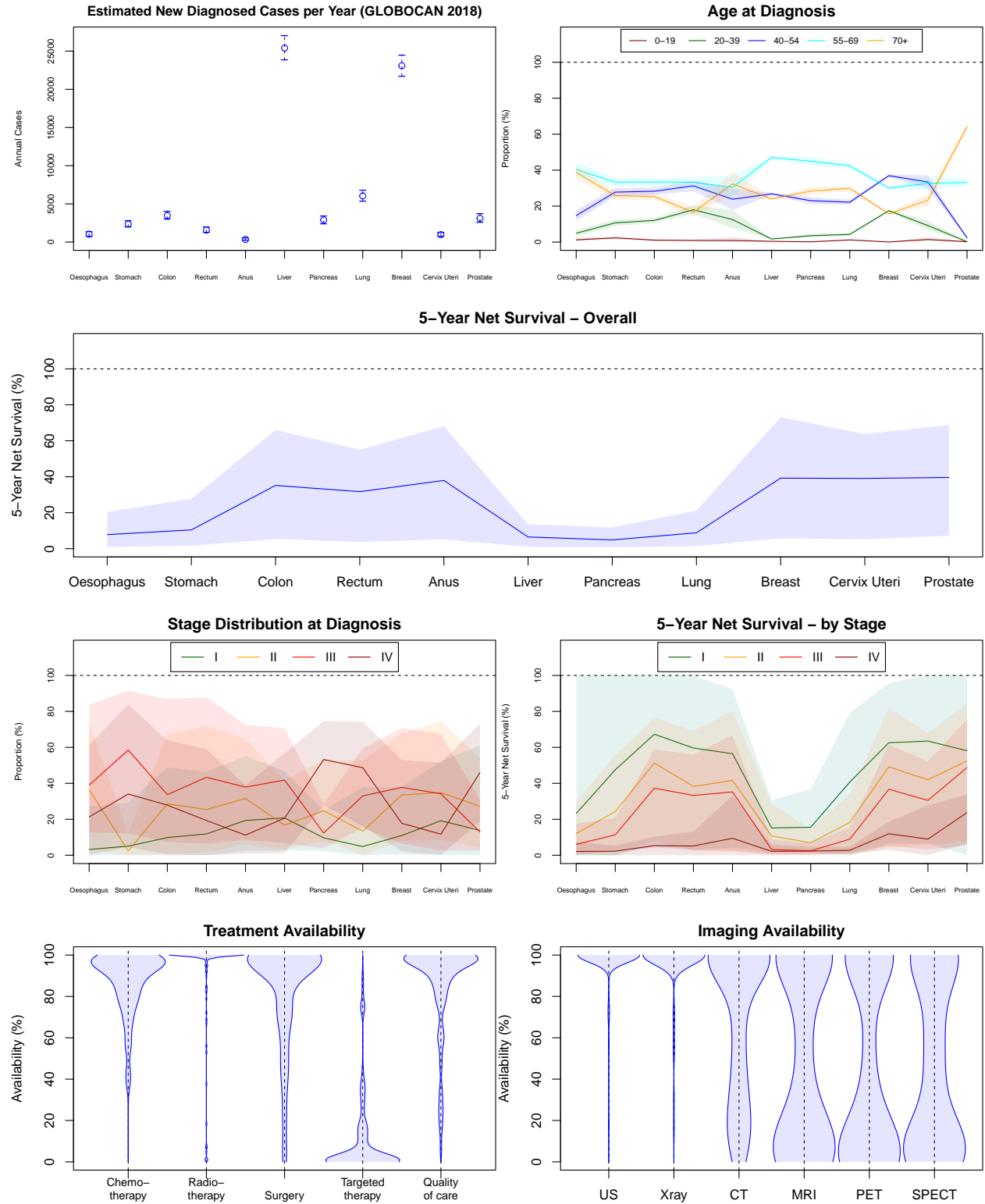
Ecuador

ISO Code	Region	Area	Income Group
ECU	South America	Latin America and the Caribbean	Upper middle income



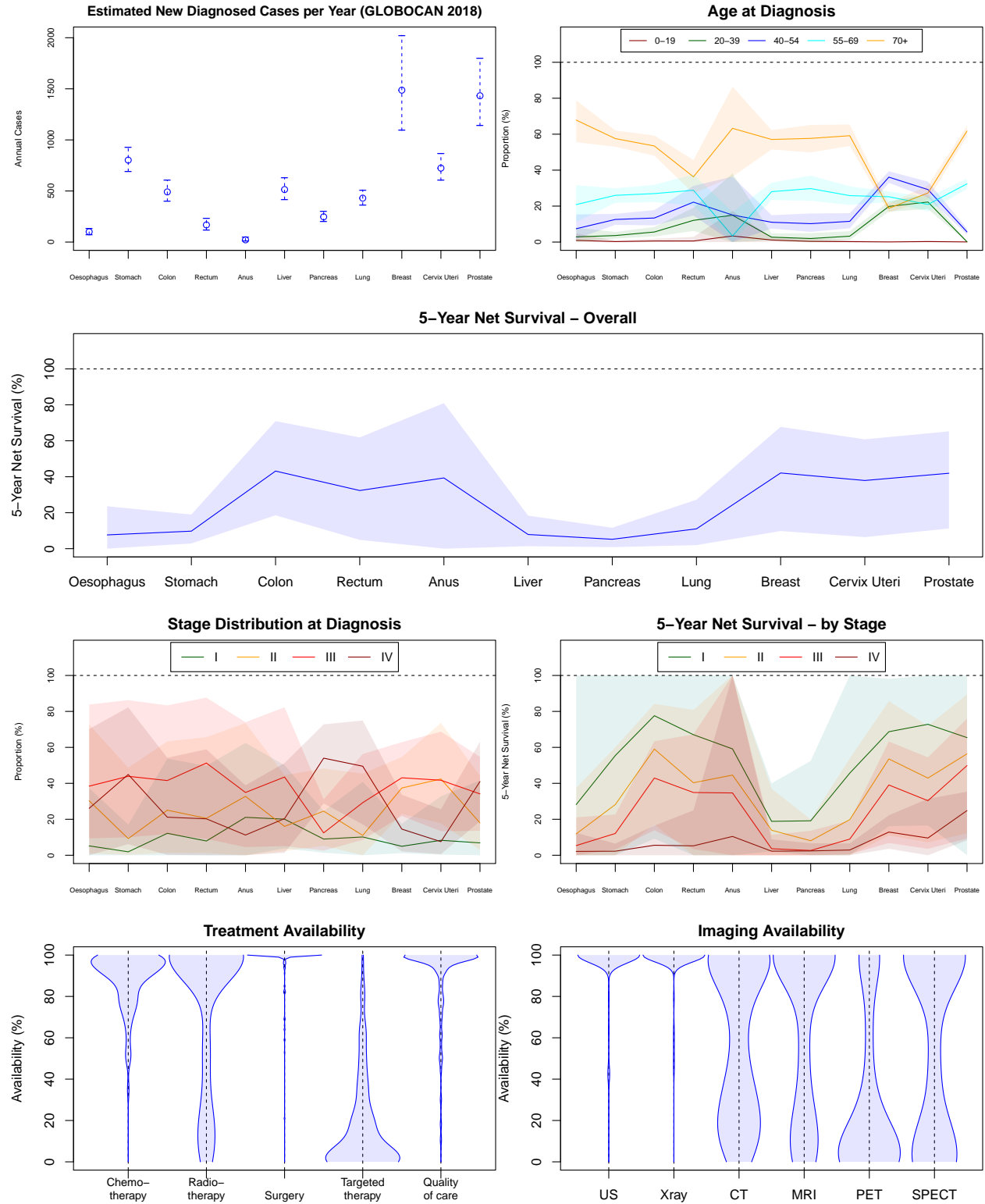
Egypt

ISO Code	Region	Area	Income Group
EGY	Northern Africa	Africa	Lower middle income



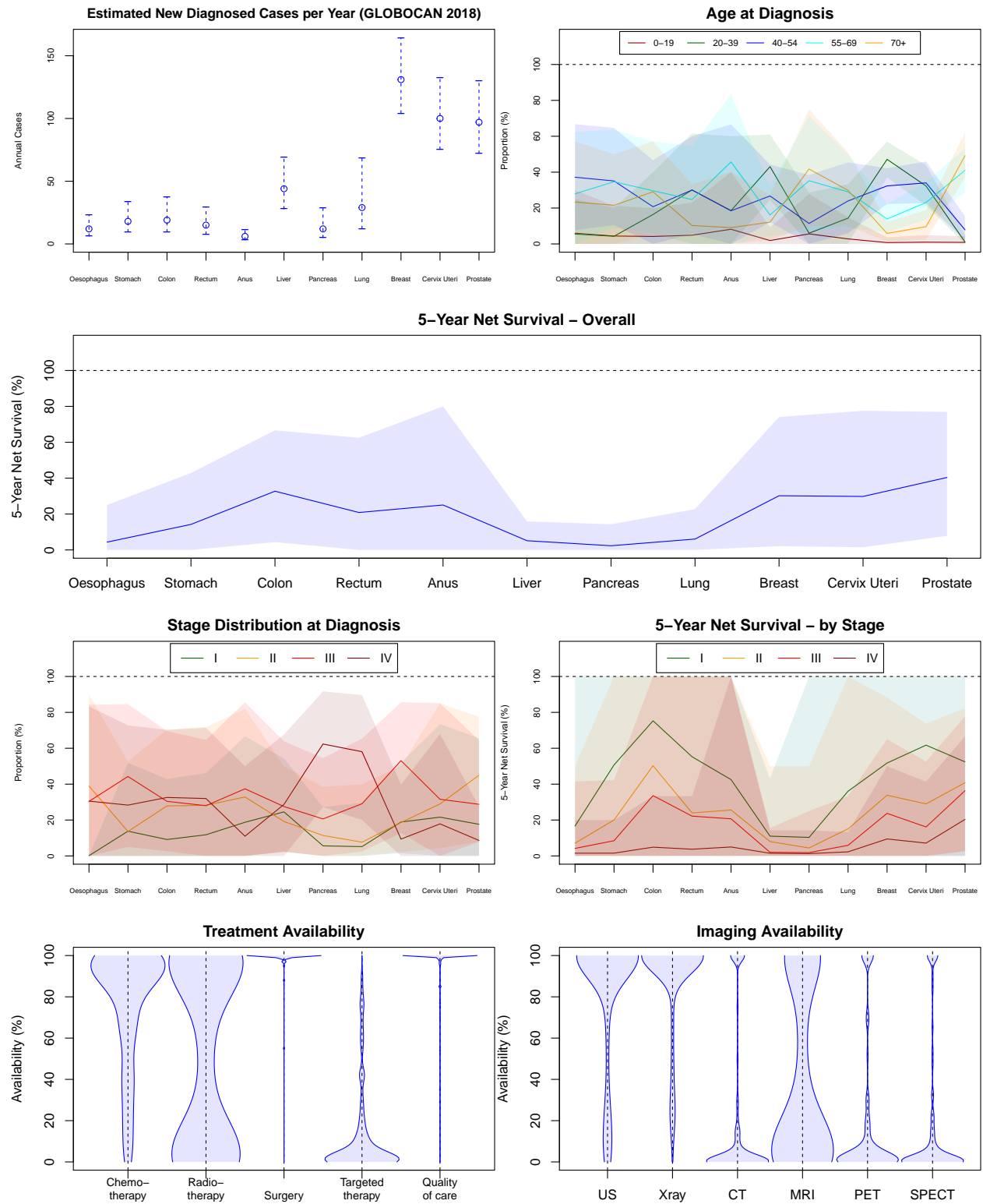
El Salvador

ISO Code	Region	Area	Income Group
SLV	Central America	Latin America and the Caribbean	Lower middle income



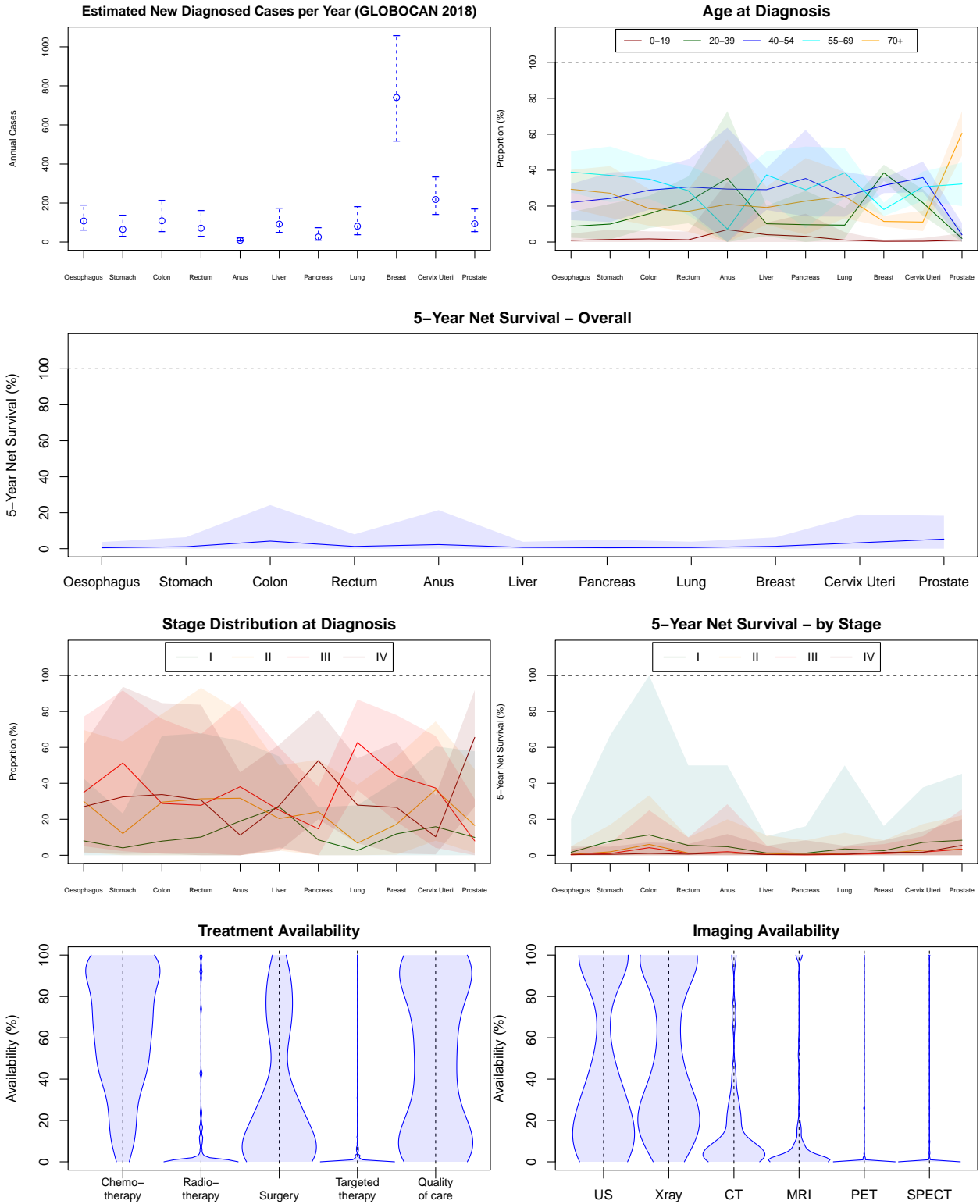
Equatorial Guinea

ISO Code	Region	Area	Income Group
GNQ	Middle Africa	Africa	Upper middle income



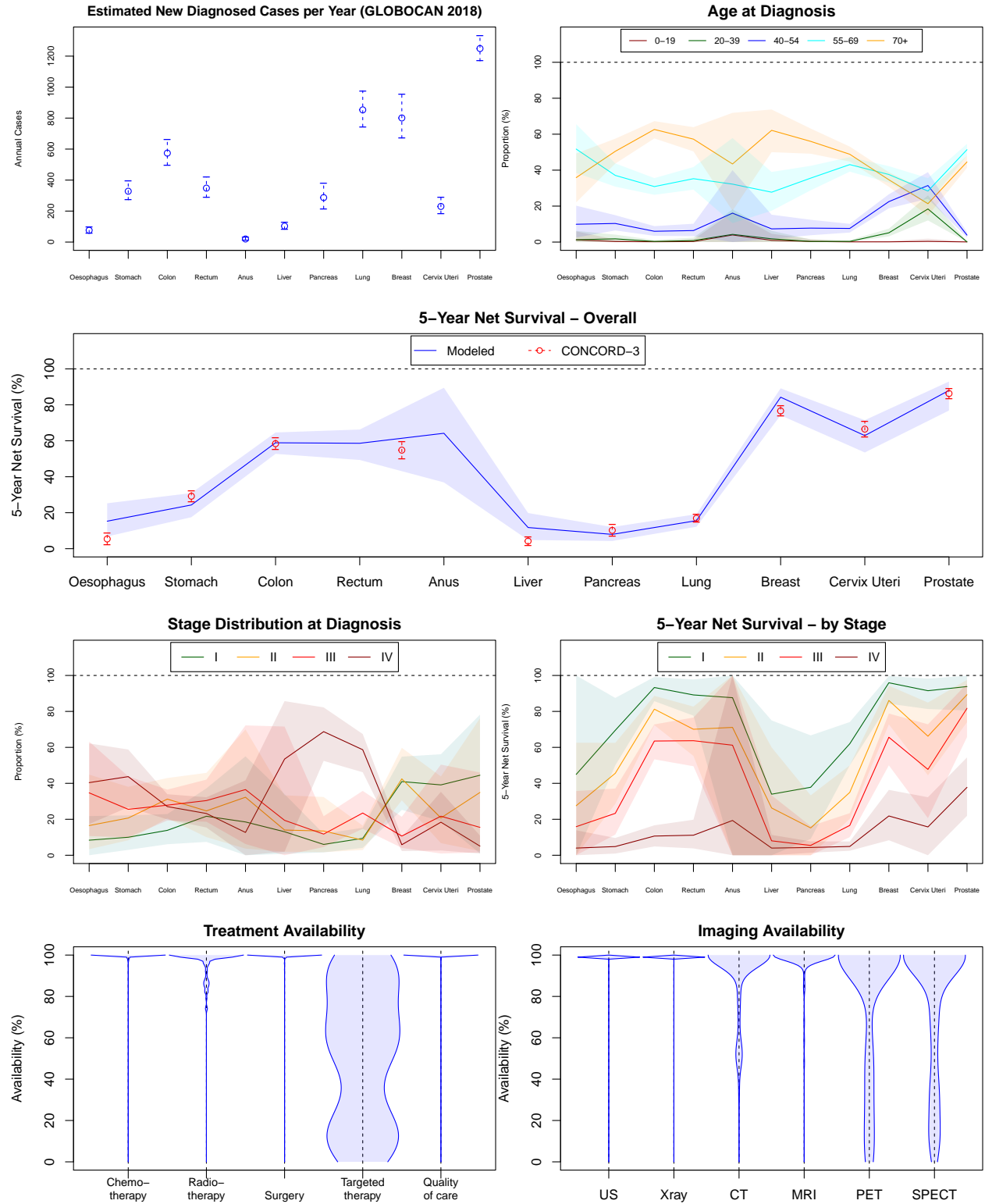
Eritrea

ISO Code	Region	Area	Income Group
ERI	Eastern Africa	Africa	Low income



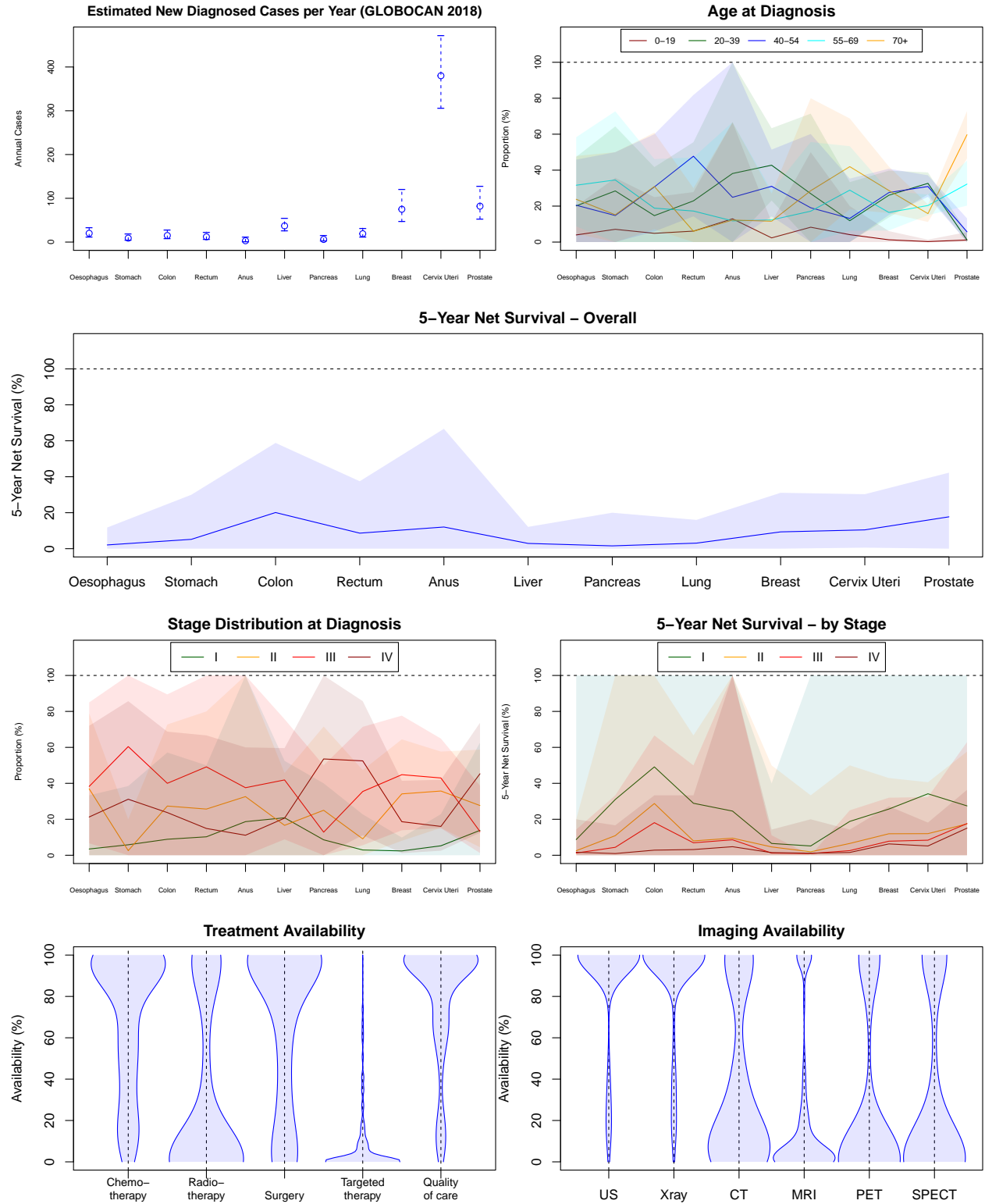
Estonia

ISO Code	Region	Area	Income Group
EST	Northern Europe	Europe	High income



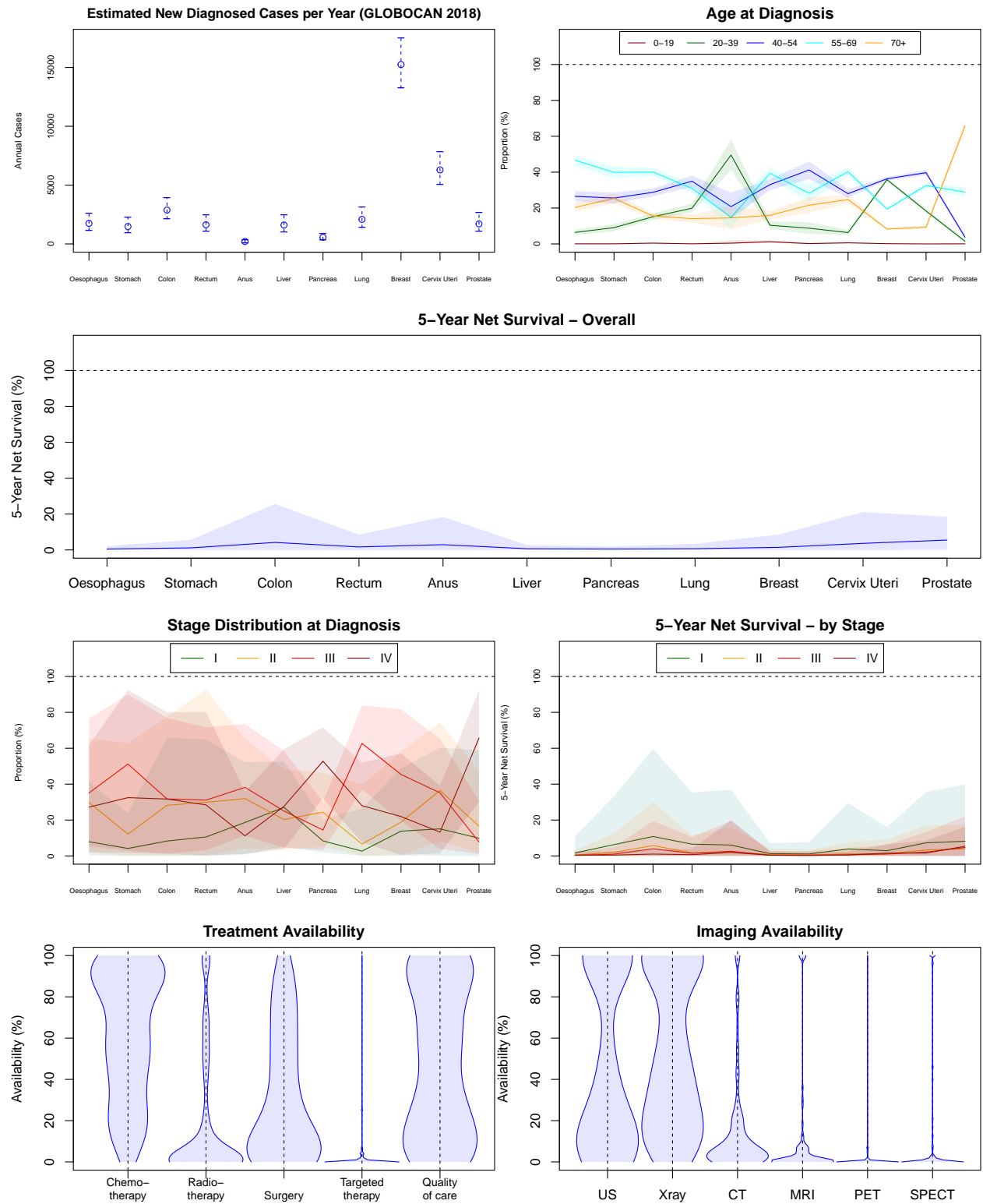
Eswatini

ISO Code	Region	Area	Income Group
SWZ	Southern Africa	Africa	Lower middle income



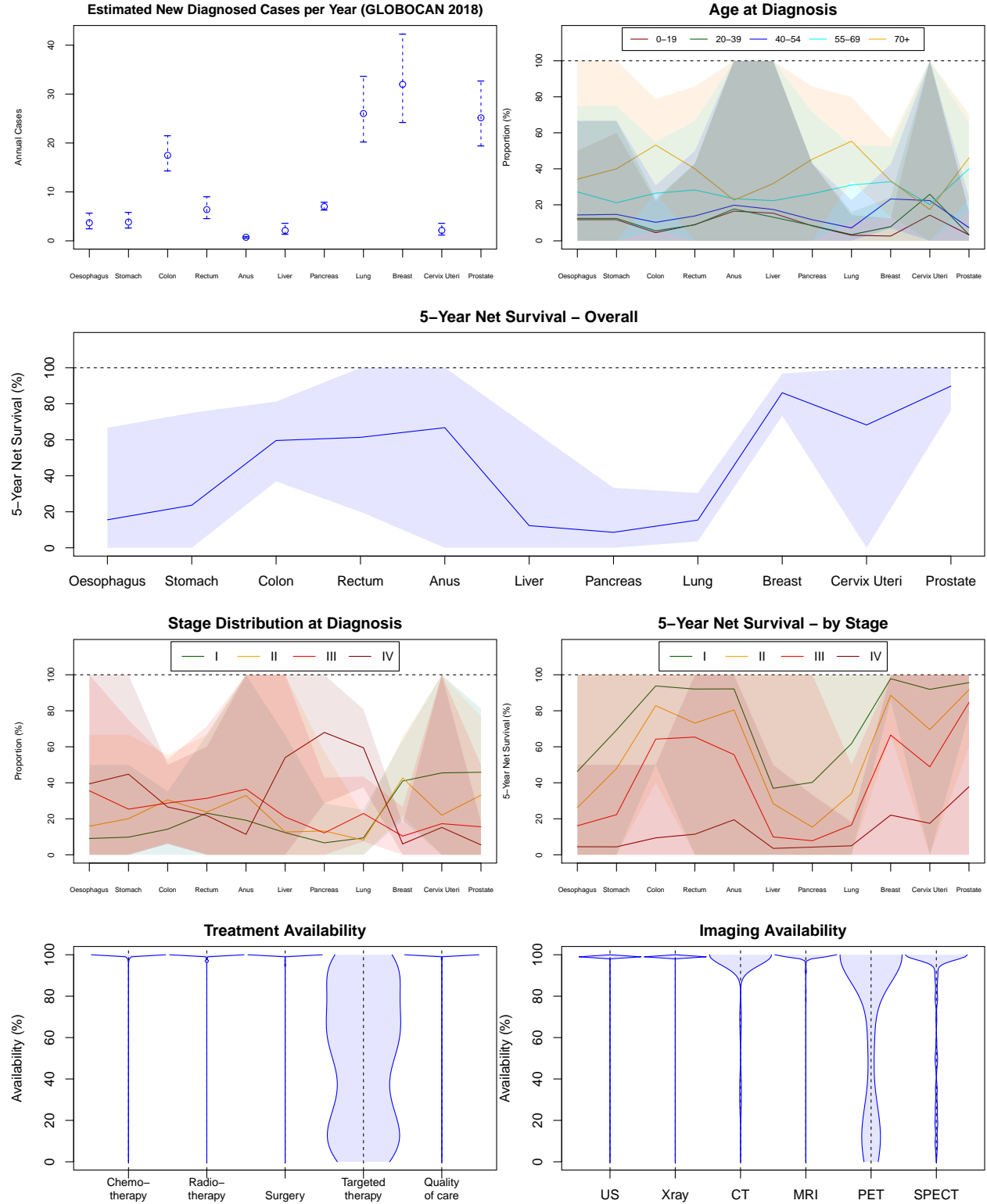
Ethiopia

ISO Code	Region	Area	Income Group
ETH	Eastern Africa	Africa	Low income



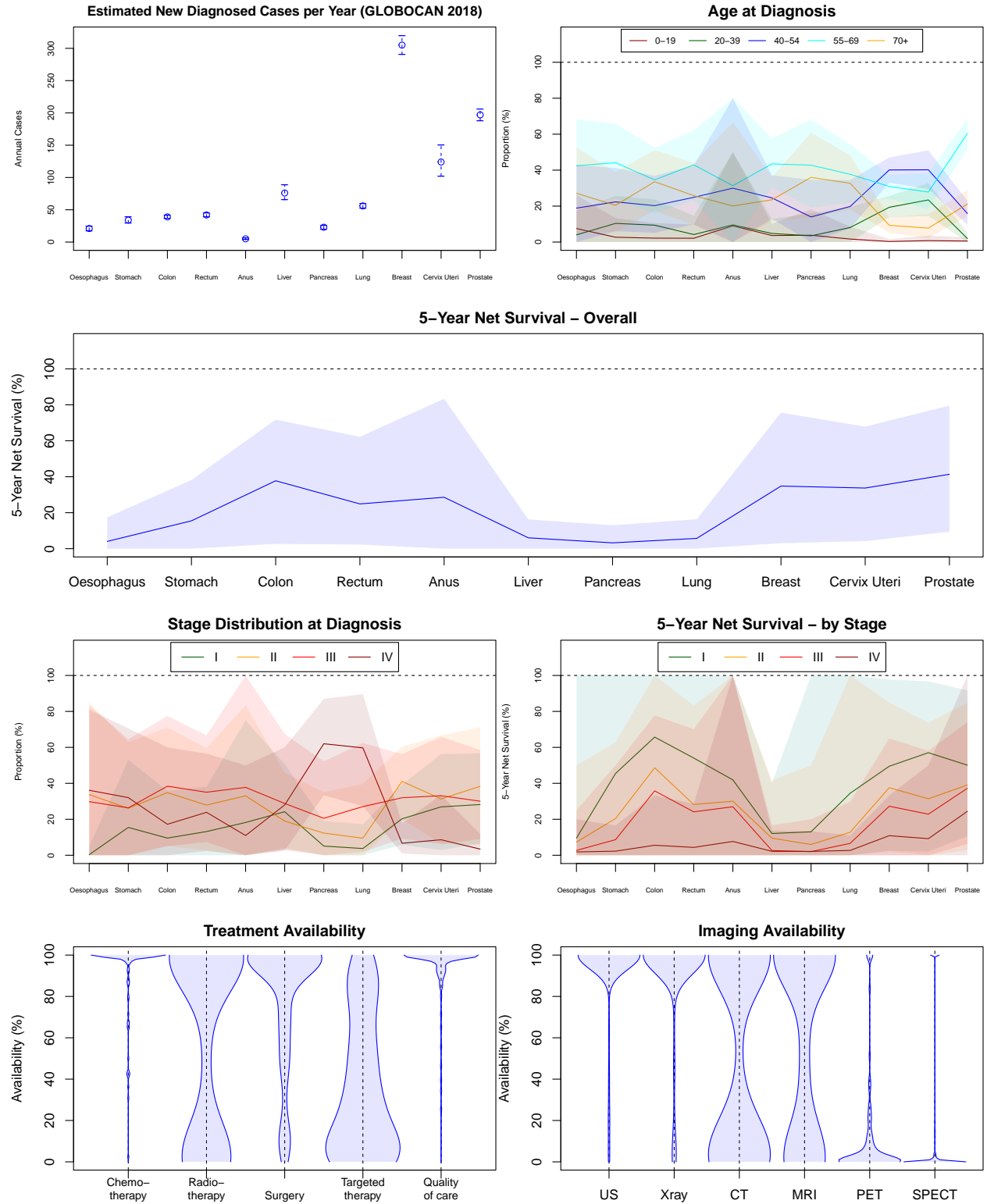
Faroe Islands

ISO Code	Region	Area	Income Group
FRO	Northern Europe	Europe	High income



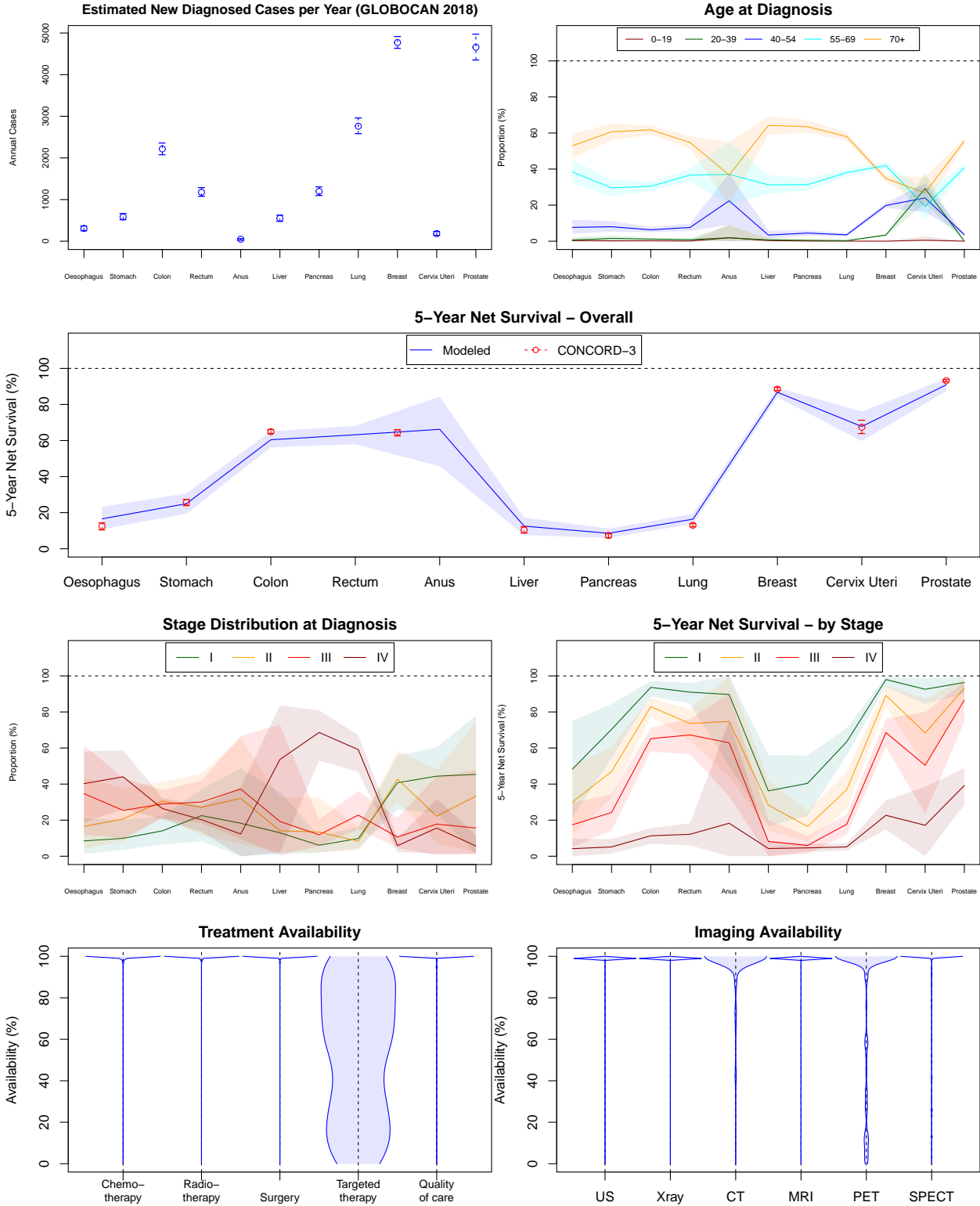
Fiji

ISO Code	Region	Area	Income Group
FJI	Melanesia	Oceania	Upper middle income



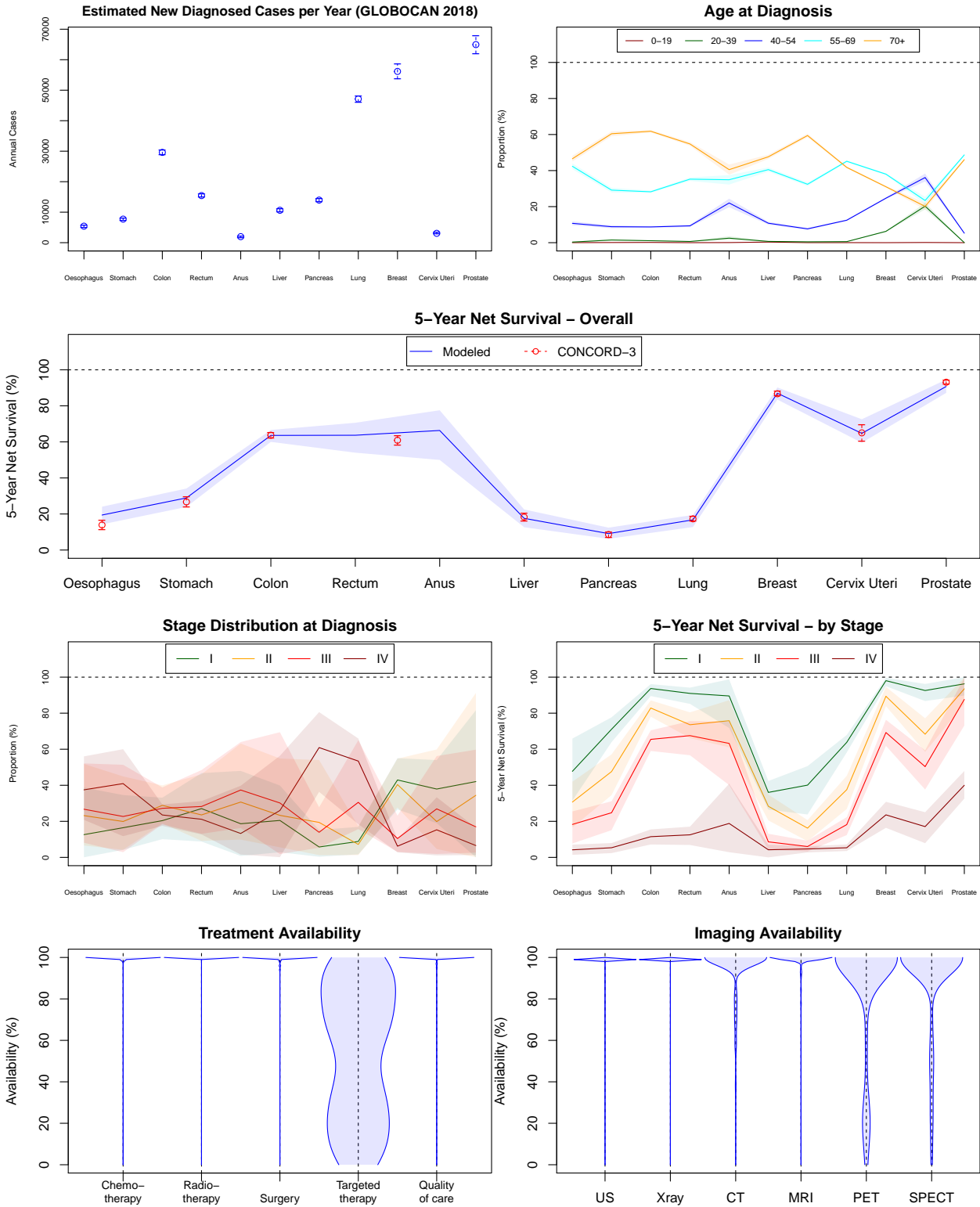
Finland

ISO Code	Region	Area	Income Group
FIN	Northern Europe	Europe	High income



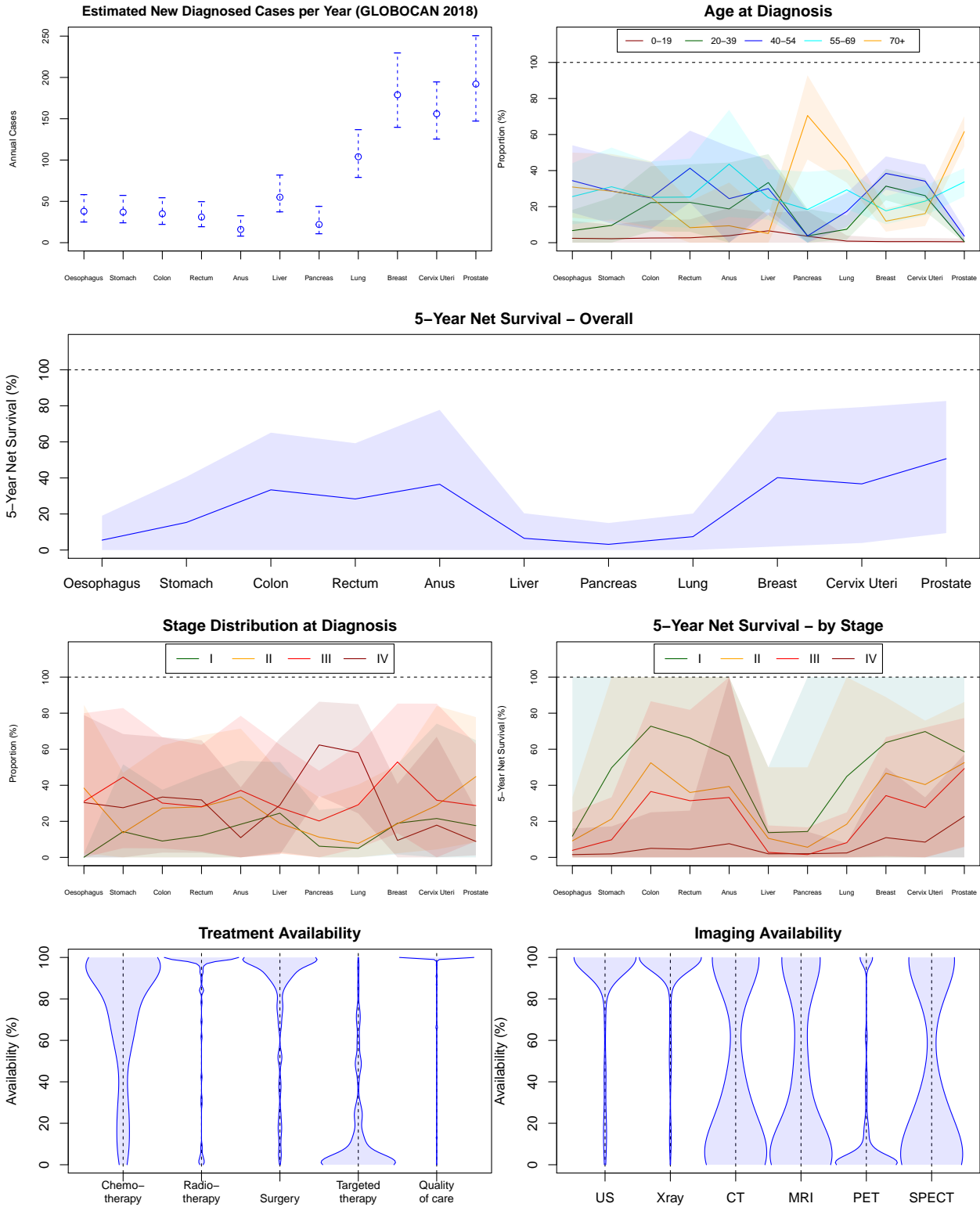
France

ISO Code	Region	Area	Income Group
FRA	Western Europe	Europe	High income



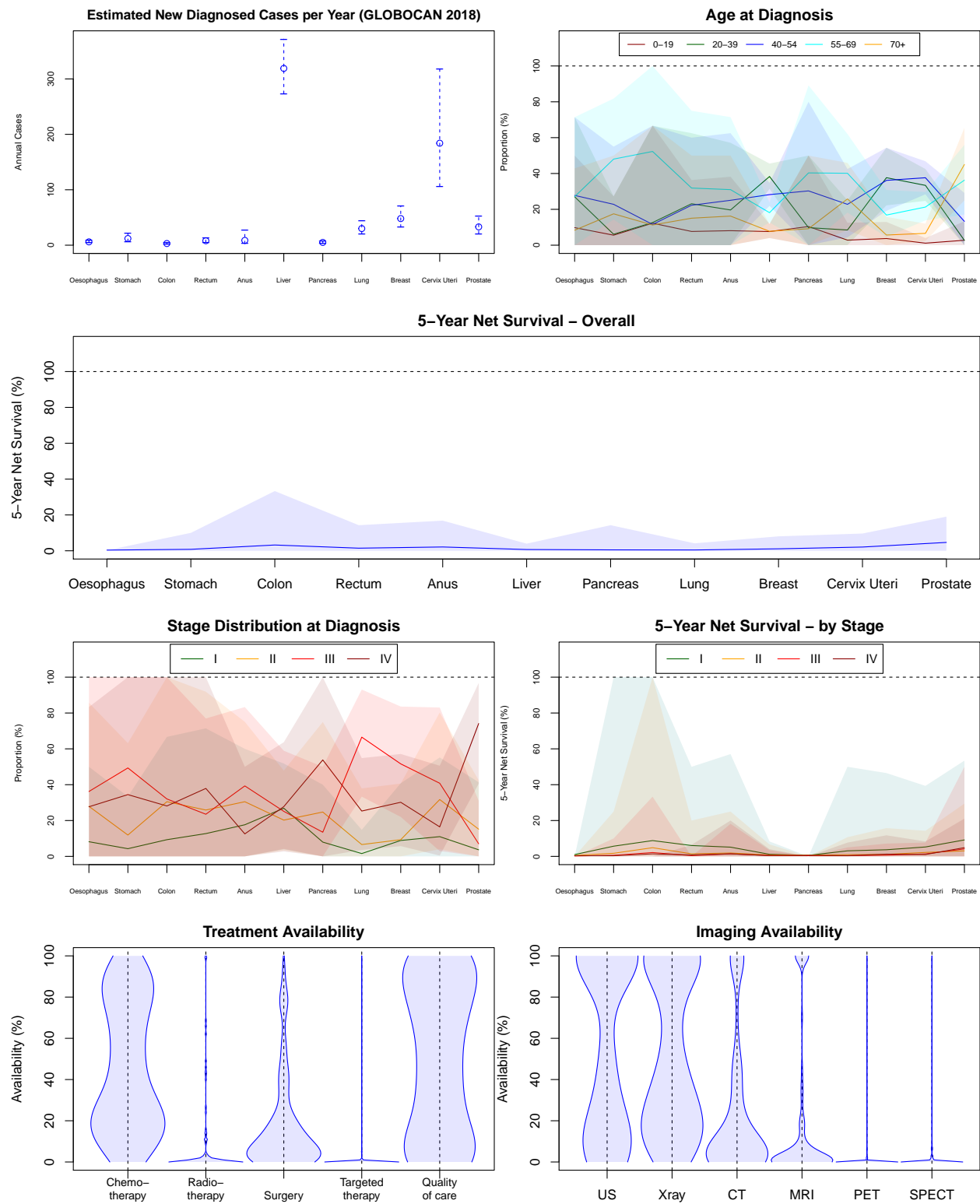
Gabon

ISO Code	Region	Area	Income Group
GAB	Middle Africa	Africa	Upper middle income



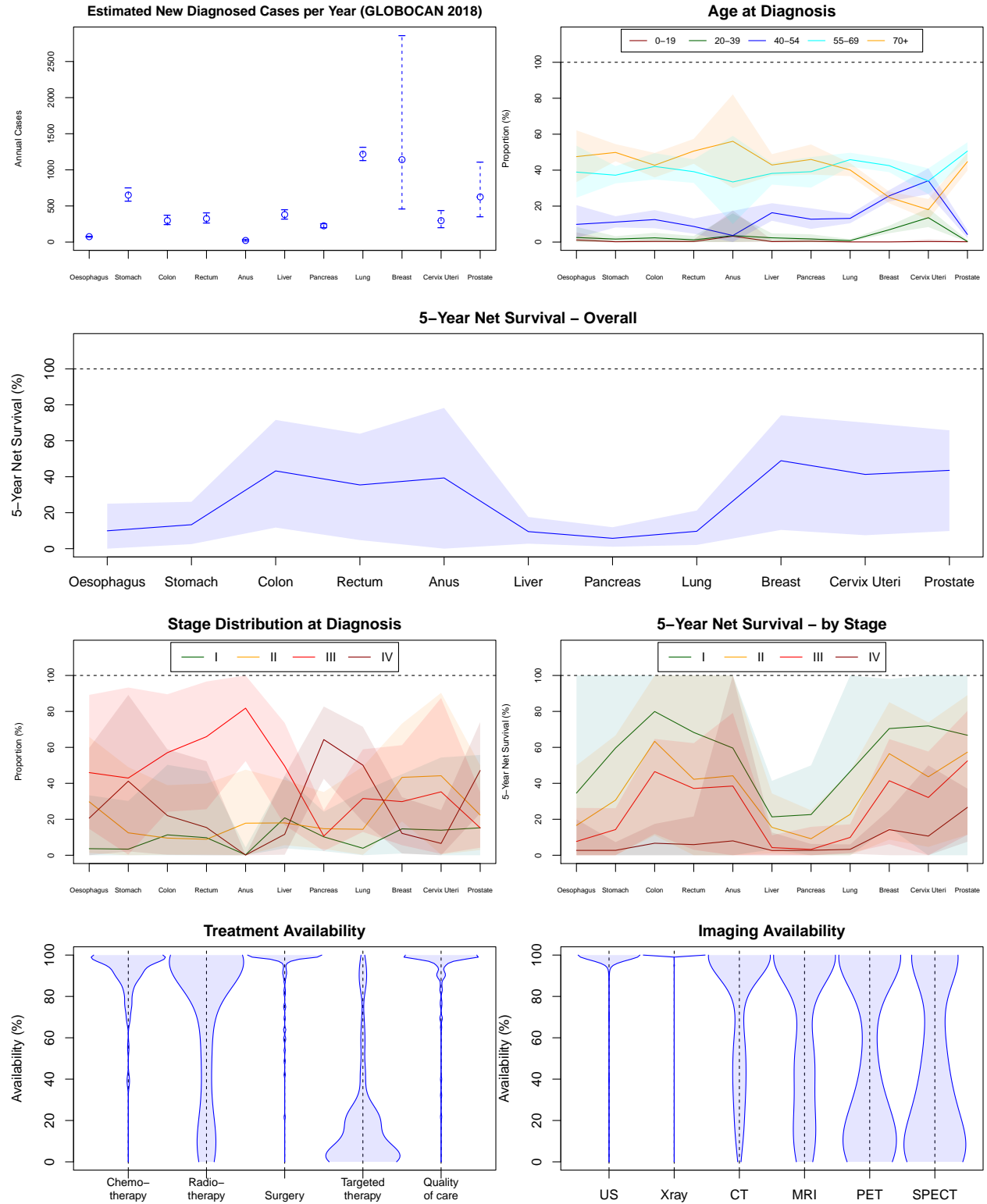
Gambia

ISO Code	Region	Area	Income Group
GMB	Western Africa	Africa	Low income



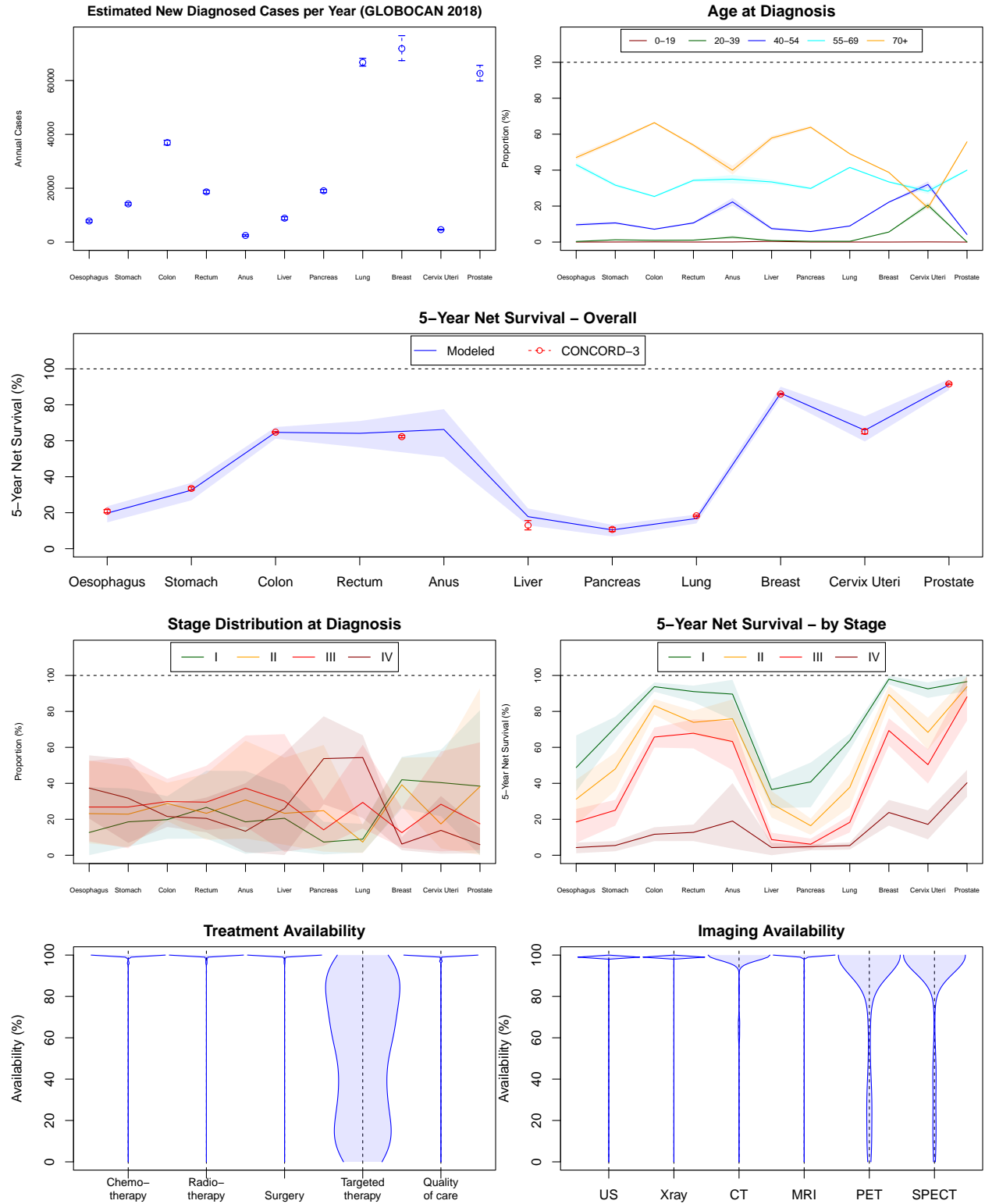
Georgia

ISO Code	Region	Area	Income Group
GEO	Western Asia	Asia	Lower middle income



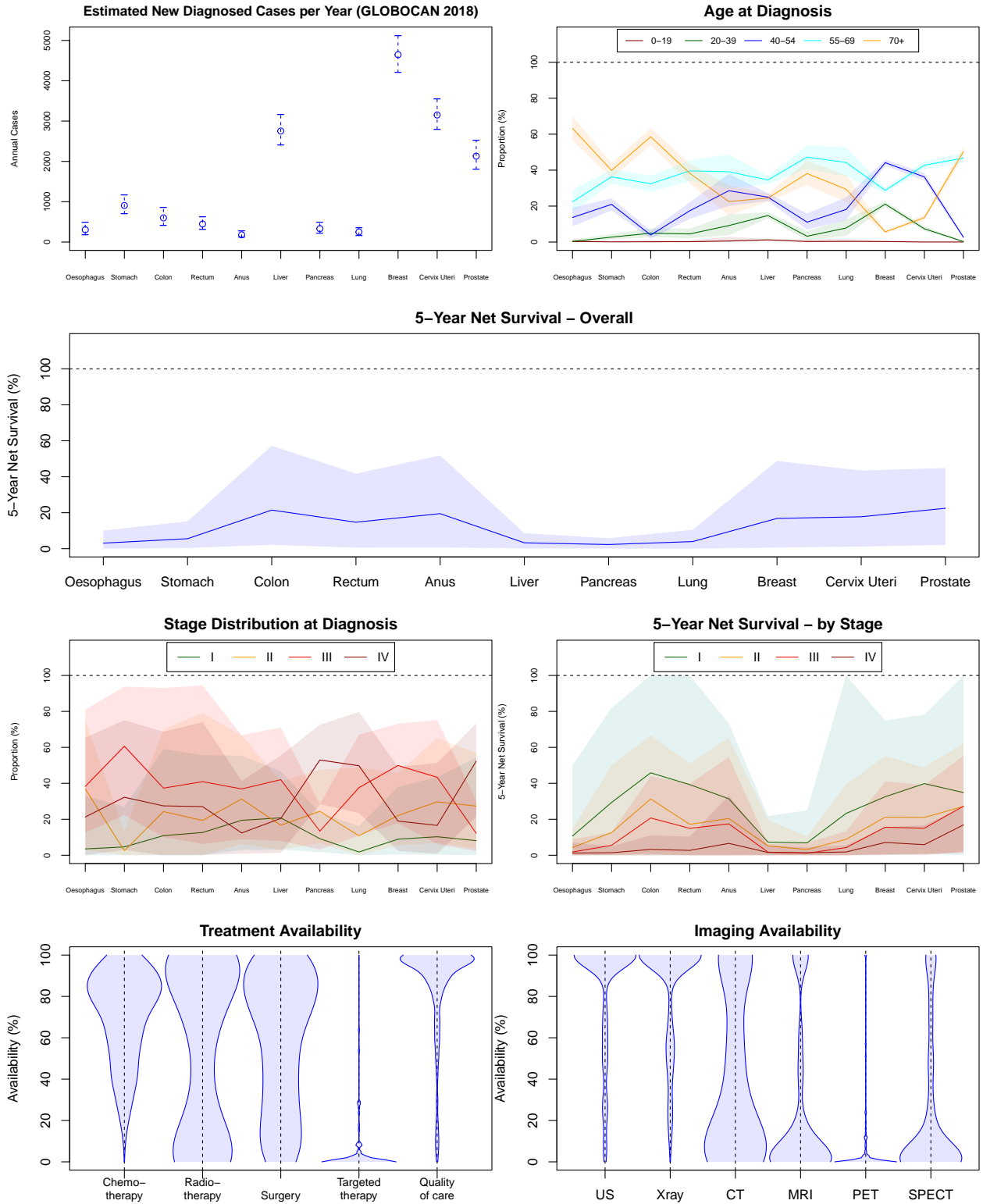
Germany

ISO Code	Region	Area	Income Group
DEU	Western Europe	Europe	High income



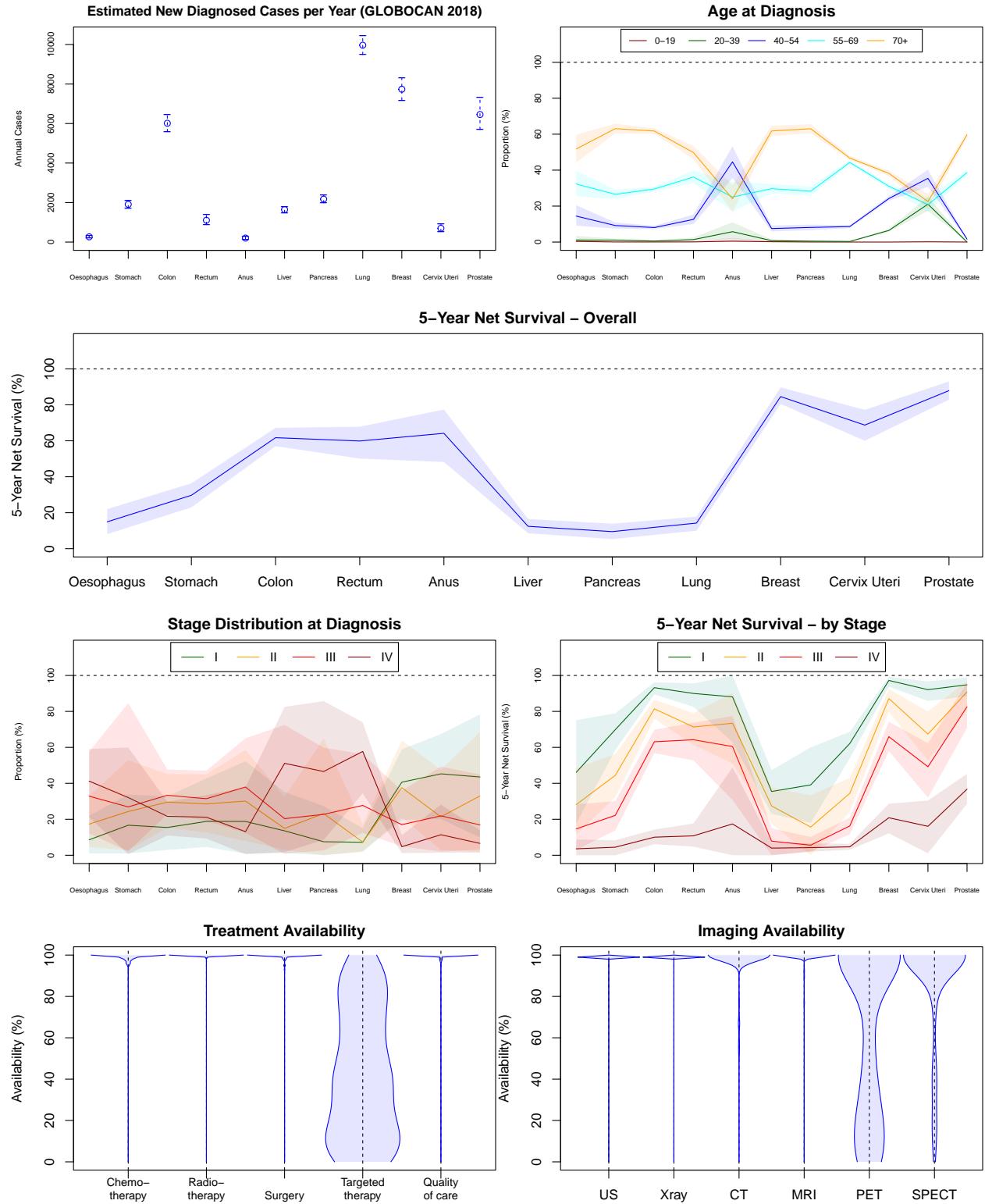
Ghana

ISO Code	Region	Area	Income Group
GHA	Western Africa	Africa	Lower middle income



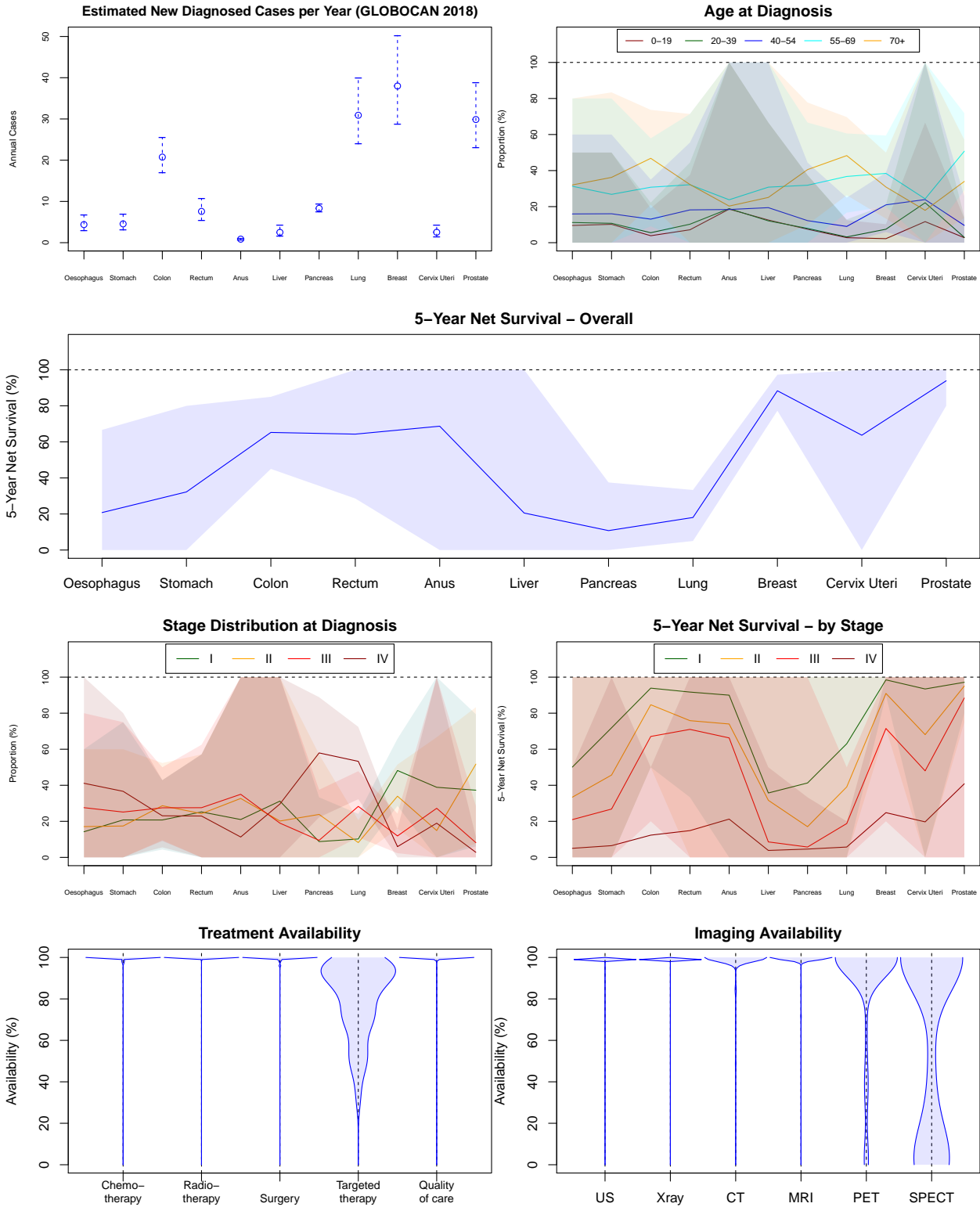
Greece

ISO Code	Region	Area	Income Group
GRC	Southern Europe	Europe	High income



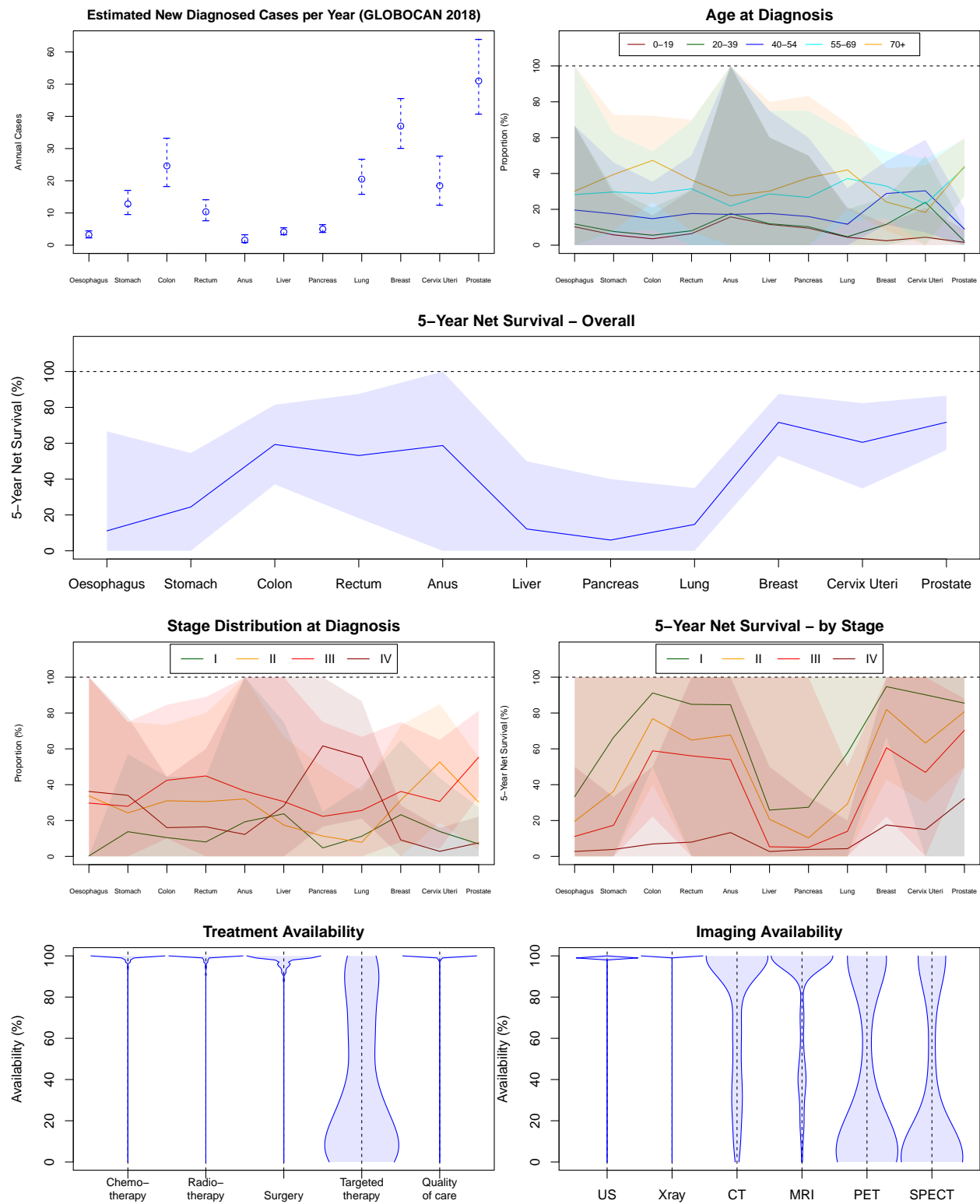
Greenland

ISO Code	Region	Area	Income Group
GRL	Northern America	Northern America	High income



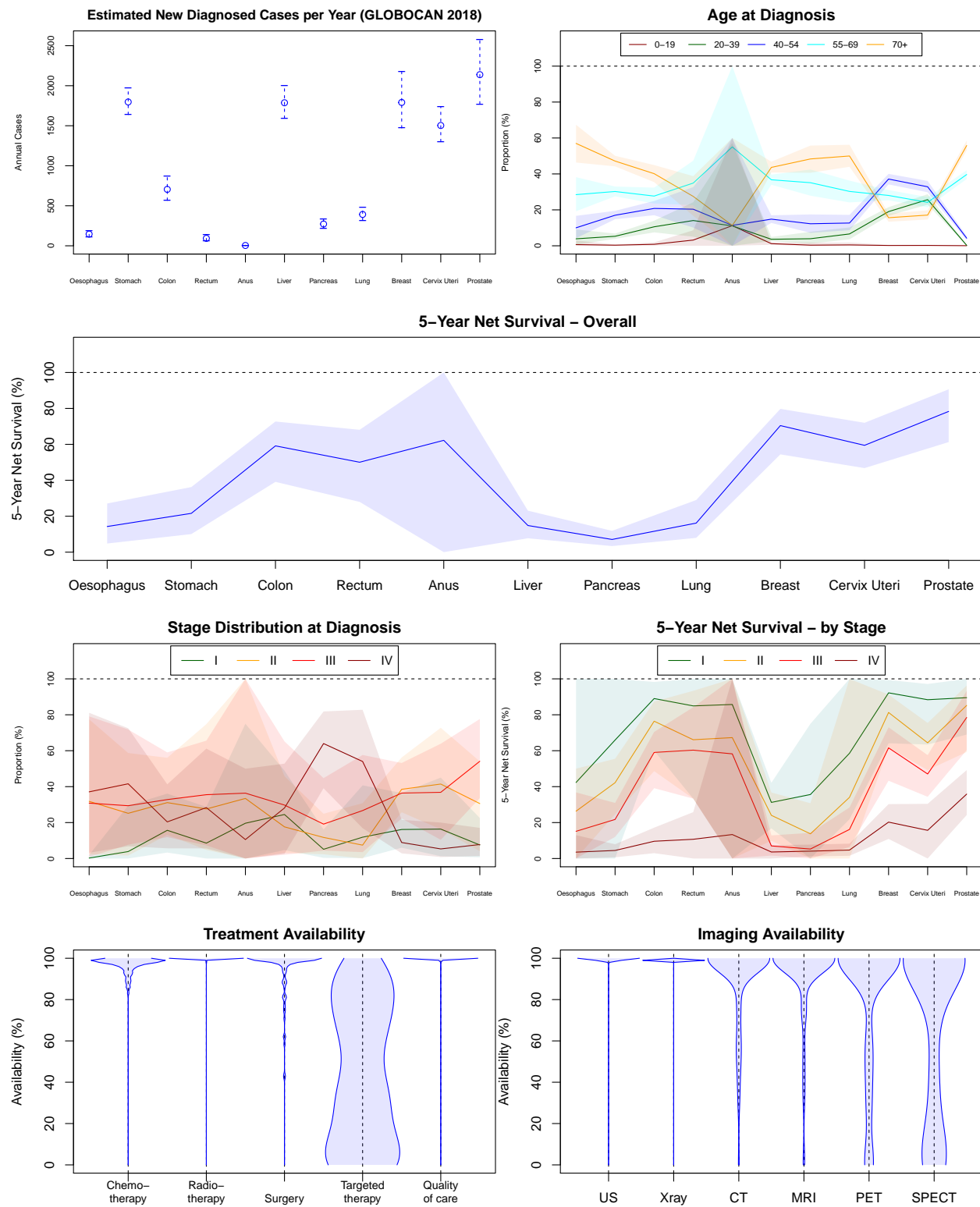
Grenada

ISO Code	Region	Area	Income Group
GRD	Caribbean	Latin America and the Caribbean	Upper middle income



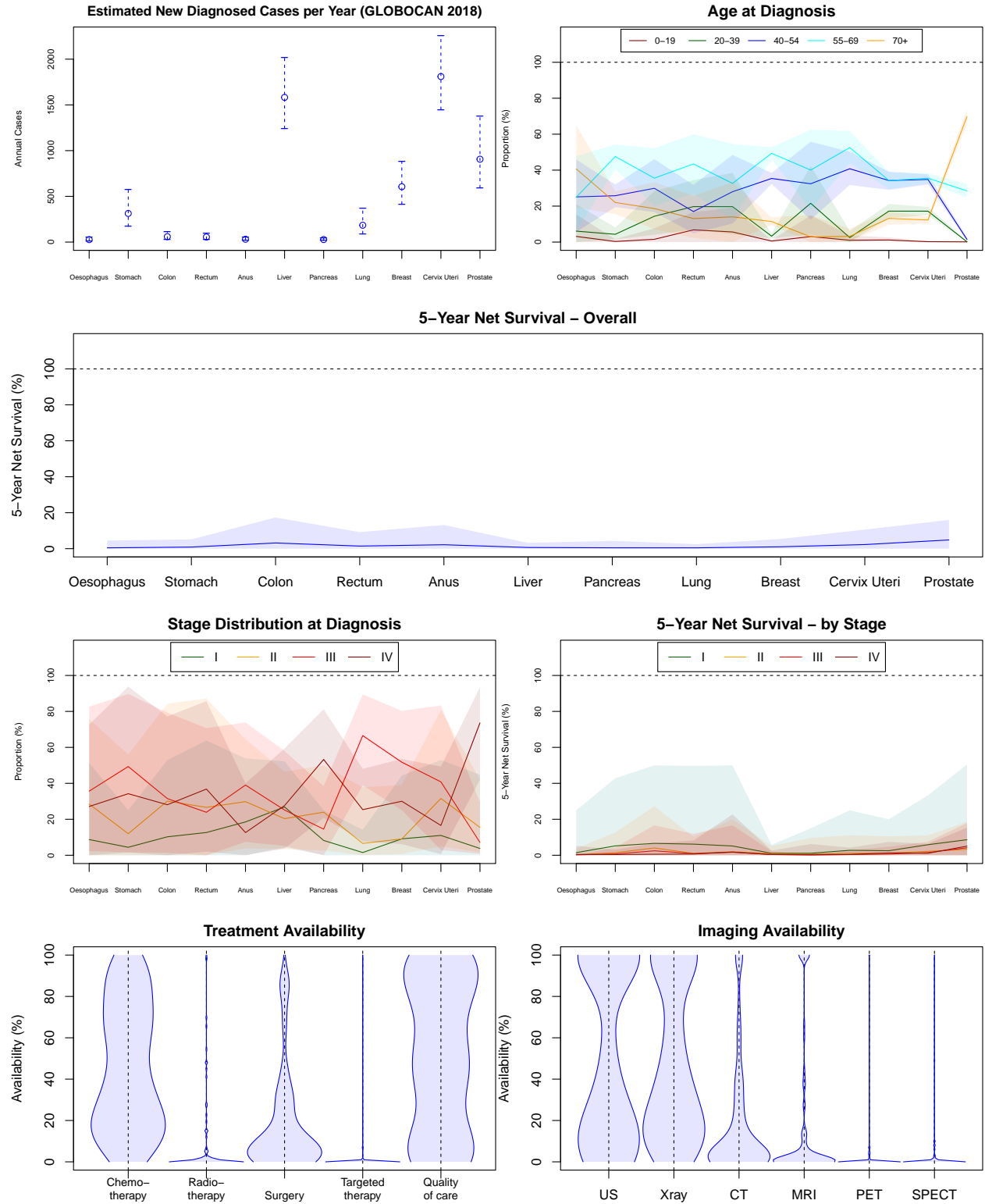
Guatemala

ISO Code	Region	Area	Income Group
GTM	Central America	Latin America and the Caribbean	Upper middle income



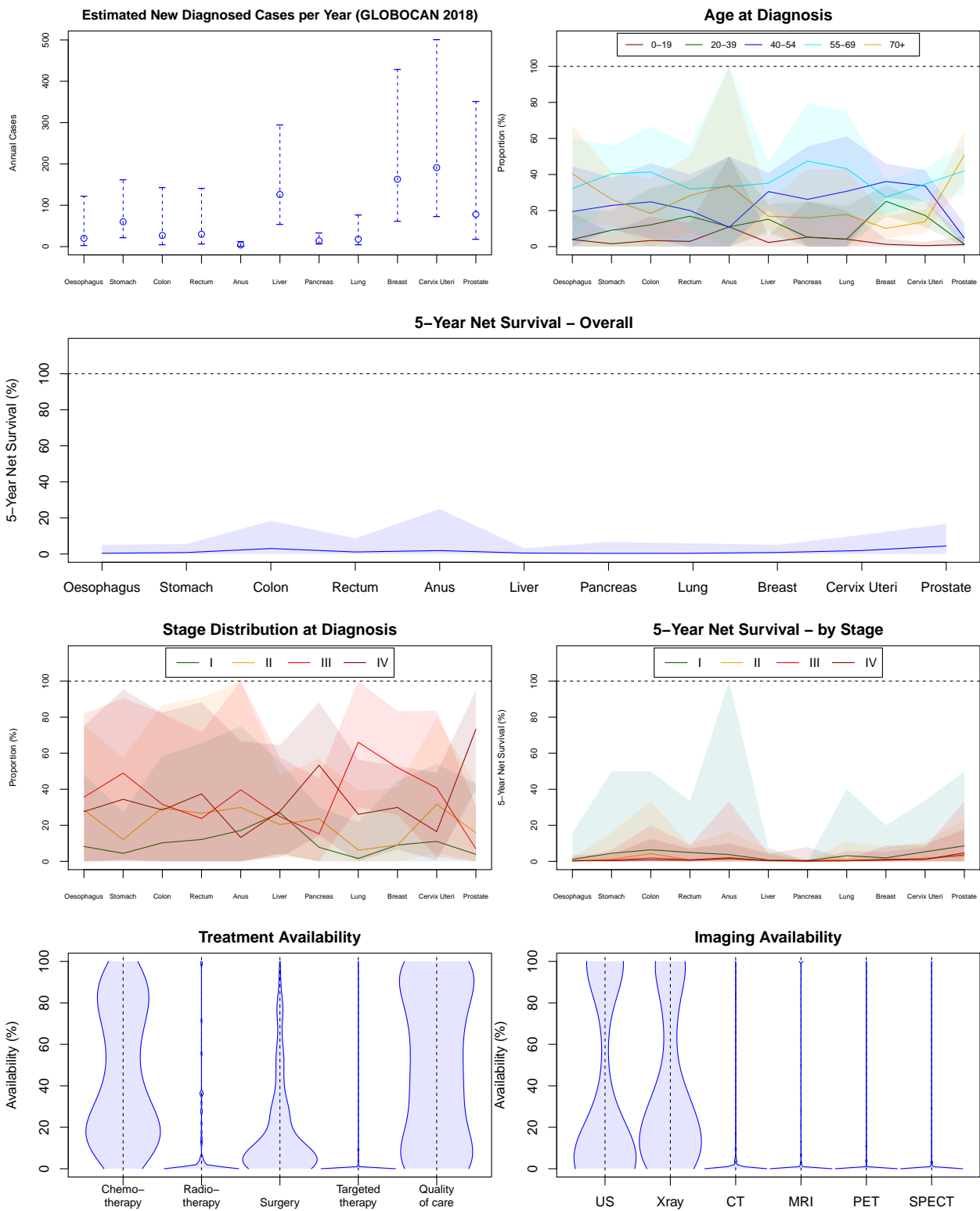
Guinea

ISO Code	Region	Area	Income Group
GIN	Western Africa	Africa	Low income



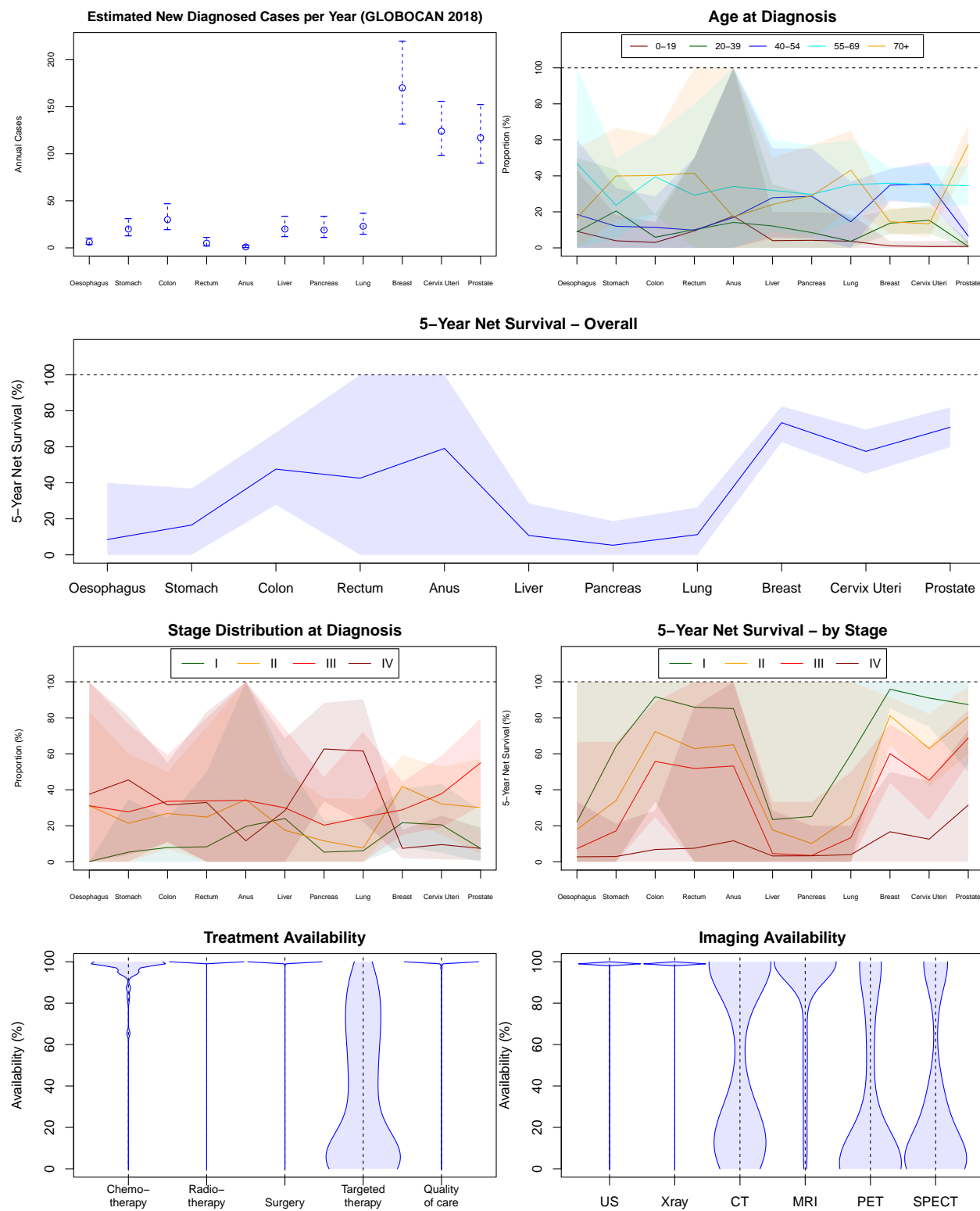
Guinea-Bissau

ISO Code	Region	Area	Income Group
GNB	Western Africa	Africa	Low income



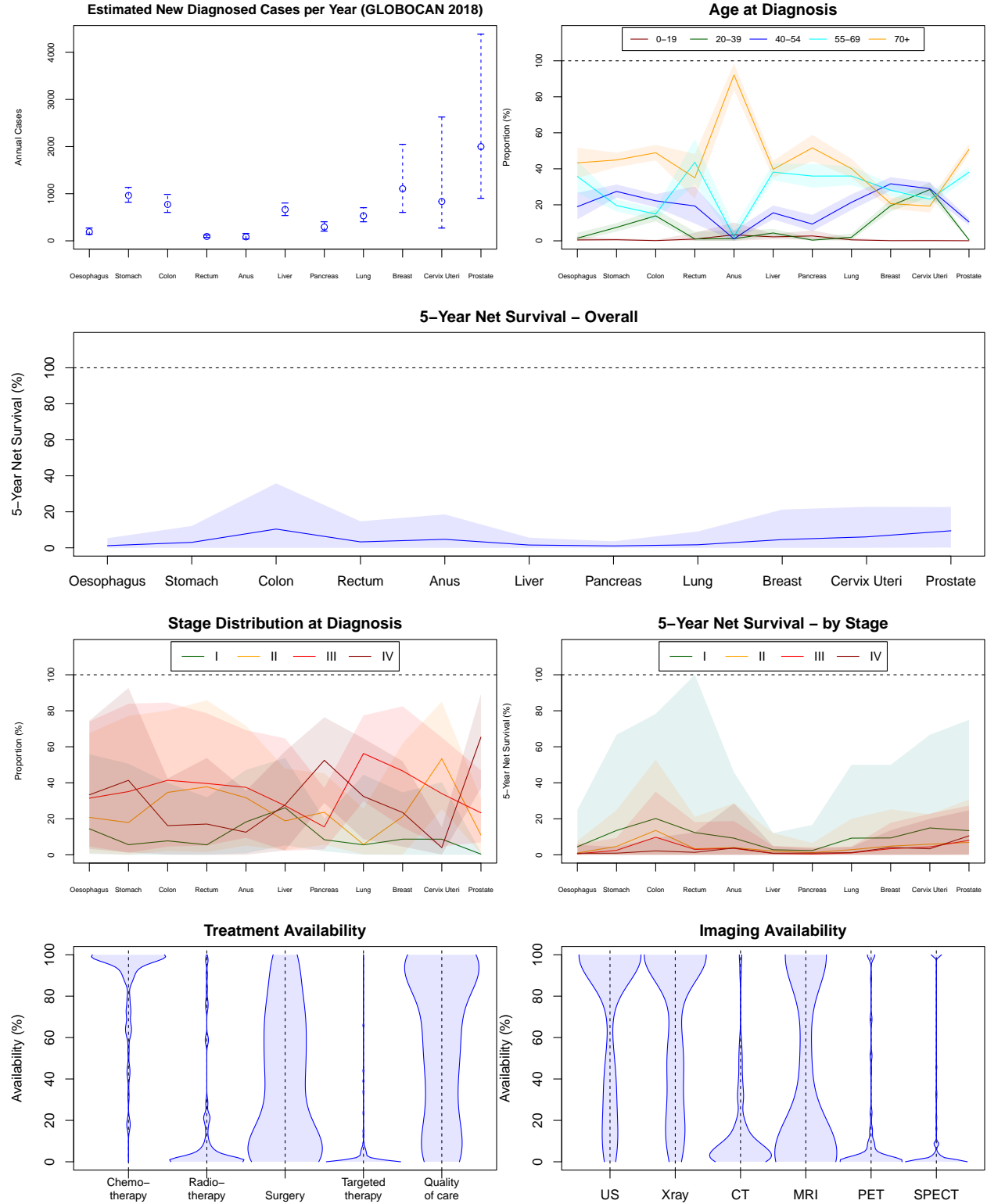
Guyana

ISO Code	Region	Area	Income Group
GUY	South America	Latin America and the Caribbean	Upper middle income



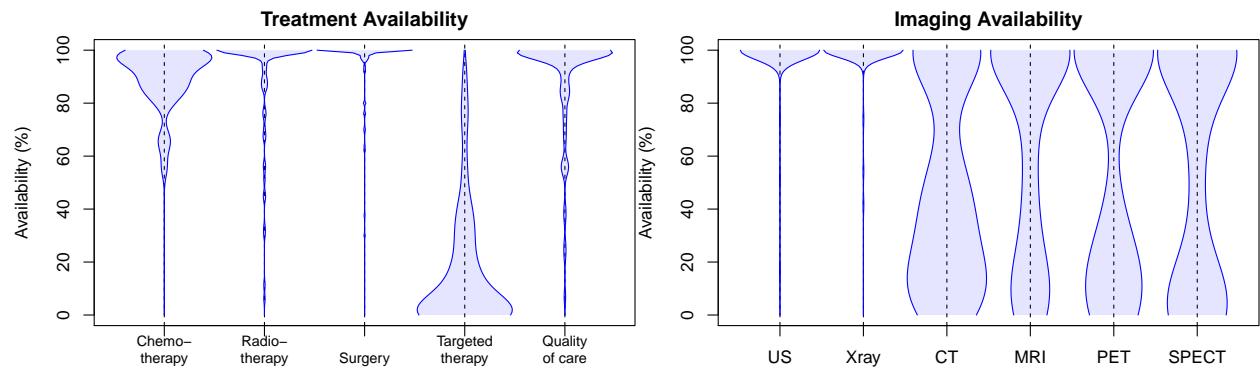
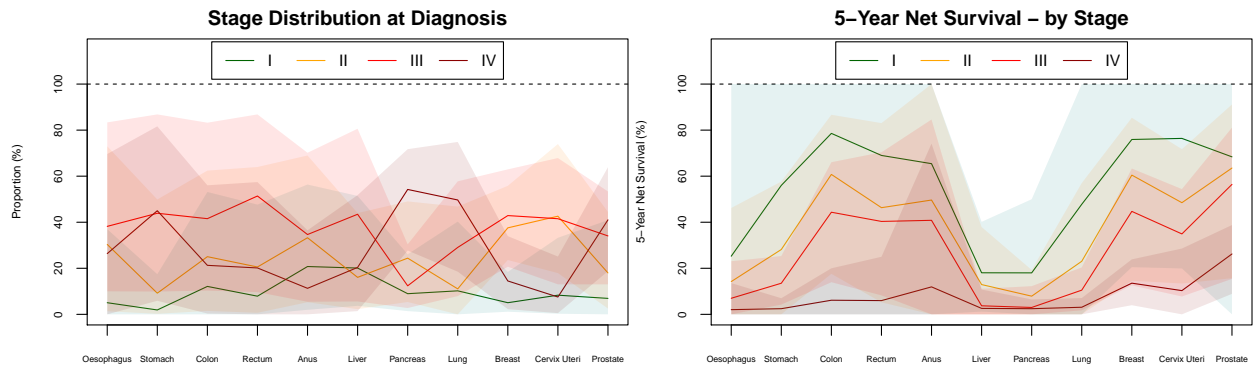
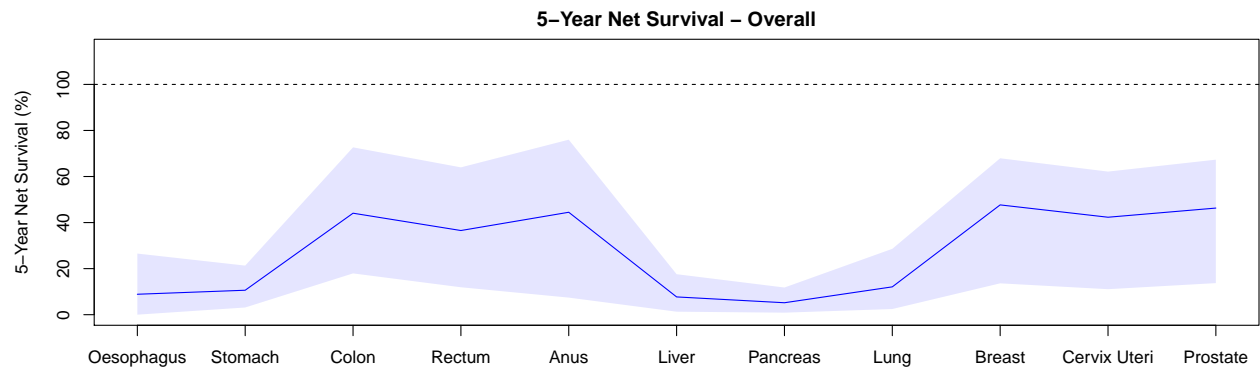
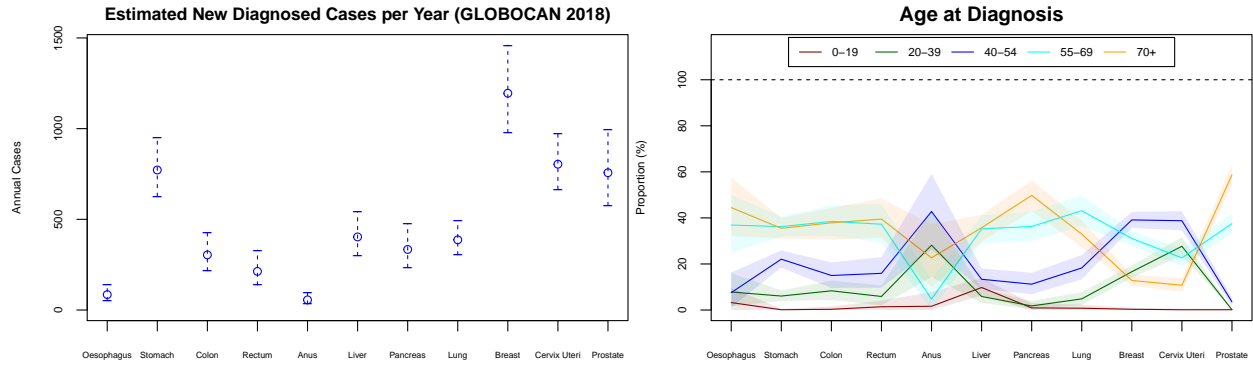
Haiti

ISO Code	Region	Area	Income Group
HTI	Caribbean	Latin America and the Caribbean	Low income



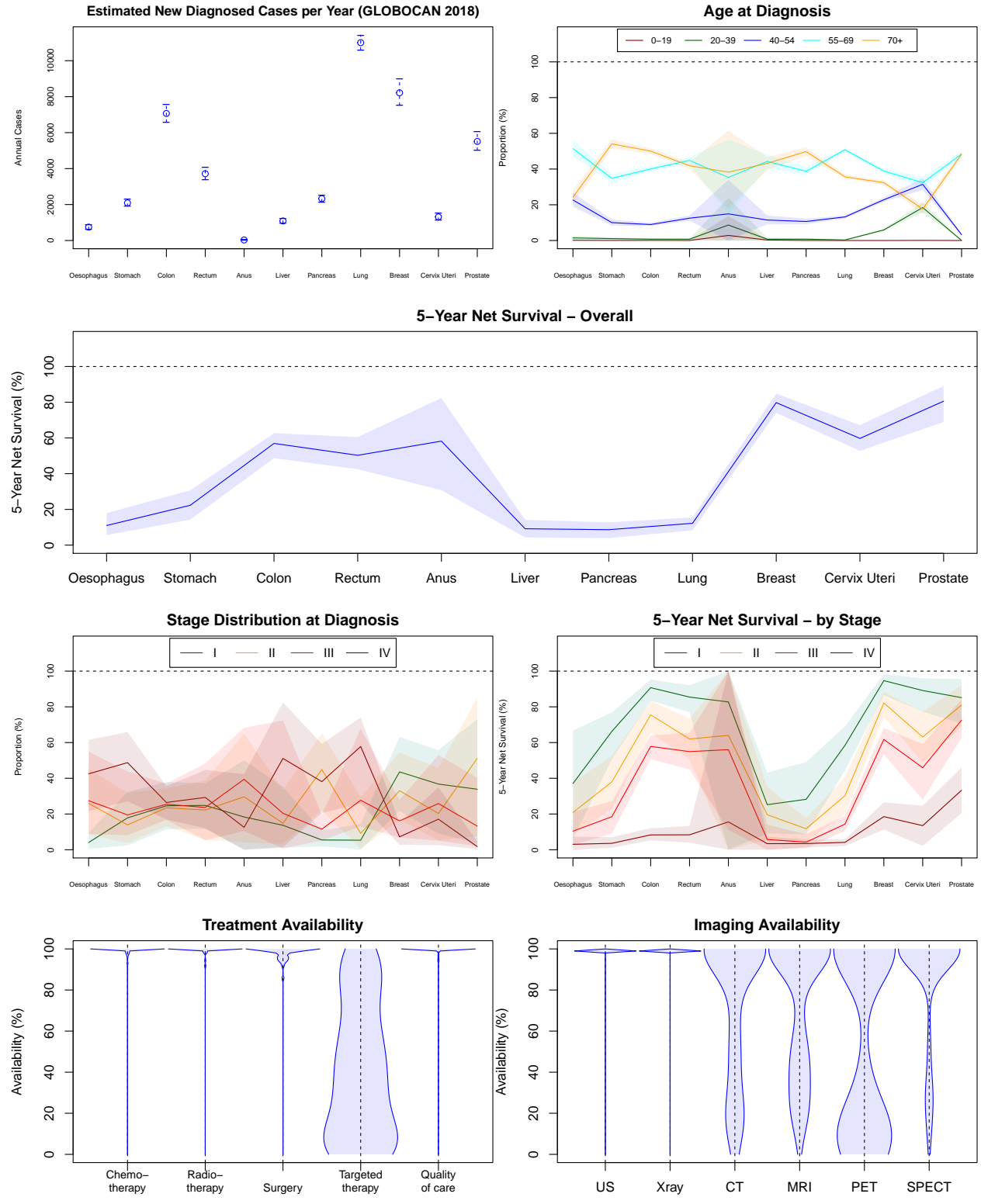
Honduras

ISO Code	Region	Area	Income Group
HND	Central America	Latin America and the Caribbean	Lower middle income



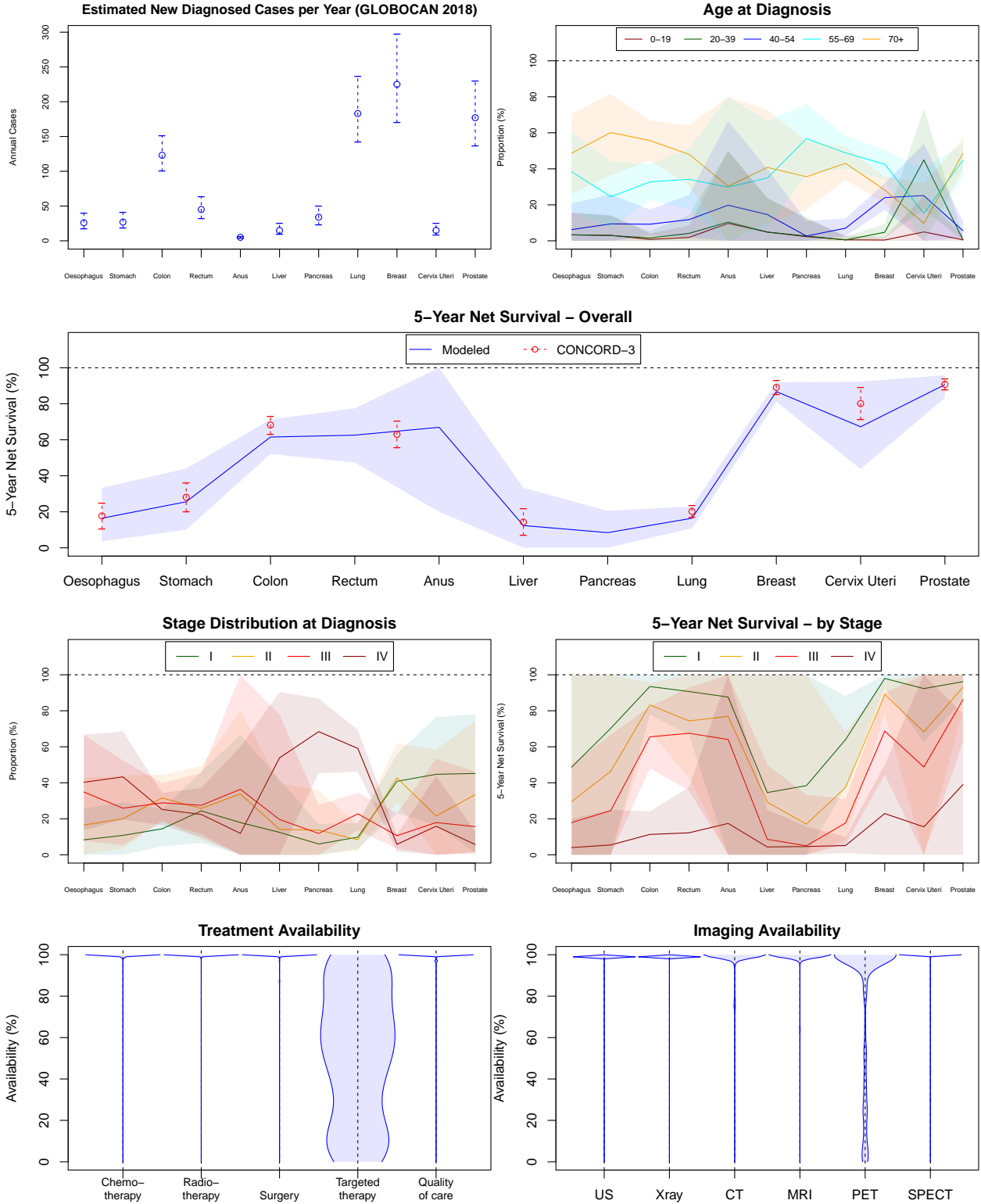
Hungary

ISO Code	Region	Area	Income Group
HUN	Eastern Europe	Europe	High income



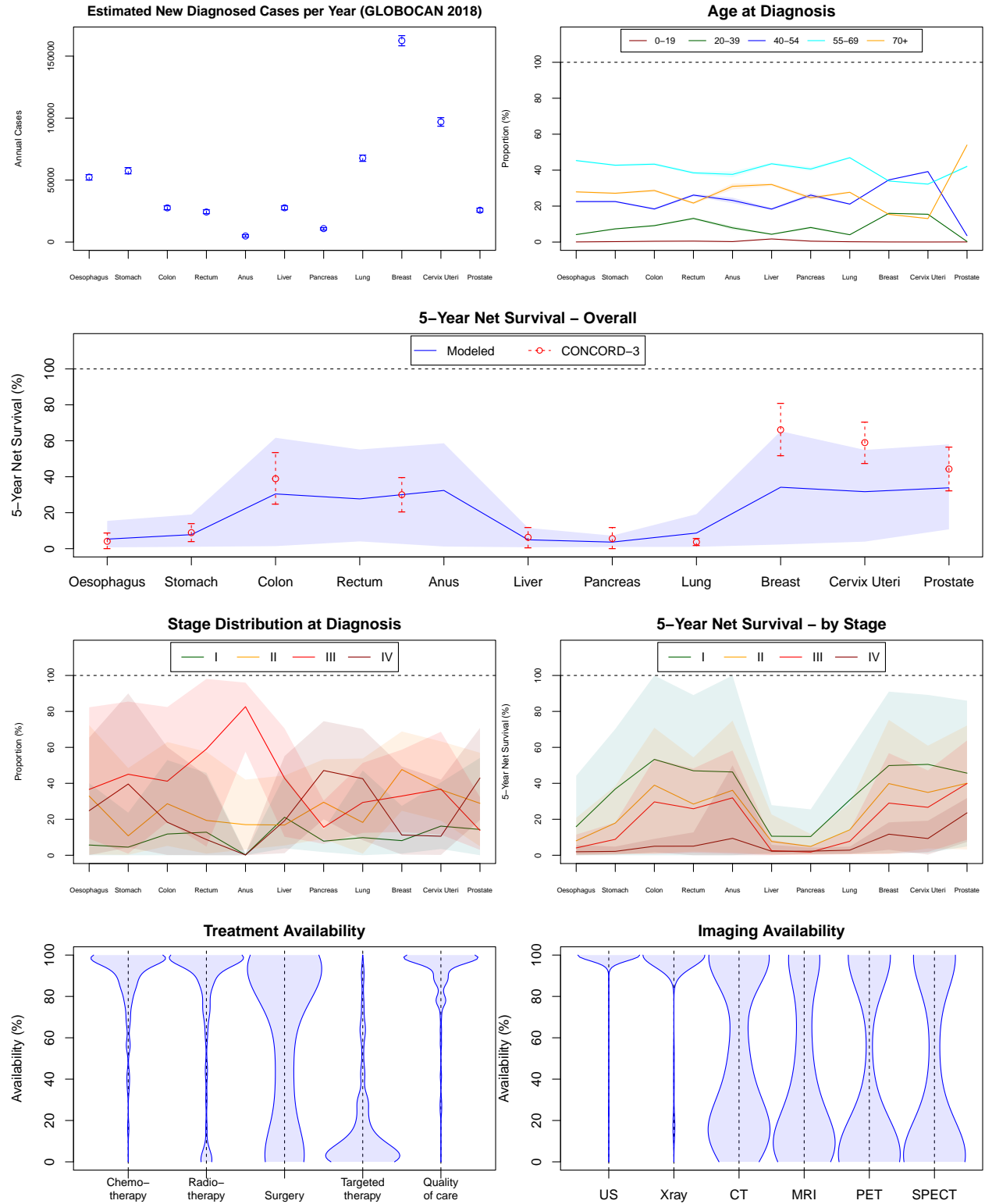
Iceland

ISO Code	Region	Area	Income Group
ISL	Northern Europe	Europe	High income



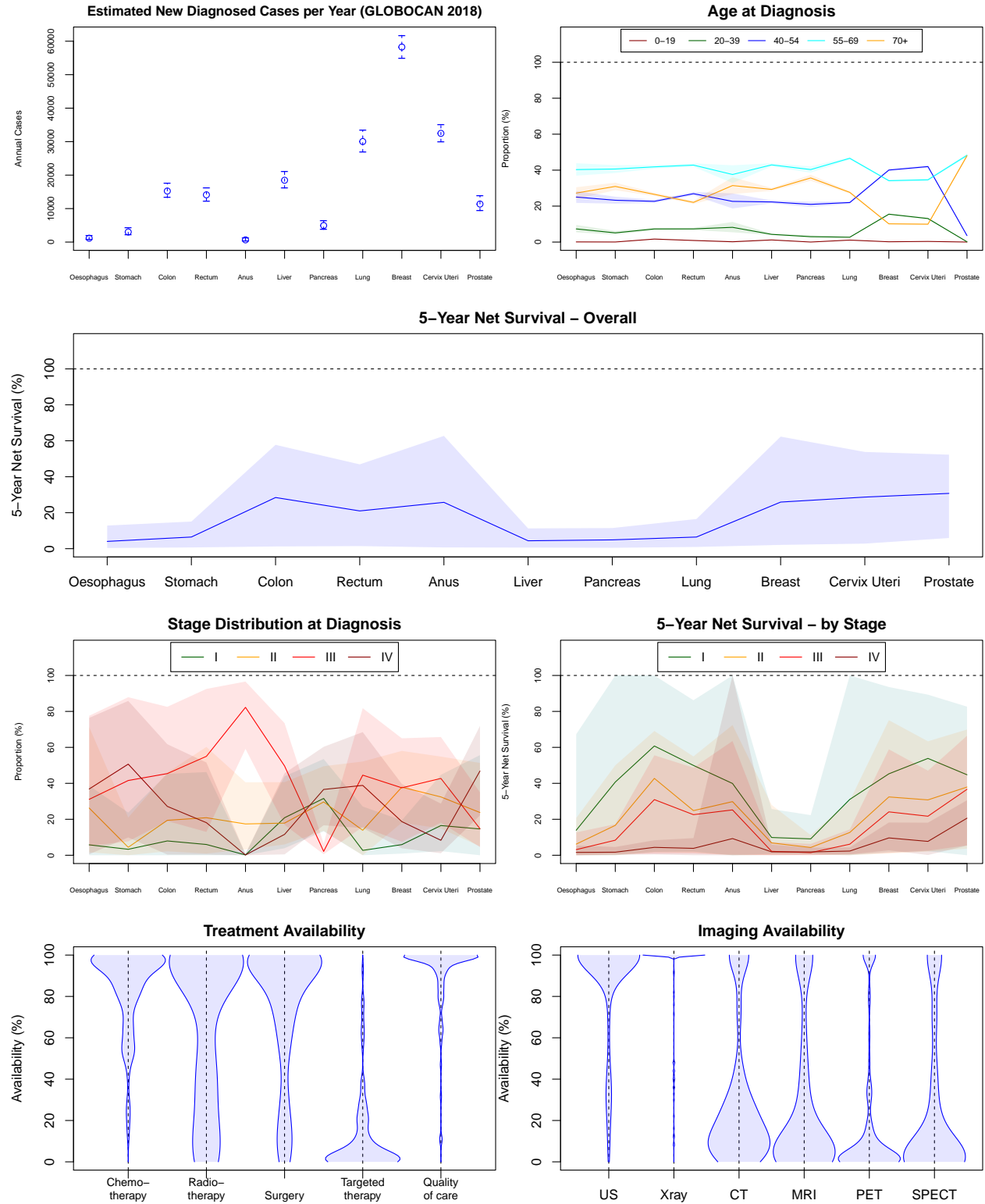
India

ISO Code	Region	Area	Income Group
IND	Southern Asia	Asia	Lower middle income



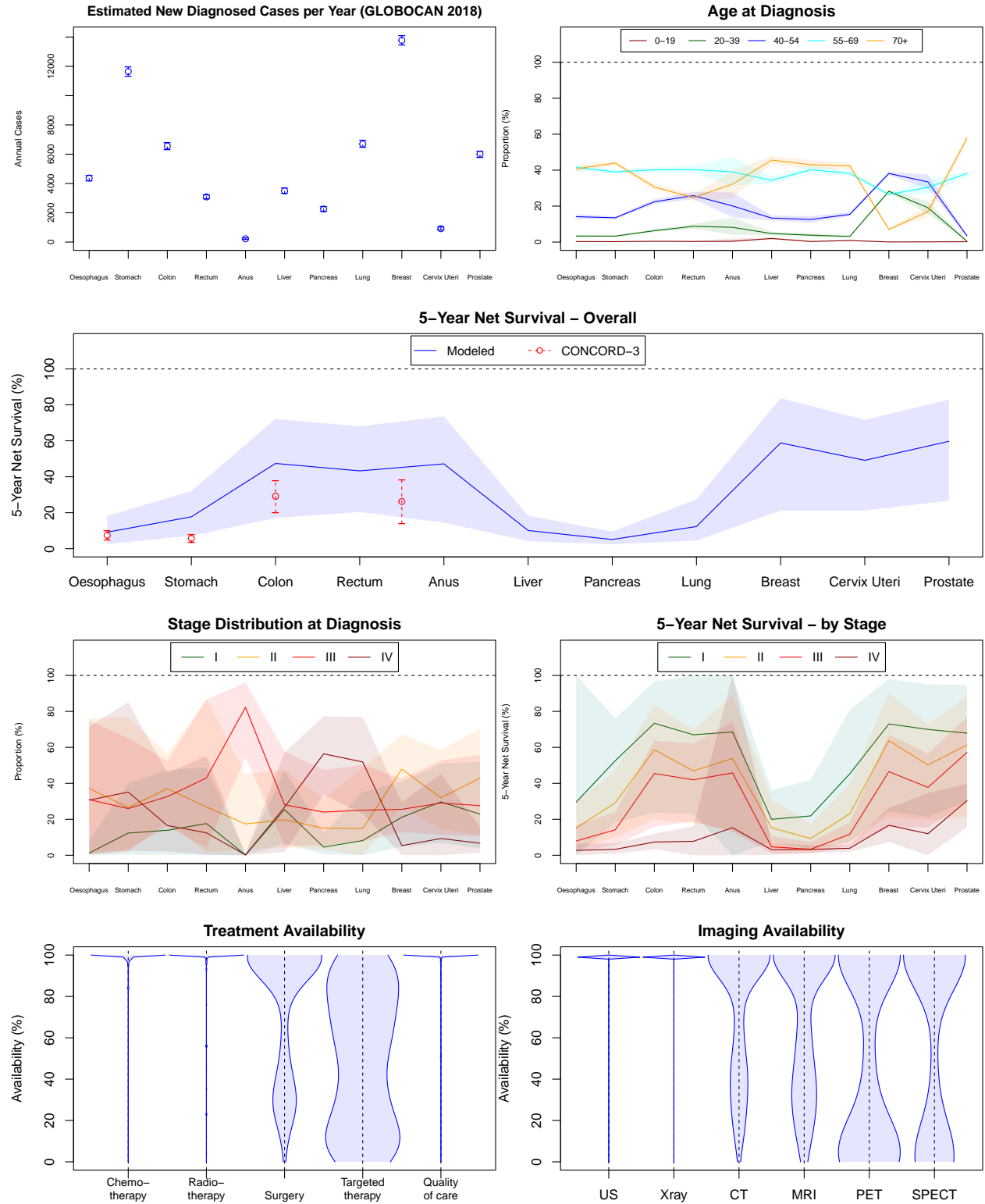
Indonesia

ISO Code	Region	Area	Income Group
IDN	South-Eastern Asia	Asia	Lower middle income



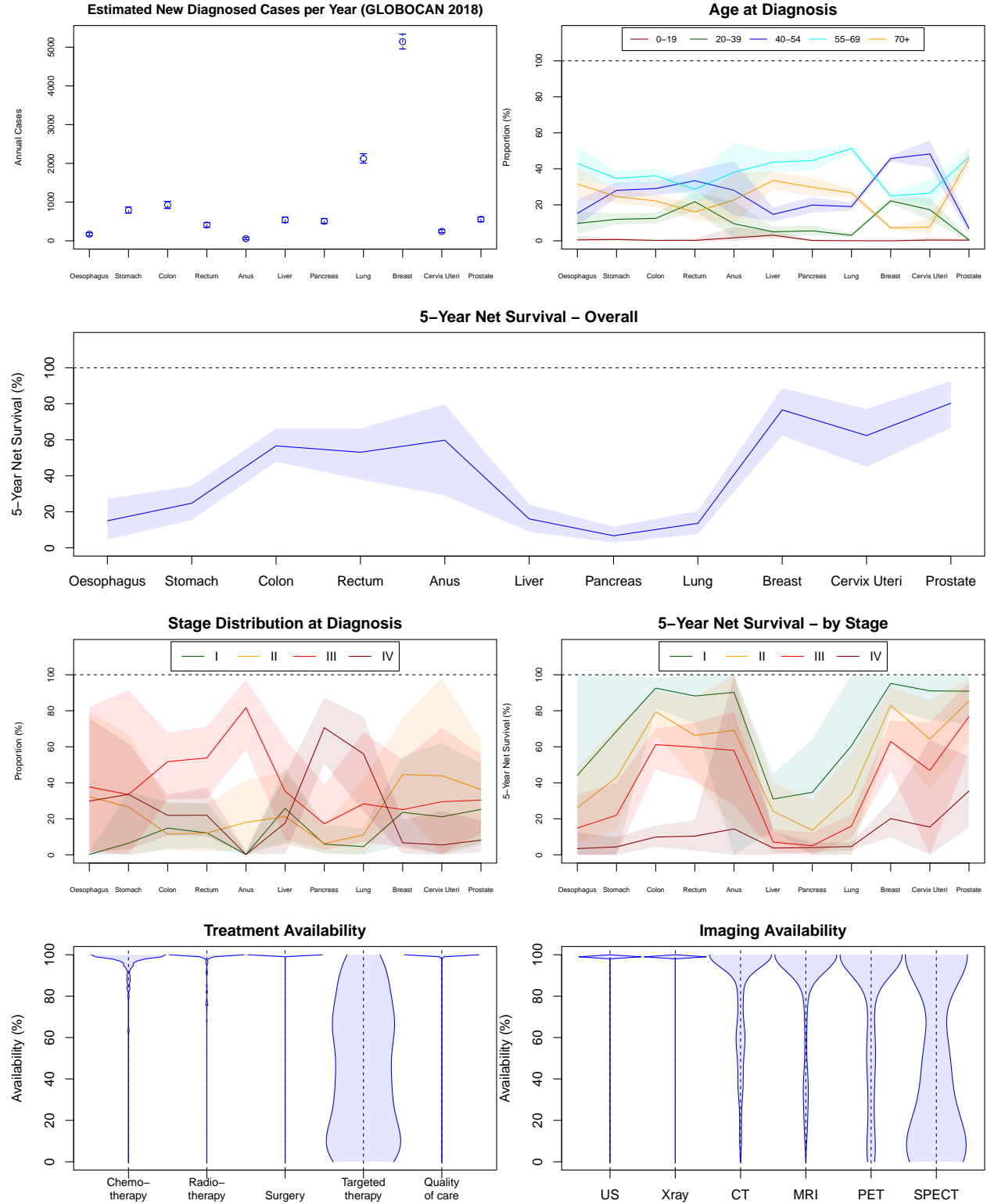
Iran (Islamic Republic of)

ISO Code	Region	Area	Income Group
IRN	Southern Asia	Asia	Upper middle income



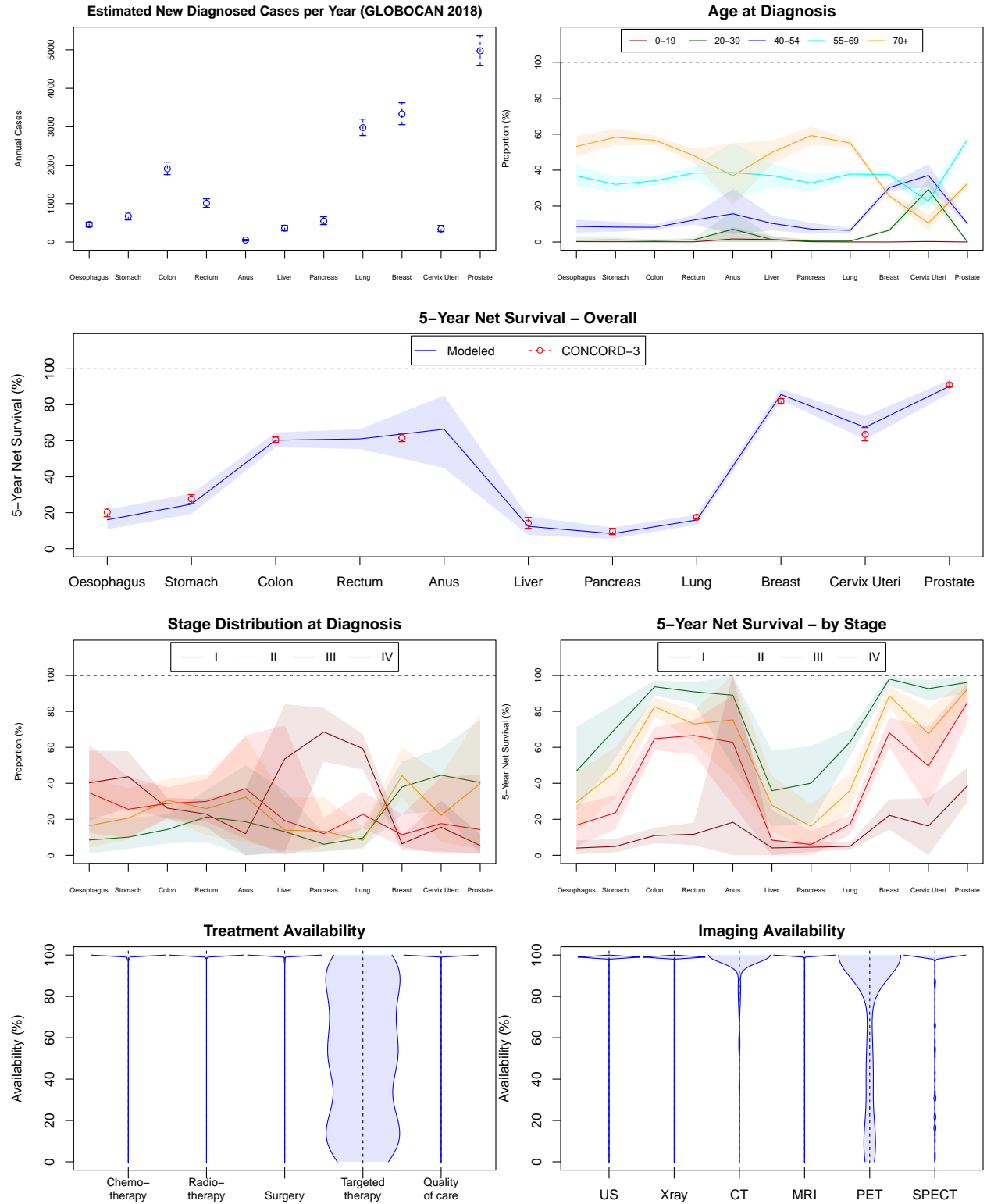
Iraq

ISO Code	Region	Area	Income Group
IRQ	Western Asia	Asia	Upper middle income



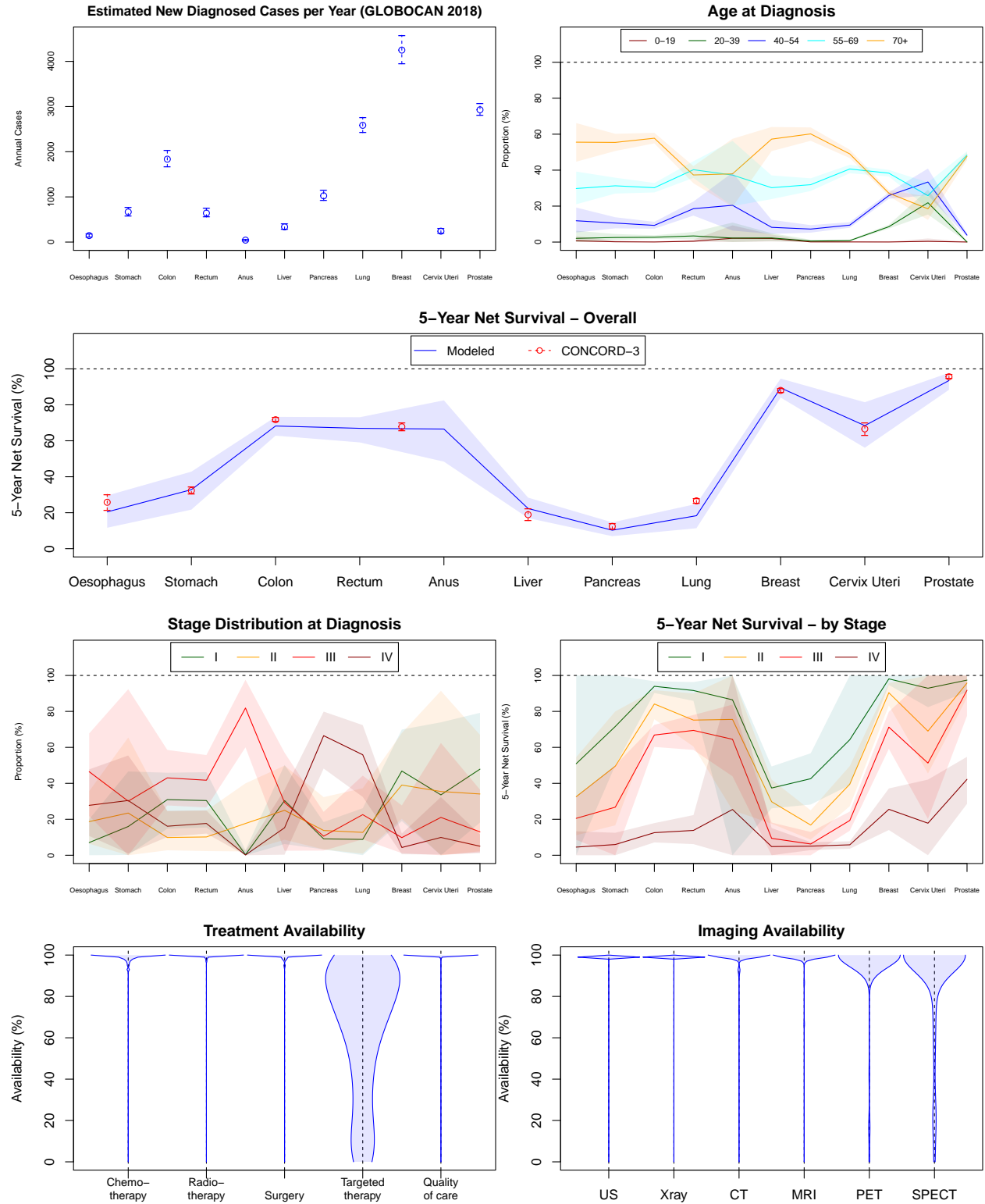
Ireland

ISO Code	Region	Area	Income Group
IRL	Northern Europe	Europe	High income



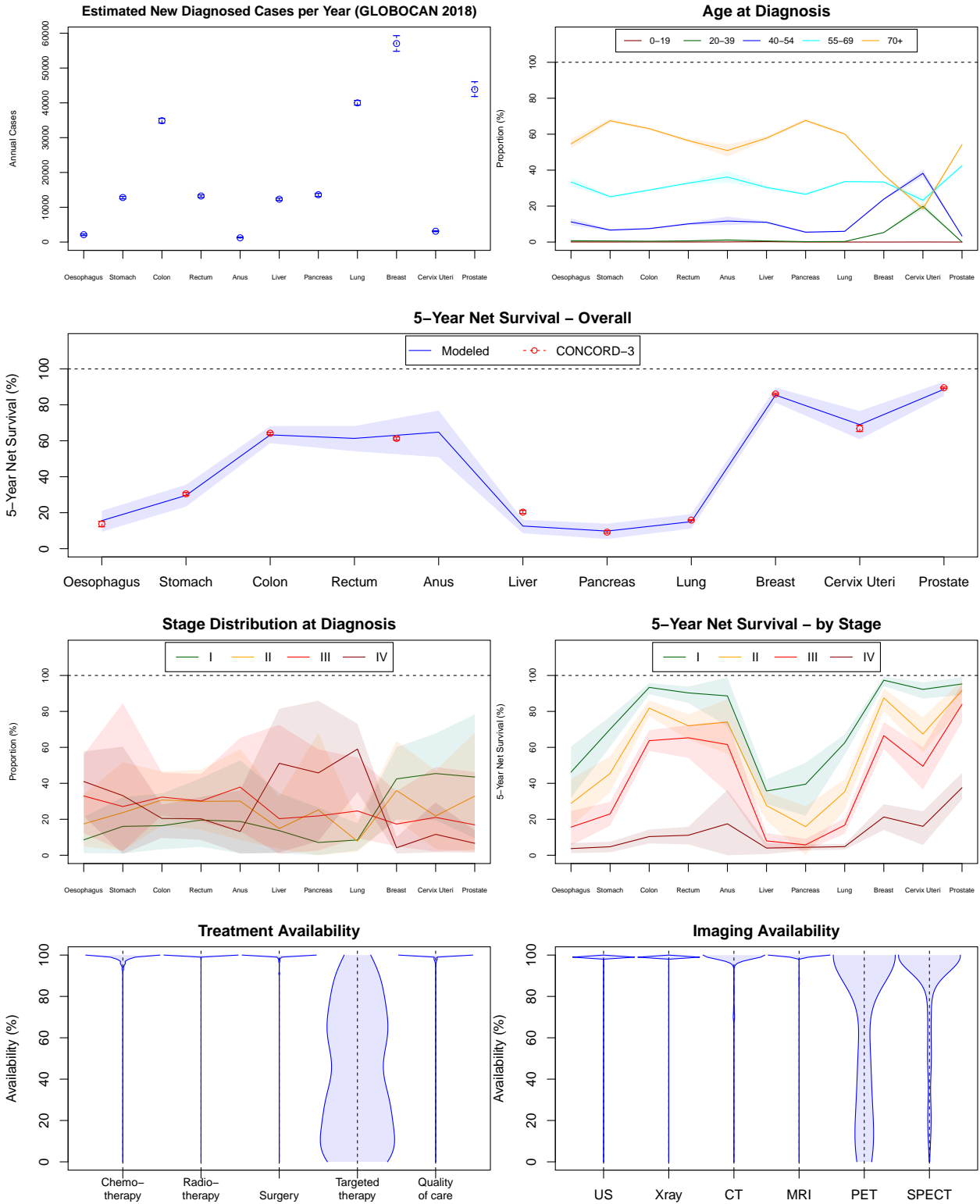
Israel

ISO Code	Region	Area	Income Group
ISR	Western Asia	Asia	High income



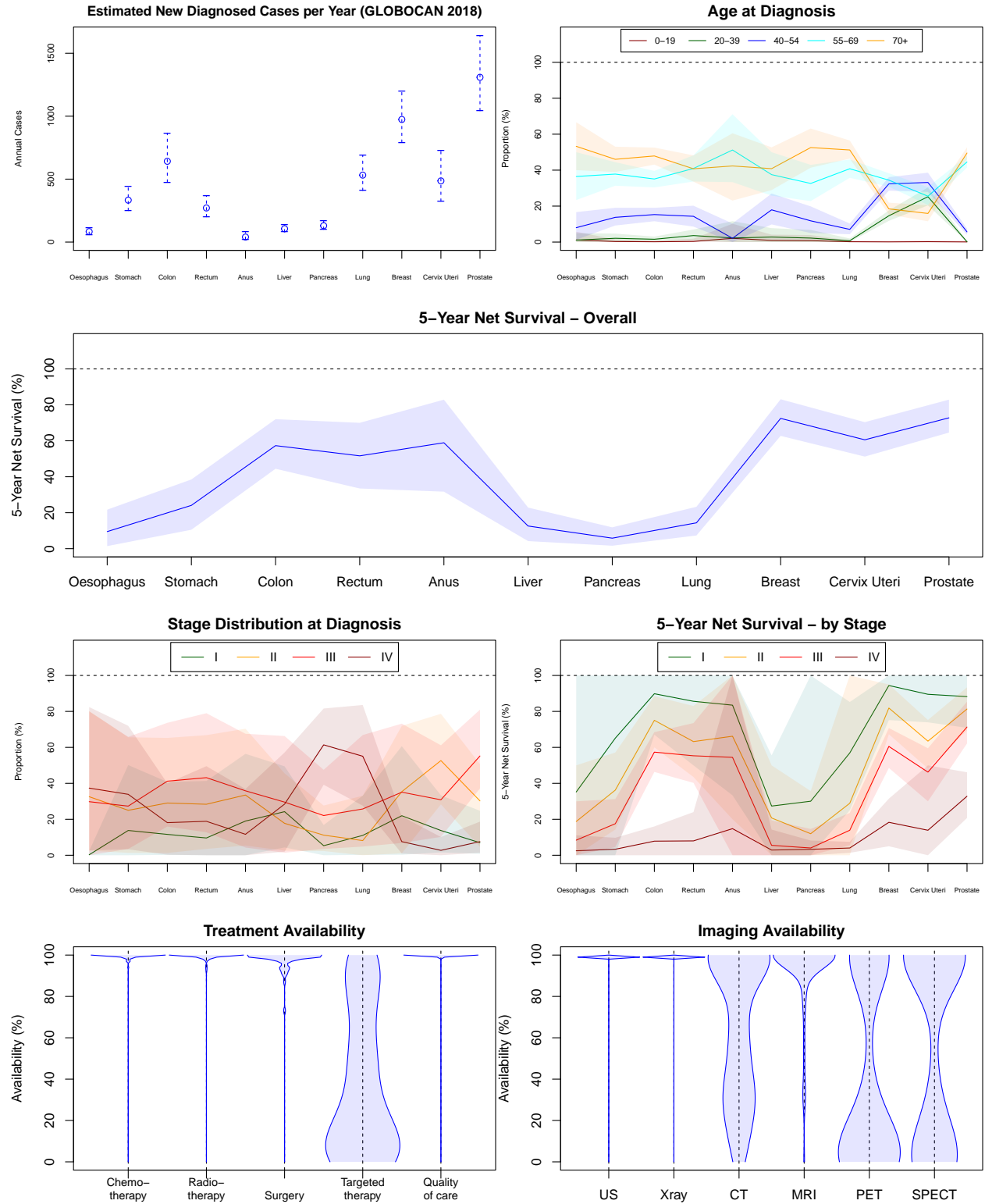
Italy

ISO Code	Region	Area	Income Group
ITA	Southern Europe	Europe	High income



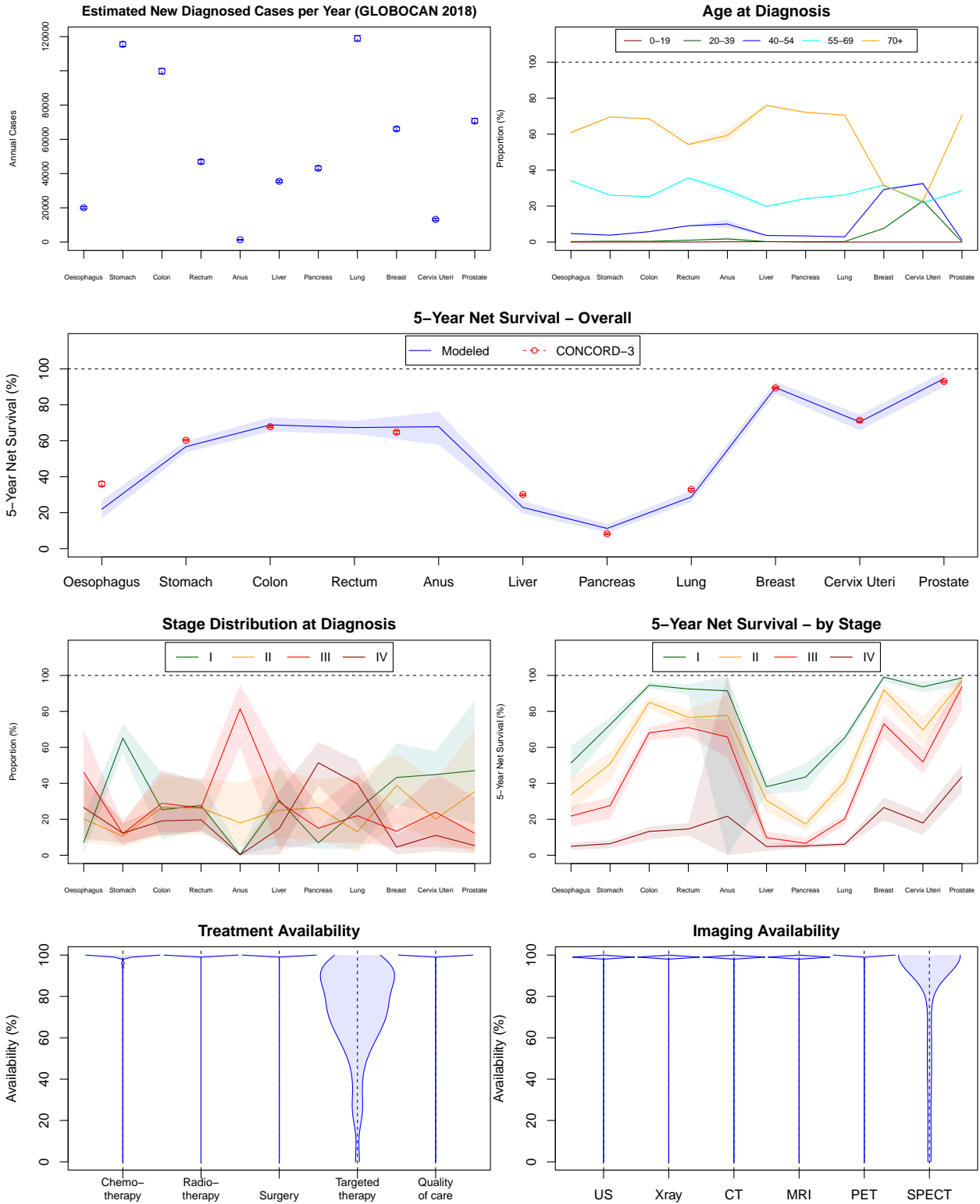
Jamaica

ISO Code	Region	Area	Income Group
JAM	Caribbean	Latin America and the Caribbean	Upper middle income



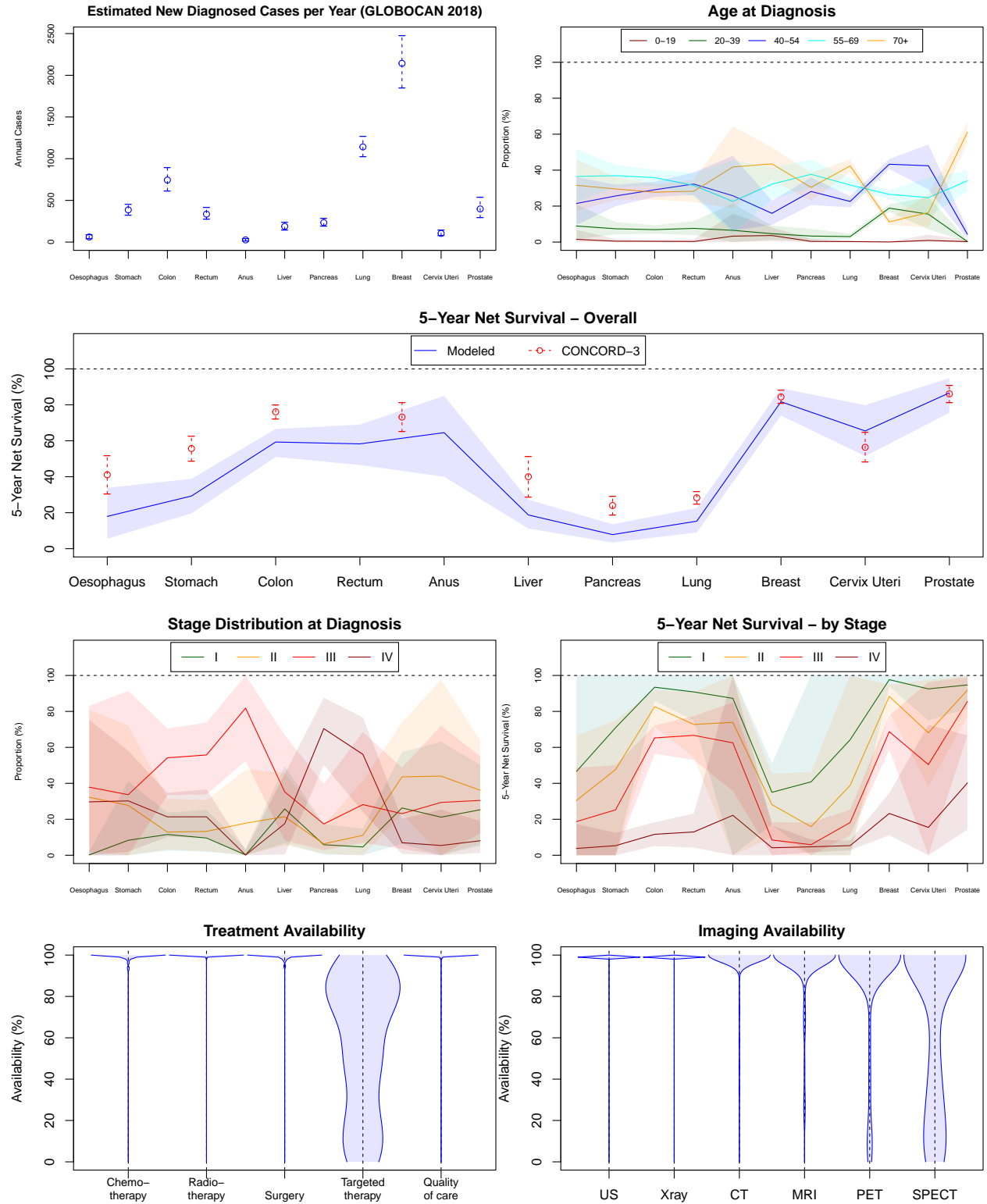
Japan

ISO Code	Region	Area	Income Group
JPN	Eastern Asia	Asia	High income



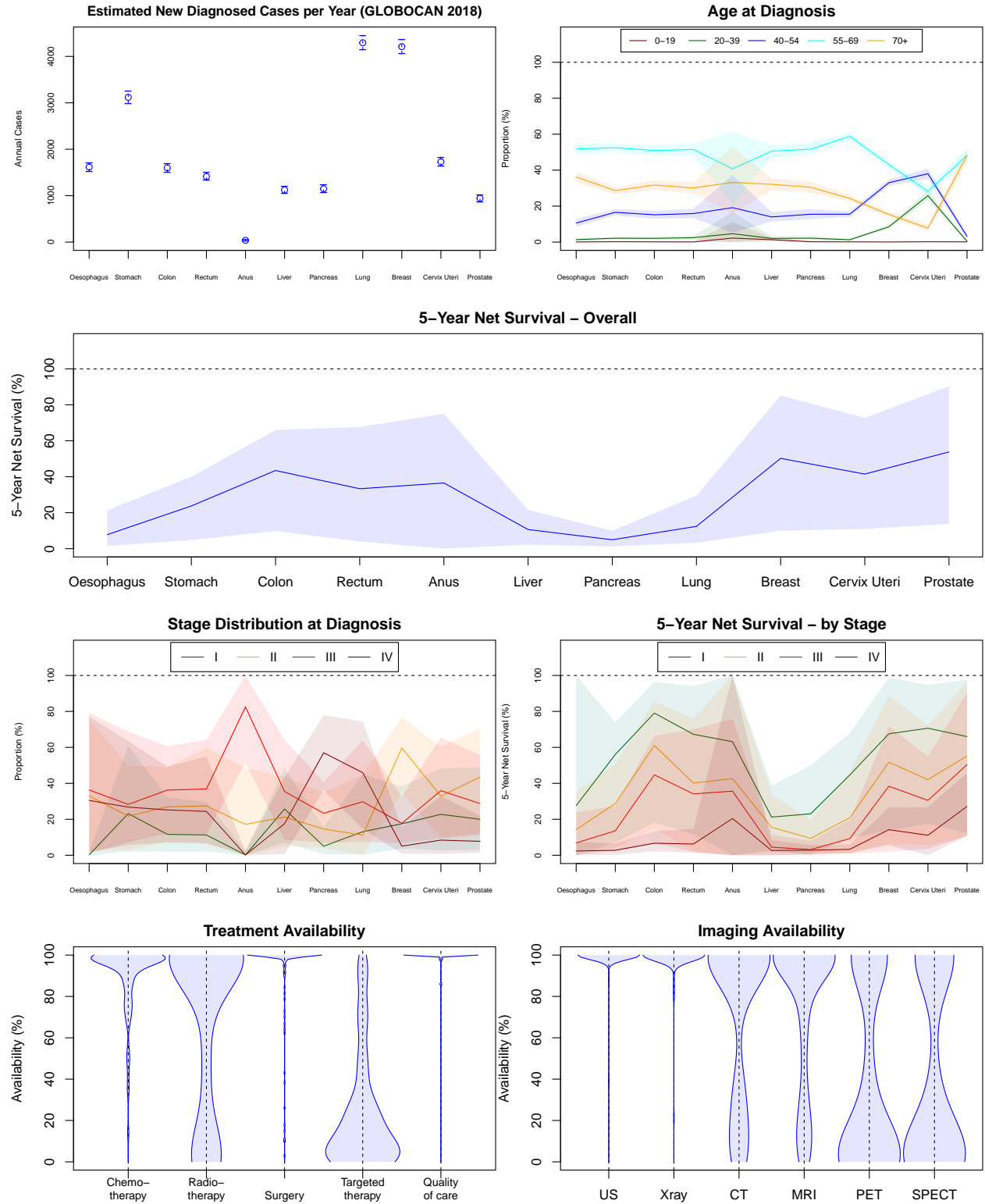
Jordan

ISO Code	Region	Area	Income Group
JOR	Western Asia	Asia	Upper middle income



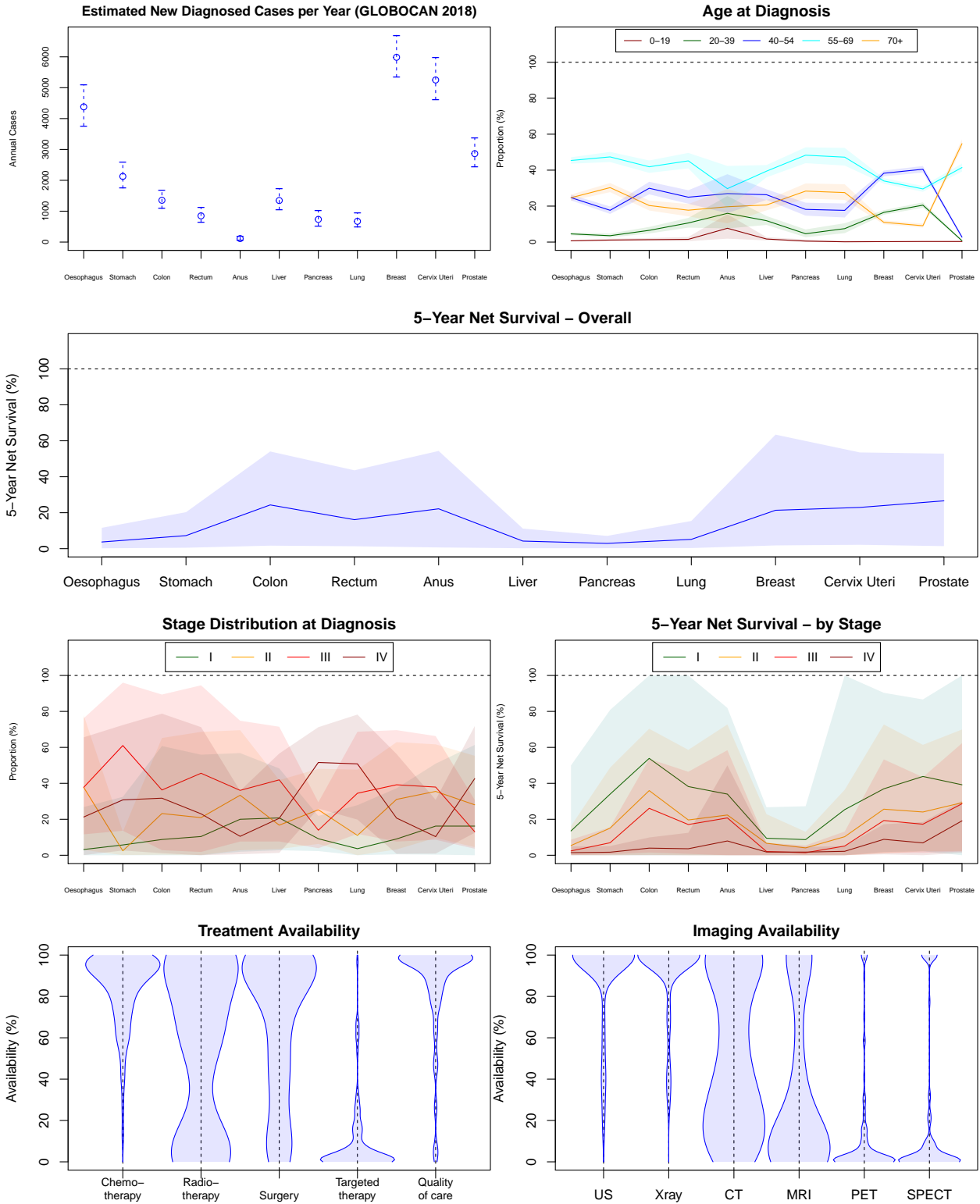
Kazakhstan

ISO Code	Region	Area	Income Group
KAZ	Central Asia	Asia	Upper middle income



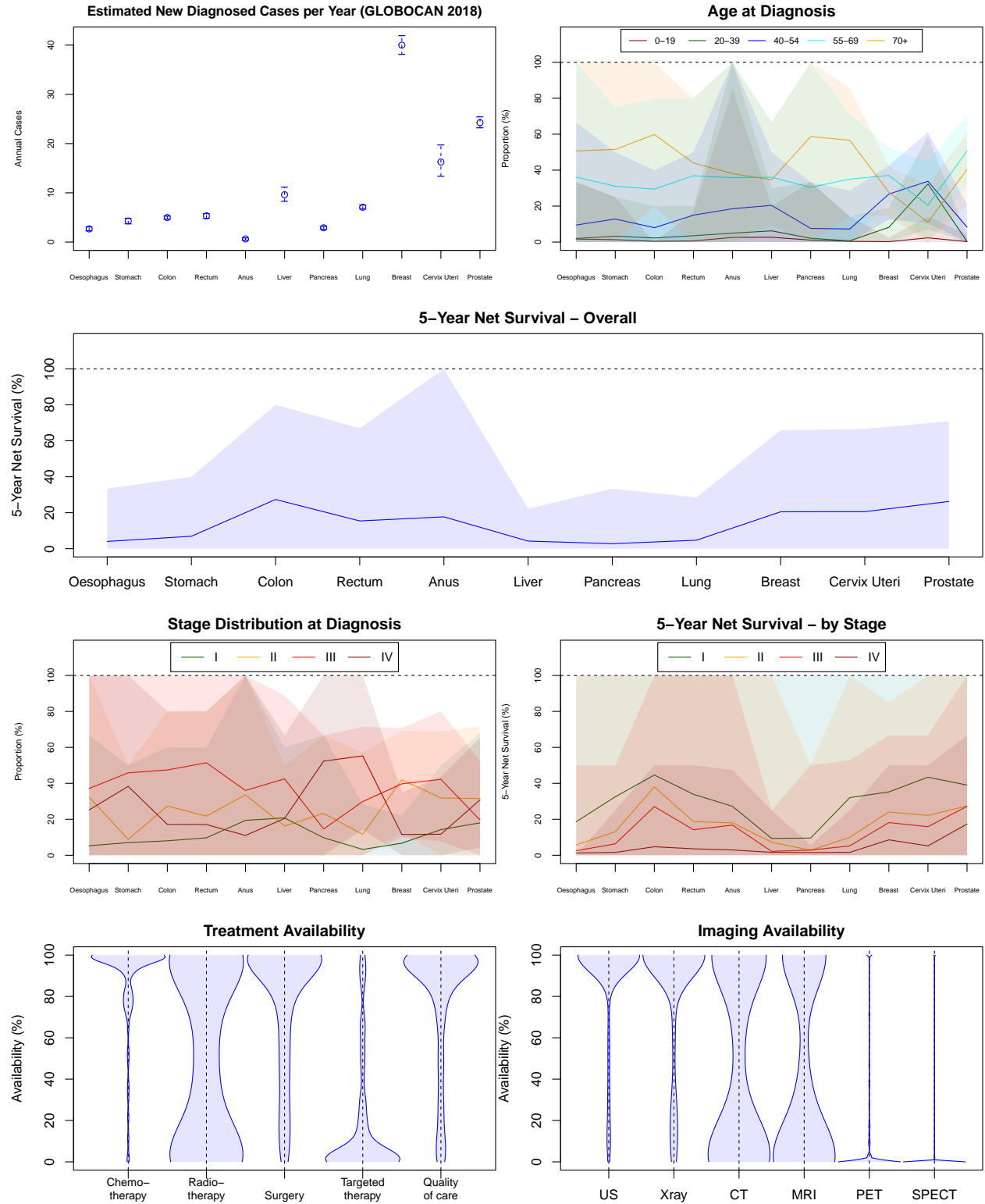
Kenya

ISO Code	Region	Area	Income Group
KEN	Eastern Africa	Africa	Lower middle income



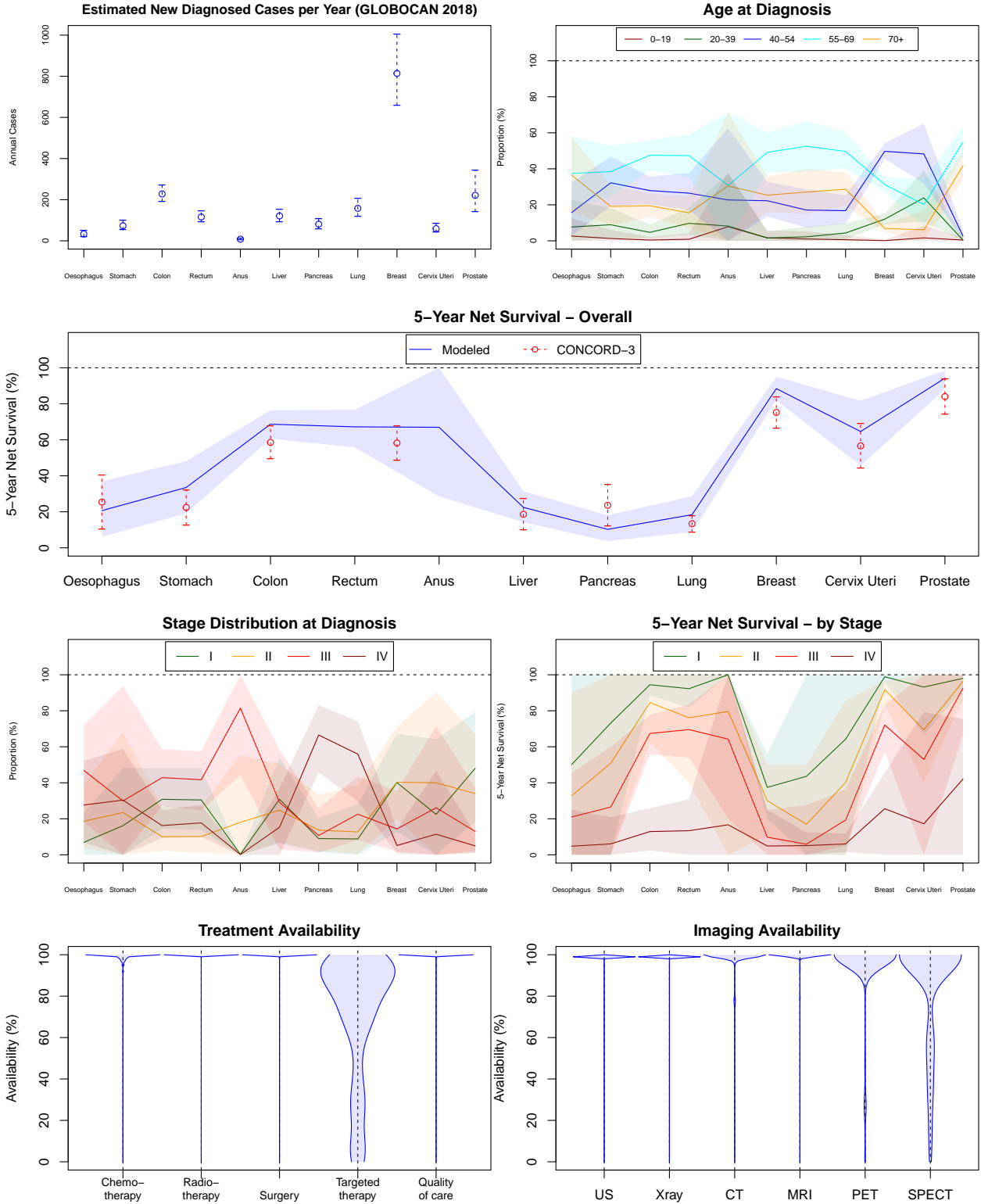
Kiribati

ISO Code	Region	Area	Income Group
KIR	Micronesia	Oceania	Lower middle income



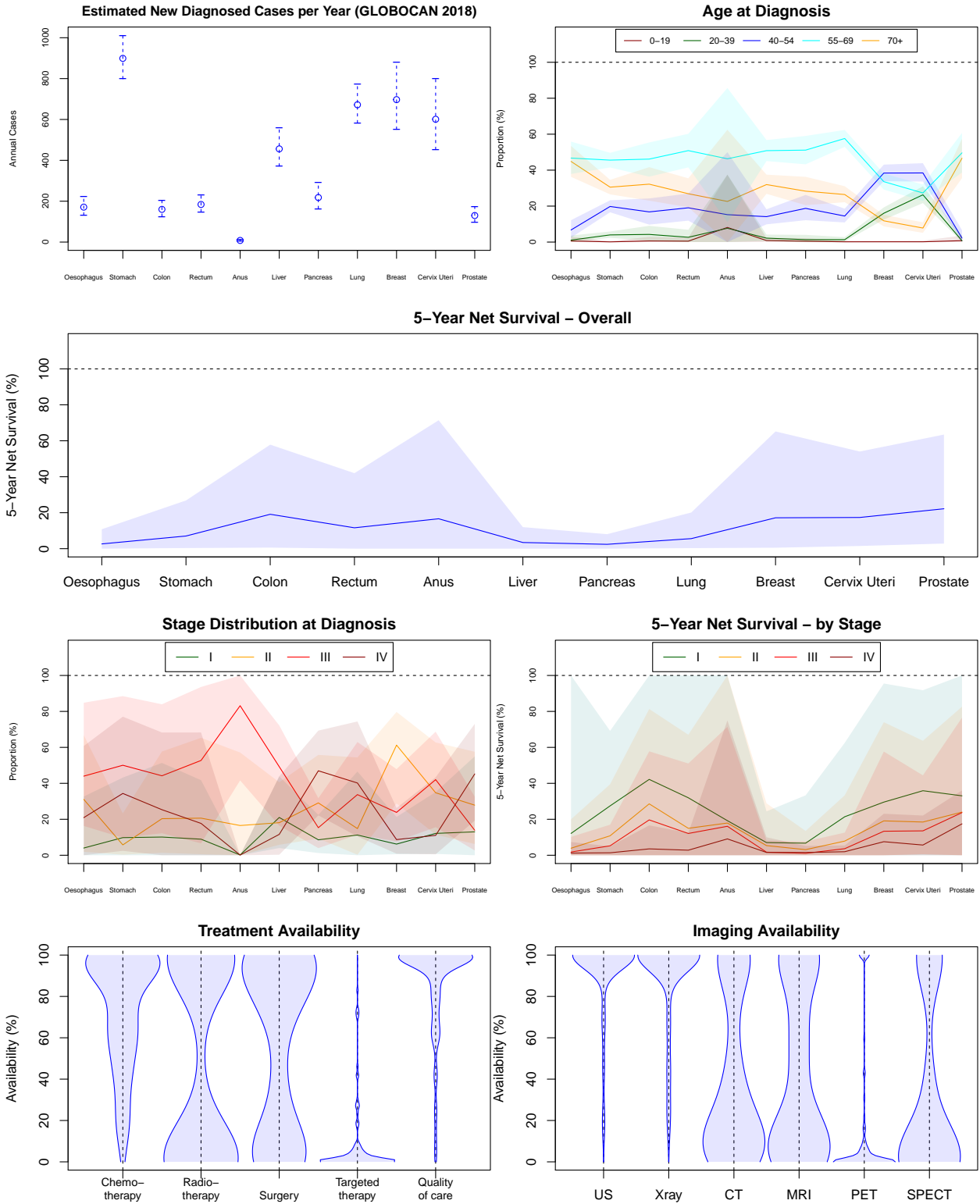
Kuwait

ISO Code	Region	Area	Income Group
KWT	Western Asia	Asia	High income



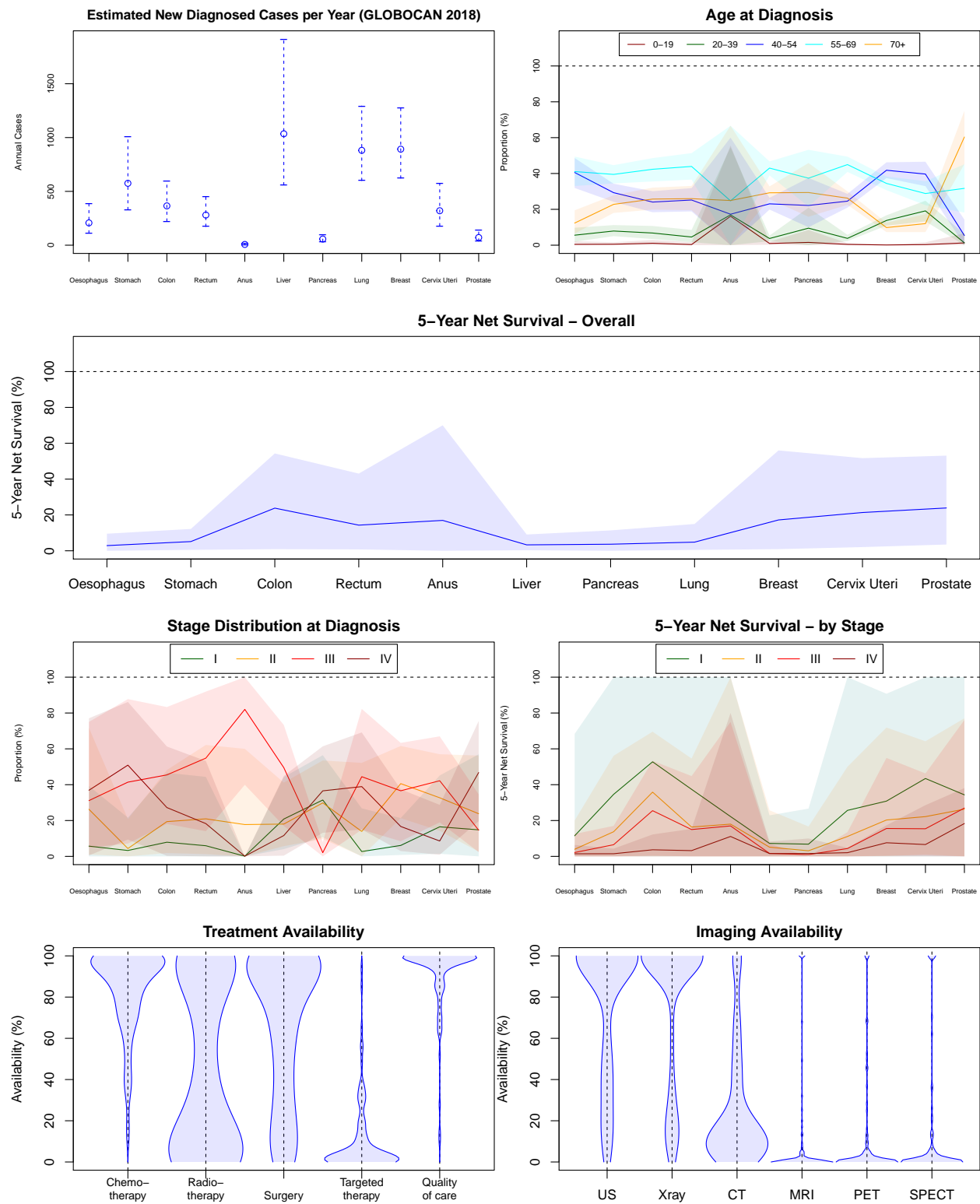
Kyrgyzstan

ISO Code	Region	Area	Income Group
KGZ	Central Asia	Asia	Lower middle income



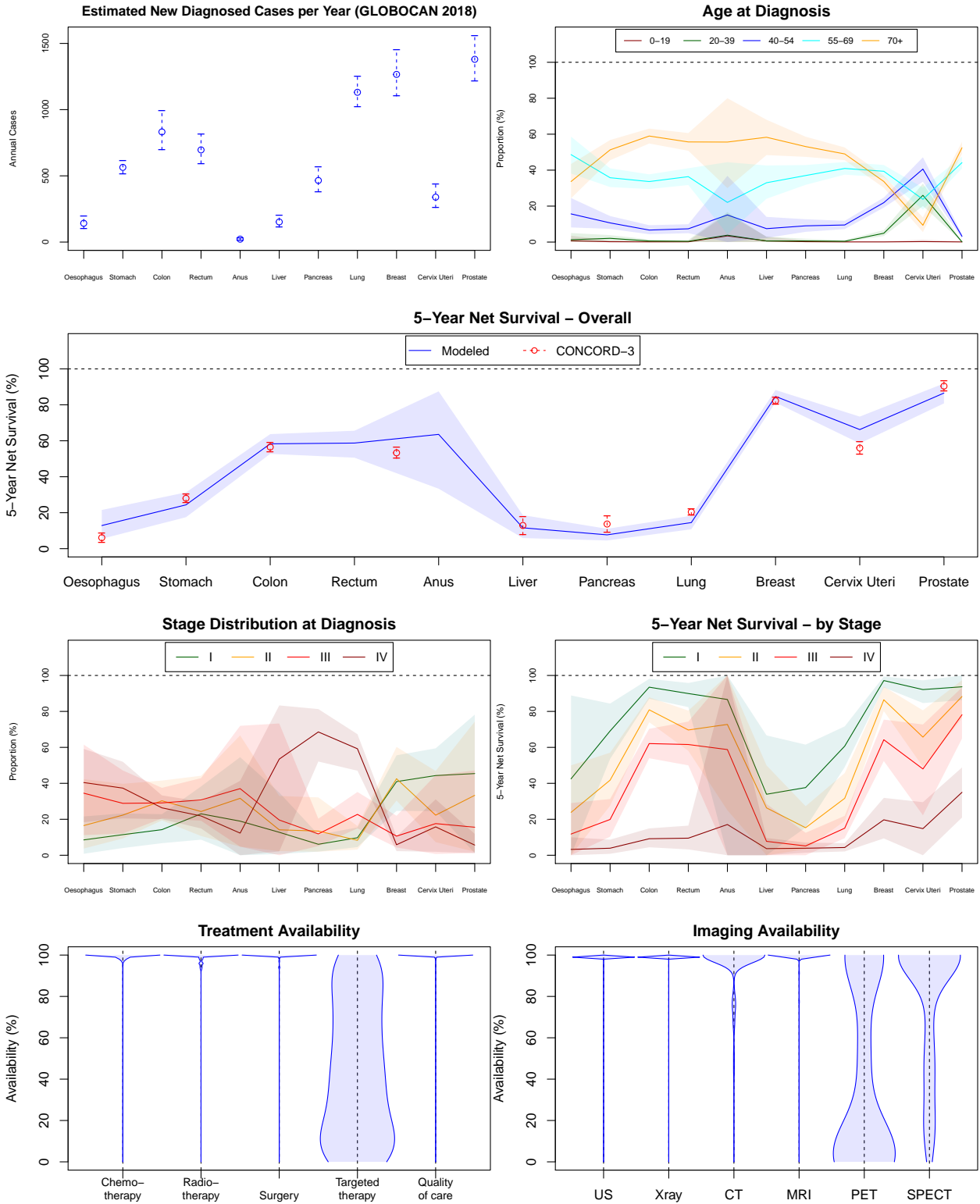
Lao People's Democratic Republic

ISO Code	Region	Area	Income Group
LAO	South-Eastern Asia	Asia	Lower middle income



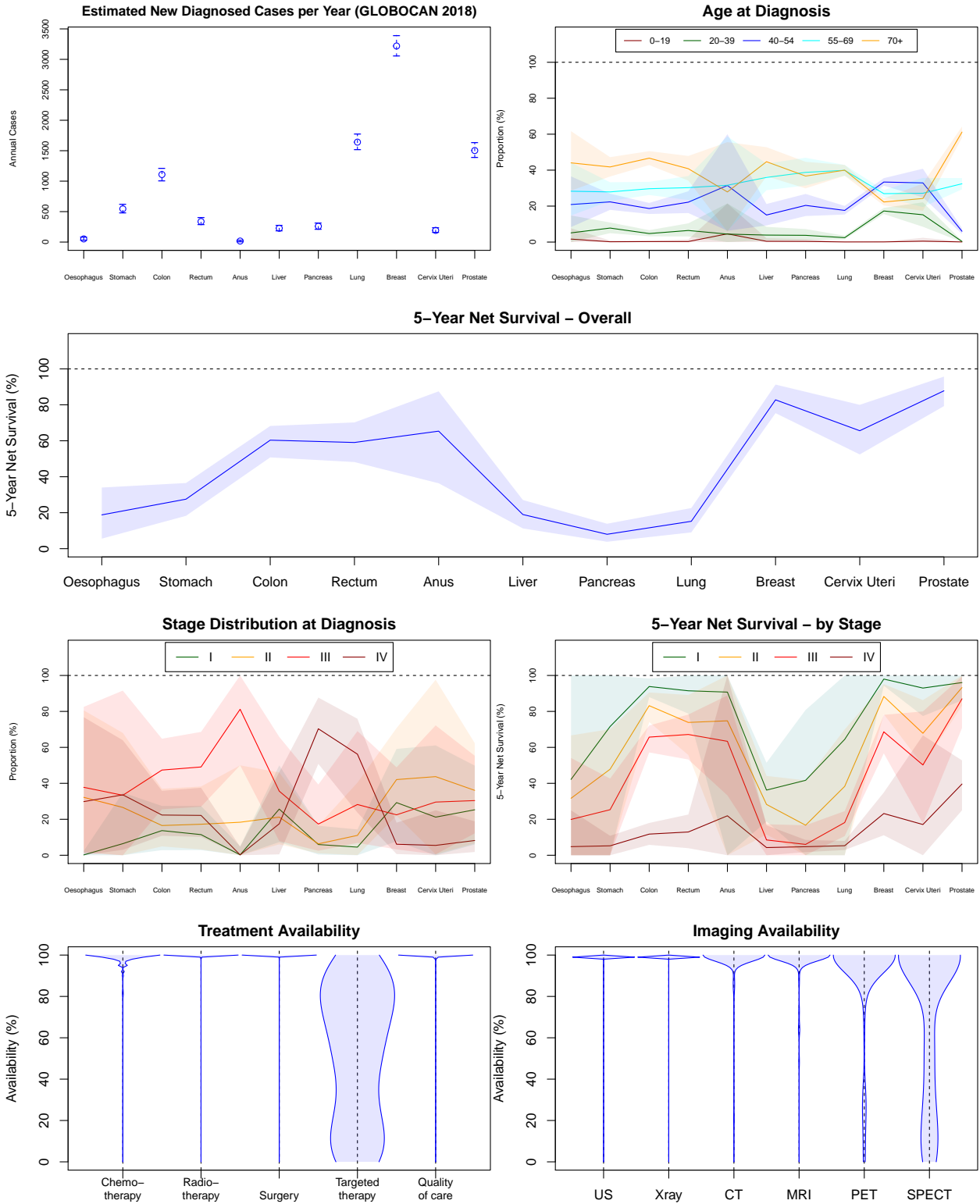
Latvia

ISO Code	Region	Area	Income Group
LVA	Northern Europe	Europe	High income



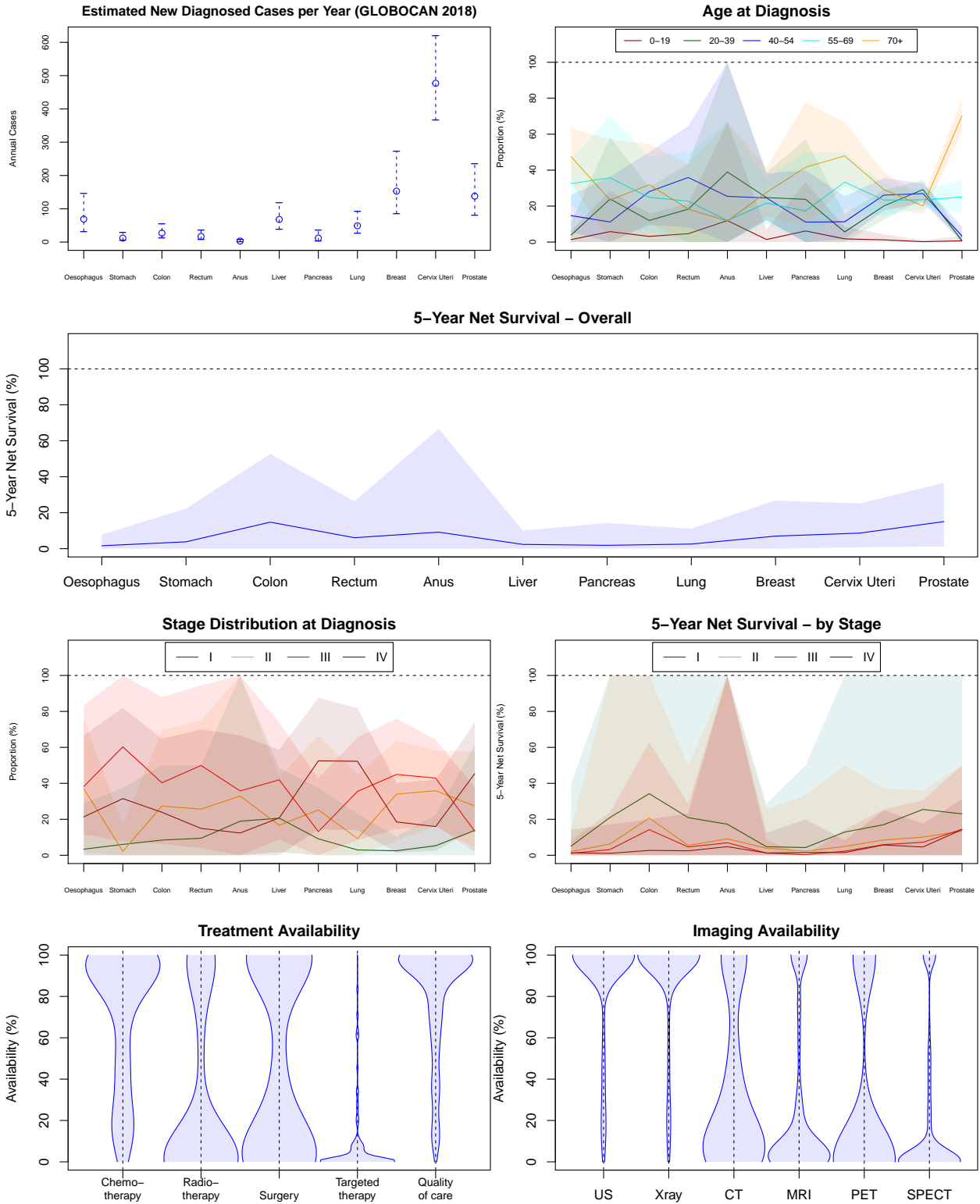
Lebanon

ISO Code	Region	Area	Income Group
LBN	Western Asia	Asia	Upper middle income



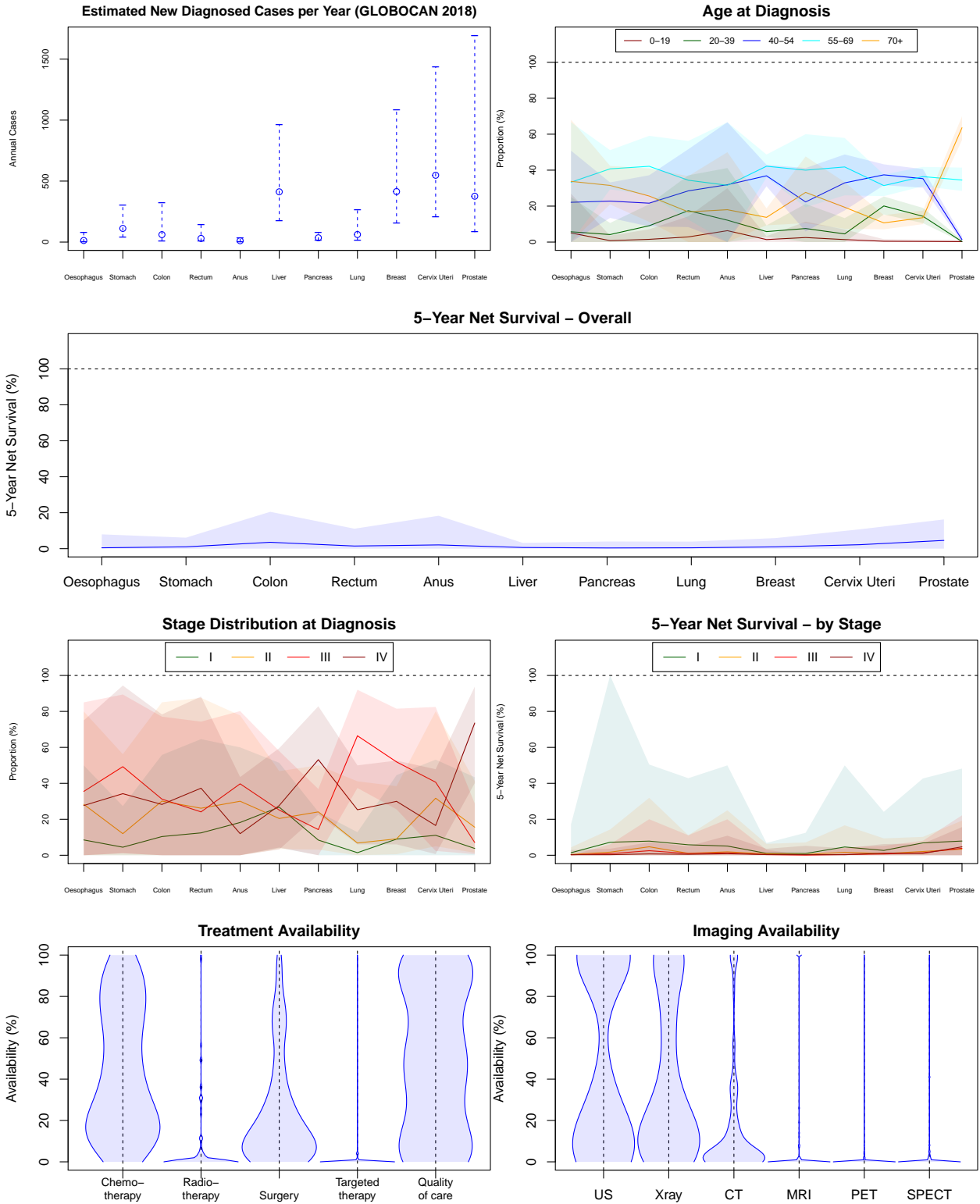
Lesotho

ISO Code	Region	Area	Income Group
LSO	Southern Africa	Africa	Lower middle income



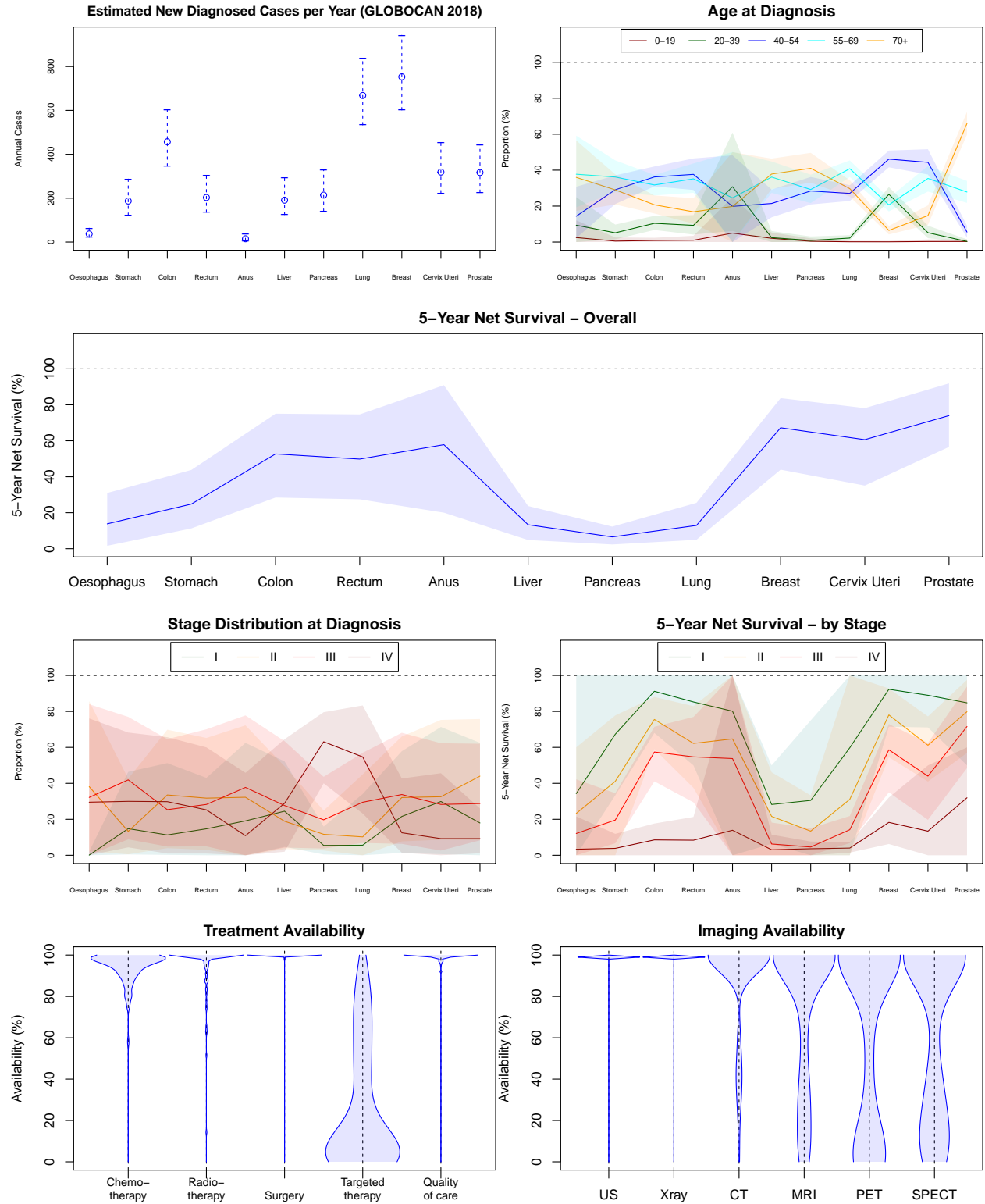
Liberia

ISO Code	Region	Area	Income Group
LBR	Western Africa	Africa	Low income



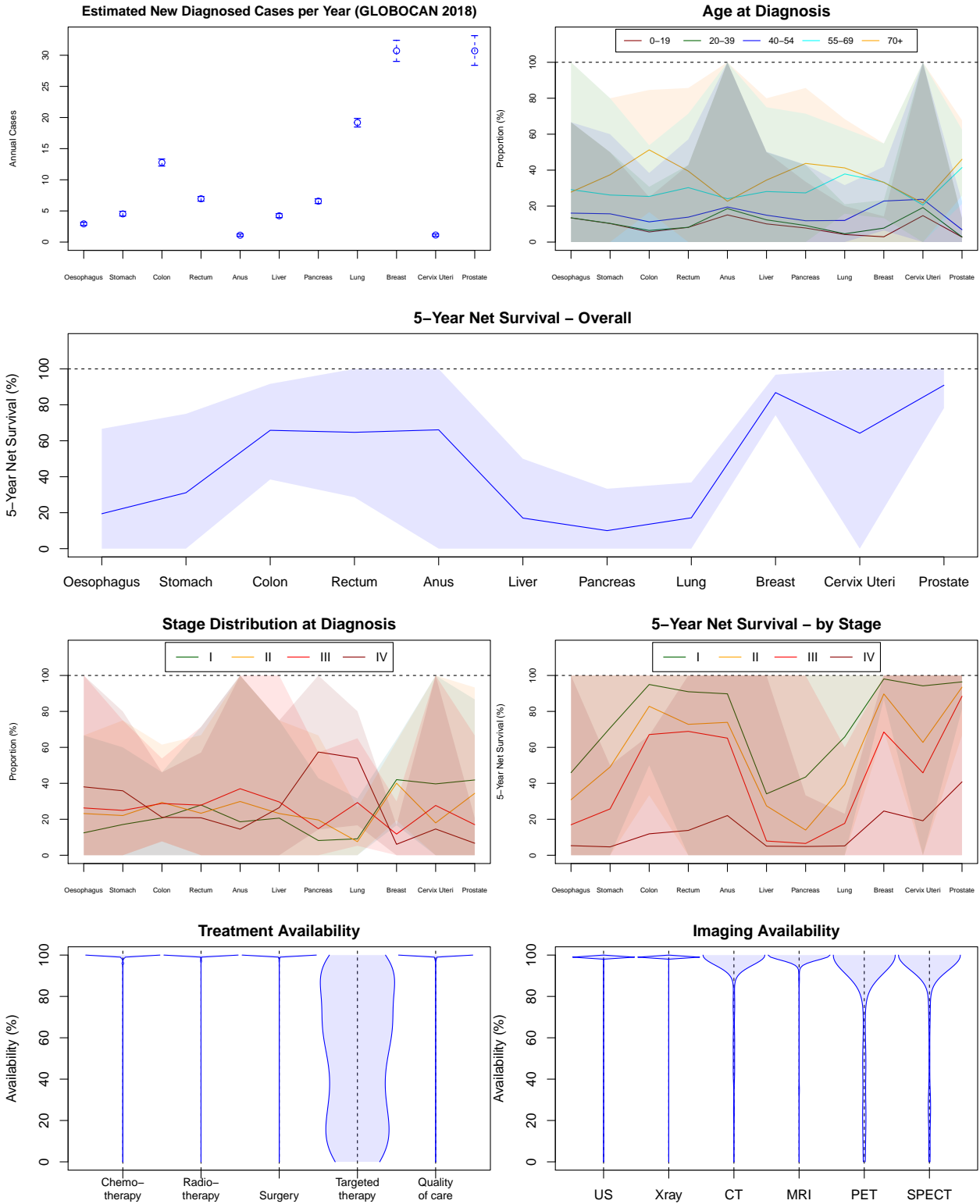
Libya

ISO Code	Region	Area	Income Group
LBY	Northern Africa	Africa	Upper middle income



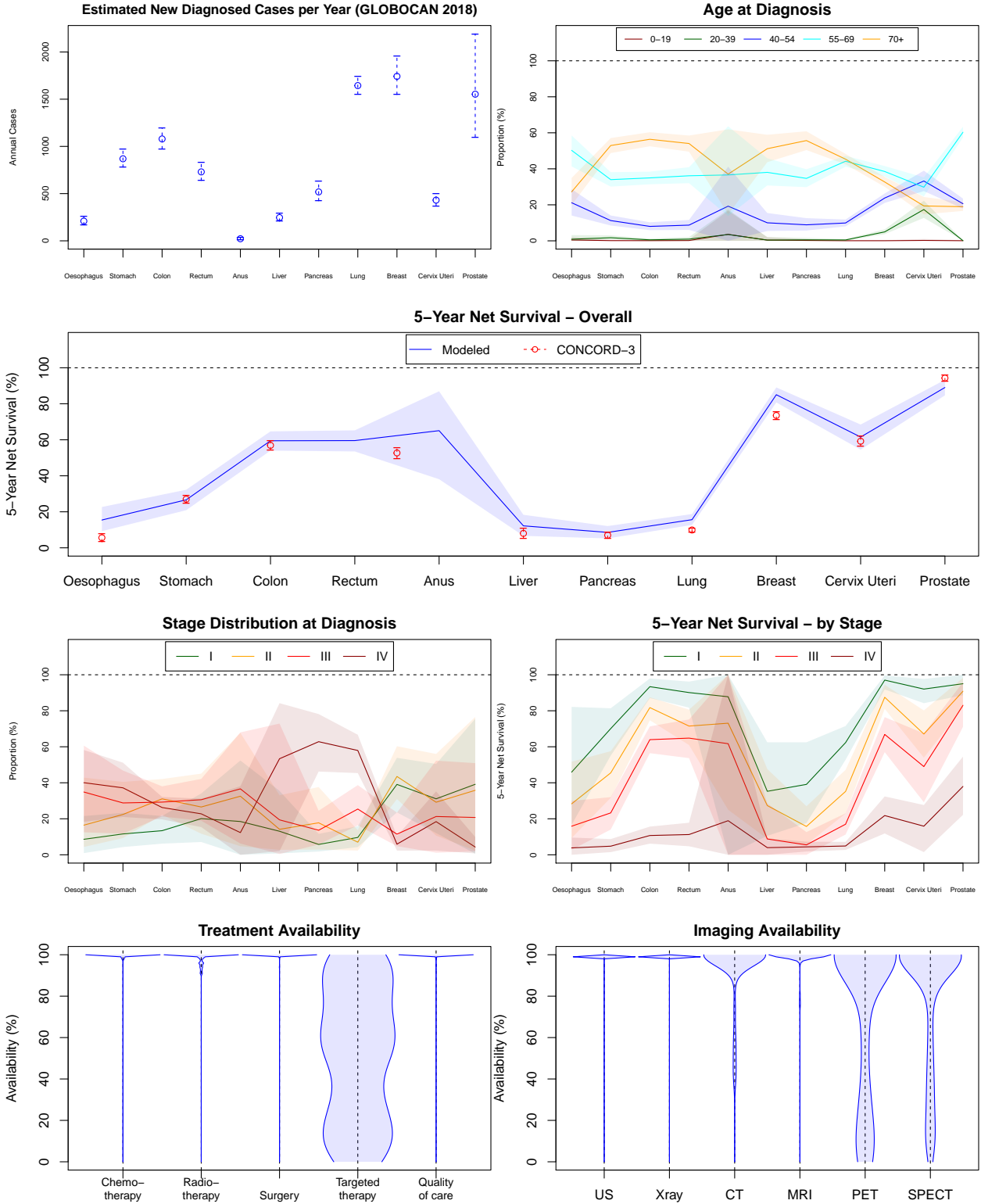
Liechtenstein

ISO Code	Region	Area	Income Group
LIE	Western Europe	Europe	High income



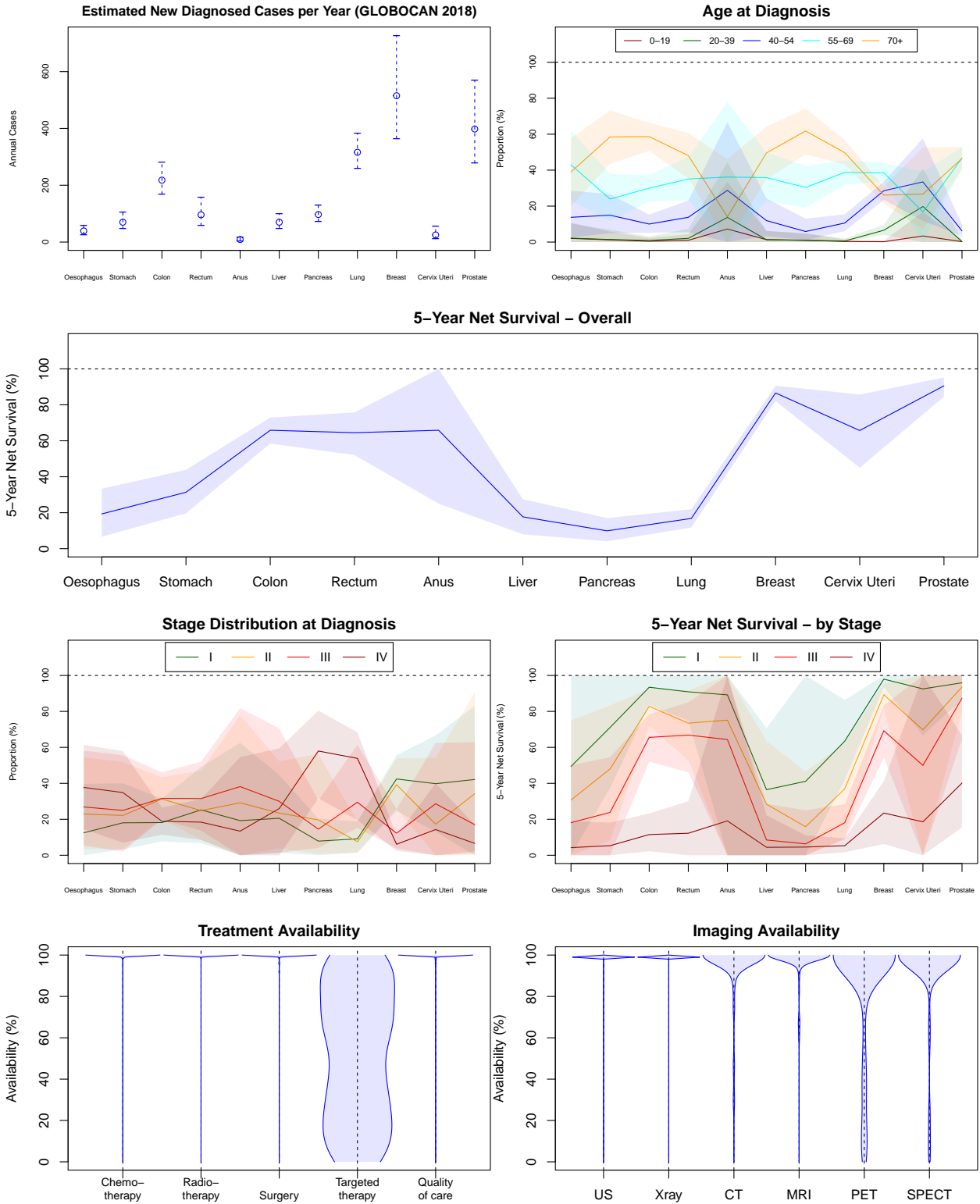
Lithuania

ISO Code	Region	Area	Income Group
LTU	Northern Europe	Europe	High income



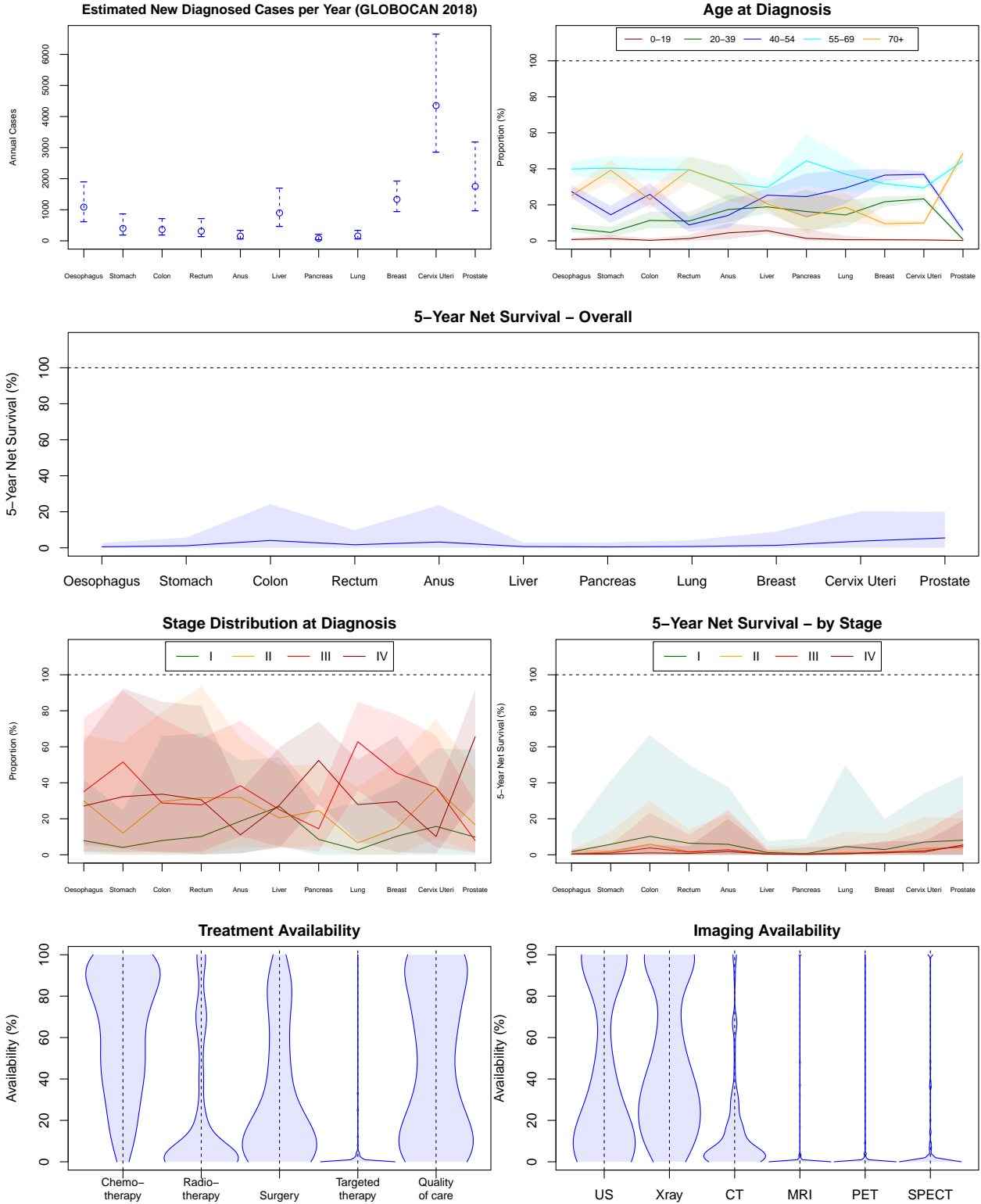
Luxembourg

ISO Code	Region	Area	Income Group
LUX	Western Europe	Europe	High income



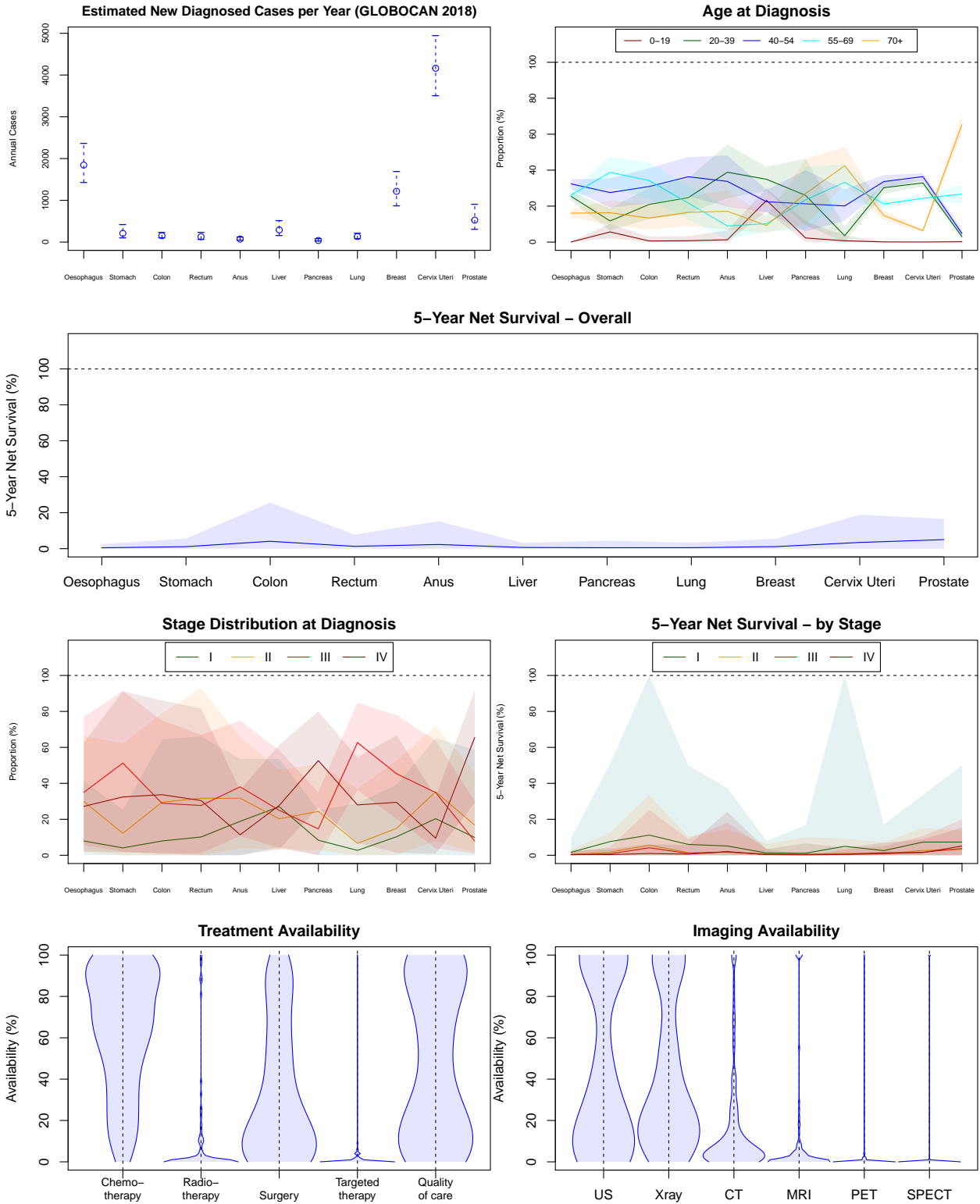
Madagascar

ISO Code	Region	Area	Income Group
MDG	Eastern Africa	Africa	Low income



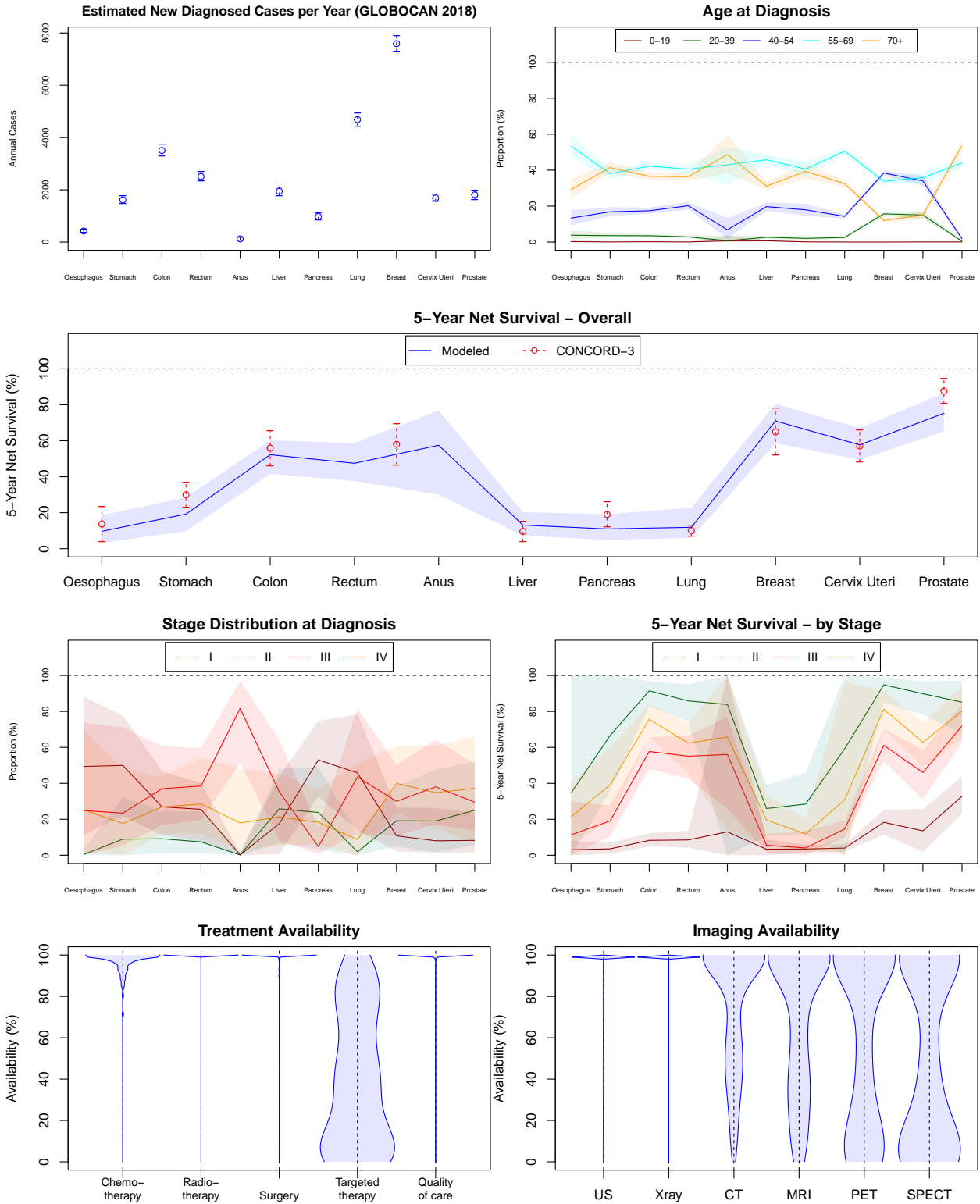
Malawi

ISO Code	Region	Area	Income Group
MWI	Eastern Africa	Africa	Low income



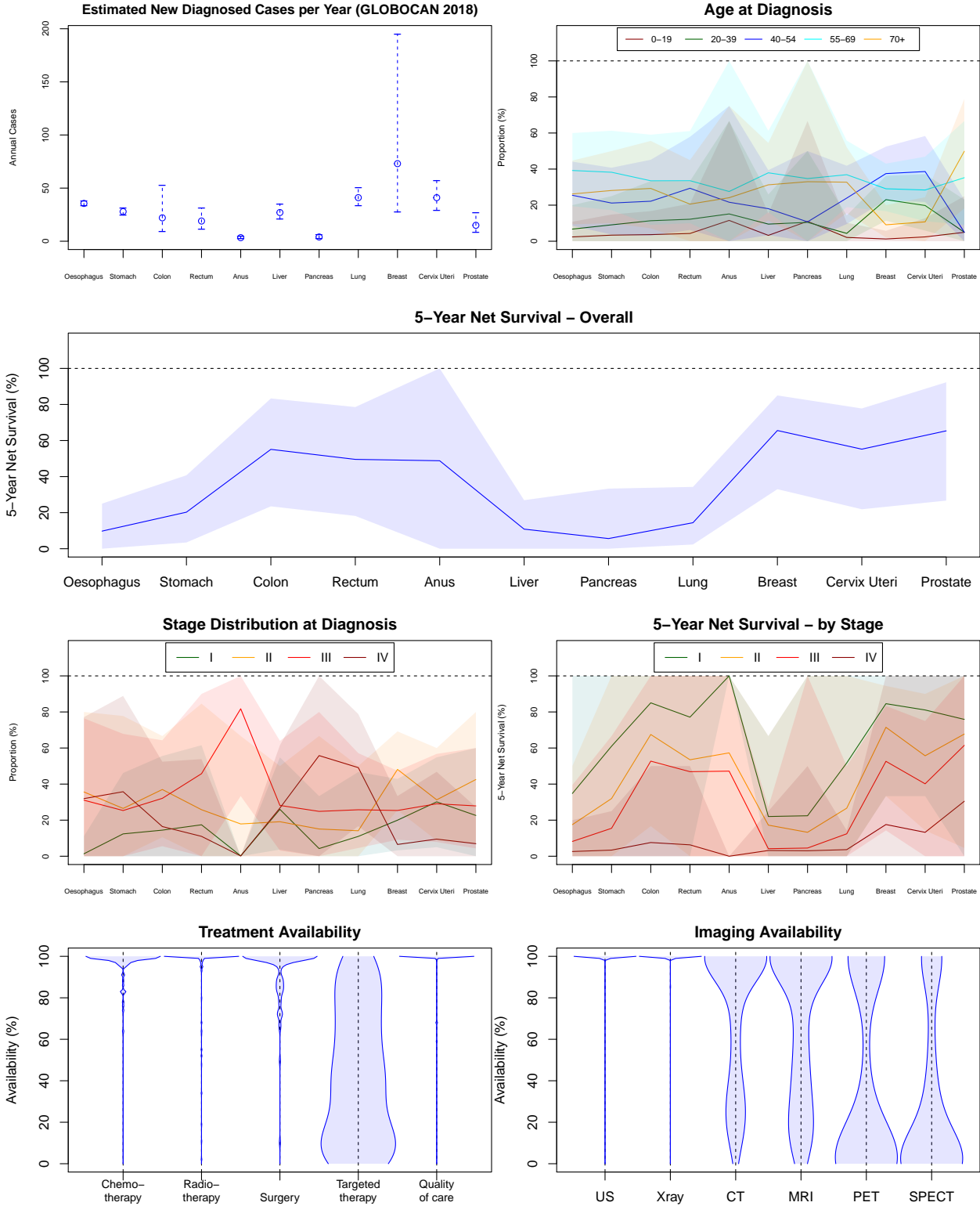
Malaysia

ISO Code	Region	Area	Income Group
MYS	South-Eastern Asia	Asia	Upper middle income



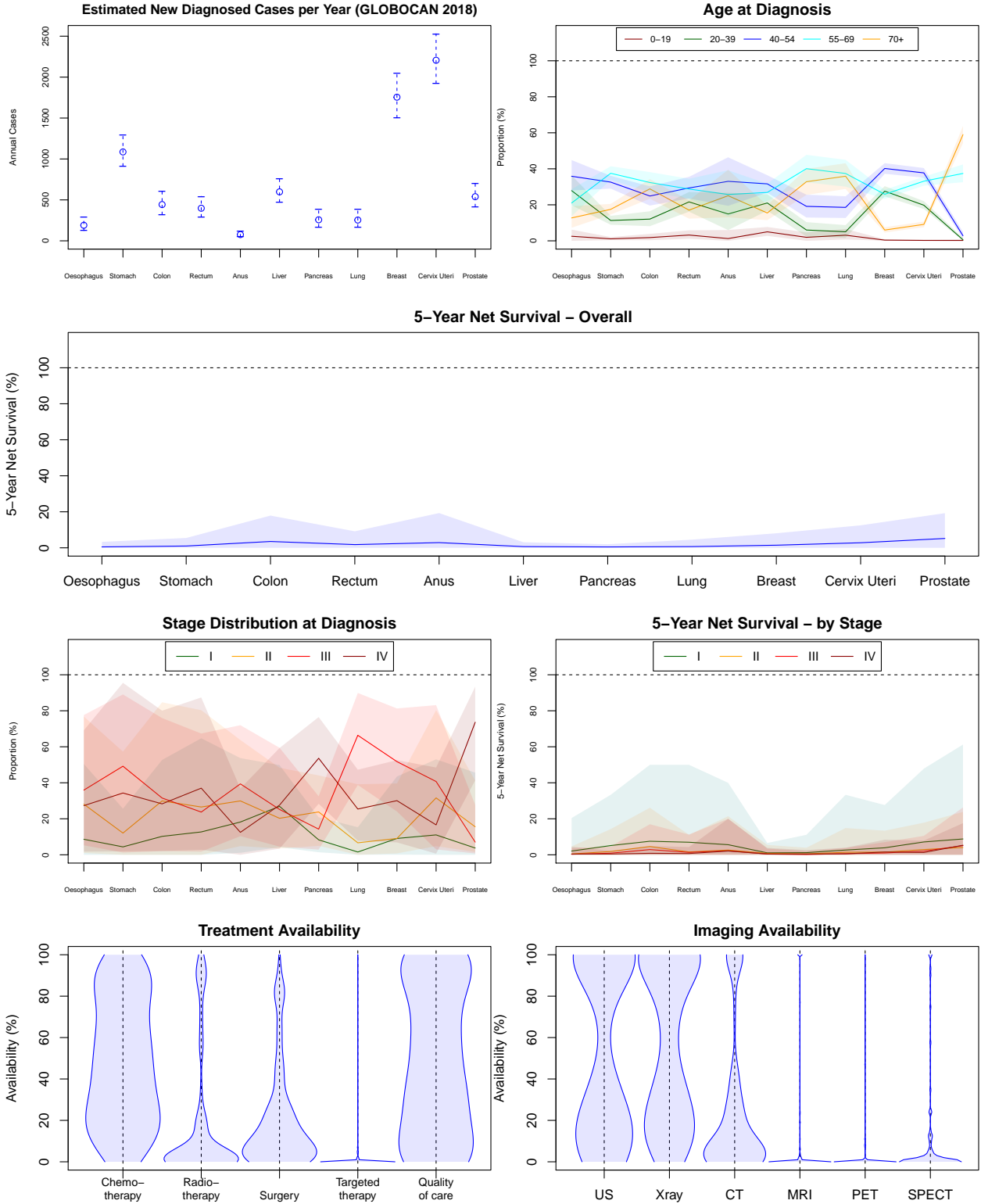
Maldives

ISO Code	Region	Area	Income Group
MDV	Southern Asia	Asia	Upper middle income



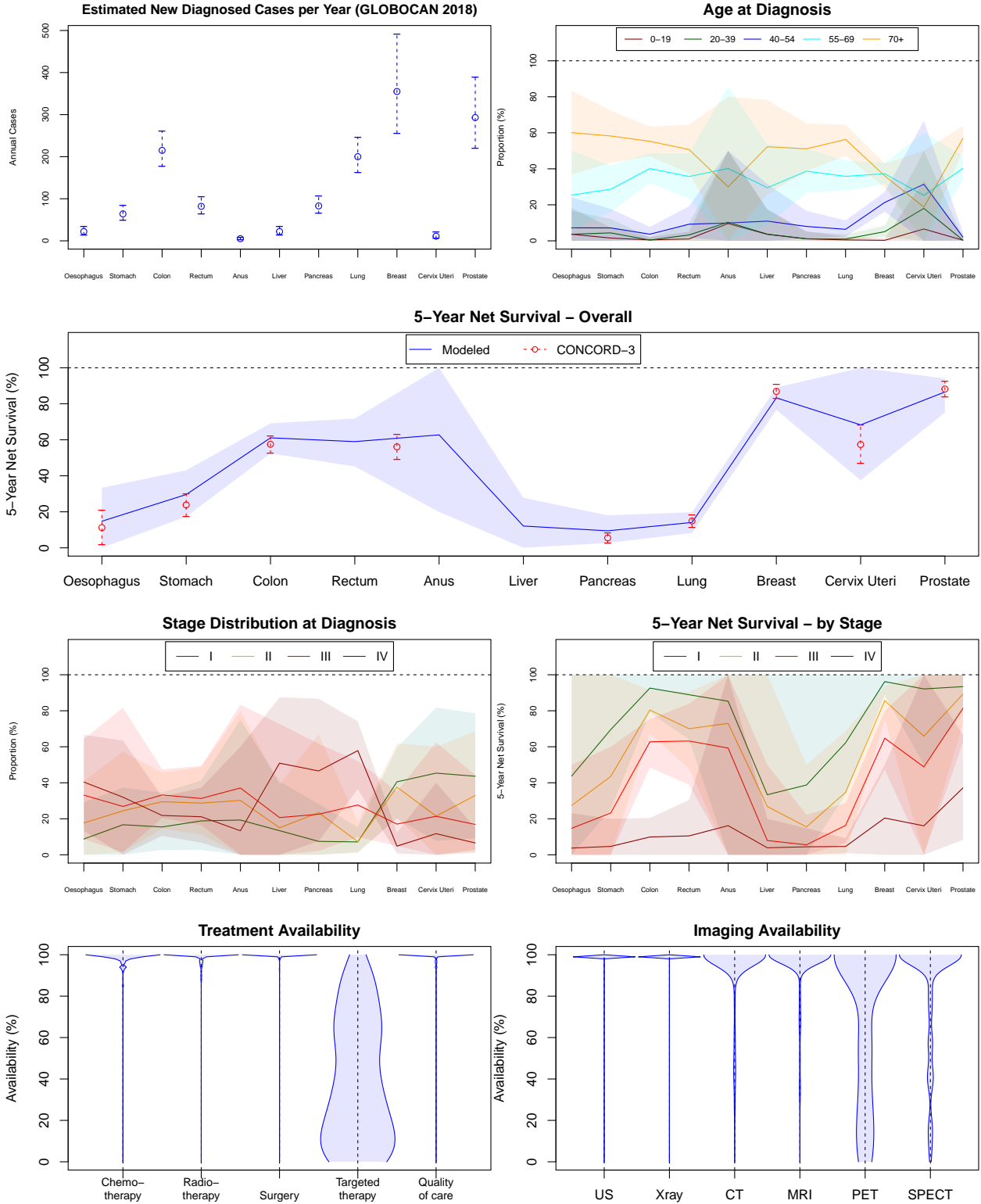
Mali

ISO Code	Region	Area	Income Group
MLI	Western Africa	Africa	Low income



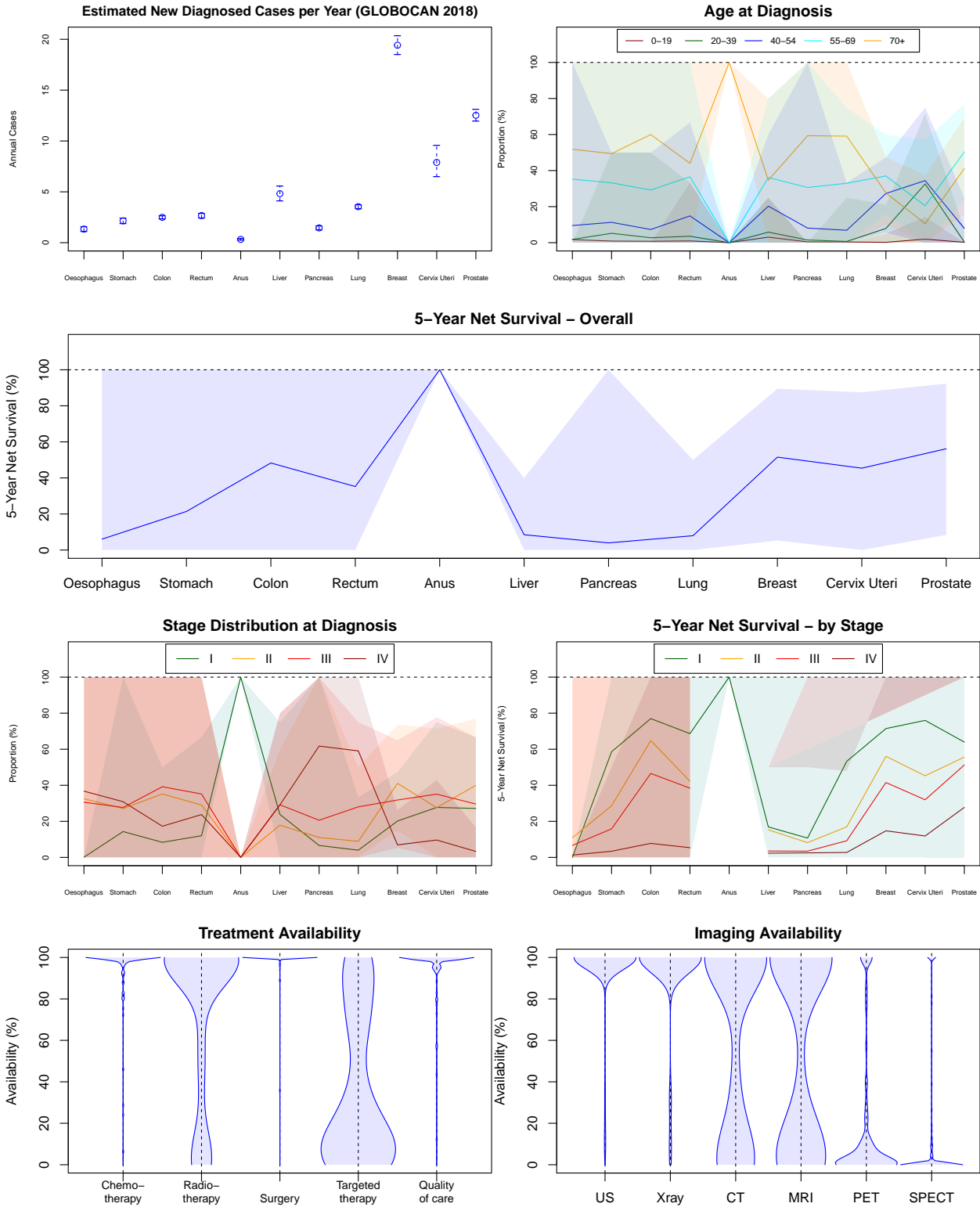
Malta

ISO Code	Region	Area	Income Group
MLT	Southern Europe	Europe	High income



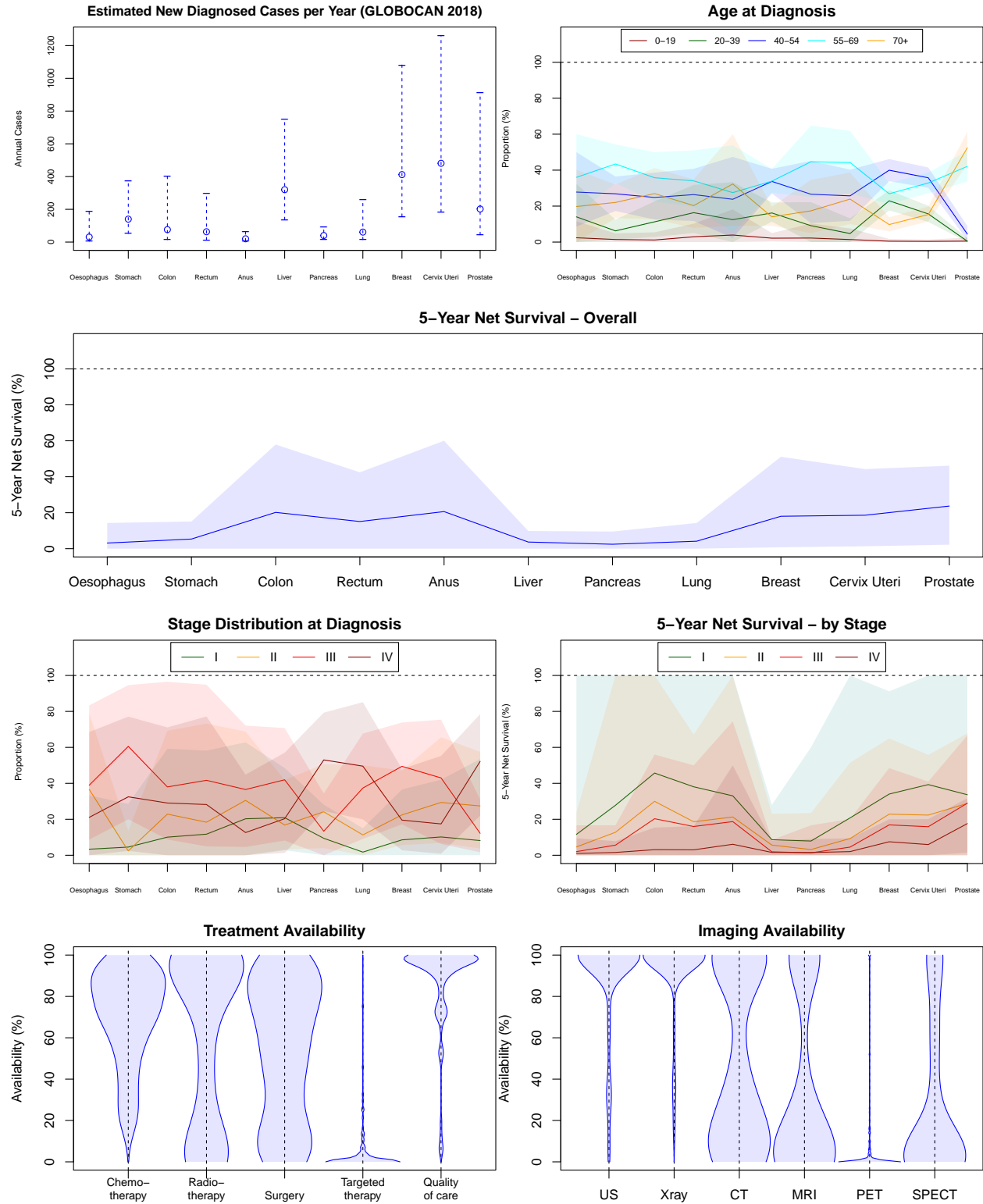
Marshall Islands

ISO Code	Region	Area	Income Group
MHL	Micronesia	Oceania	Upper middle income



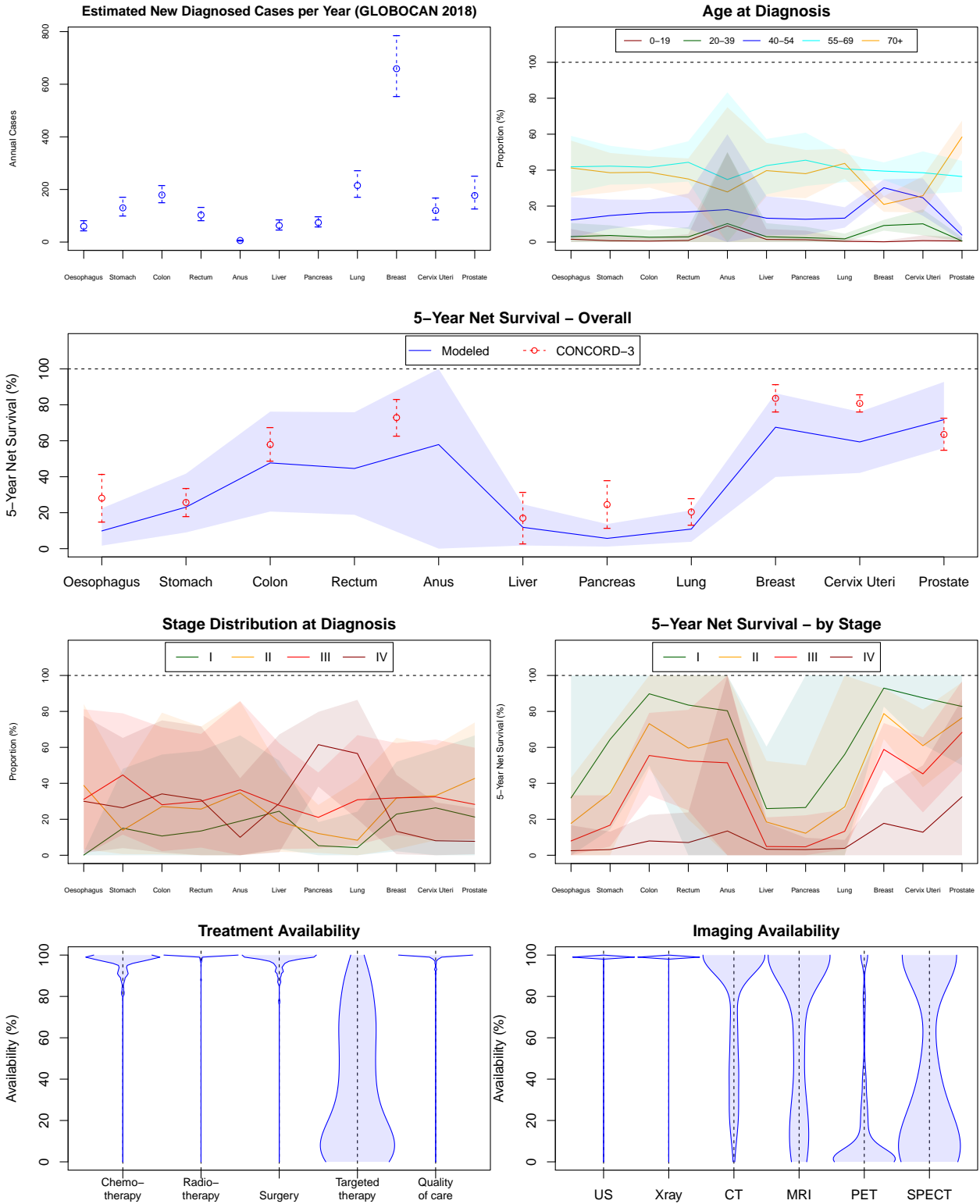
Mauritania

ISO Code	Region	Area	Income Group
MRT	Western Africa	Africa	Lower middle income



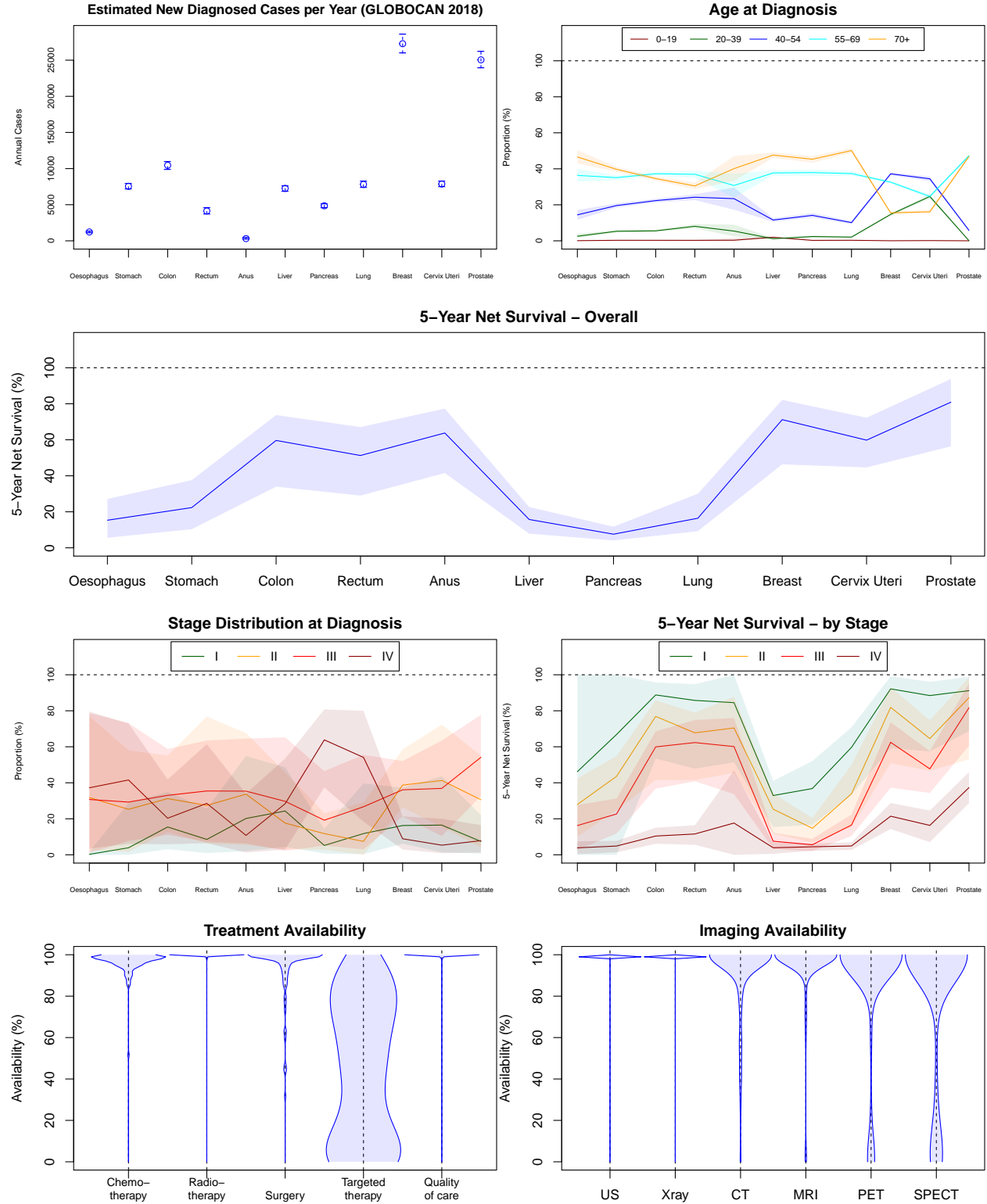
Mauritius

ISO Code	Region	Area	Income Group
MUS	Eastern Africa	Africa	Upper middle income



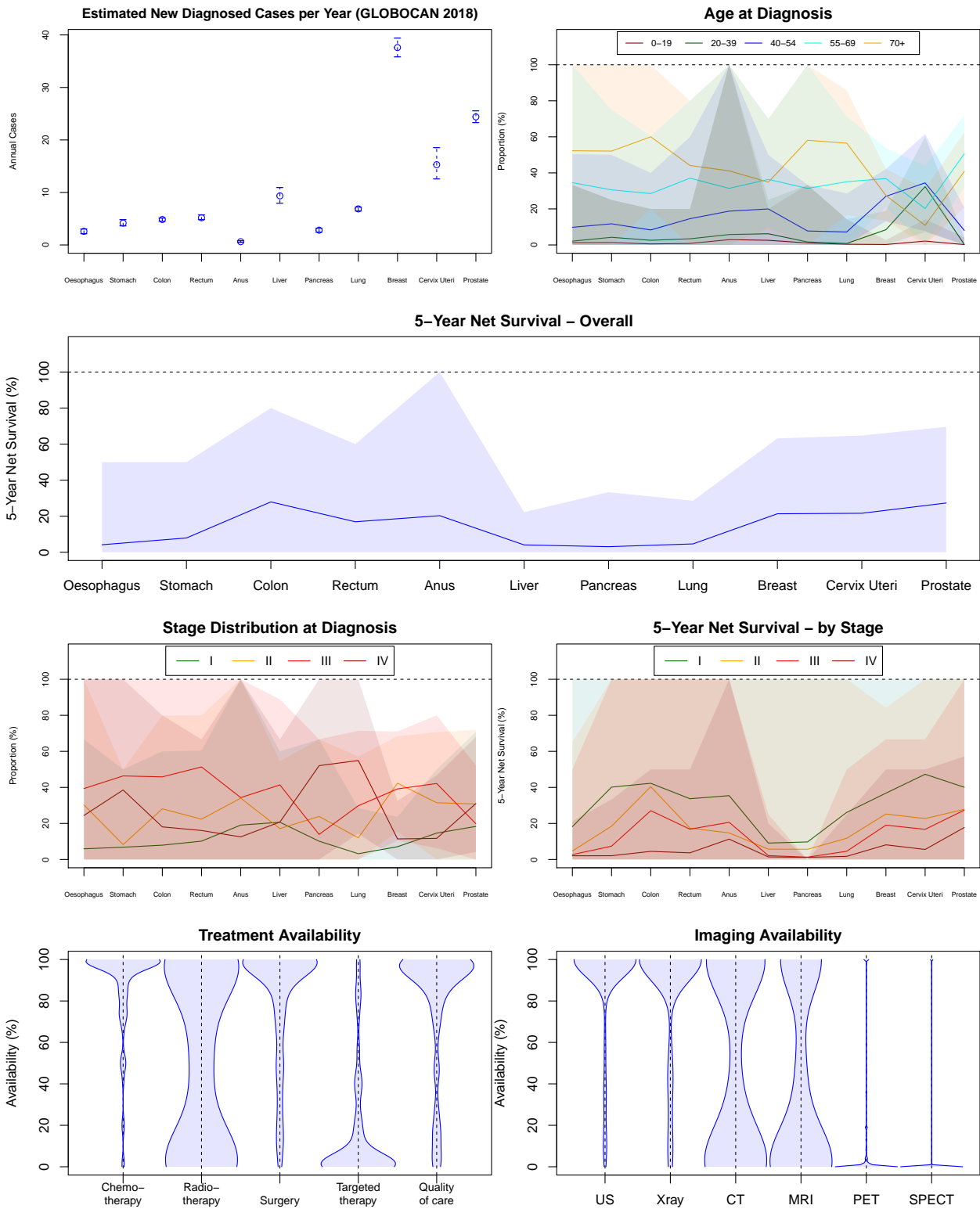
Mexico

ISO Code	Region	Area	Income Group
MEX	Central America	Latin America and the Caribbean	Upper middle income



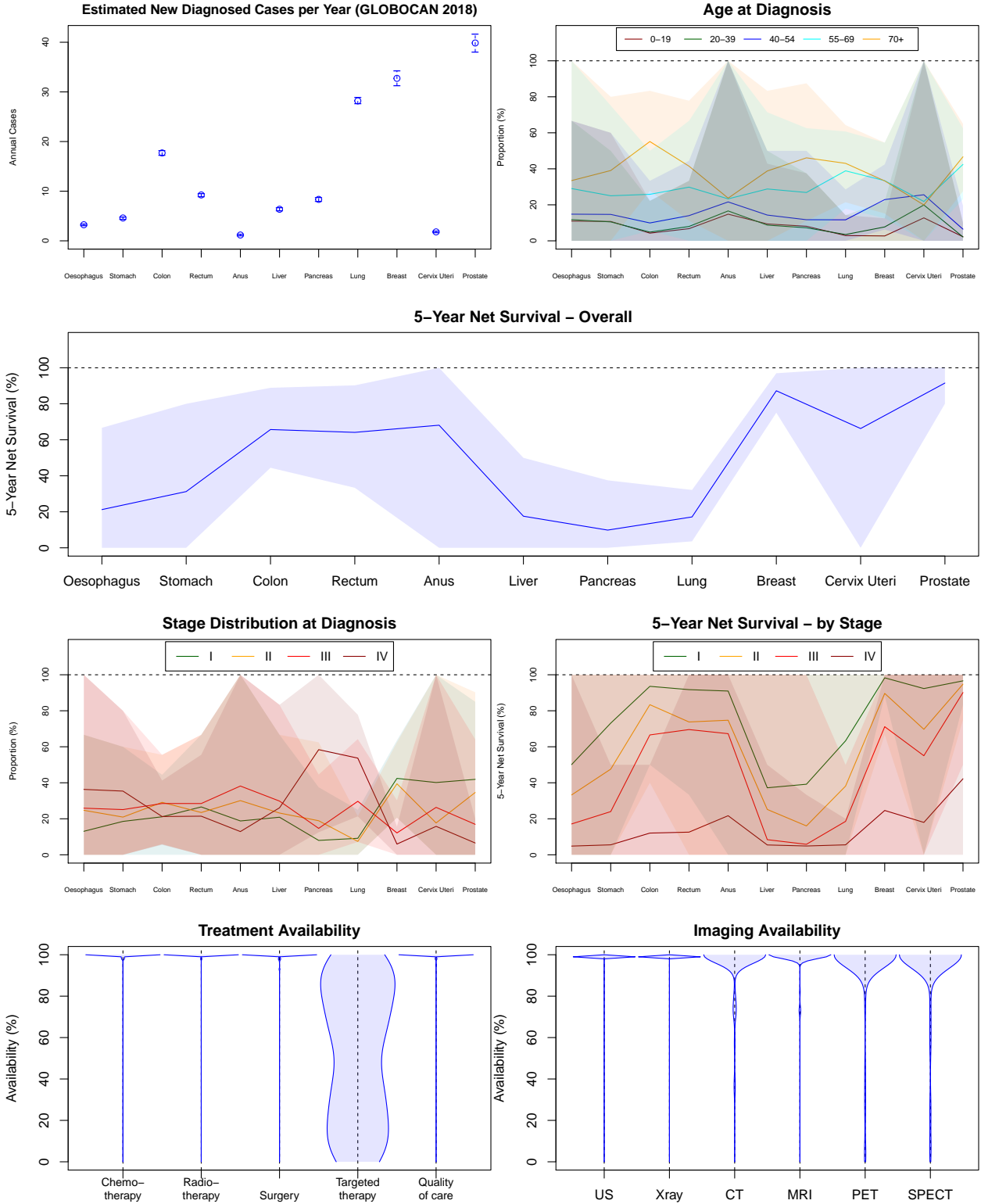
Micronesia (Fed. States of)

ISO Code	Region	Area	Income Group
FSM	Micronesia	Oceania	Lower middle income



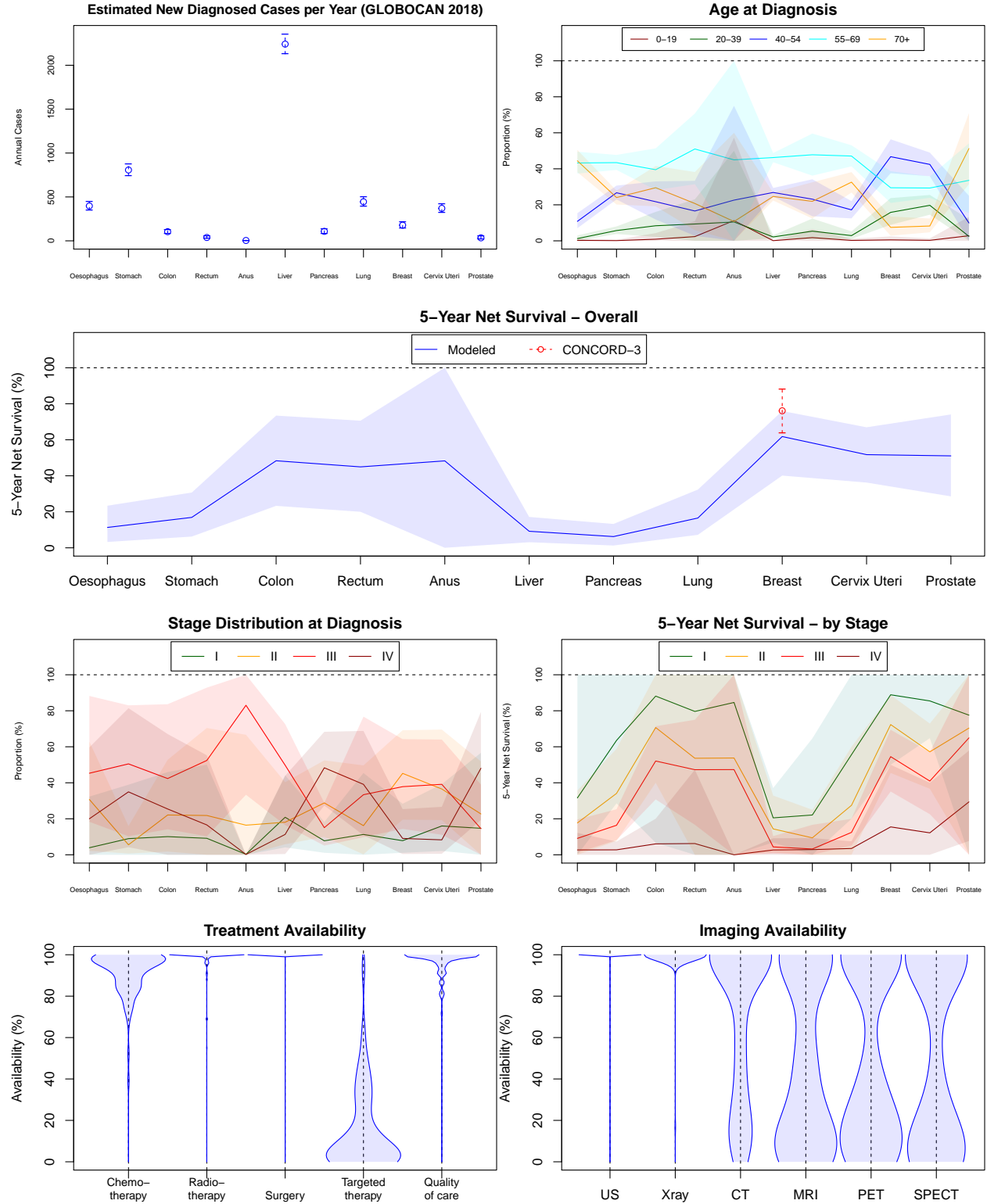
Monaco

ISO Code	Region	Area	Income Group
MCO	Western Europe	Europe	High income



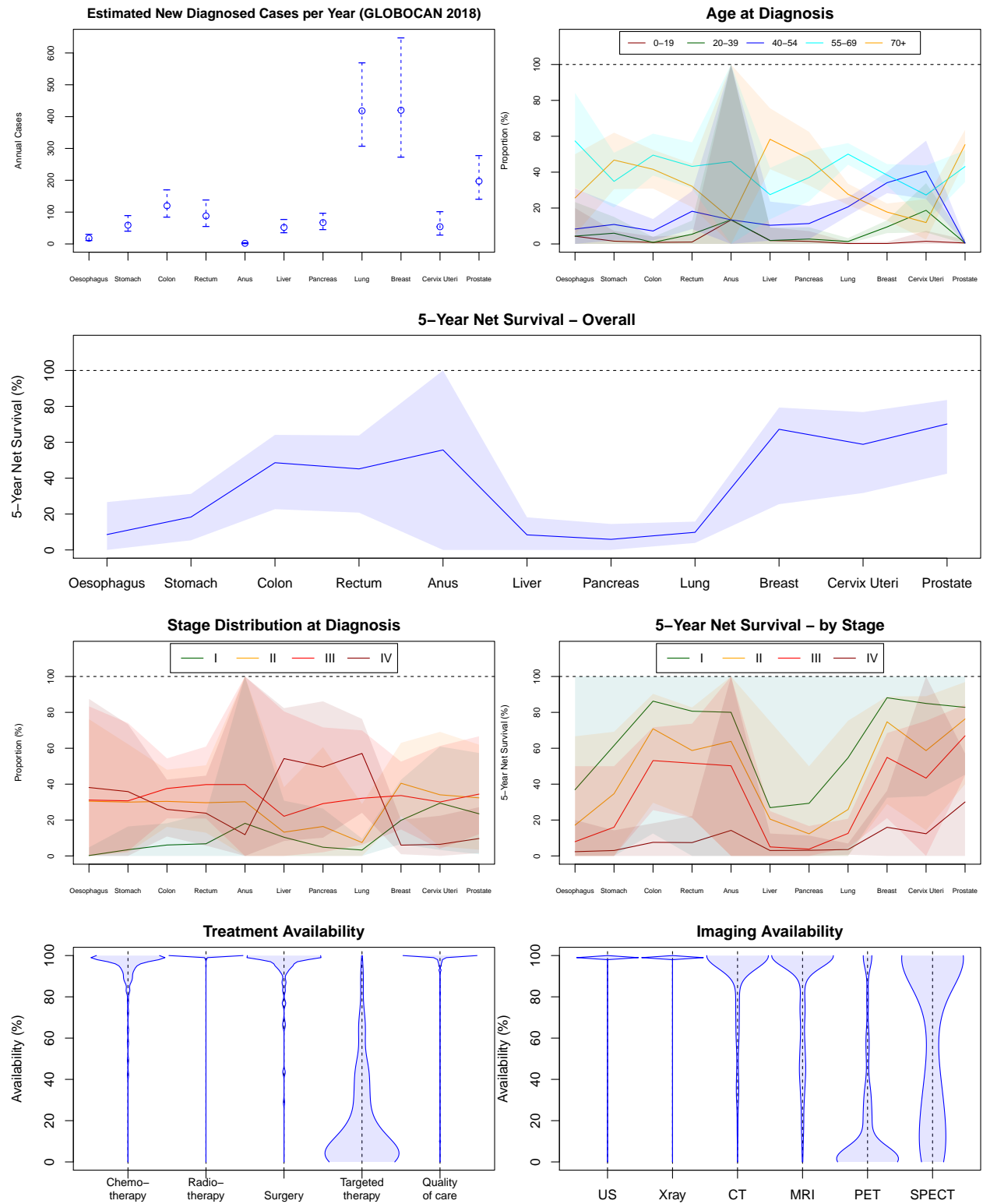
Mongolia

ISO Code	Region	Area	Income Group
MNG	Eastern Asia	Asia	Lower middle income



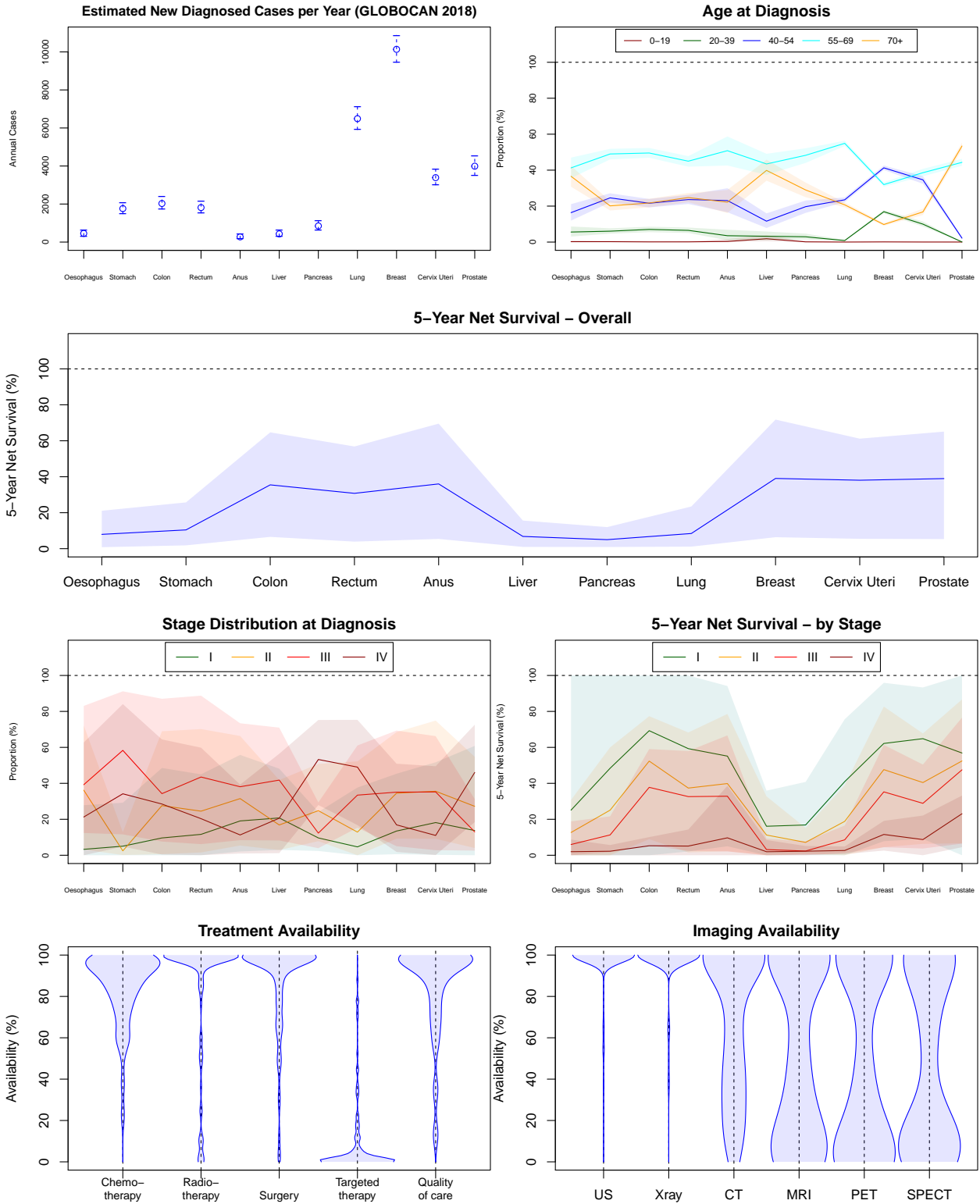
Montenegro

ISO Code	Region	Area	Income Group
MNE	Southern Europe	Europe	Upper middle income



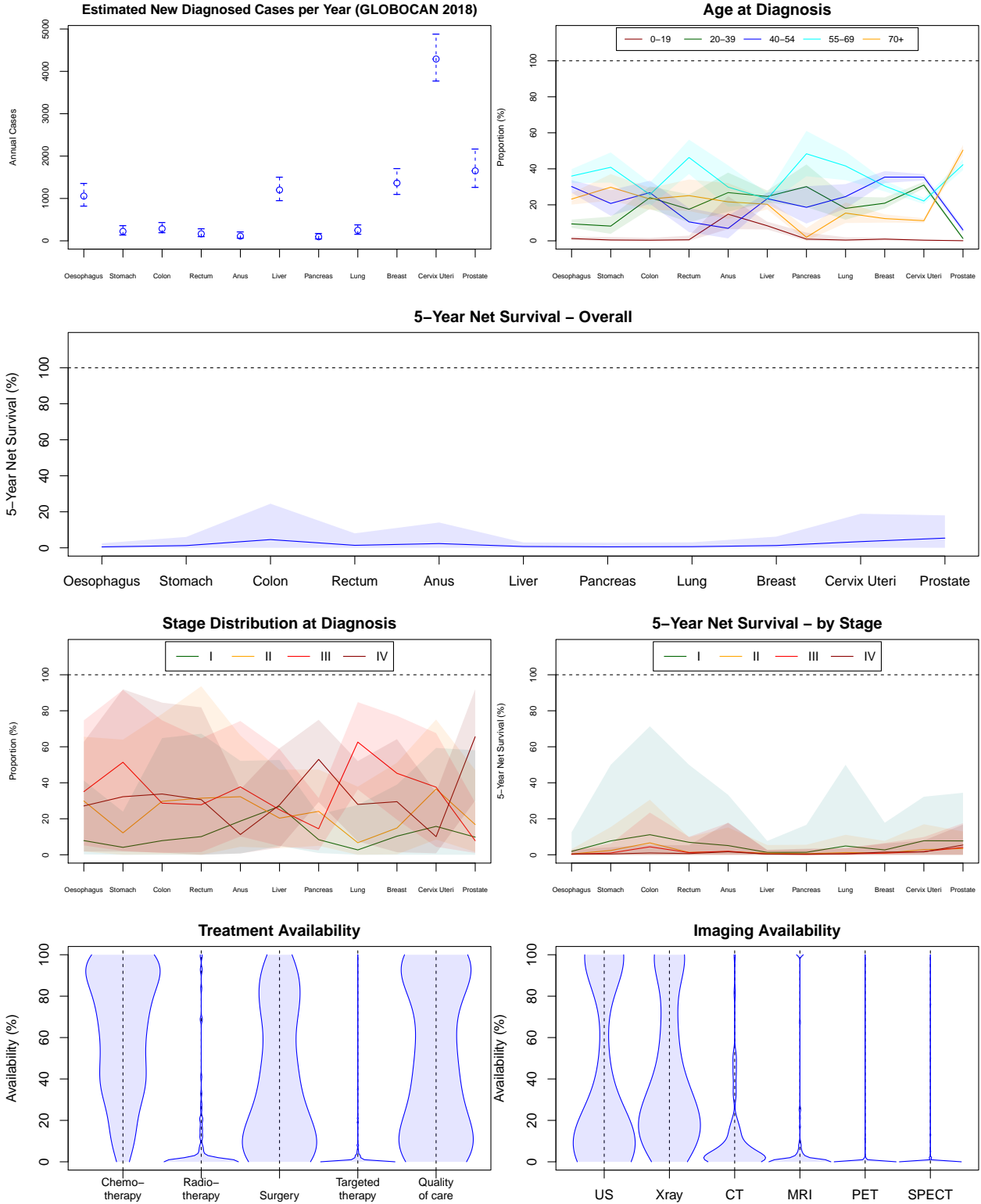
Morocco

ISO Code	Region	Area	Income Group
MAR	Northern Africa	Africa	Lower middle income



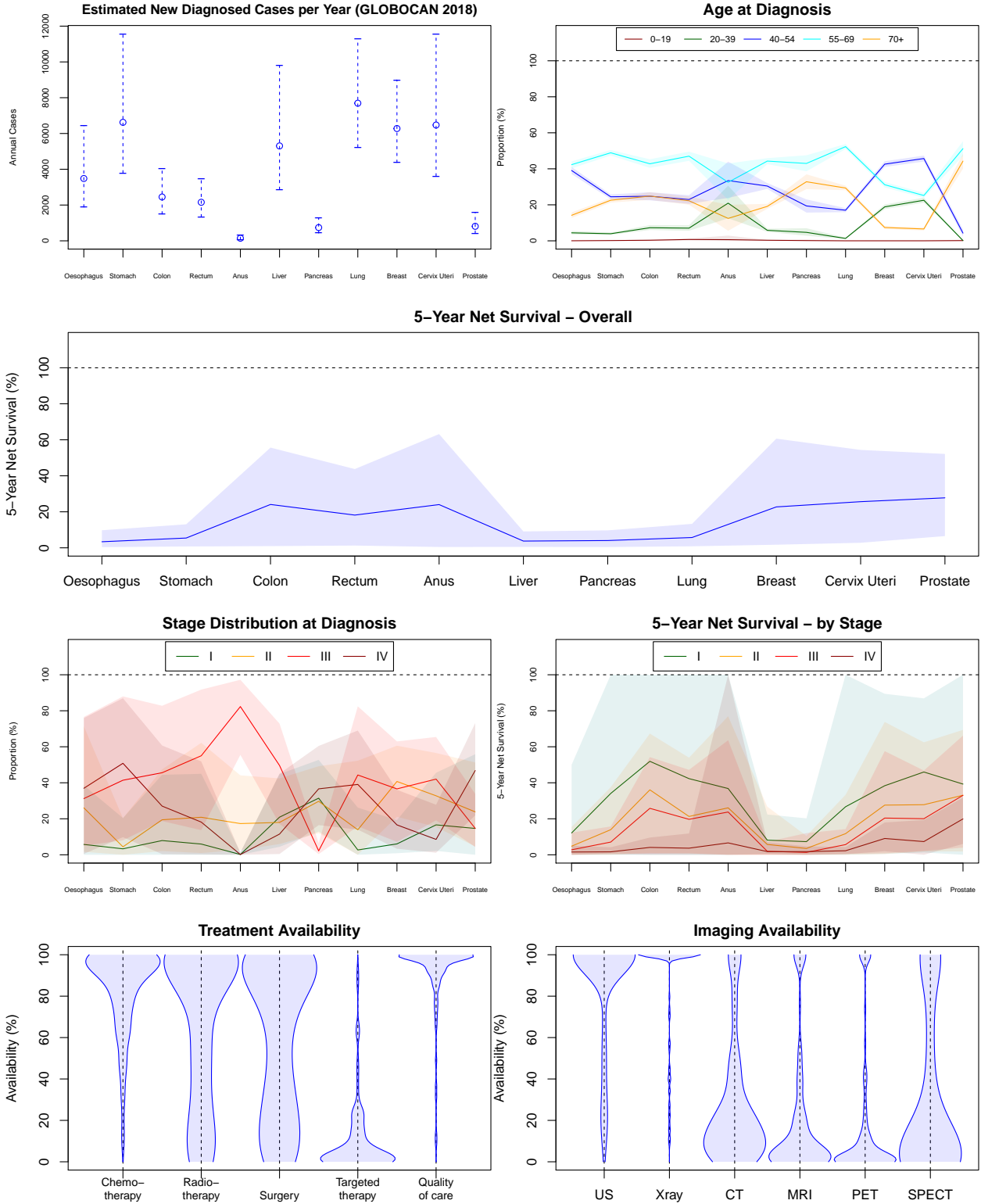
Mozambique

ISO Code	Region	Area	Income Group
MOZ	Eastern Africa	Africa	Low income



Myanmar

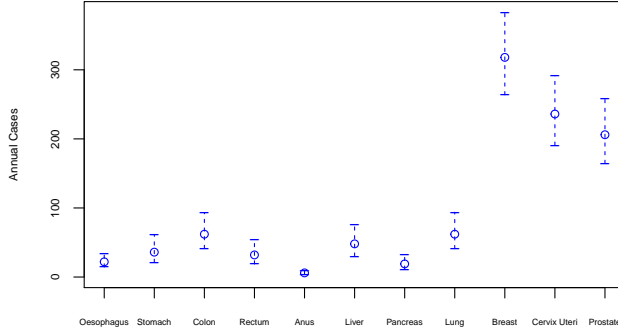
ISO Code	Region	Area	Income Group
MMR	South-Eastern Asia	Asia	Lower middle income



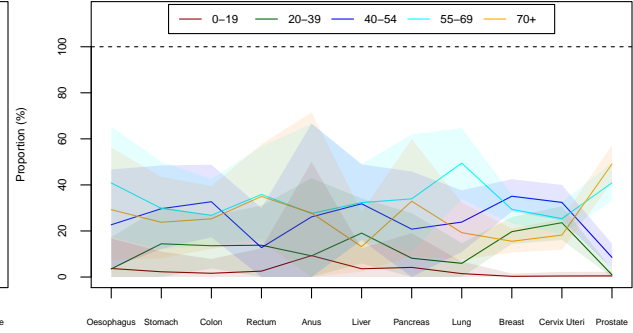
Namibia

ISO Code	Region	Area	Income Group
NAM	Southern Africa	Africa	Upper middle income

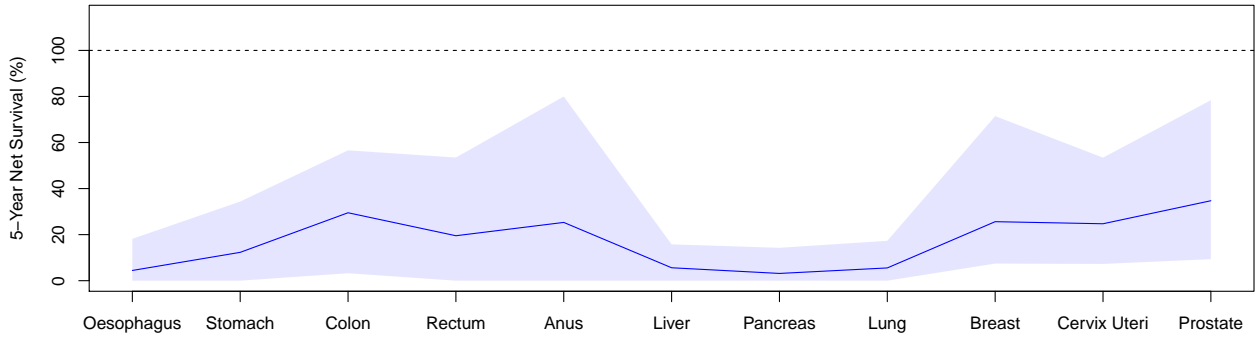
Estimated New Diagnosed Cases per Year (GLOBOCAN 2018)



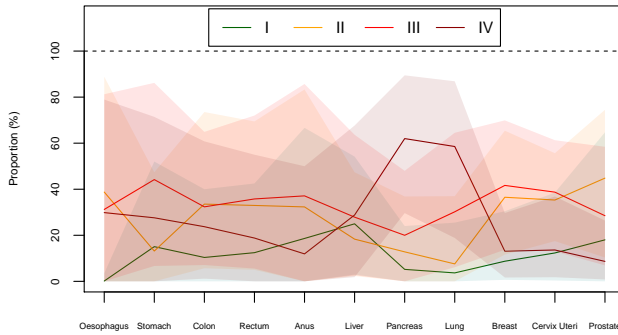
Age at Diagnosis



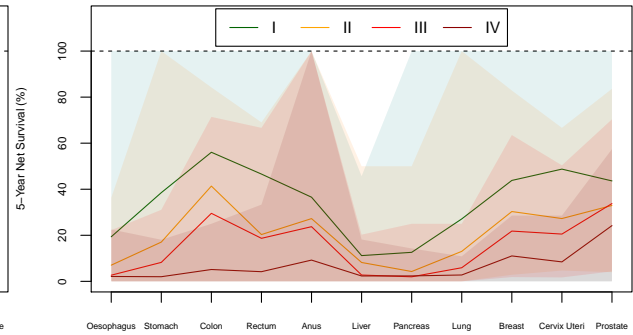
5-Year Net Survival – Overall



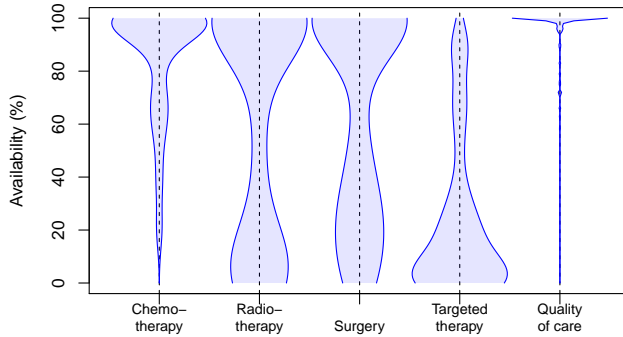
Stage Distribution at Diagnosis



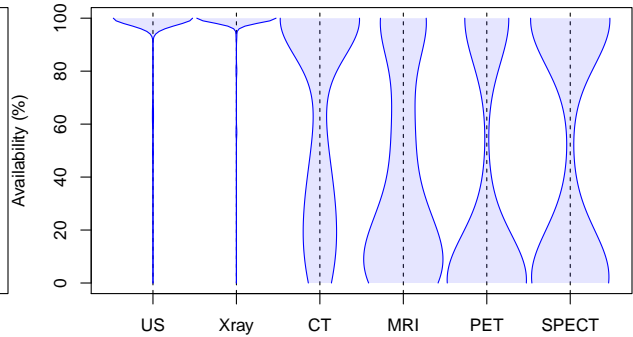
5-Year Net Survival – by Stage



Treatment Availability

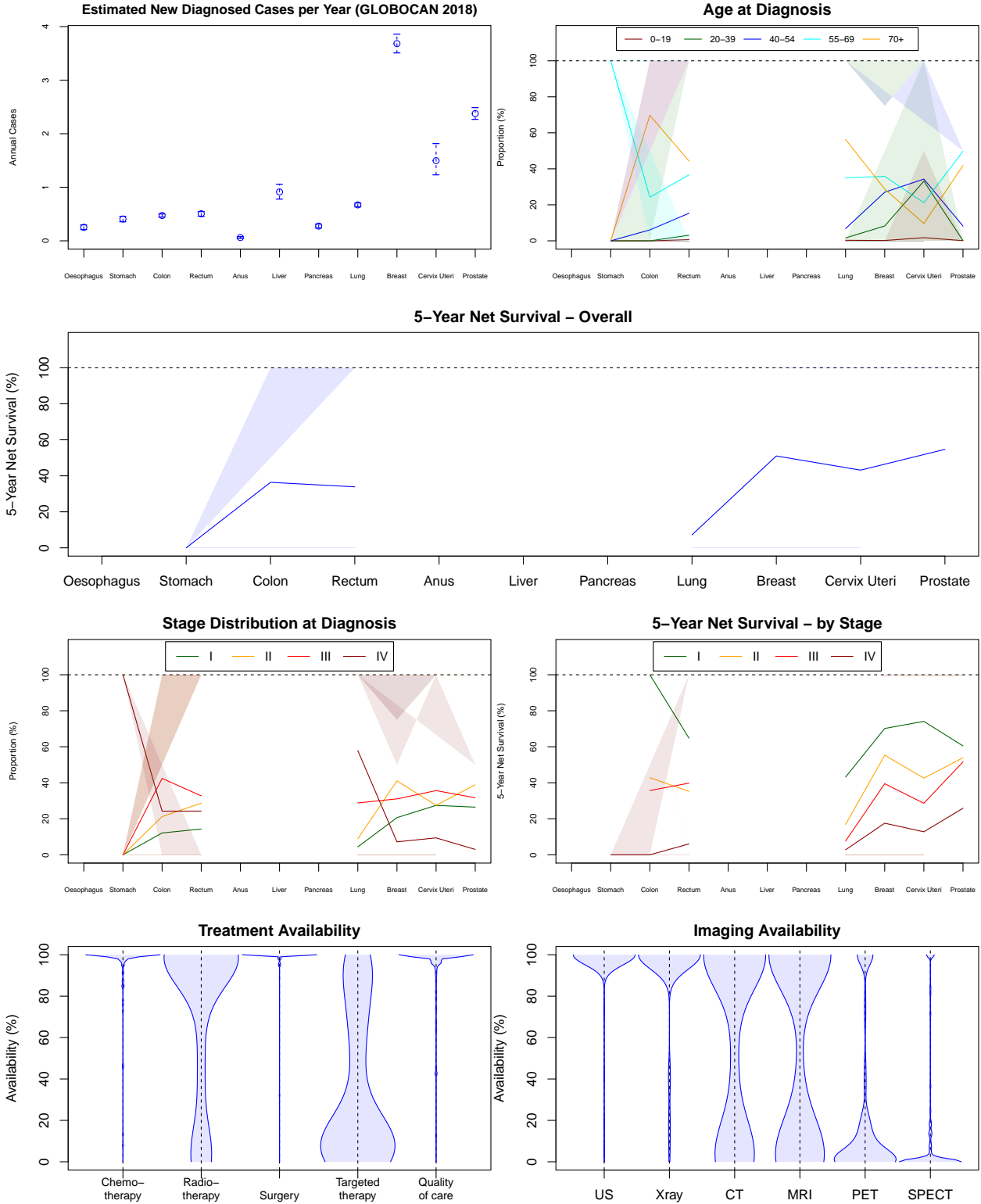


Imaging Availability



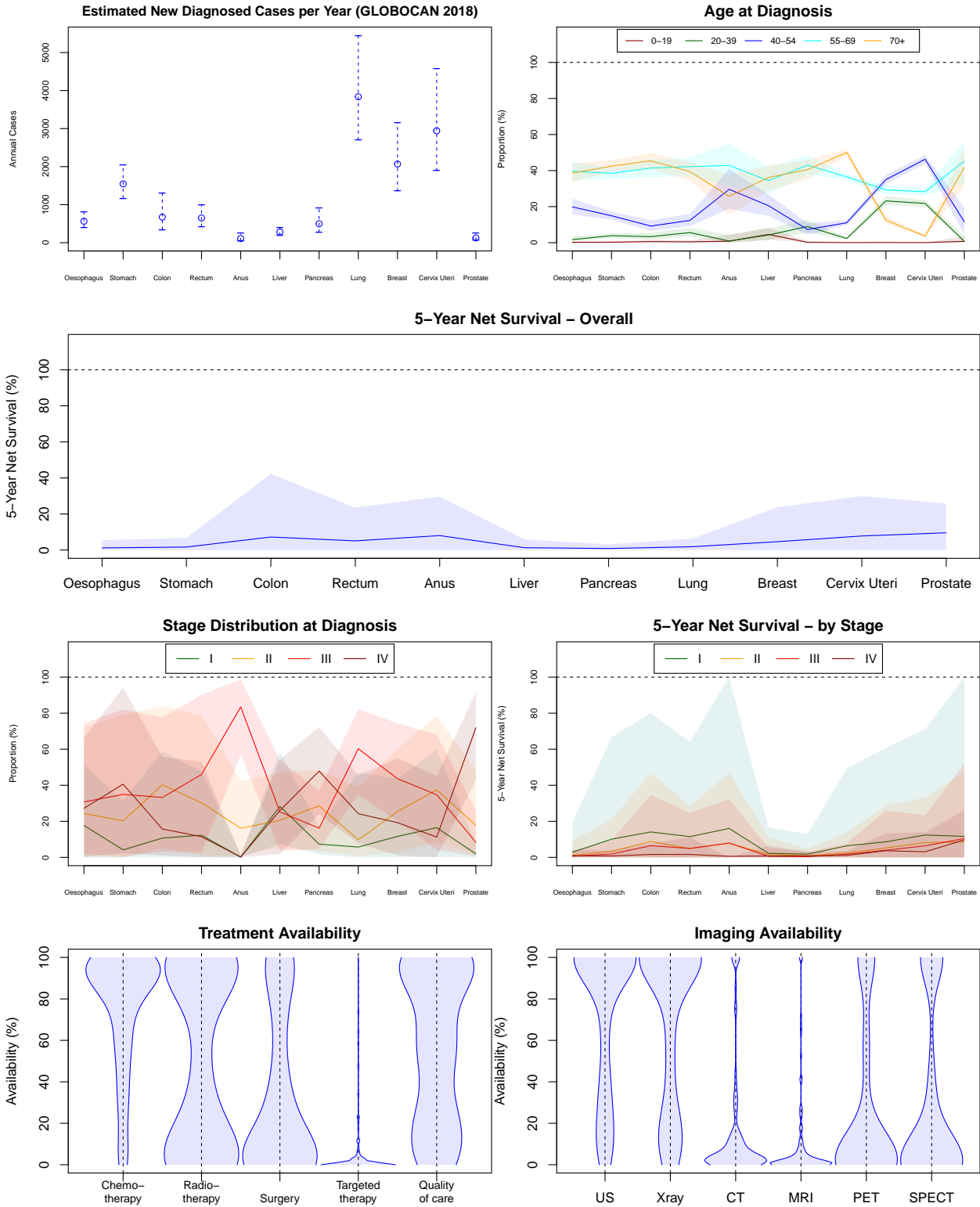
Nauru

ISO Code	Region	Area	Income Group
NRU	Micronesia	Oceania	Upper middle income



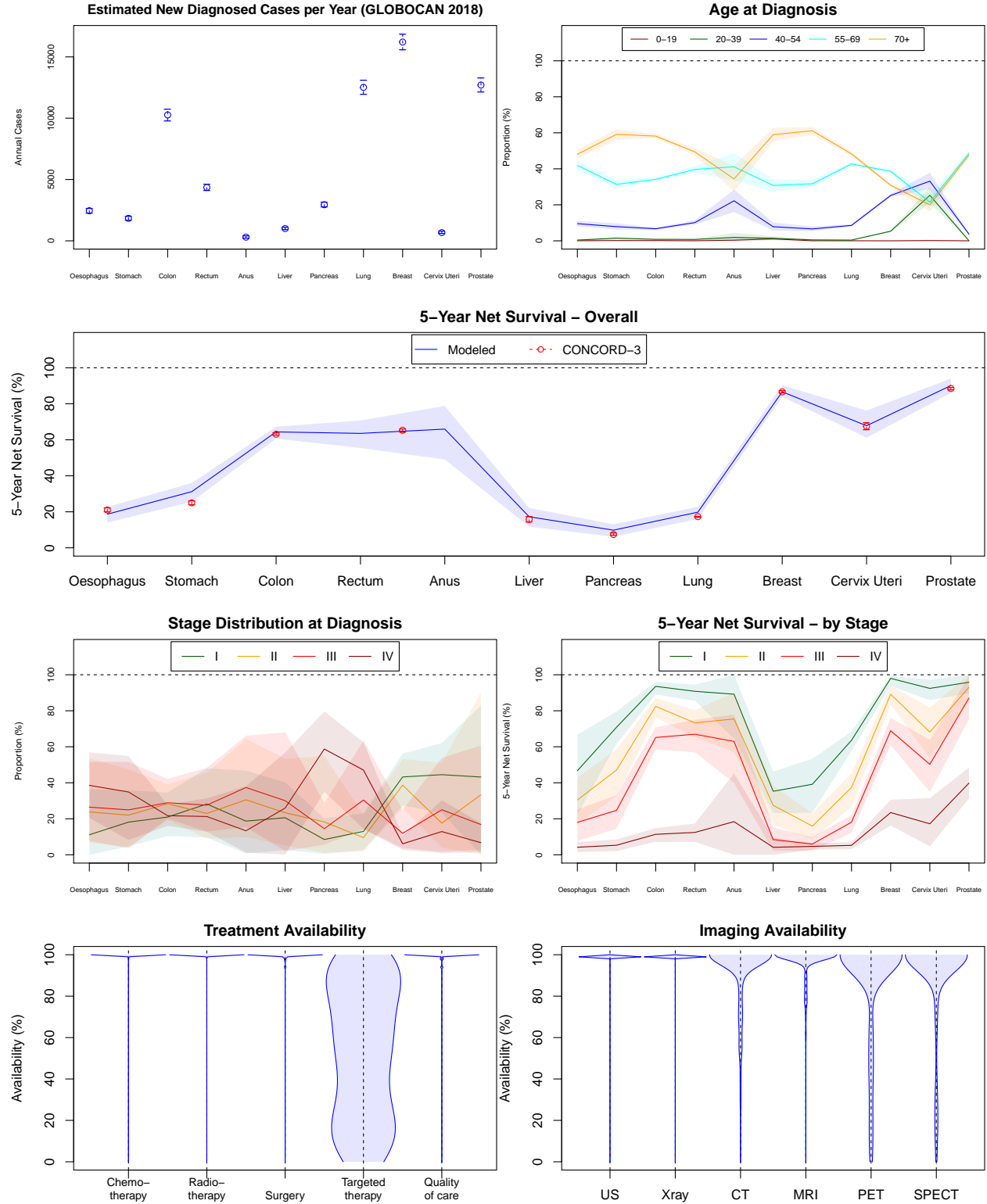
Nepal

ISO Code	Region	Area	Income Group
NPL	Southern Asia	Asia	Low income



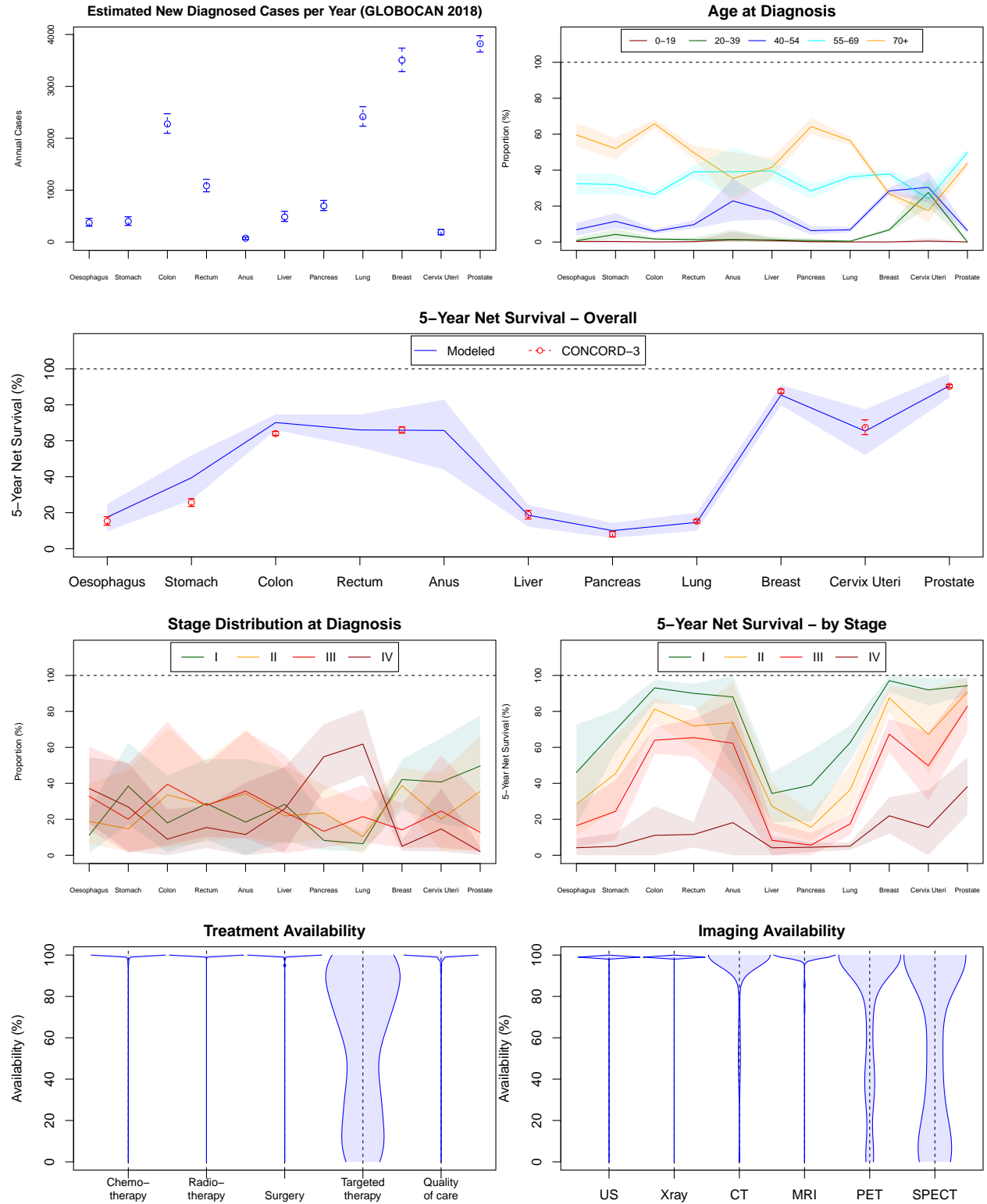
Netherlands

ISO Code	Region	Area	Income Group
NLD	Western Europe	Europe	High income



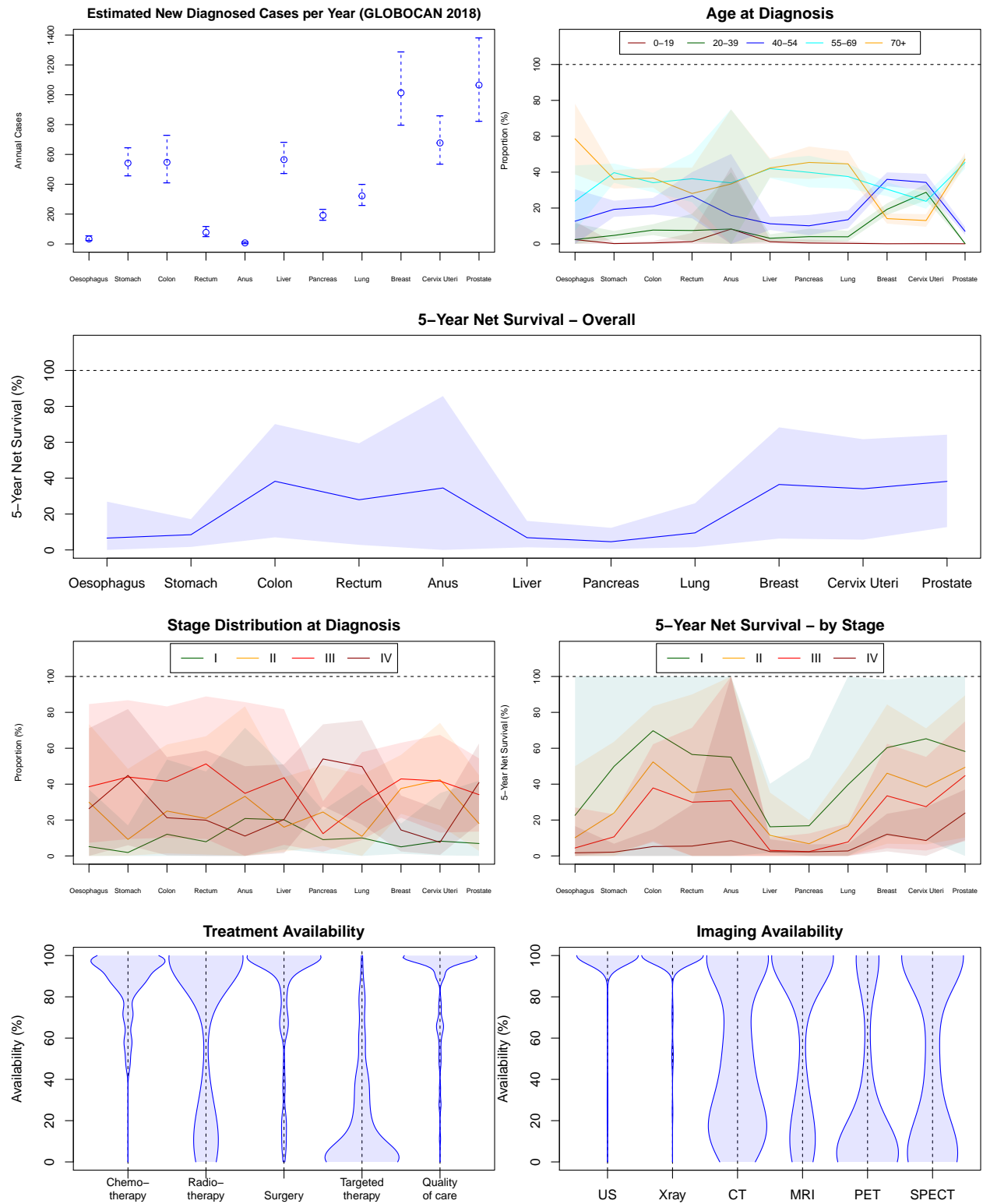
New Zealand

ISO Code	Region	Area	Income Group
NZL	Australia/New Zealand	Oceania	High income



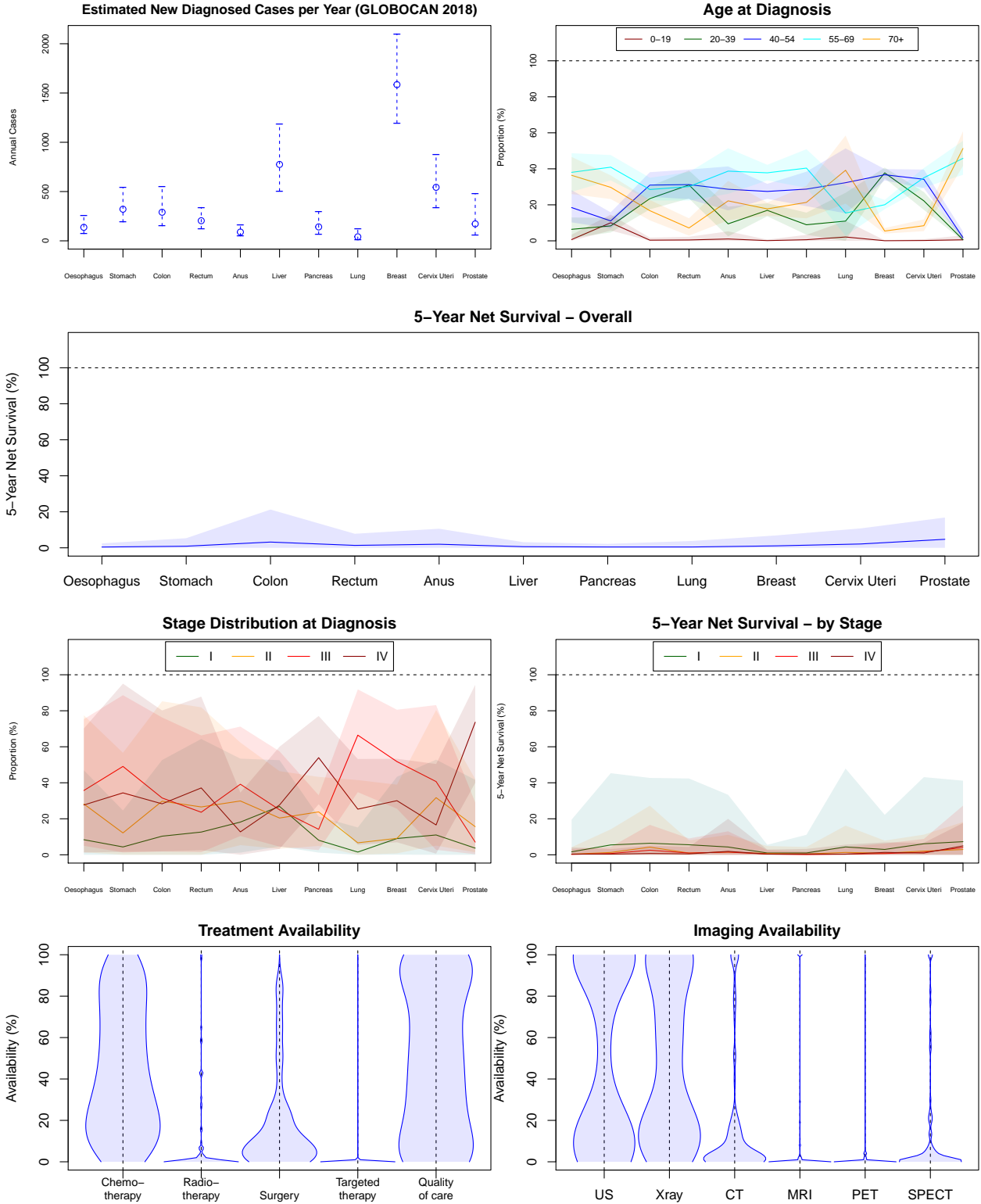
Nicaragua

ISO Code	Region	Area	Income Group
NIC	Central America	Latin America and the Caribbean	Lower middle income



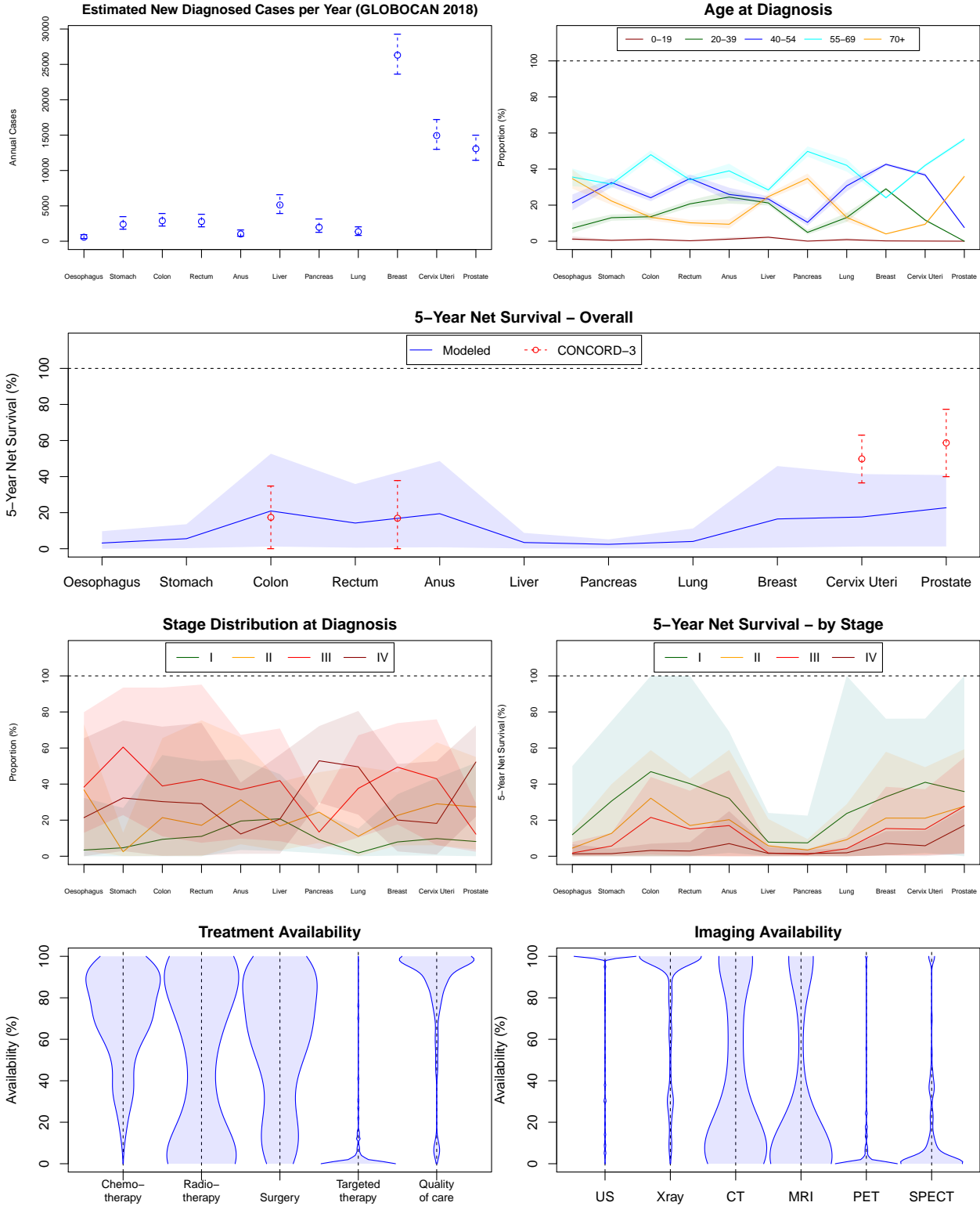
Niger

ISO Code	Region	Area	Income Group
NER	Western Africa	Africa	Low income



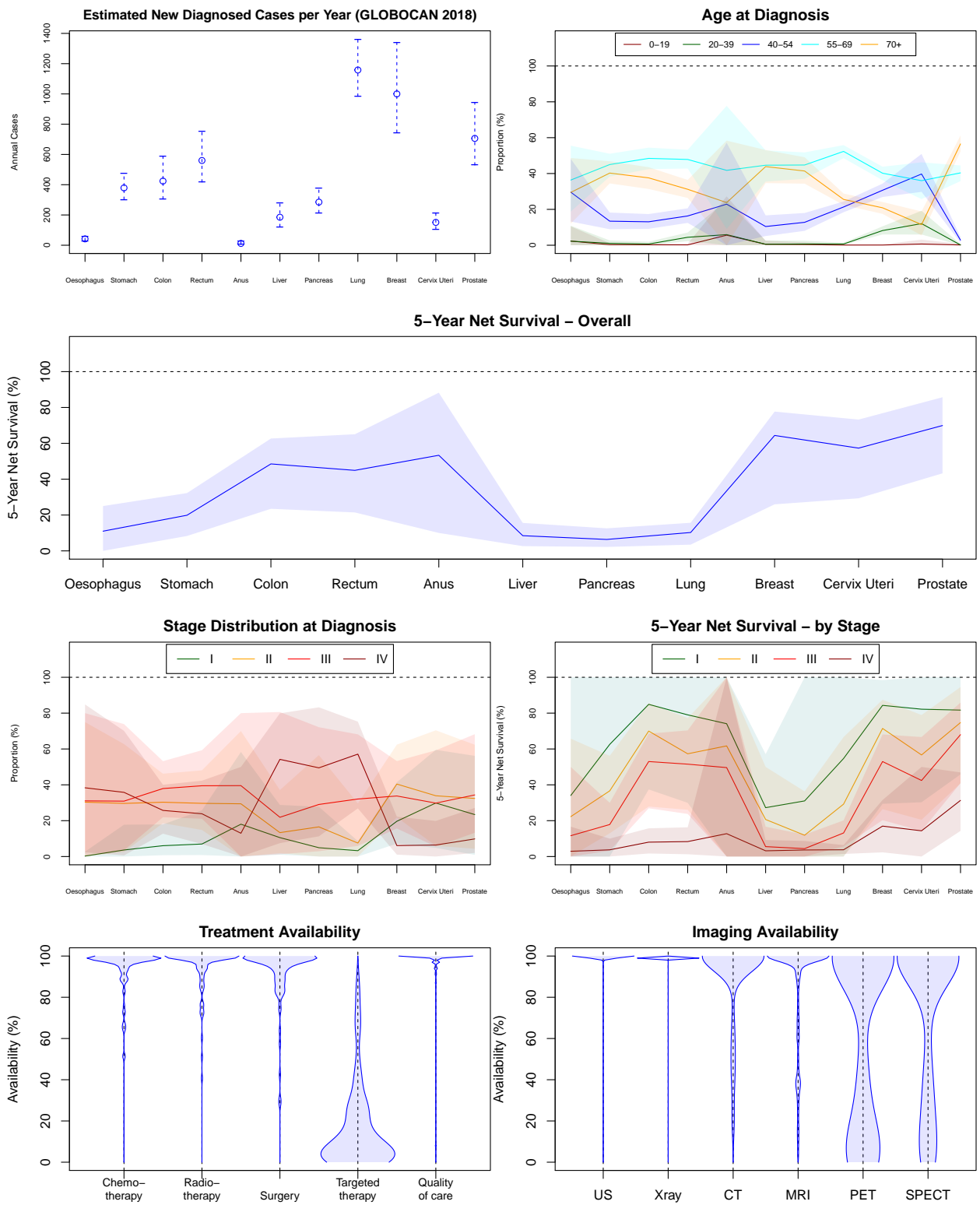
Nigeria

ISO Code	Region	Area	Income Group
NGA	Western Africa	Africa	Lower middle income



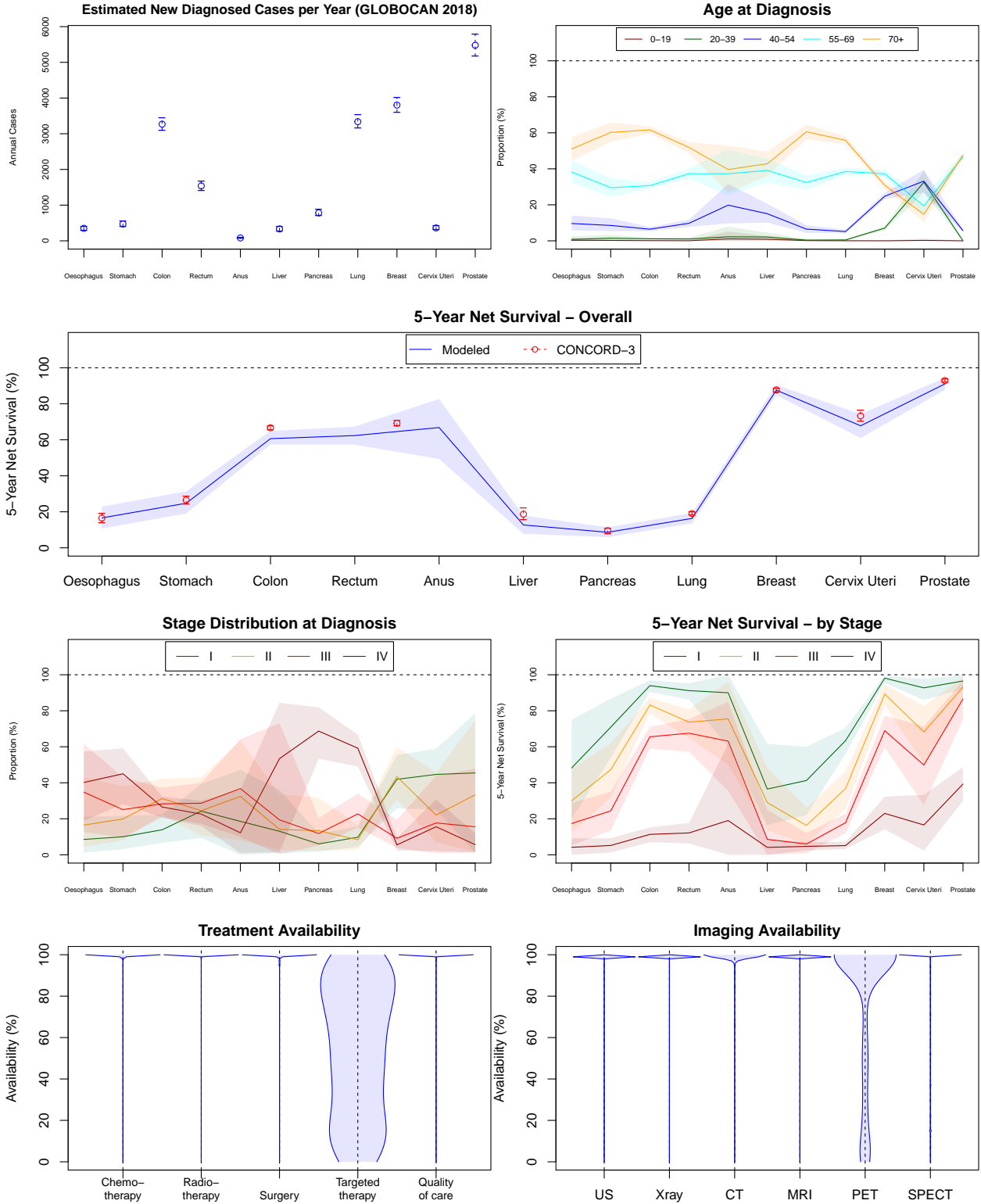
North Macedonia

ISO Code	Region	Area	Income Group
MKD	Southern Europe	Europe	Upper middle income



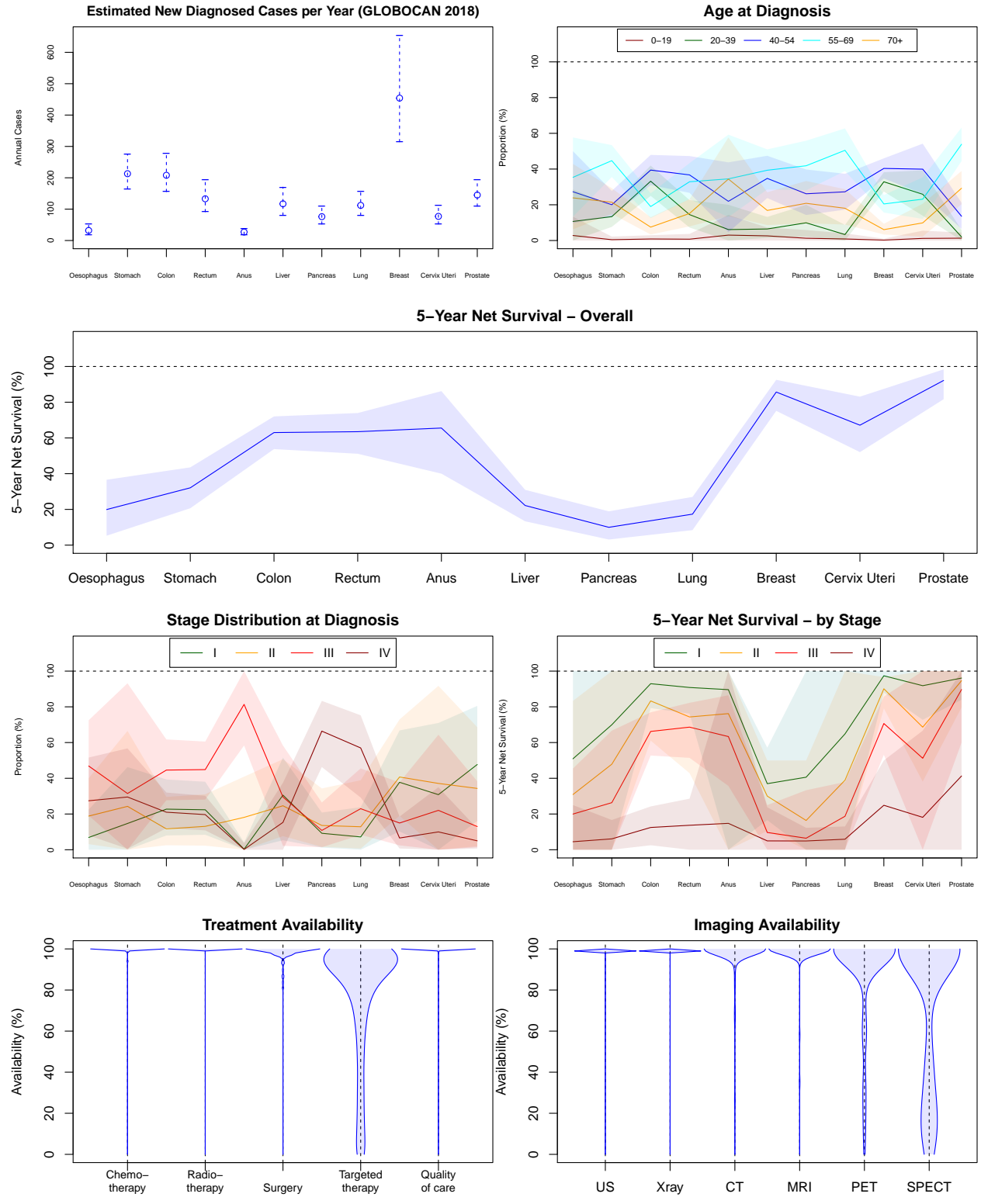
Norway

ISO Code	Region	Area	Income Group
NOR	Northern Europe	Europe	High income



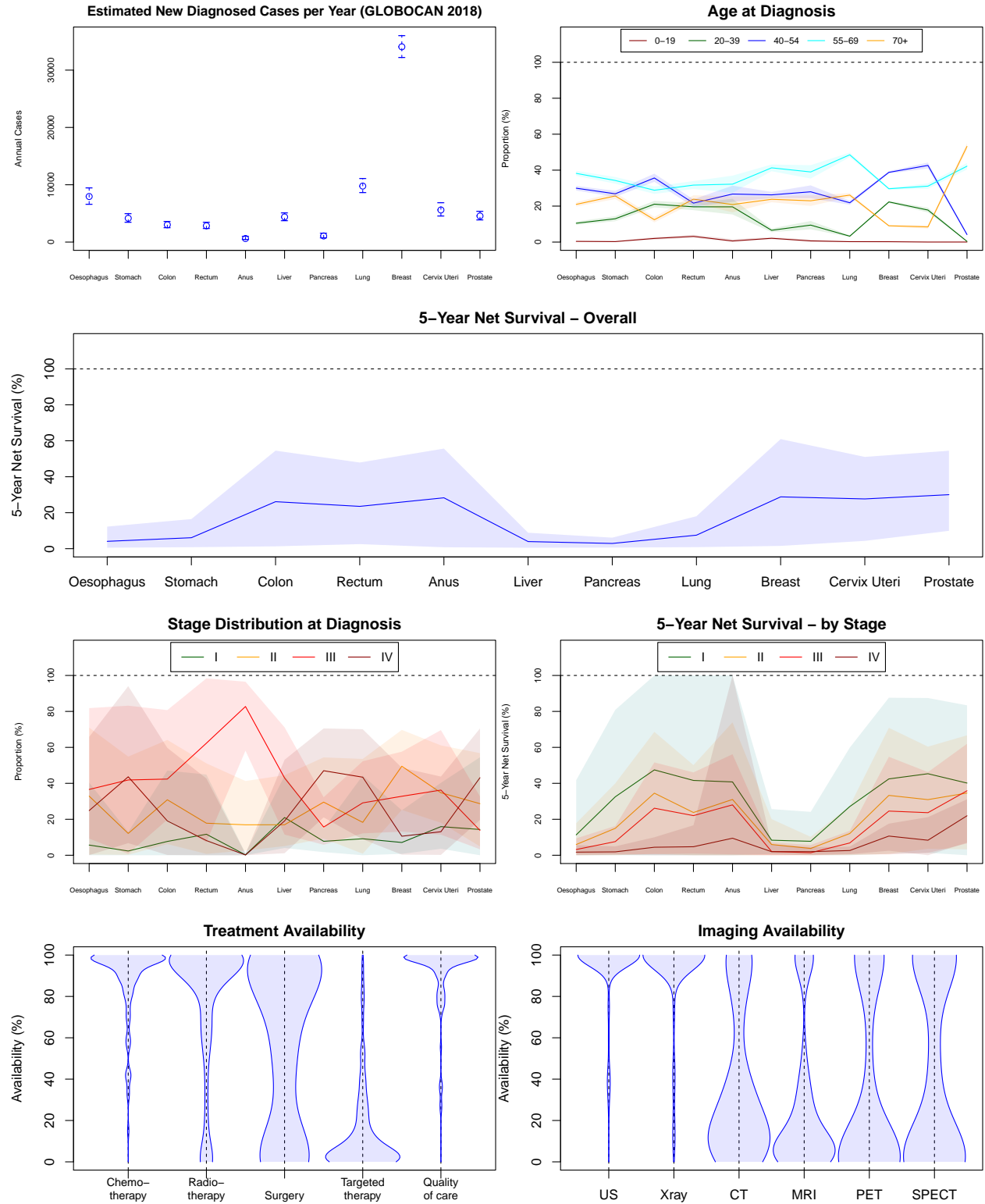
Oman

ISO Code	Region	Area	Income Group
OMN	Western Asia	Asia	High income



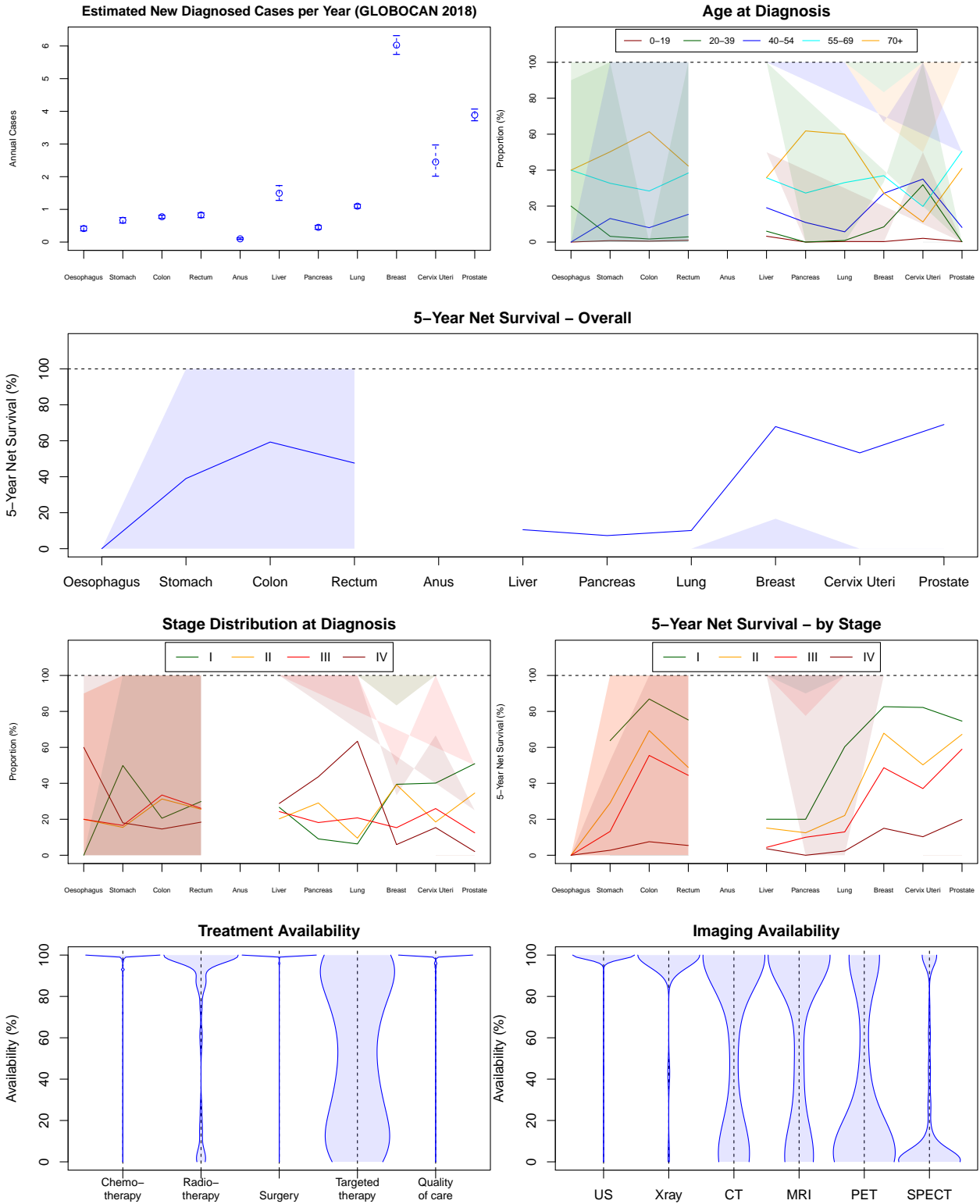
Pakistan

ISO Code	Region	Area	Income Group
PAK	Southern Asia	Asia	Lower middle income



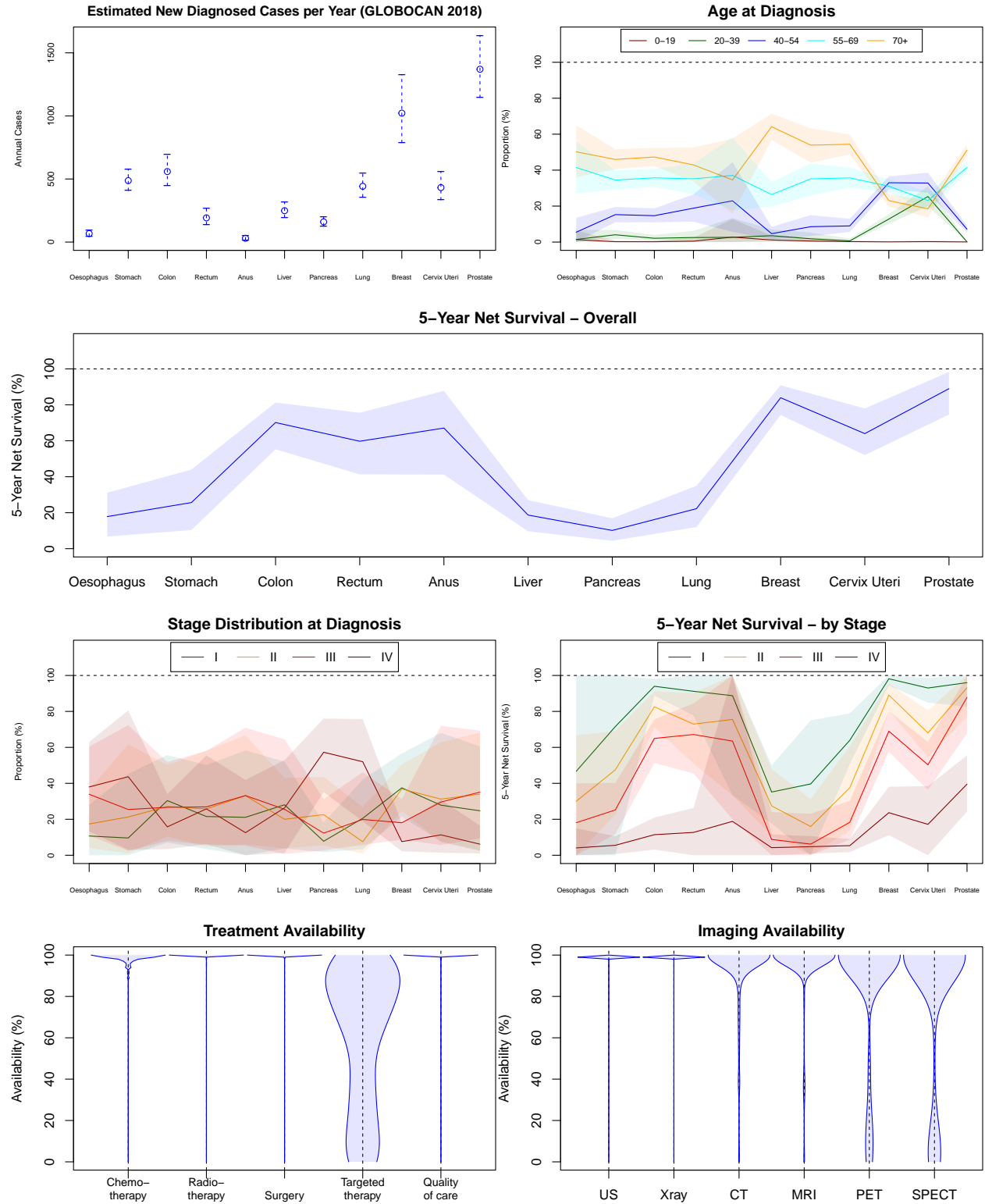
Palau

ISO Code	Region	Area	Income Group
PLW	Micronesia	Oceania	High income



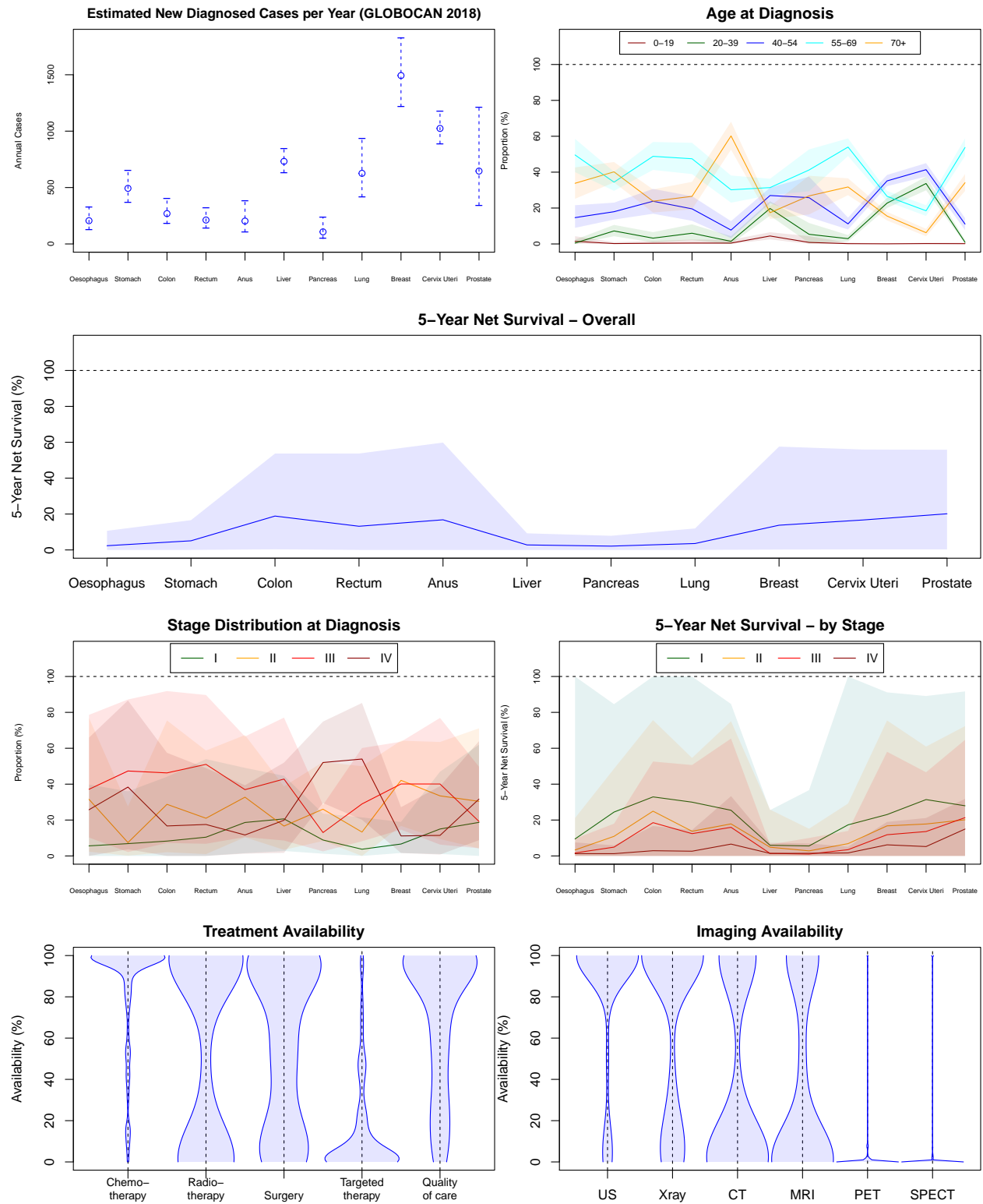
Panama

ISO Code	Region	Area	Income Group
PAN	Central America	Latin America and the Caribbean	High income



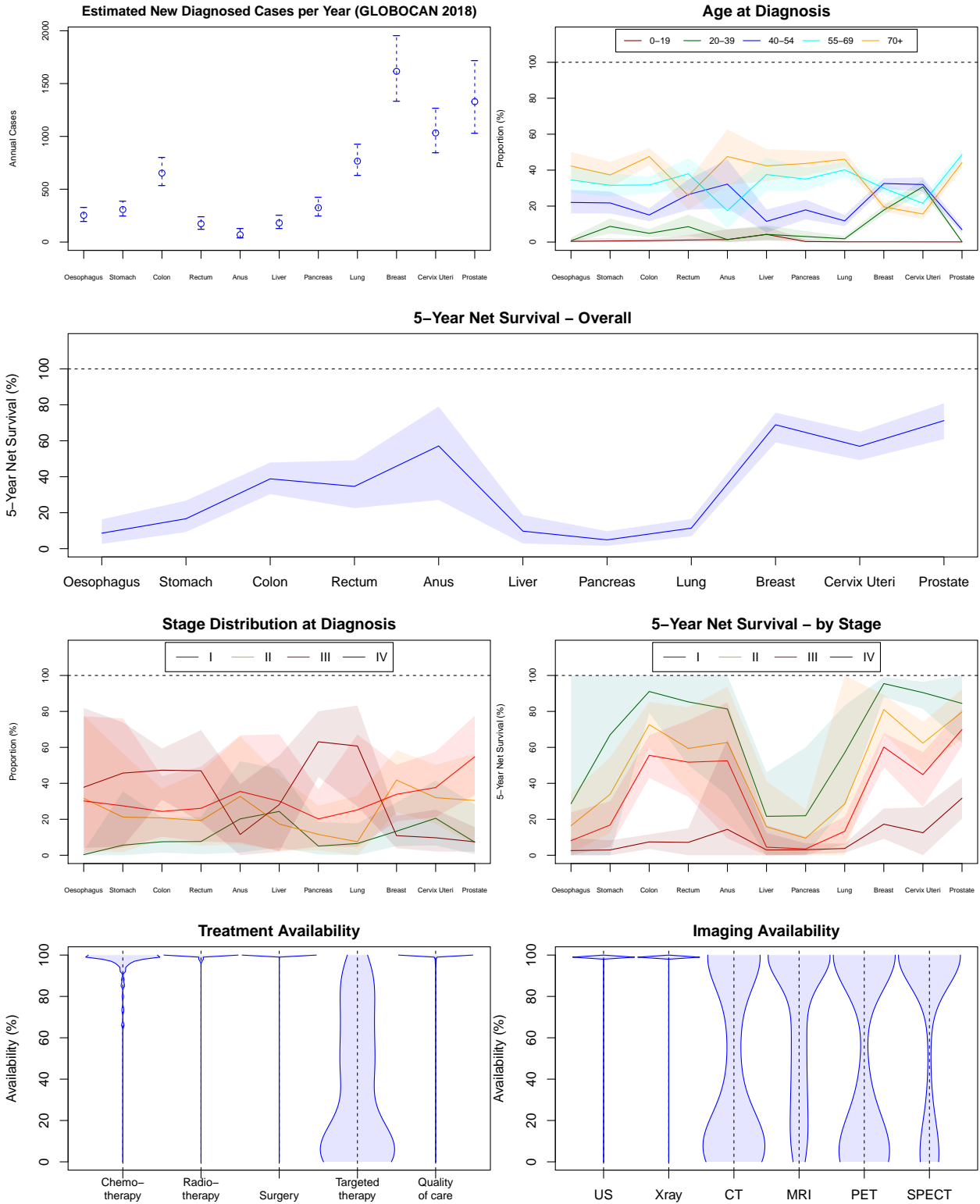
Papua New Guinea

ISO Code	Region	Area	Income Group
PNG	Melanesia	Oceania	Lower middle income



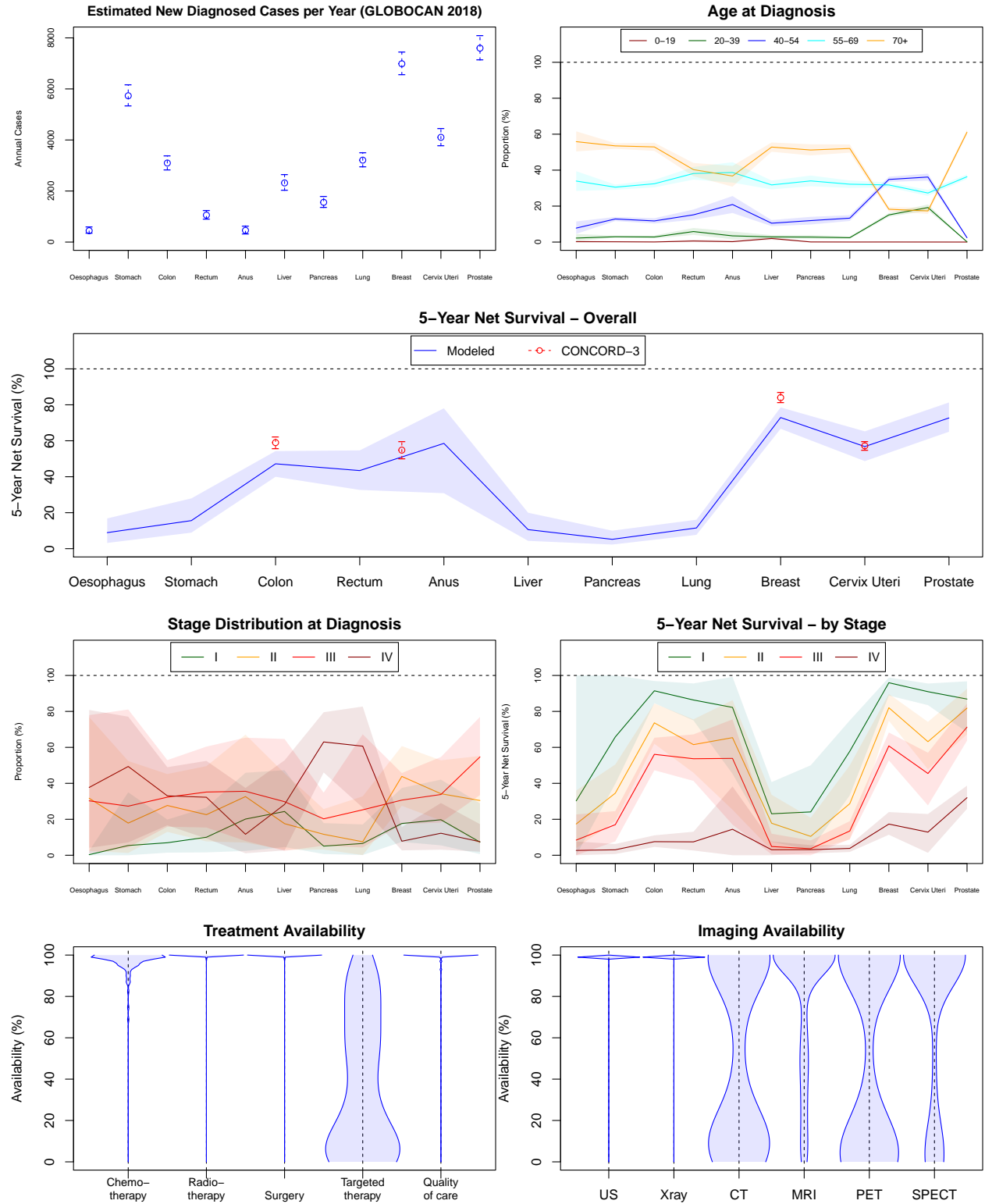
Paraguay

ISO Code	Region	Area	Income Group
PRY	South America	Latin America and the Caribbean	Upper middle income



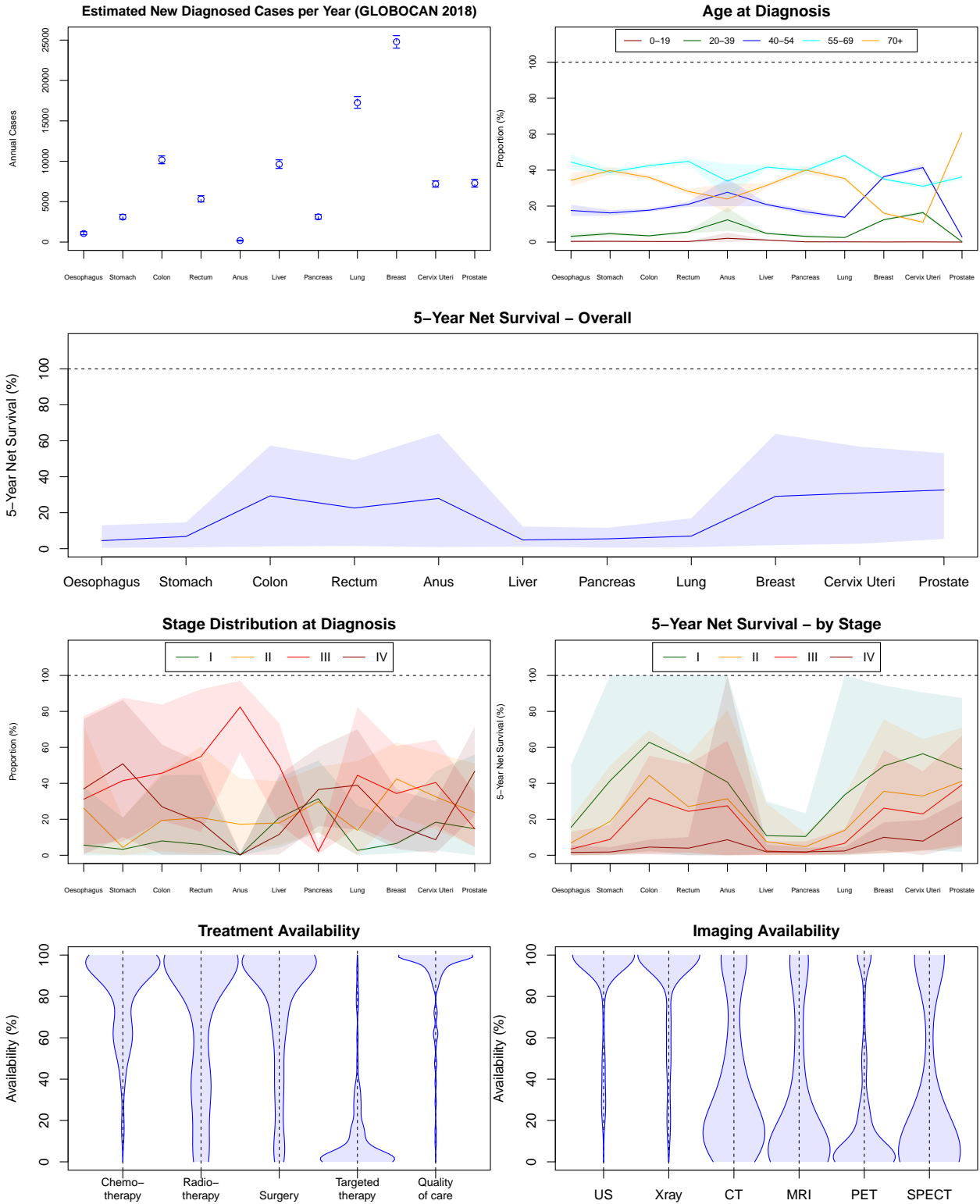
Peru

ISO Code	Region	Area	Income Group
PER	South America	Latin America and the Caribbean	Upper middle income



Philippines

ISO Code	Region	Area	Income Group
PHL	South-Eastern Asia	Asia	Lower middle income



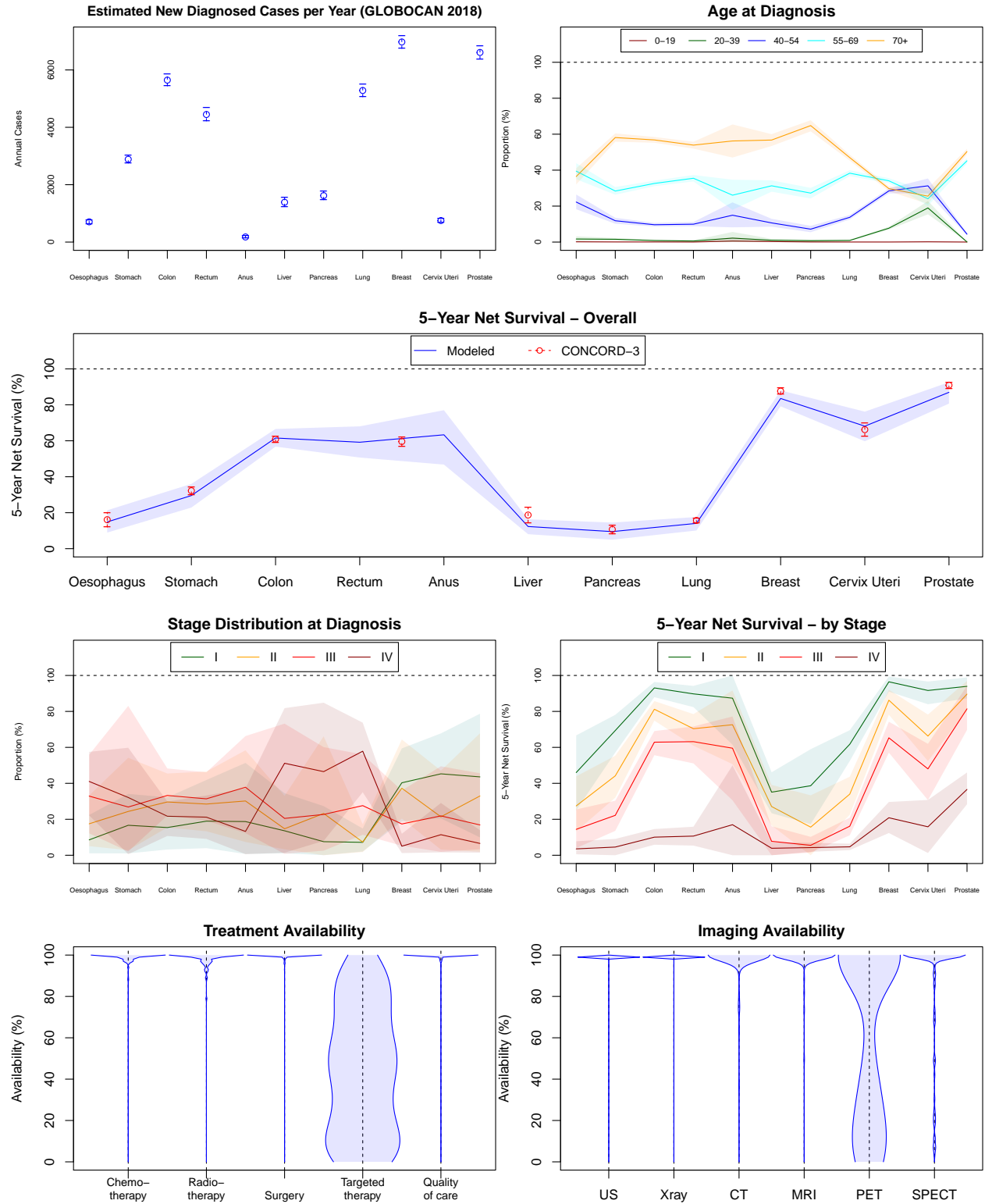
Poland

ISO Code	Region	Area	Income Group
POL	Eastern Europe	Europe	High income



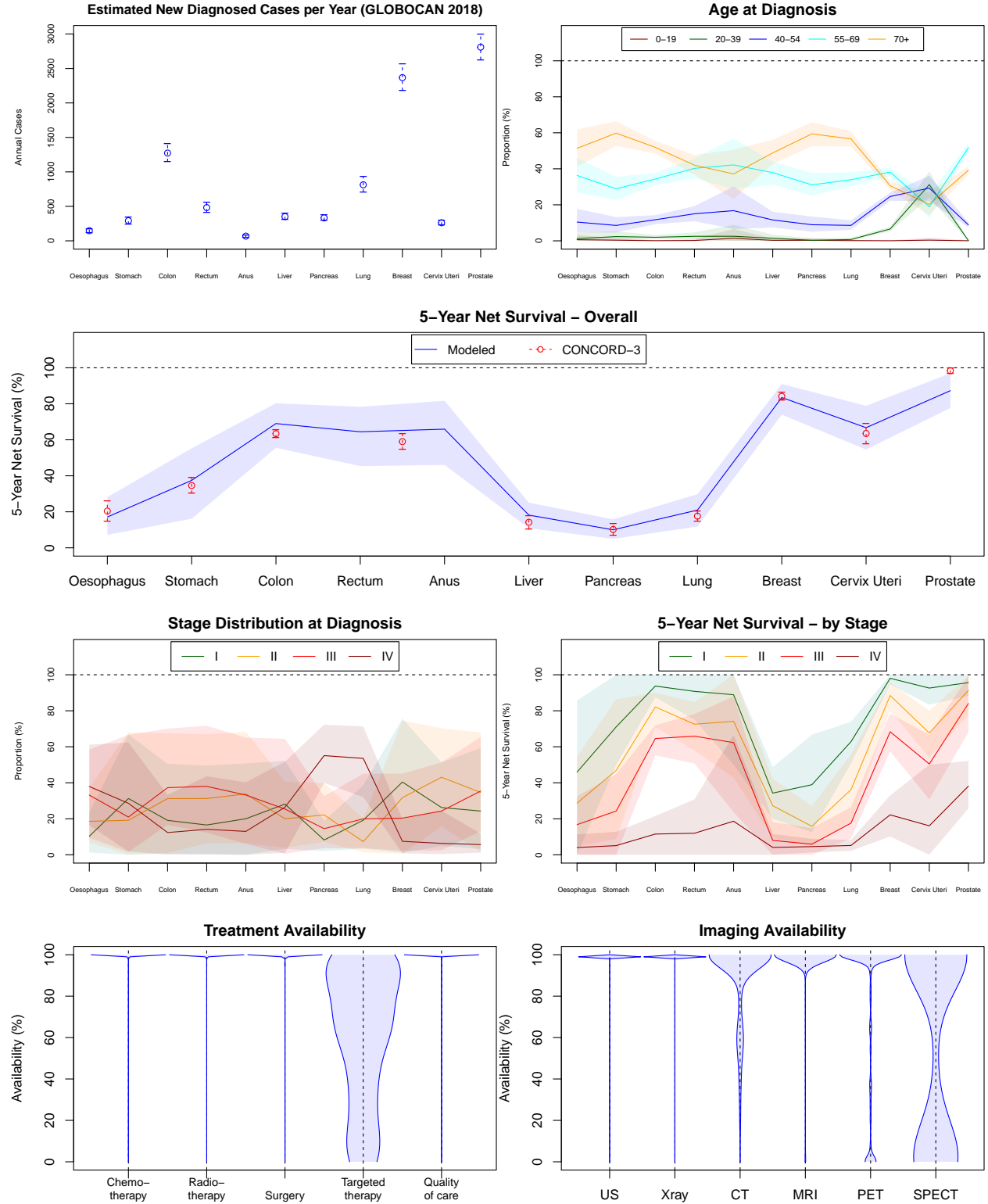
Portugal

ISO Code	Region	Area	Income Group
PRT	Southern Europe	Europe	High income



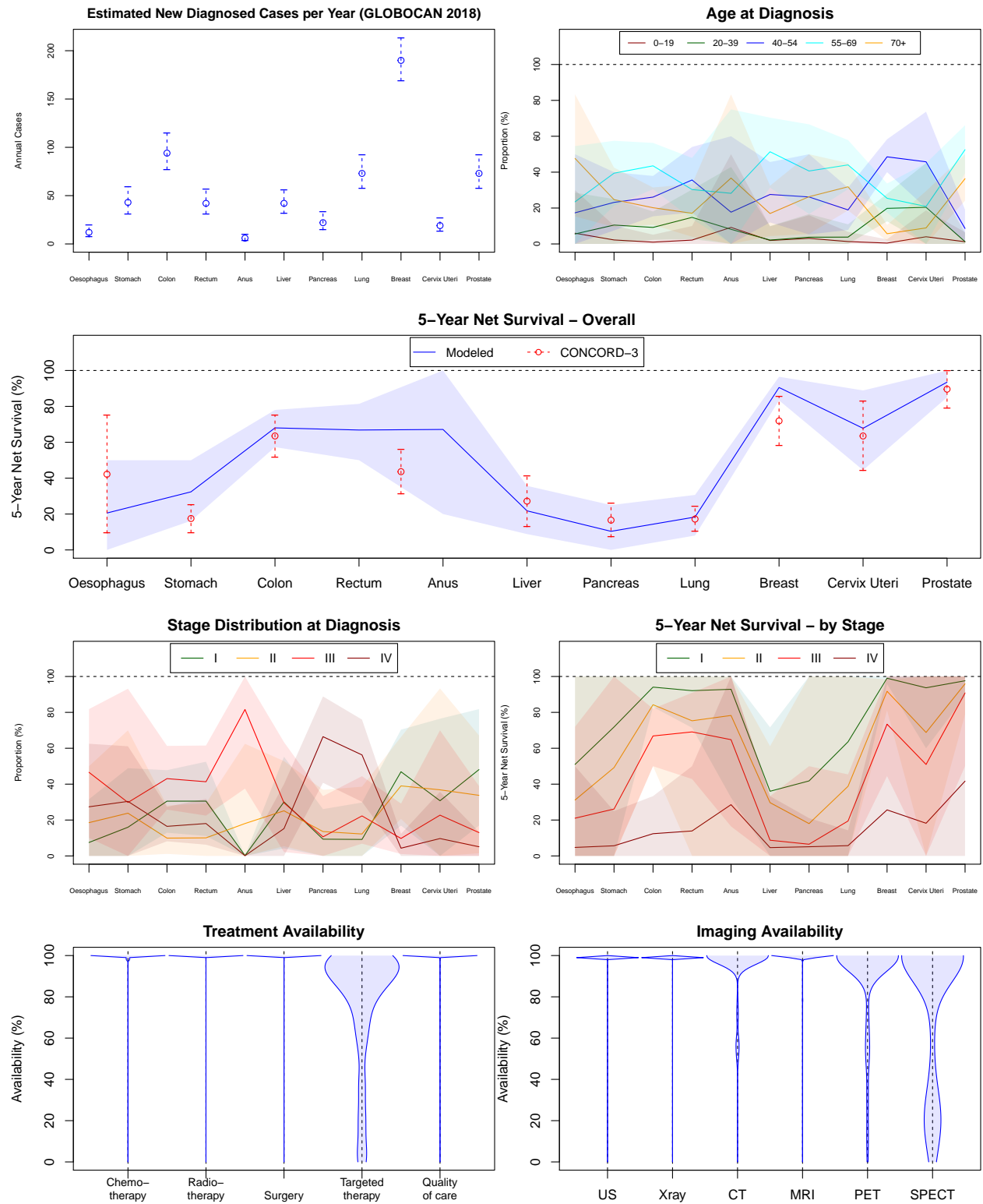
Puerto Rico

ISO Code	Region	Area	Income Group
PRI	Caribbean	Latin America and the Caribbean	High income



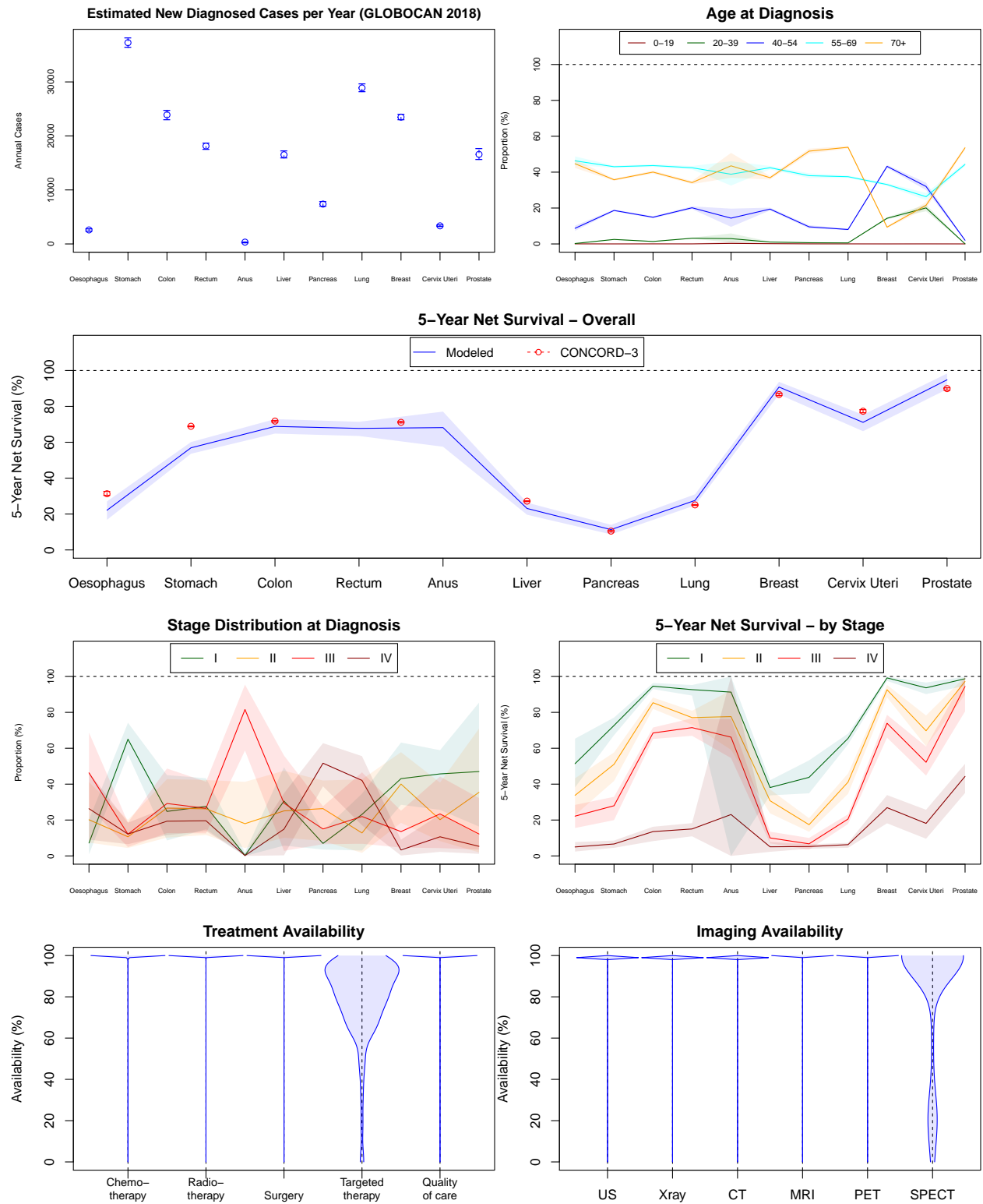
Qatar

ISO Code	Region	Area	Income Group
QAT	Western Asia	Asia	High income



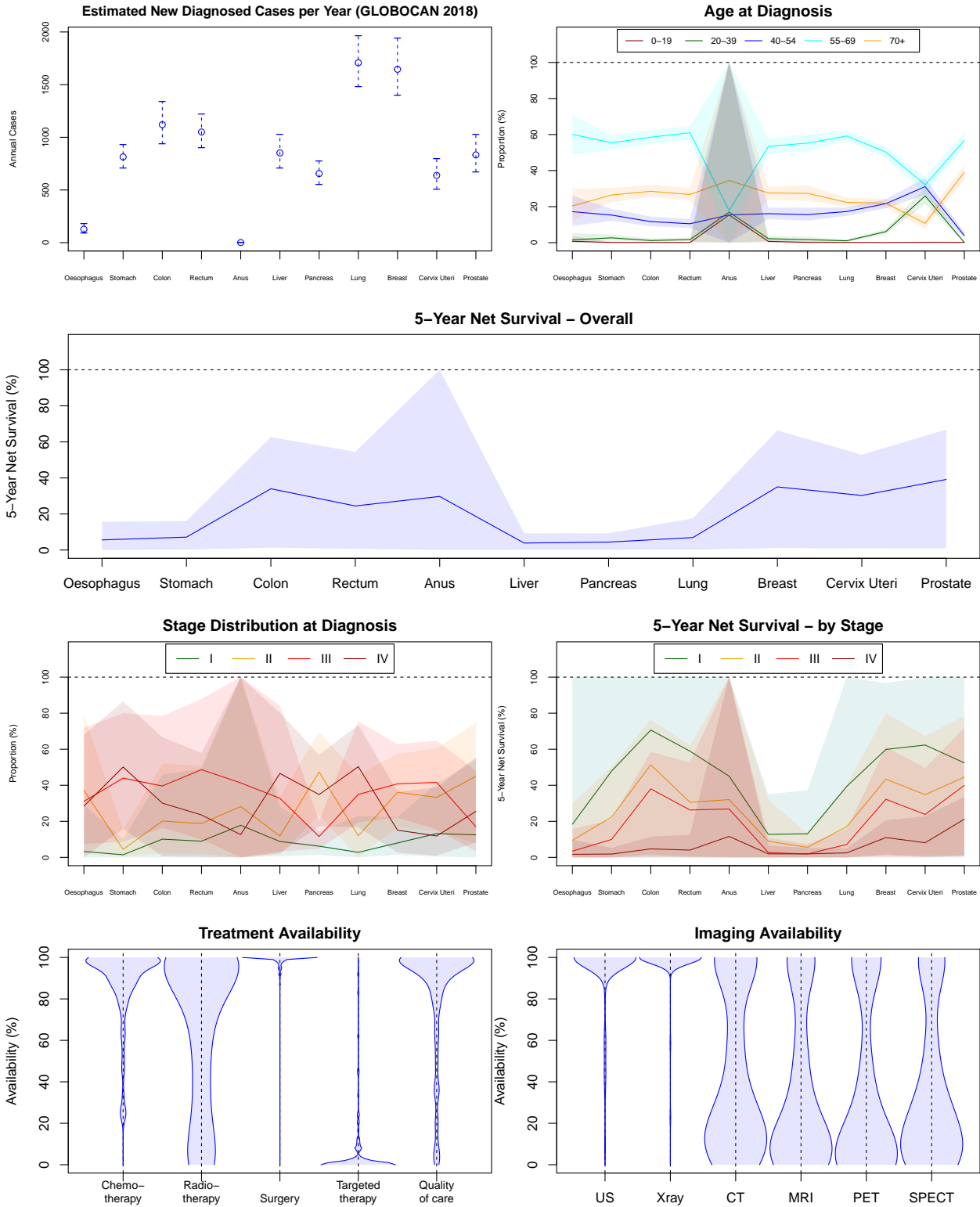
Republic of Korea

ISO Code	Region	Area	Income Group
KOR	Eastern Asia	Asia	High income



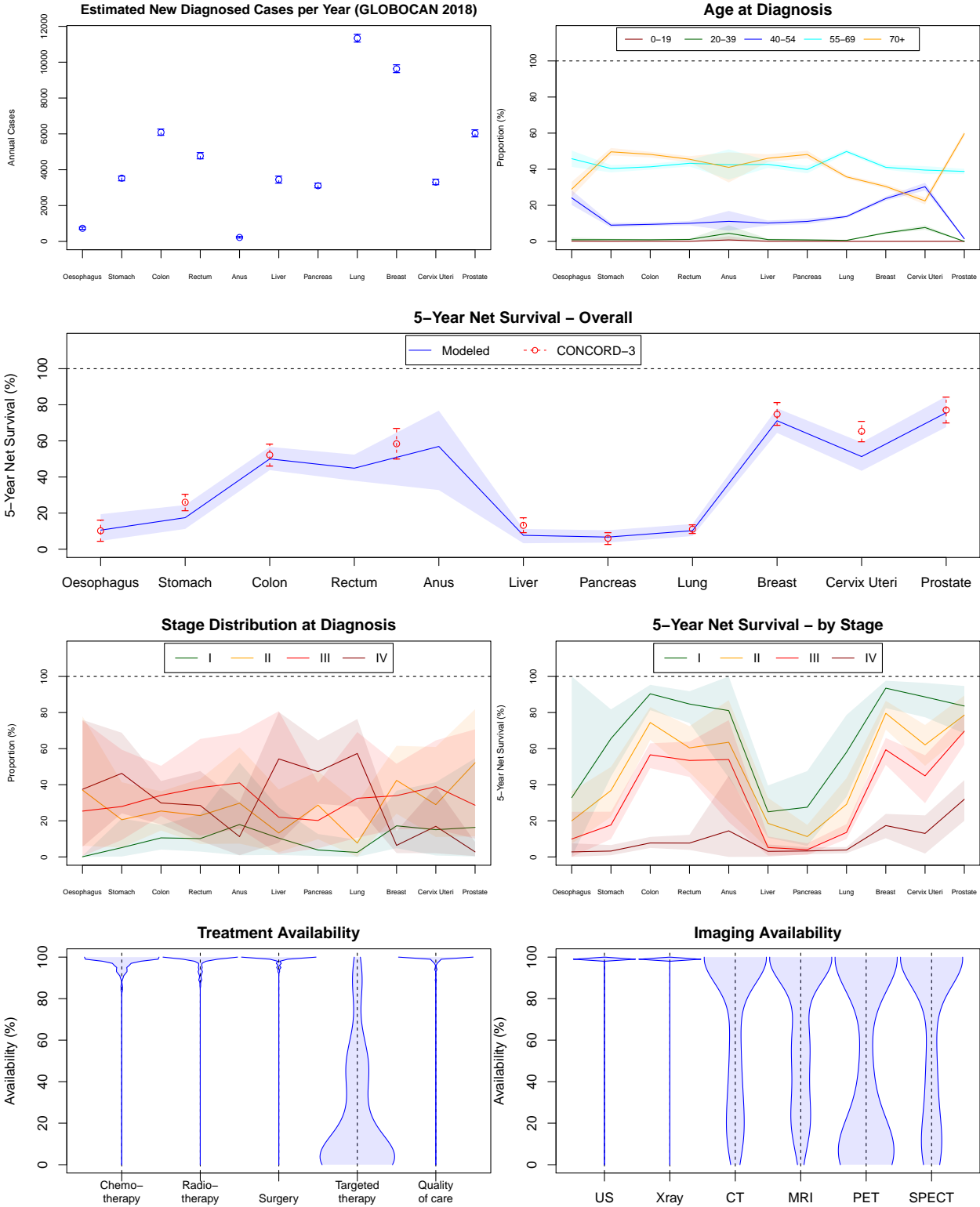
Republic of Moldova

ISO Code	Region	Area	Income Group
MDA	Eastern Europe	Europe	Lower middle income



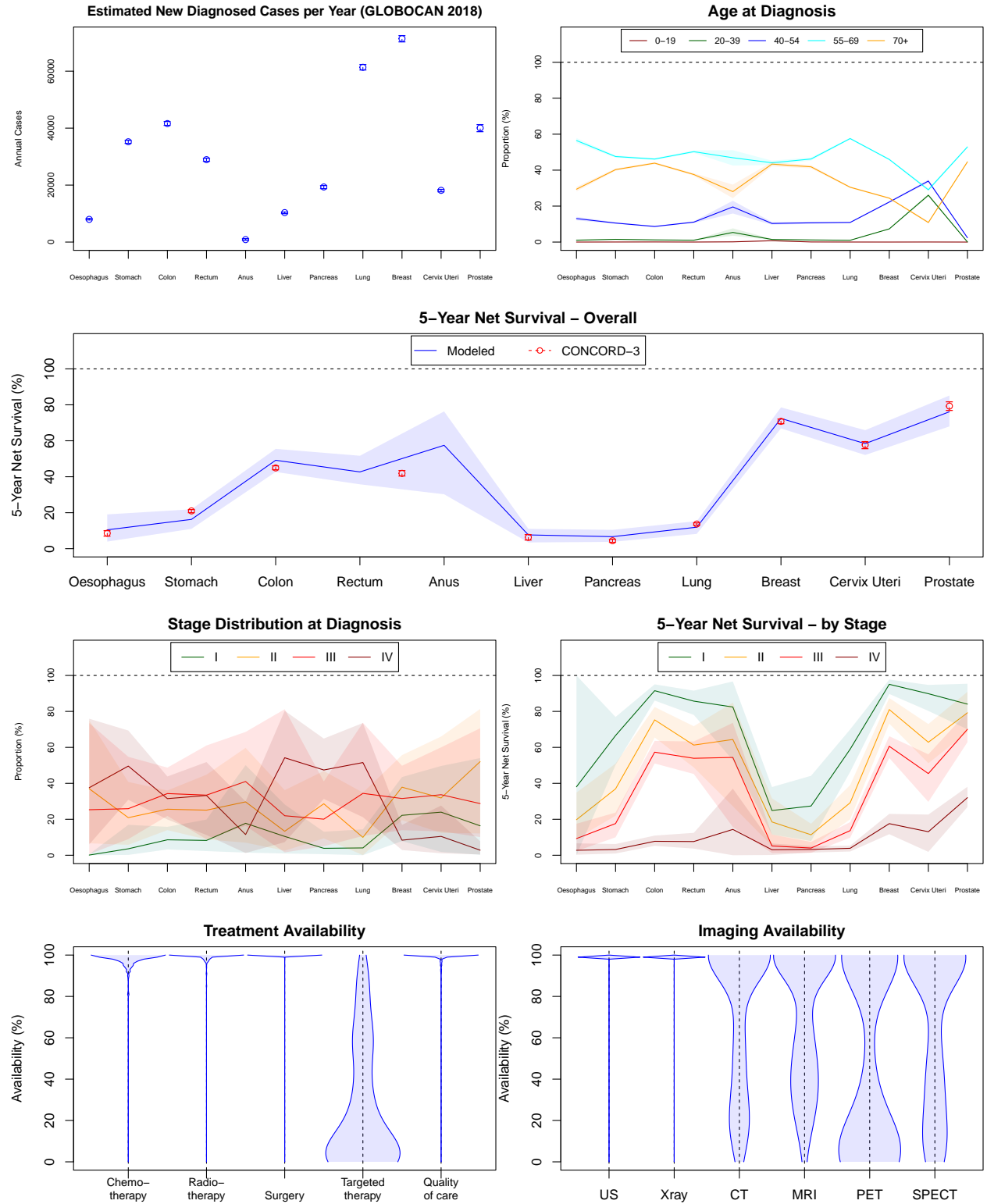
Romania

ISO Code	Region	Area	Income Group
ROU	Eastern Europe	Europe	Upper middle income



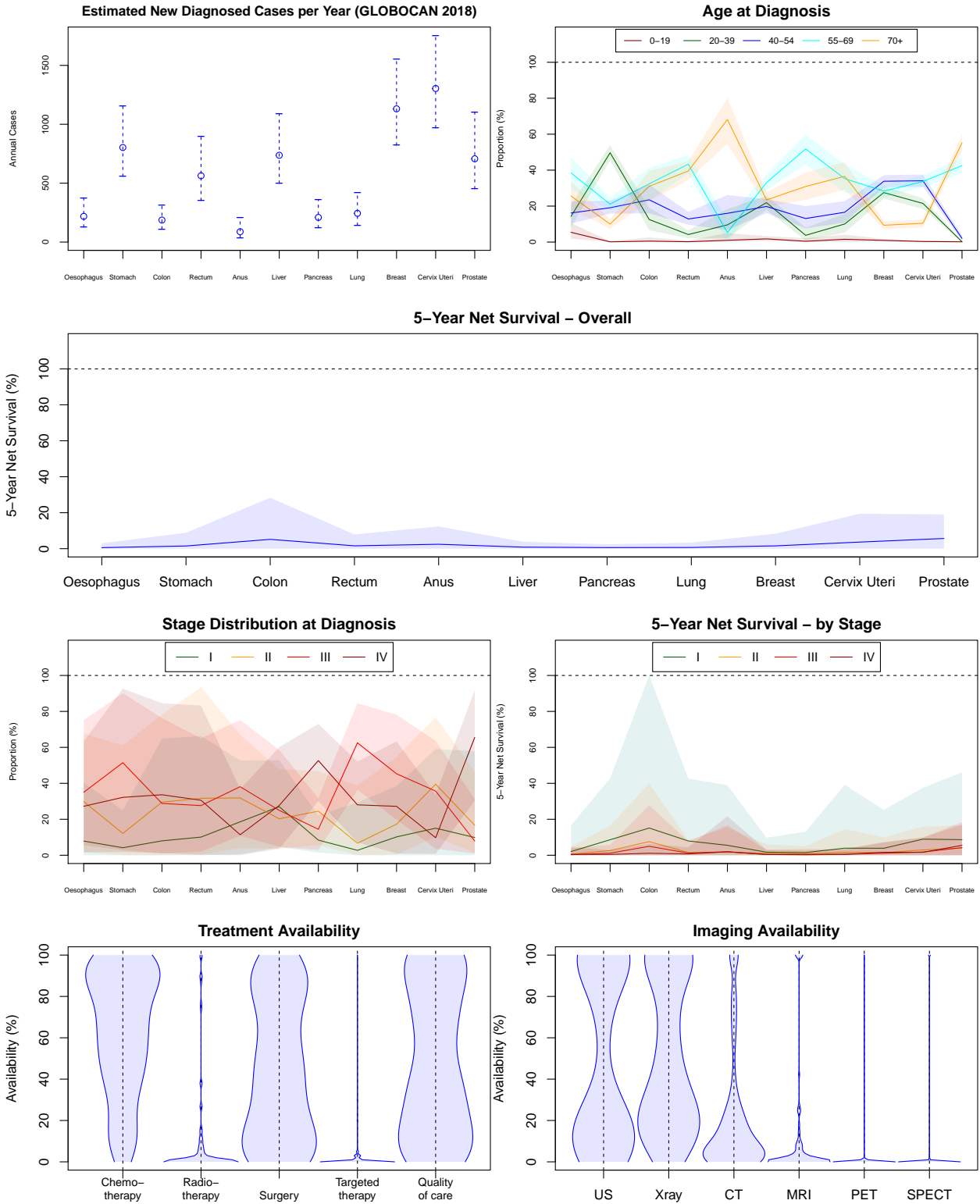
Russian Federation

ISO Code	Region	Area	Income Group
RUS	Eastern Europe	Europe	Upper middle income



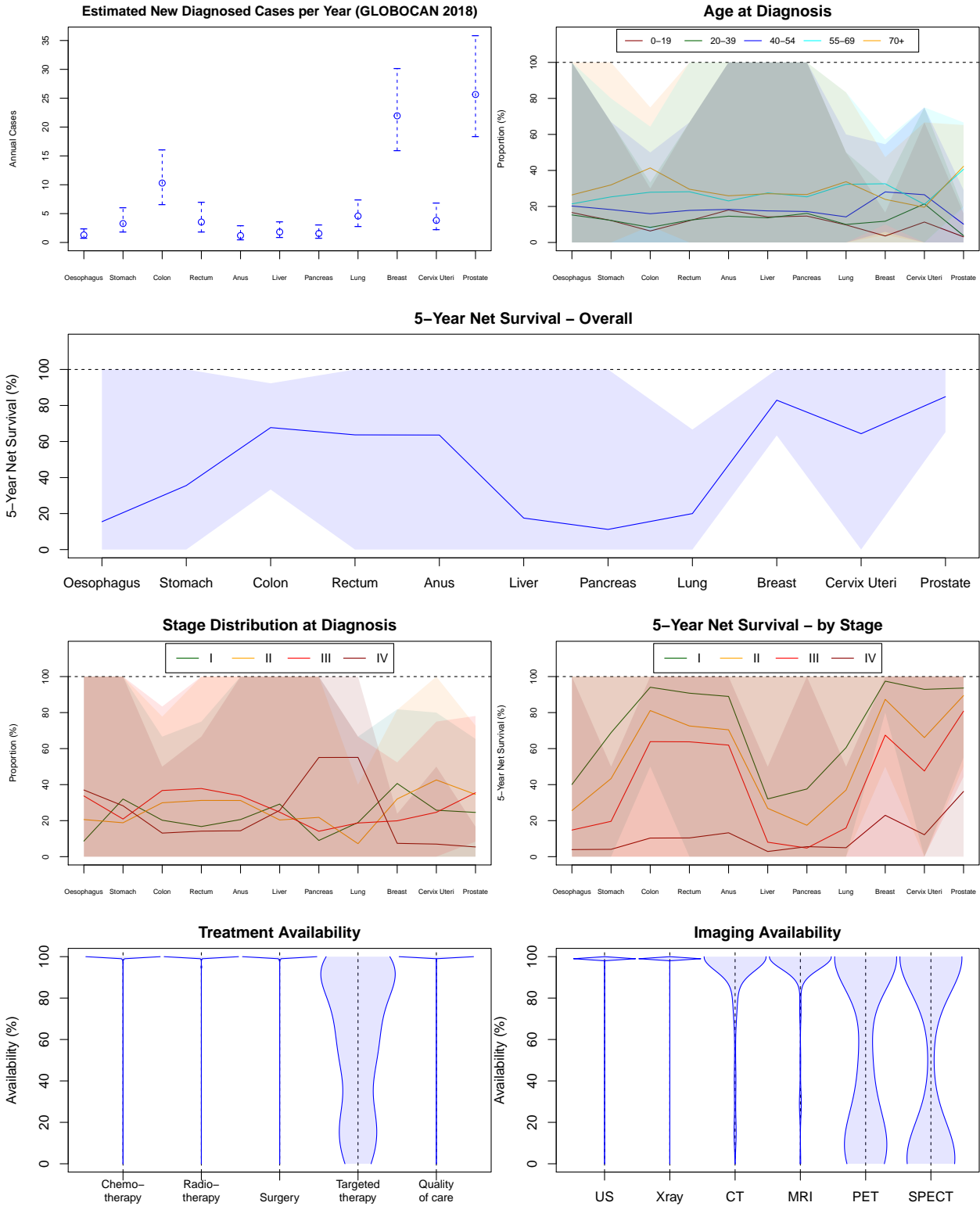
Rwanda

ISO Code	Region	Area	Income Group
RWA	Eastern Africa	Africa	Low income



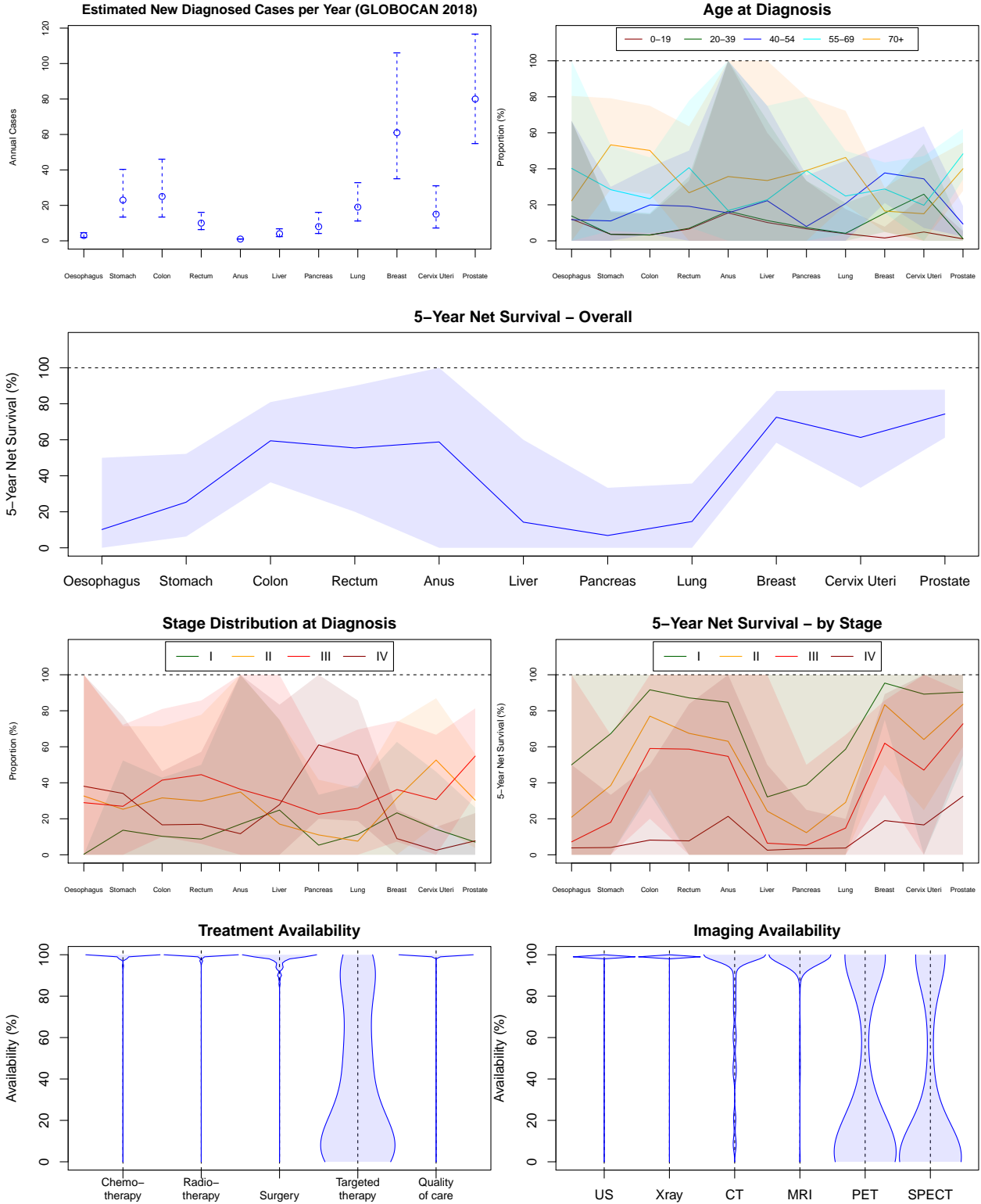
Saint Kitts and Nevis

ISO Code	Region	Area	Income Group
KNA	Caribbean	Latin America and the Caribbean	High income



Saint Lucia

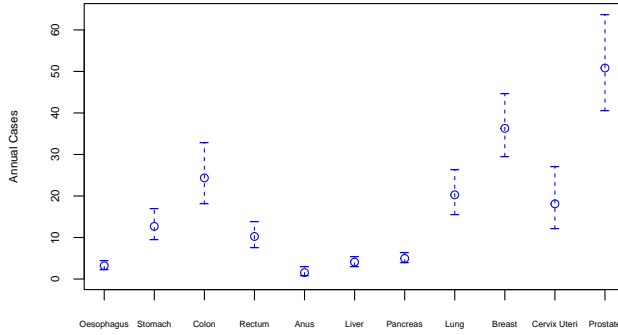
ISO Code	Region	Area	Income Group
LCA	Caribbean	Latin America and the Caribbean	Upper middle income



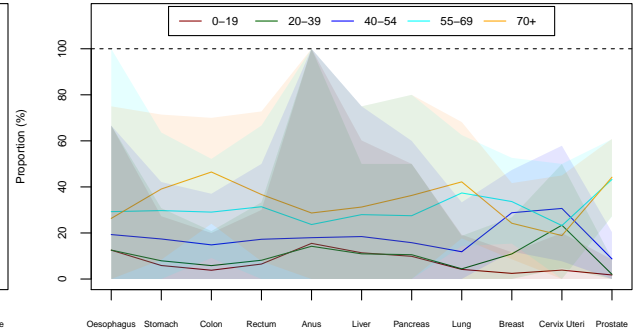
Saint Vincent and the Grenadines

ISO Code	Region	Area	Income Group
VCT	Caribbean	Latin America and the Caribbean	Upper middle income

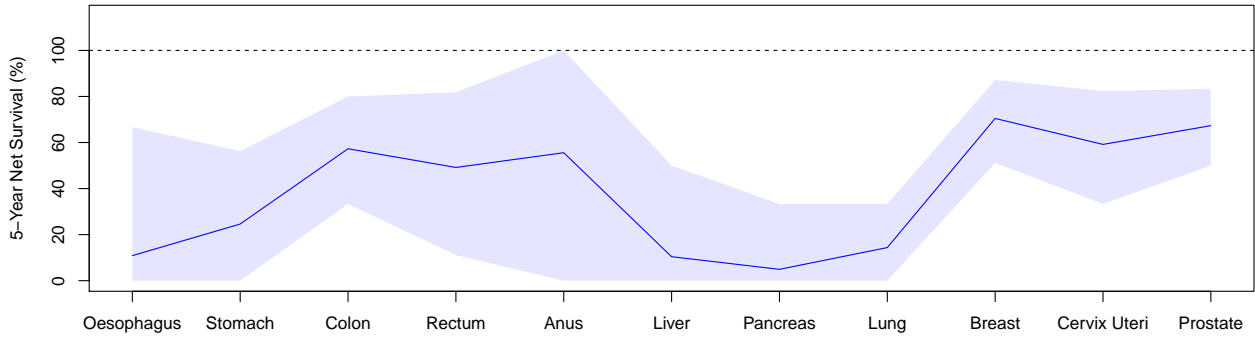
Estimated New Diagnosed Cases per Year (GLOBOCAN 2018)



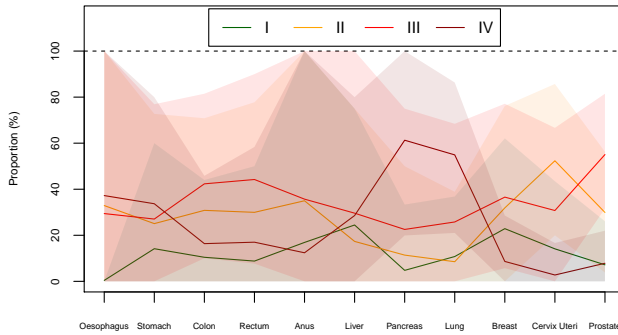
Age at Diagnosis



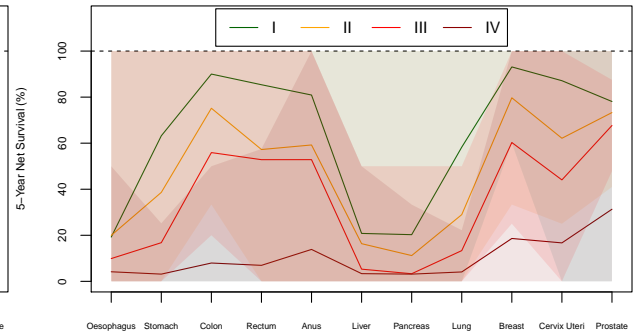
5-Year Net Survival – Overall



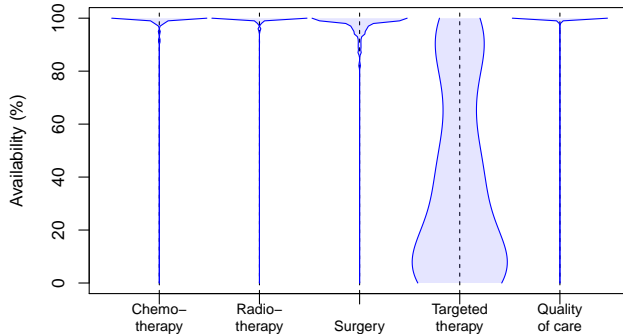
Stage Distribution at Diagnosis



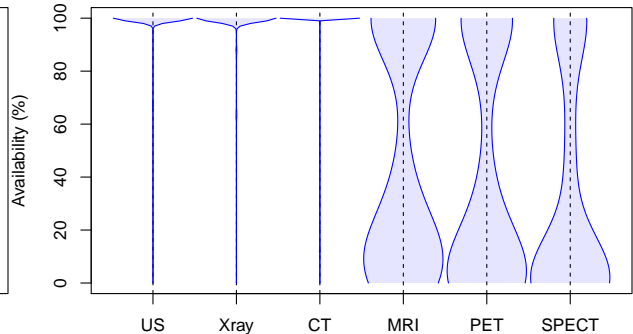
5-Year Net Survival – by Stage



Treatment Availability

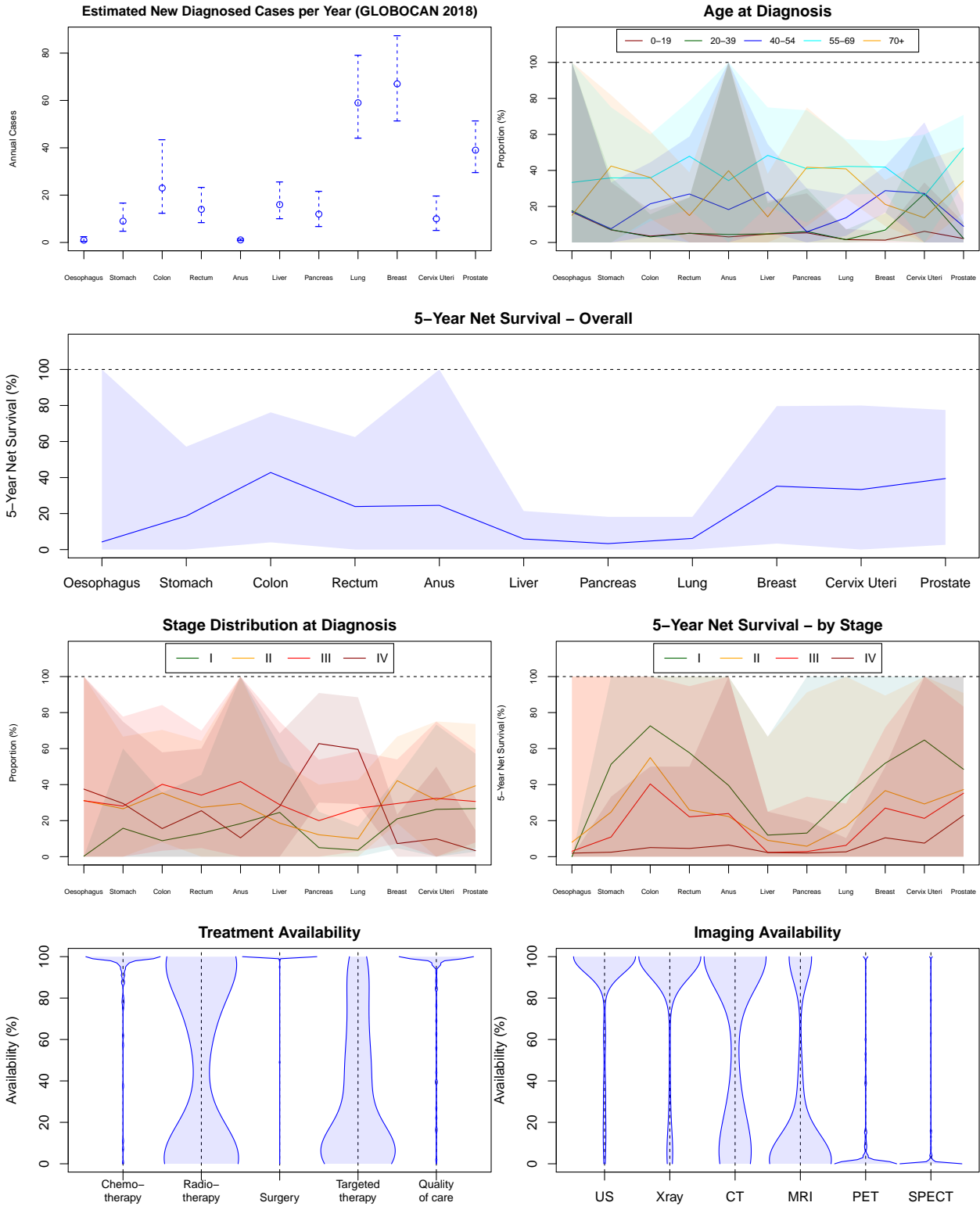


Imaging Availability



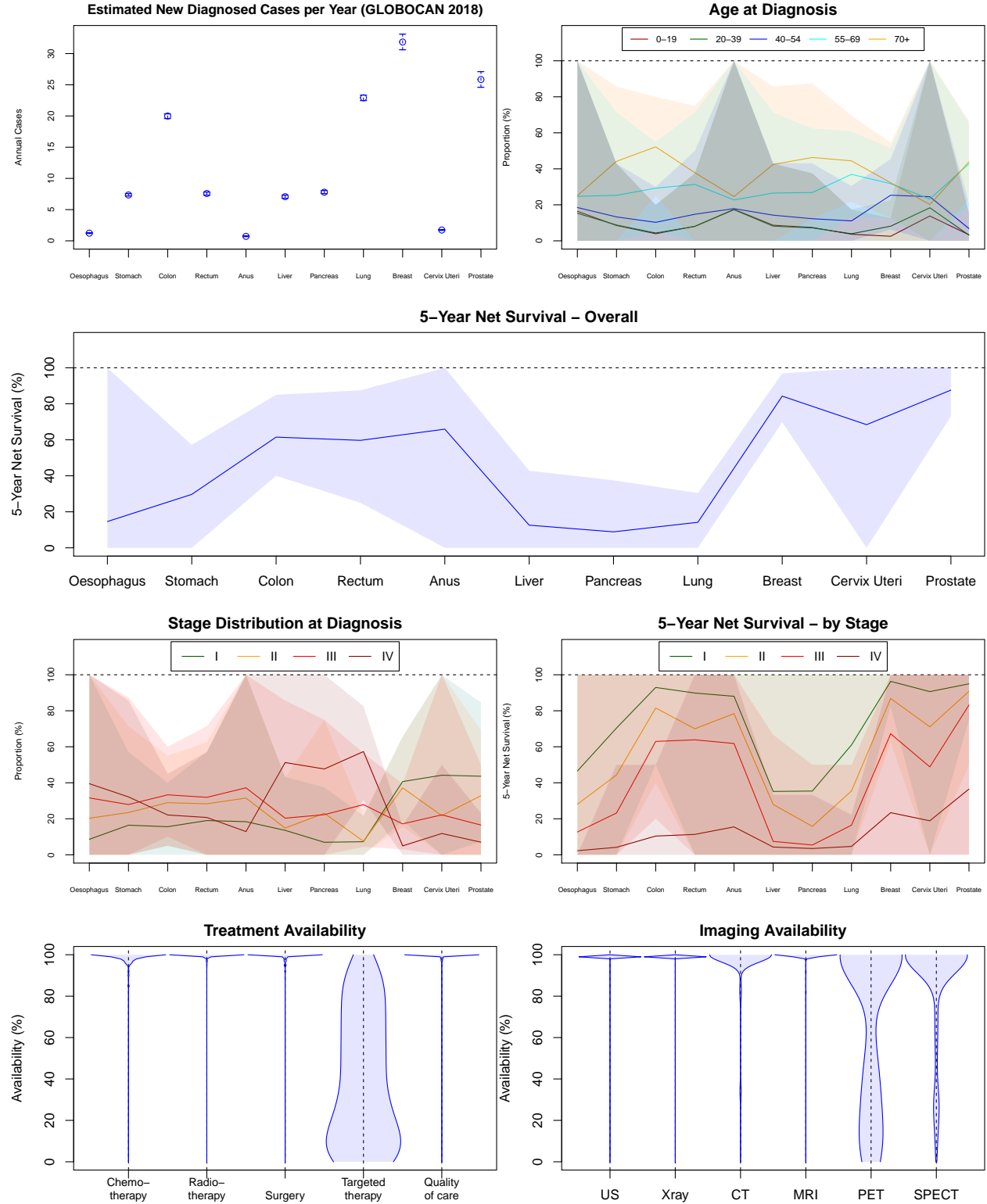
Samoa

ISO Code	Region	Area	Income Group
WSM	Polynesia	Oceania	Upper middle income



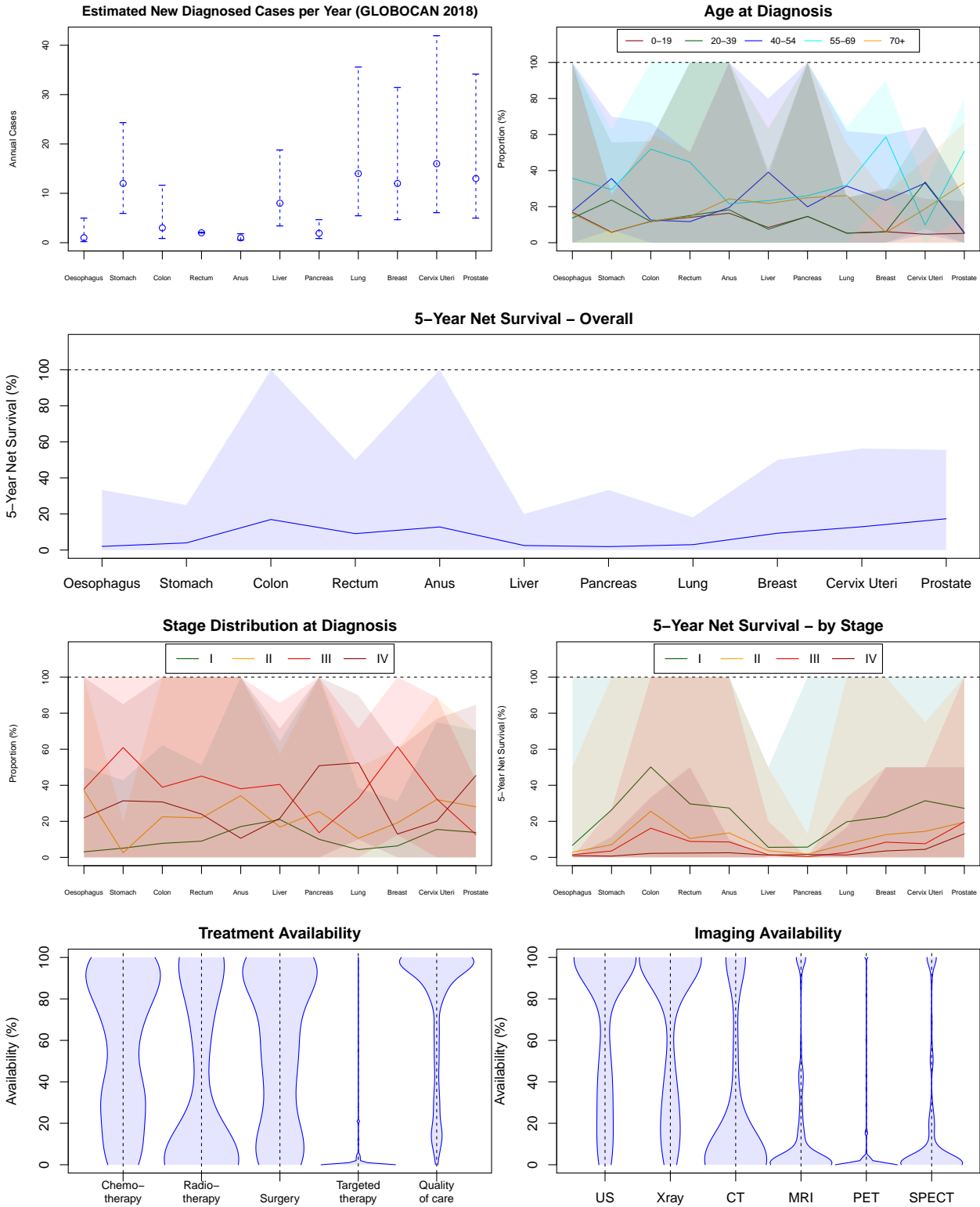
San Marino

ISO Code	Region	Area	Income Group
SMR	Southern Europe	Europe	High income



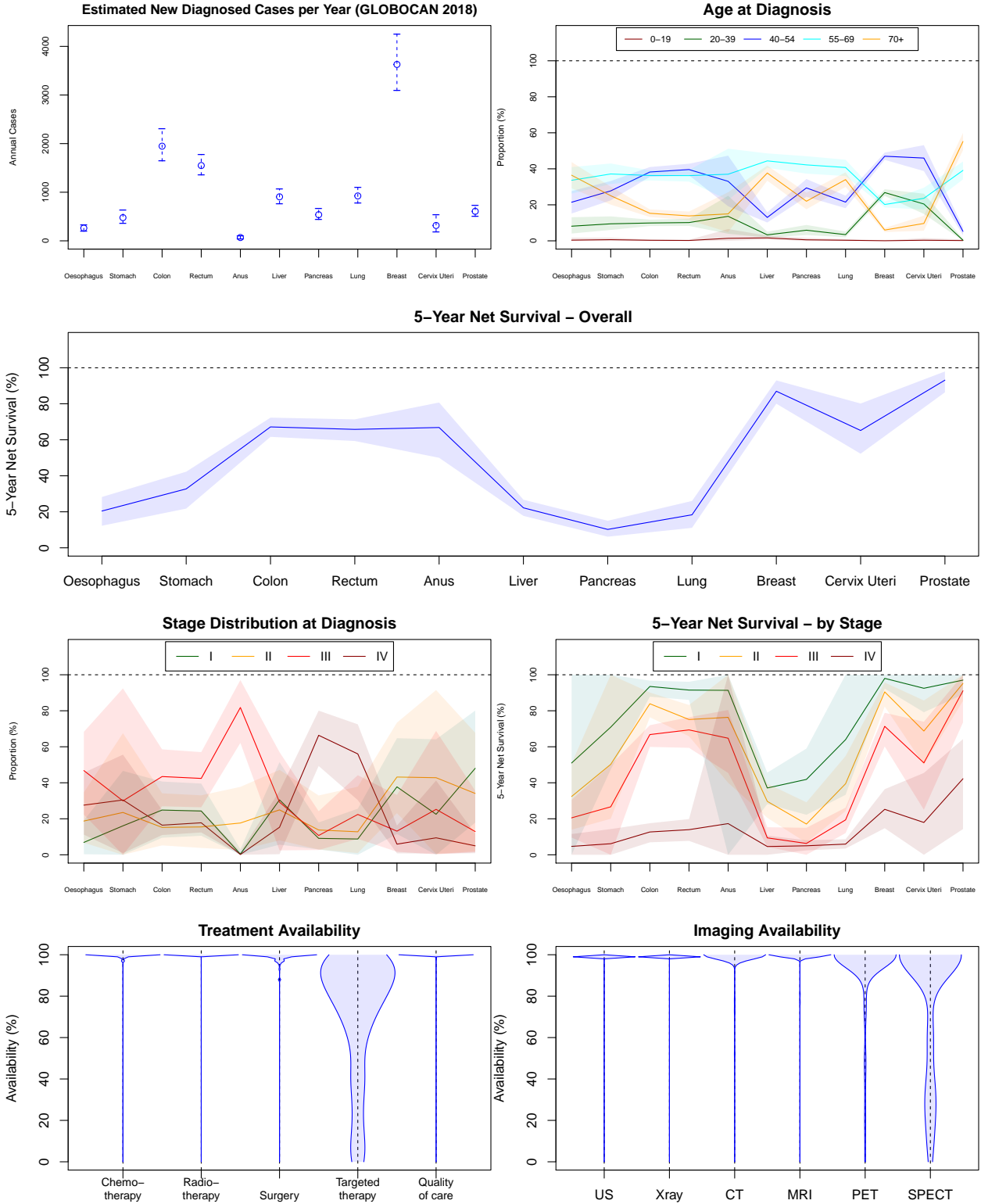
Sao Tome and Principe

ISO Code	Region	Area	Income Group
STP	Middle Africa	Africa	Lower middle income



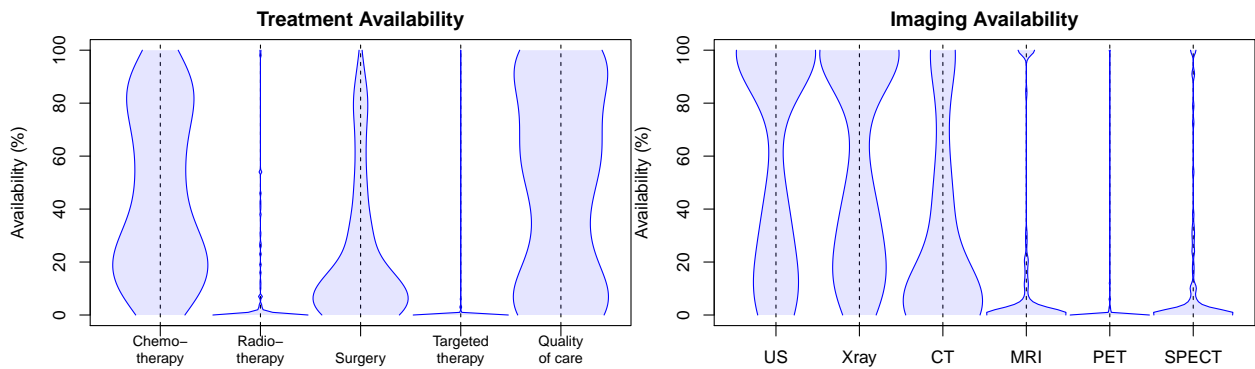
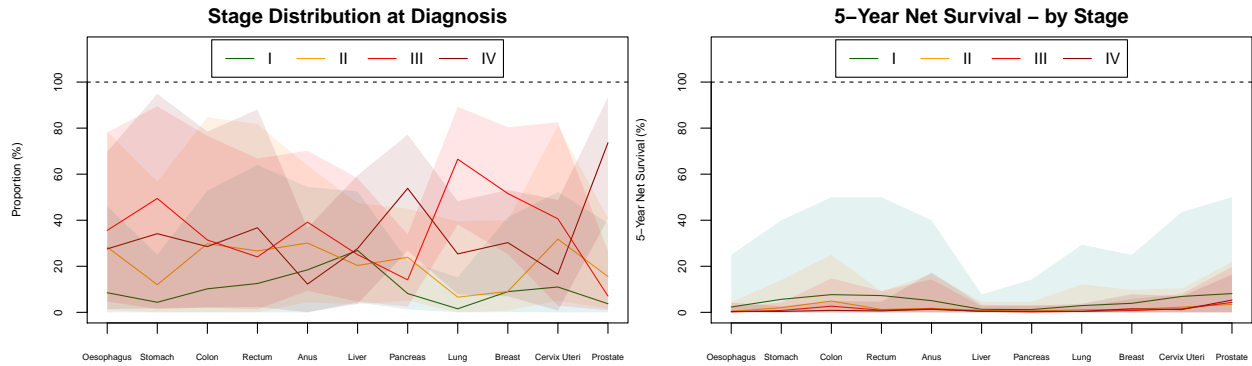
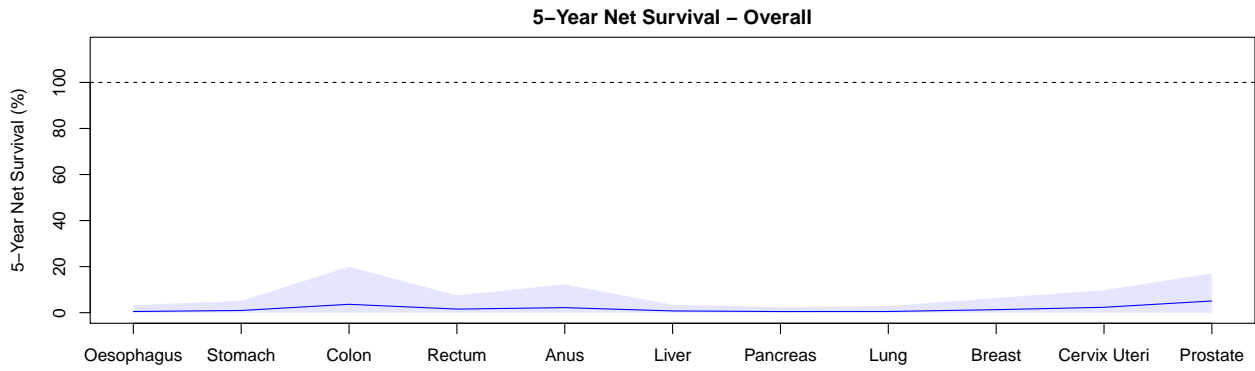
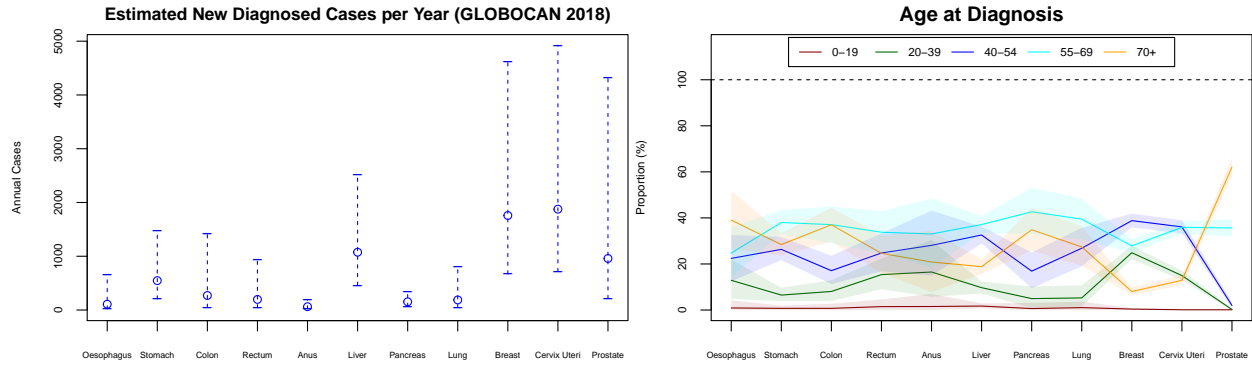
Saudi Arabia

ISO Code	Region	Area	Income Group
SAU	Western Asia	Asia	High income



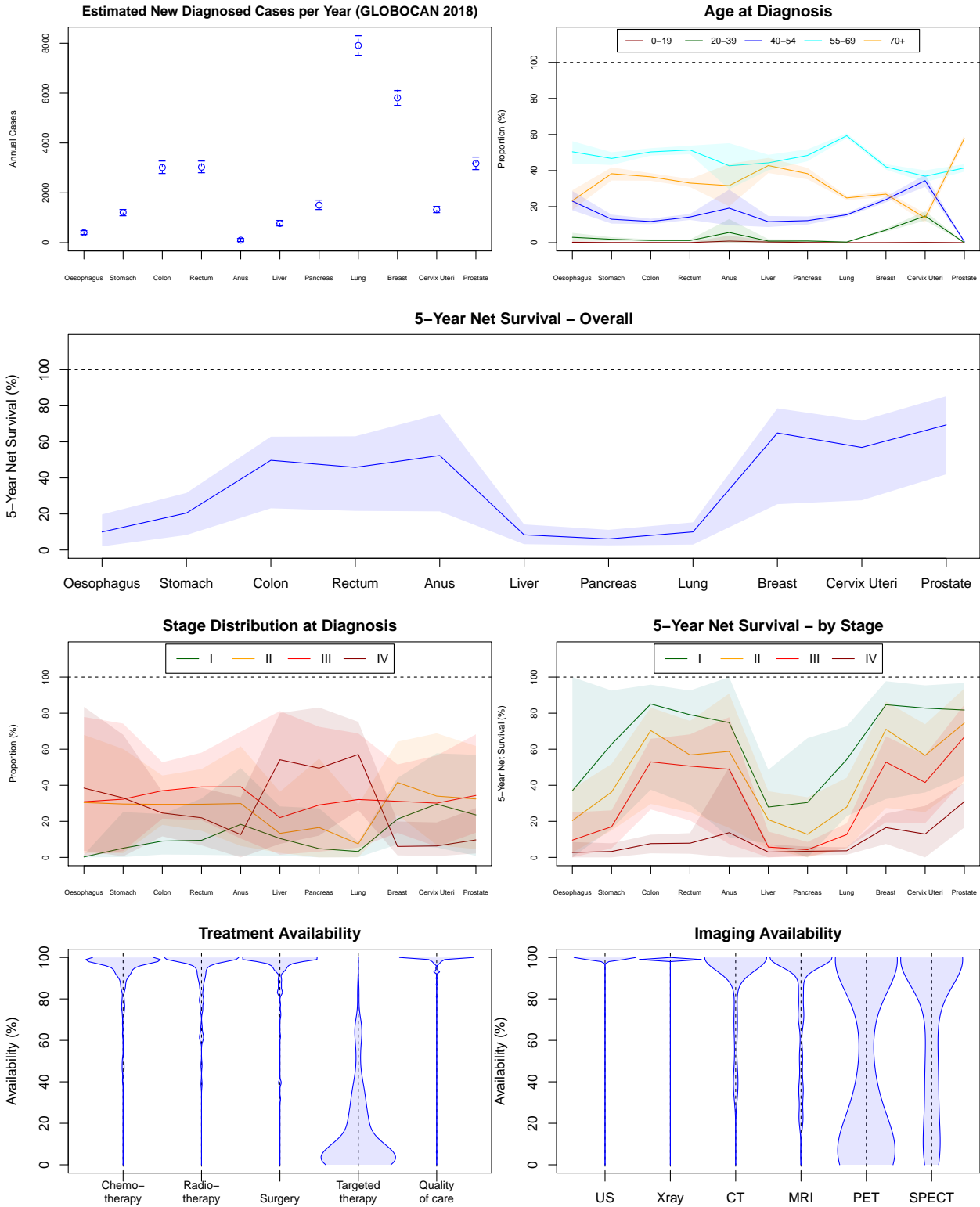
Senegal

ISO Code	Region	Area	Income Group
SEN	Western Africa	Africa	Low income



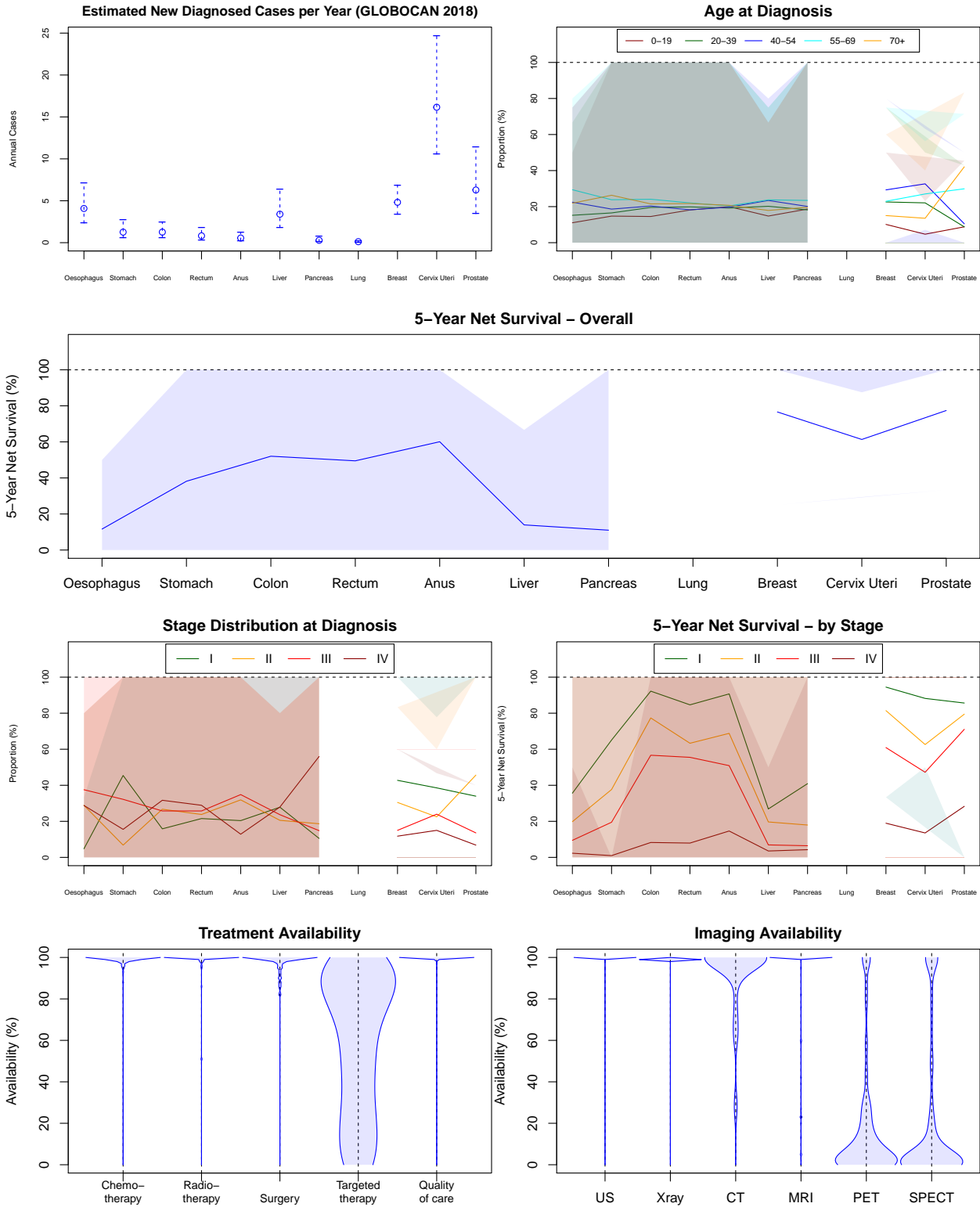
Serbia

ISO Code	Region	Area	Income Group
SRB	Southern Europe	Europe	Upper middle income



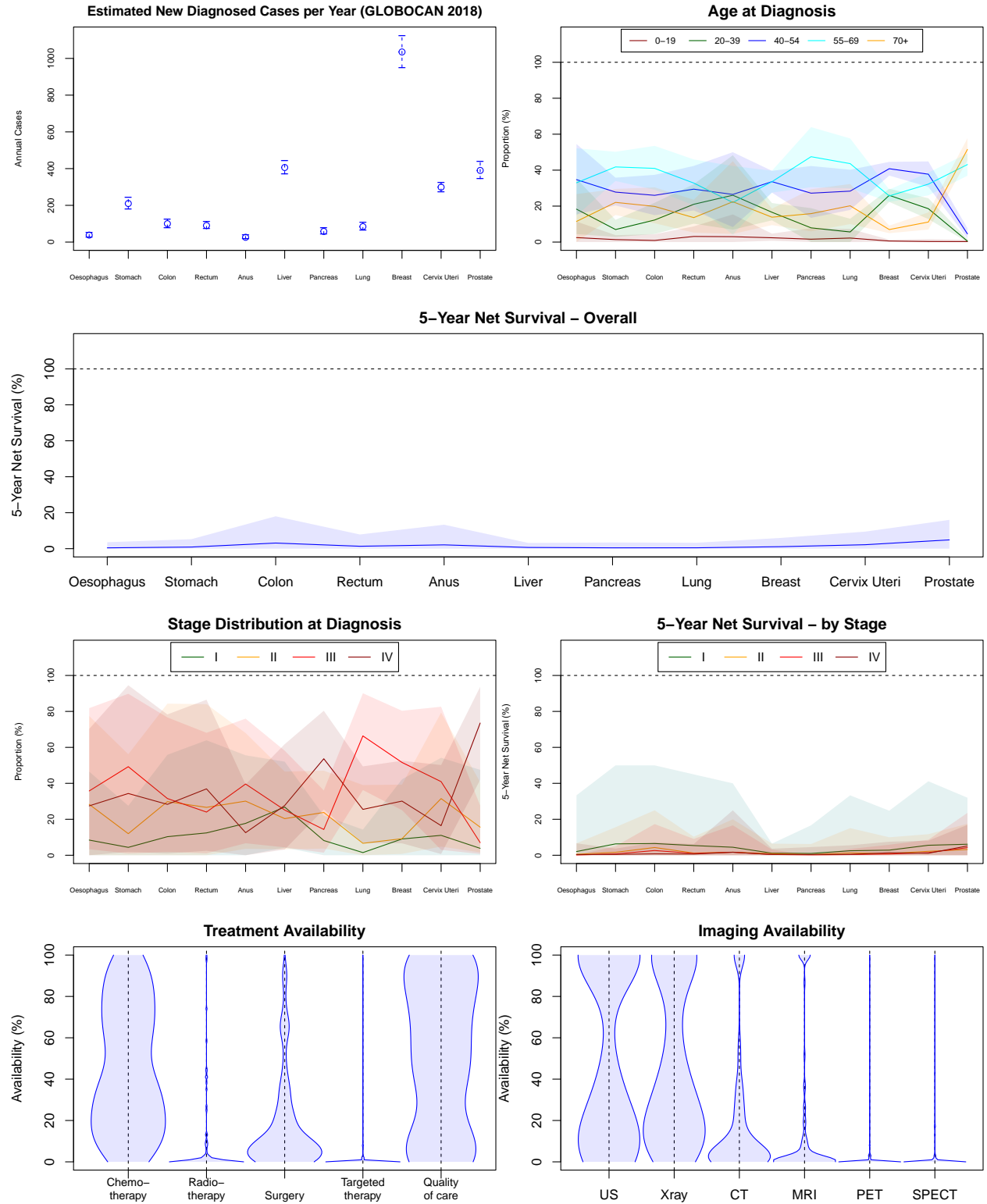
Seychelles

ISO Code	Region	Area	Income Group
SYC	Eastern Africa	Africa	High income



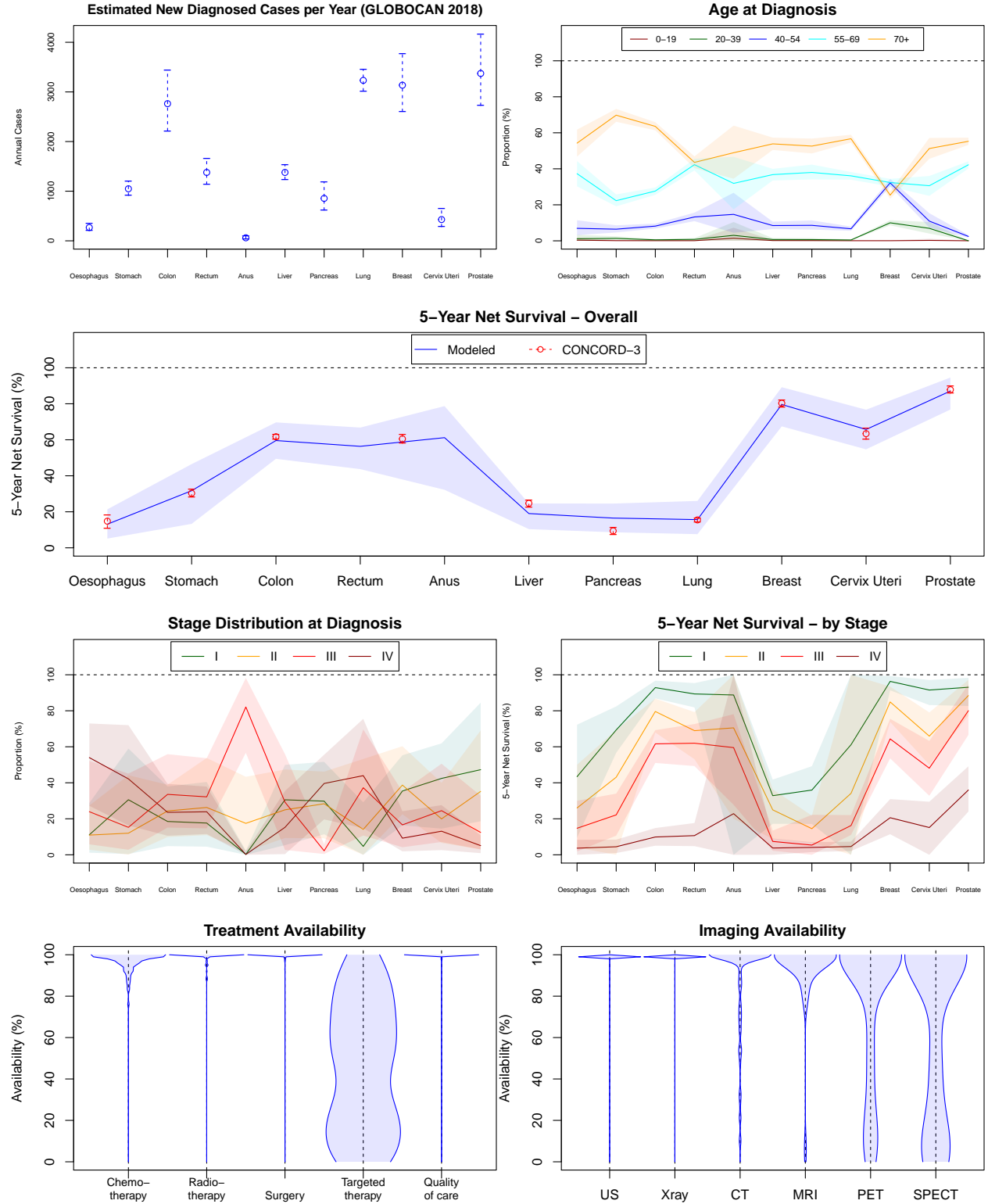
Sierra Leone

ISO Code	Region	Area	Income Group
SLE	Western Africa	Africa	Low income



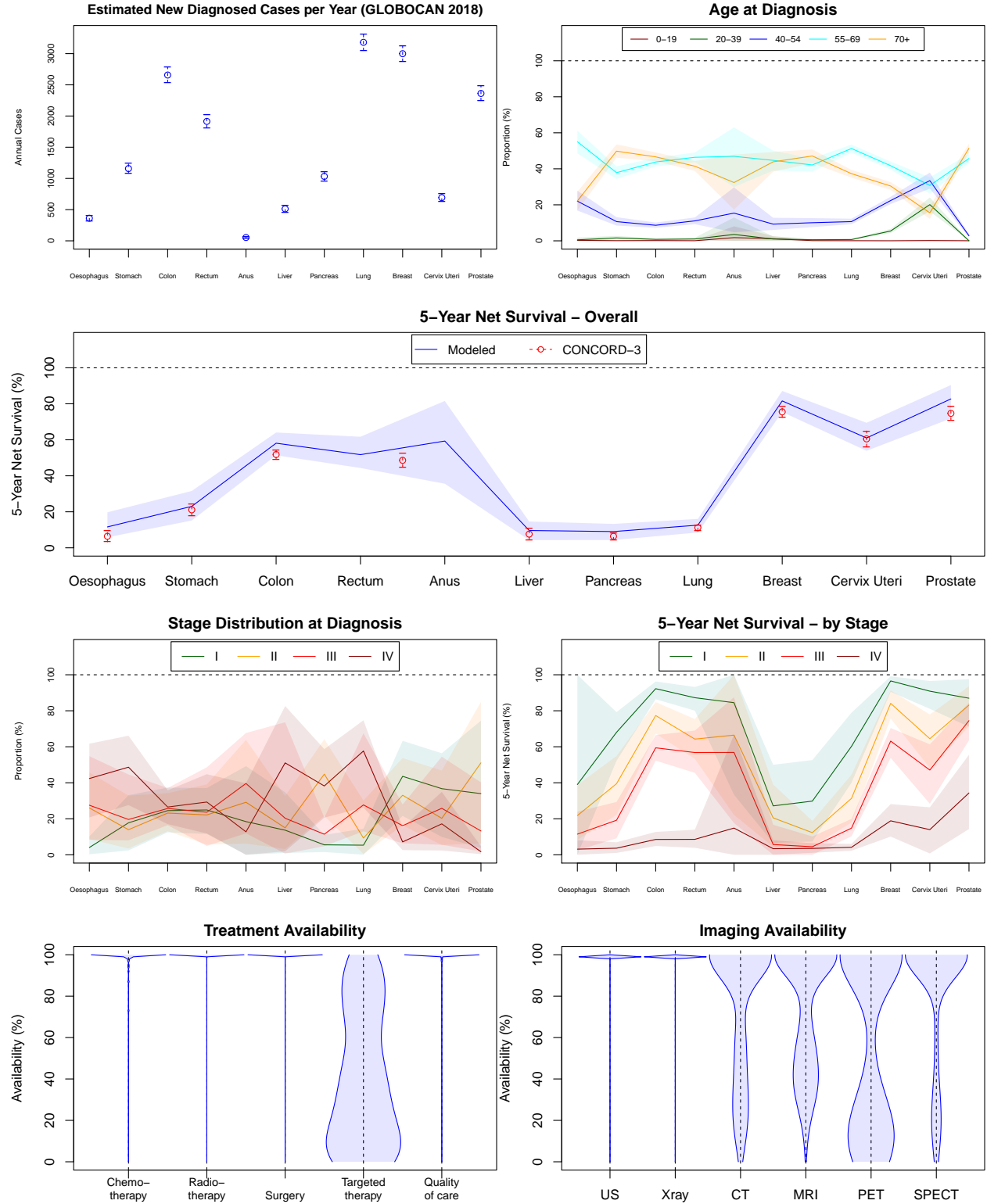
Singapore

ISO Code	Region	Area	Income Group
SGP	South-Eastern Asia	Asia	High income



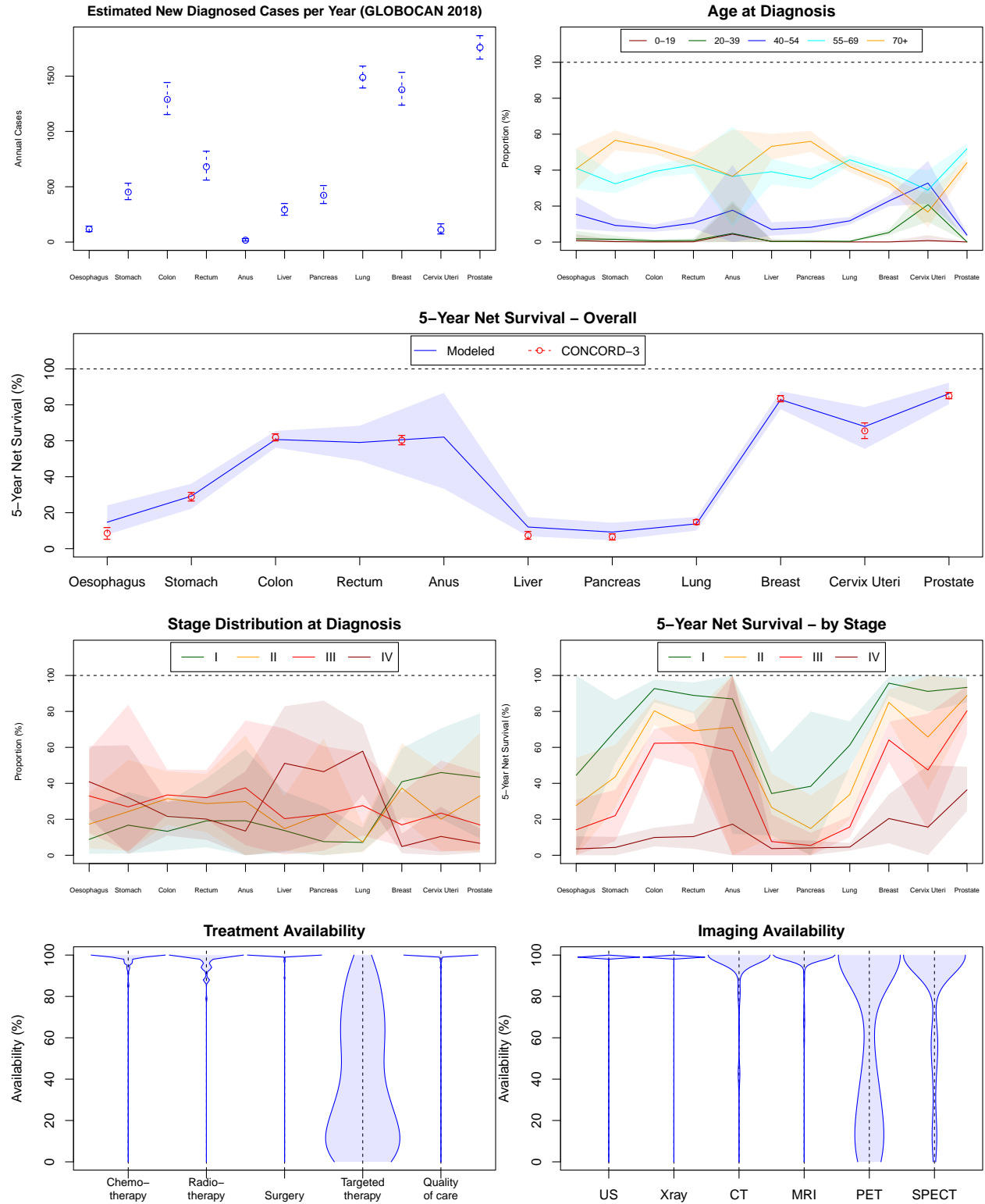
Slovakia

ISO Code	Region	Area	Income Group
SVK	Eastern Europe	Europe	High income



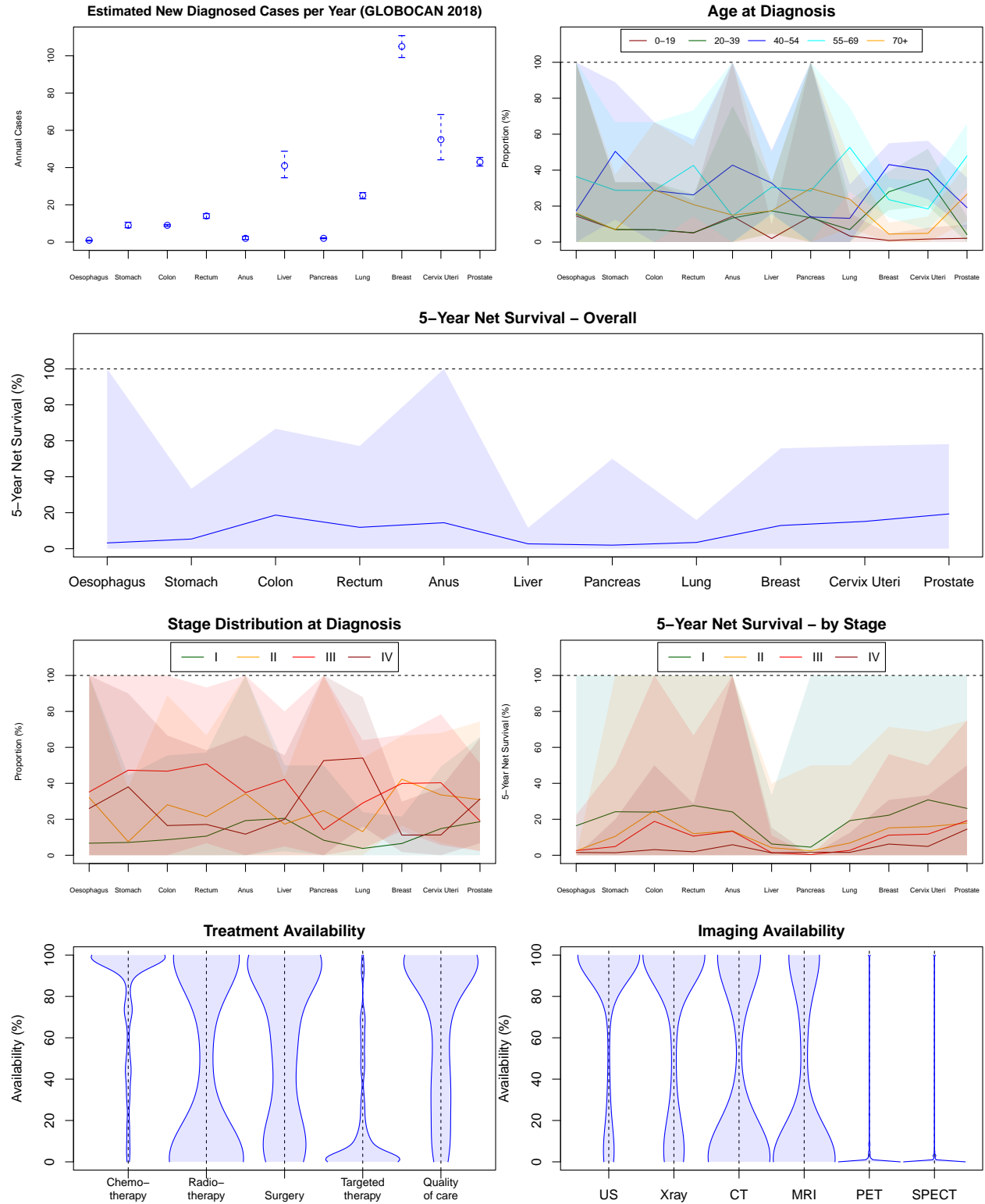
Slovenia

ISO Code	Region	Area	Income Group
SVN	Southern Europe	Europe	High income



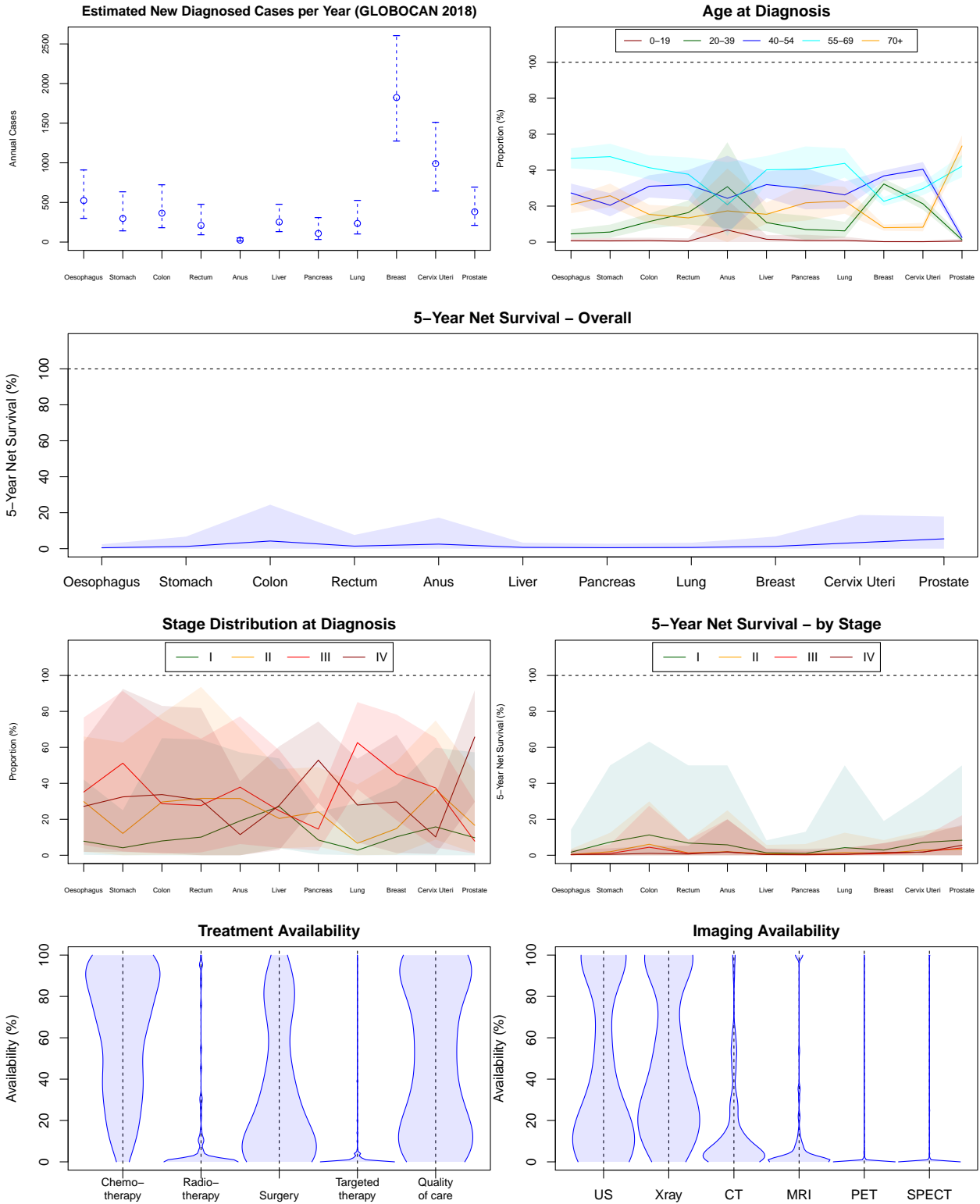
Solomon Islands

ISO Code	Region	Area	Income Group
SLB	Melanesia	Oceania	Lower middle income



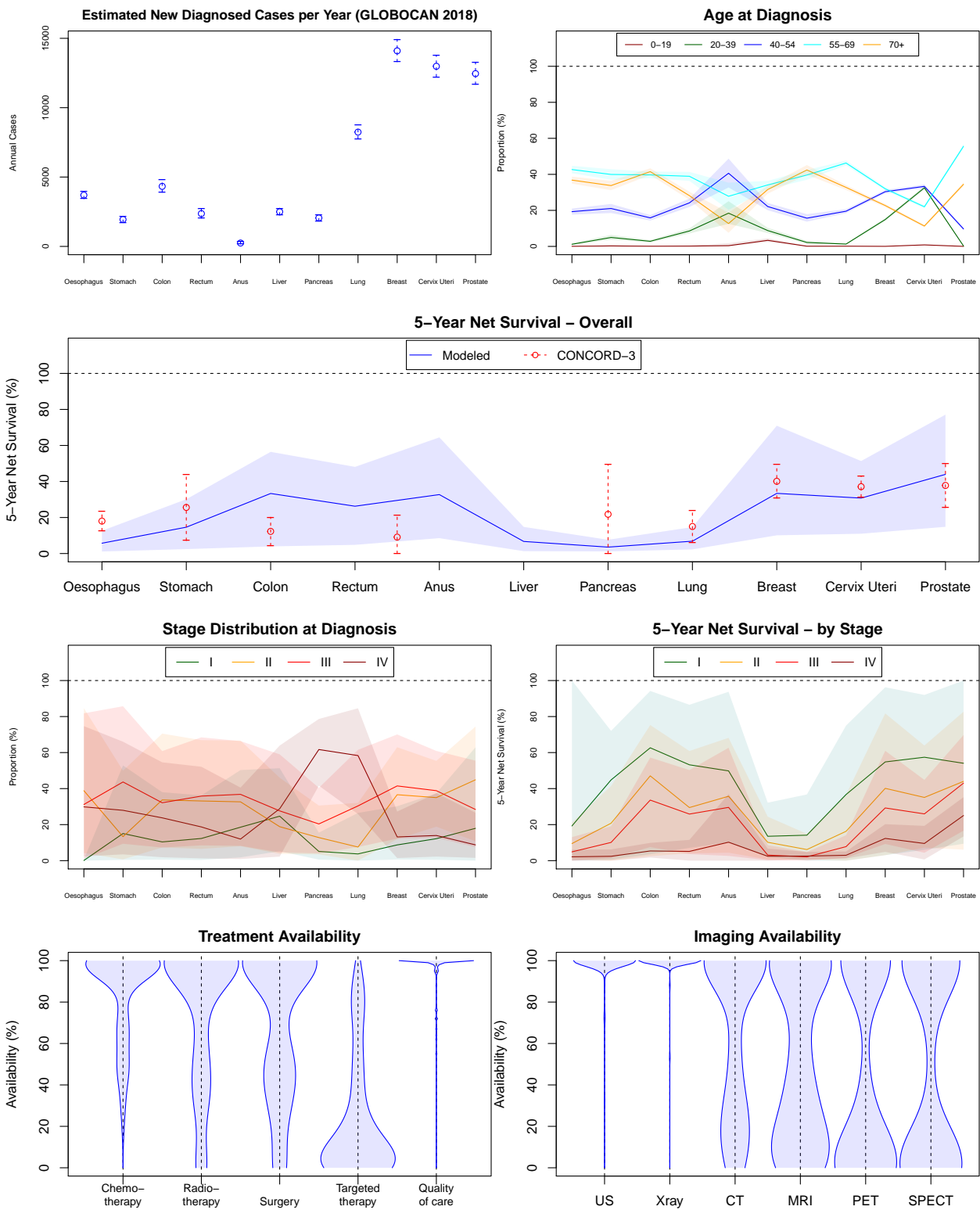
Somalia

ISO Code	Region	Area	Income Group
SOM	Eastern Africa	Africa	Low income



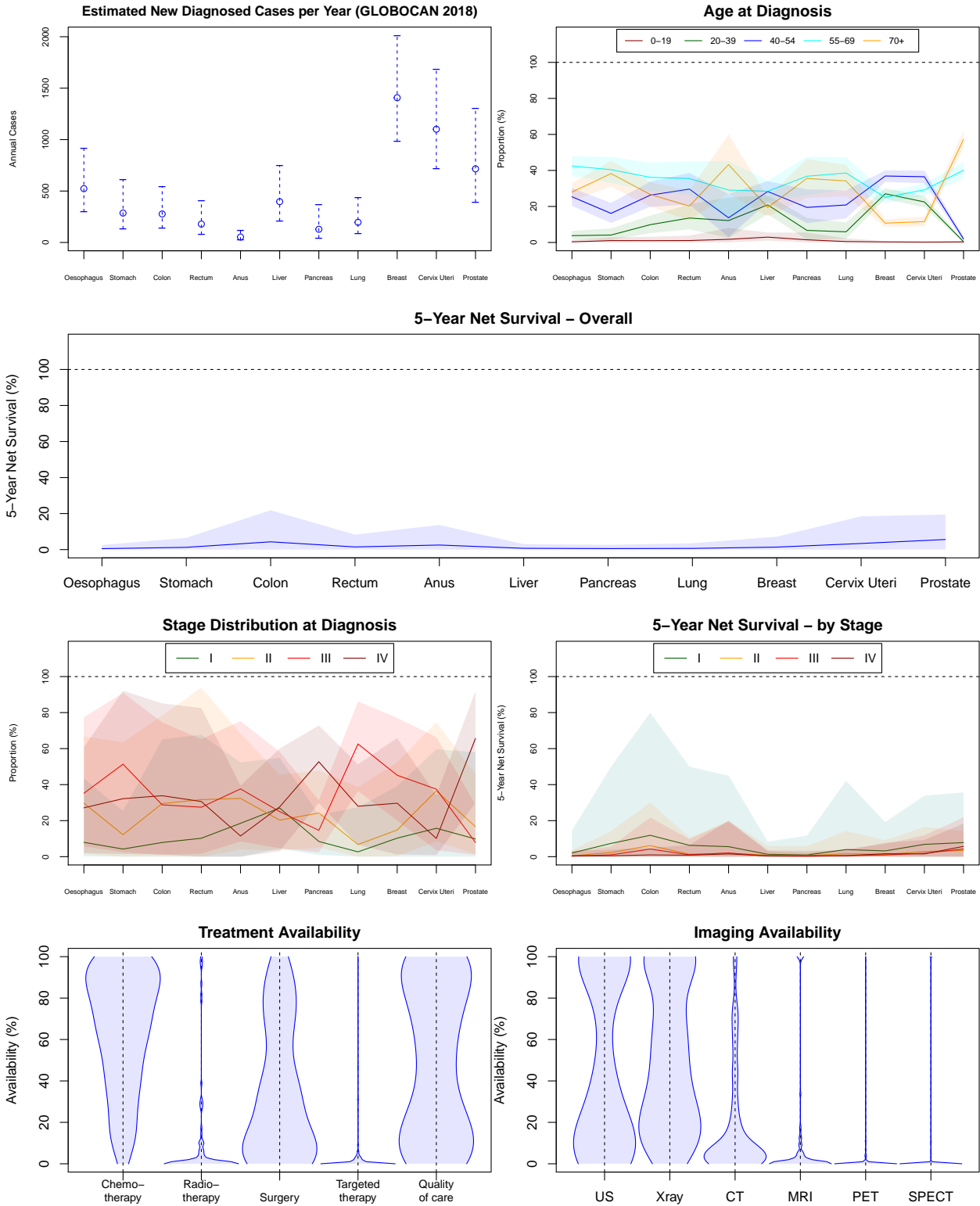
South Africa

ISO Code	Region	Area	Income Group
ZAF	Southern Africa	Africa	Upper middle income



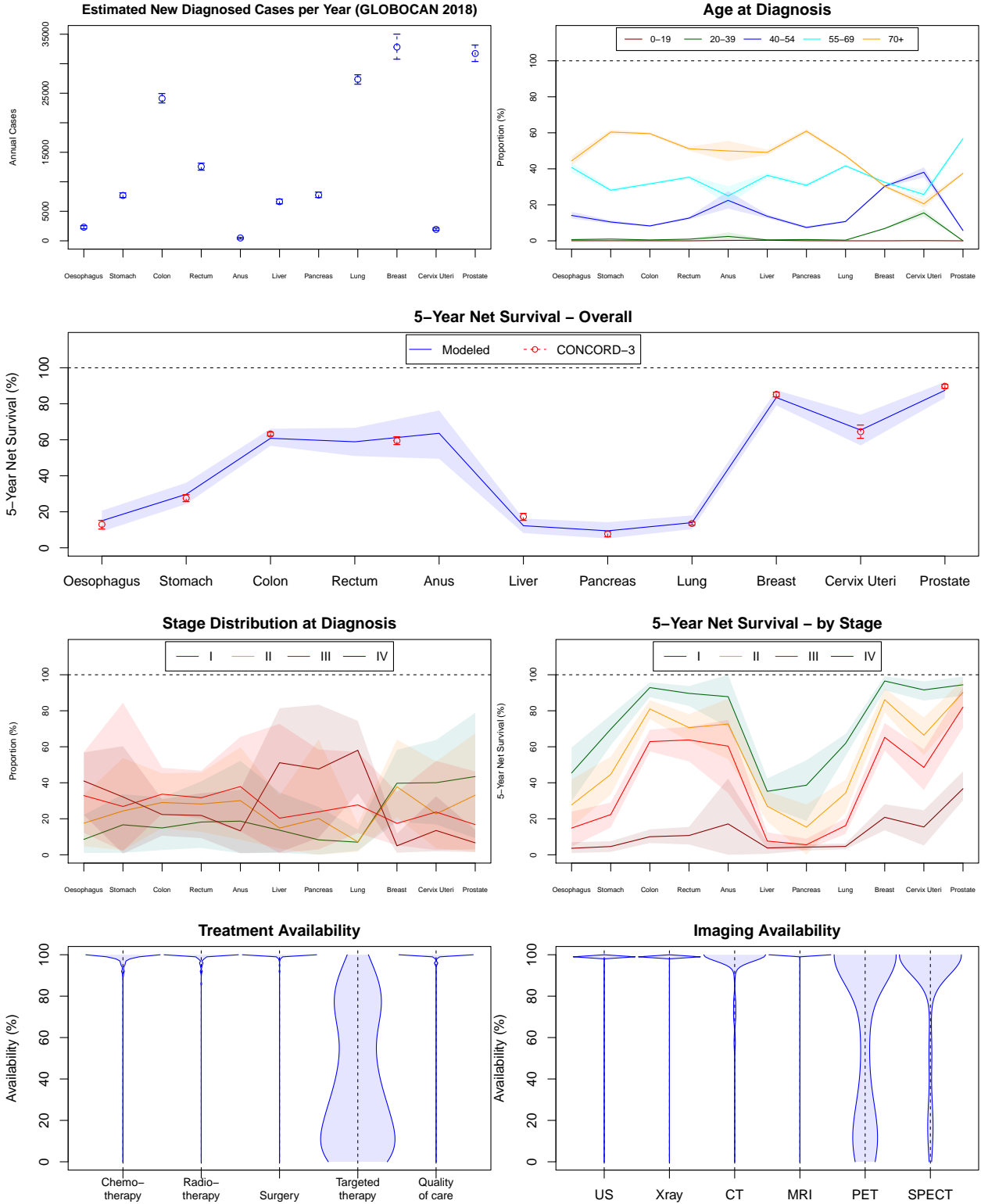
South Sudan

ISO Code	Region	Area	Income Group
SSD	Eastern Africa	Africa	Low income



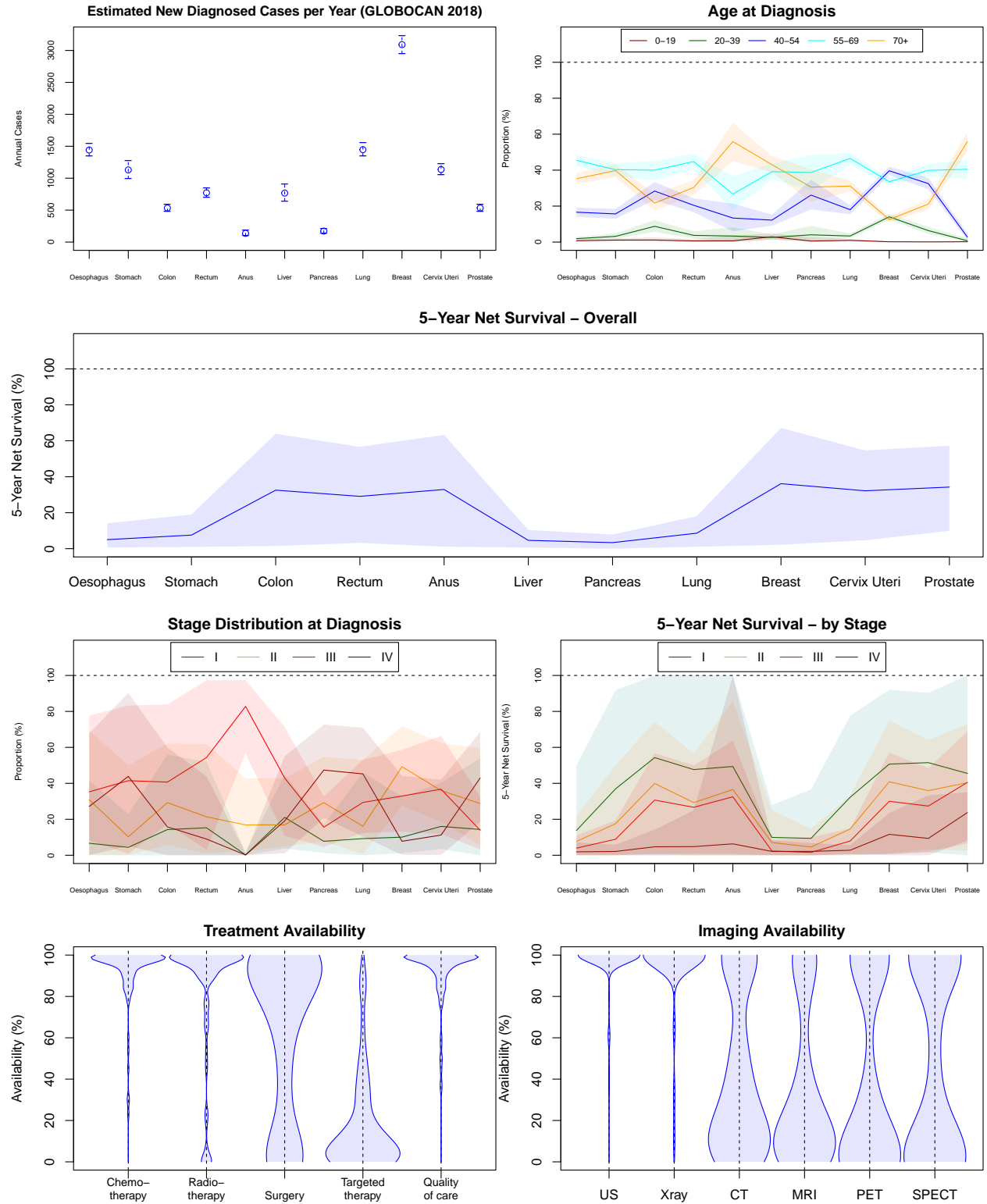
Spain

ISO Code	Region	Area	Income Group
ESP	Southern Europe	Europe	High income



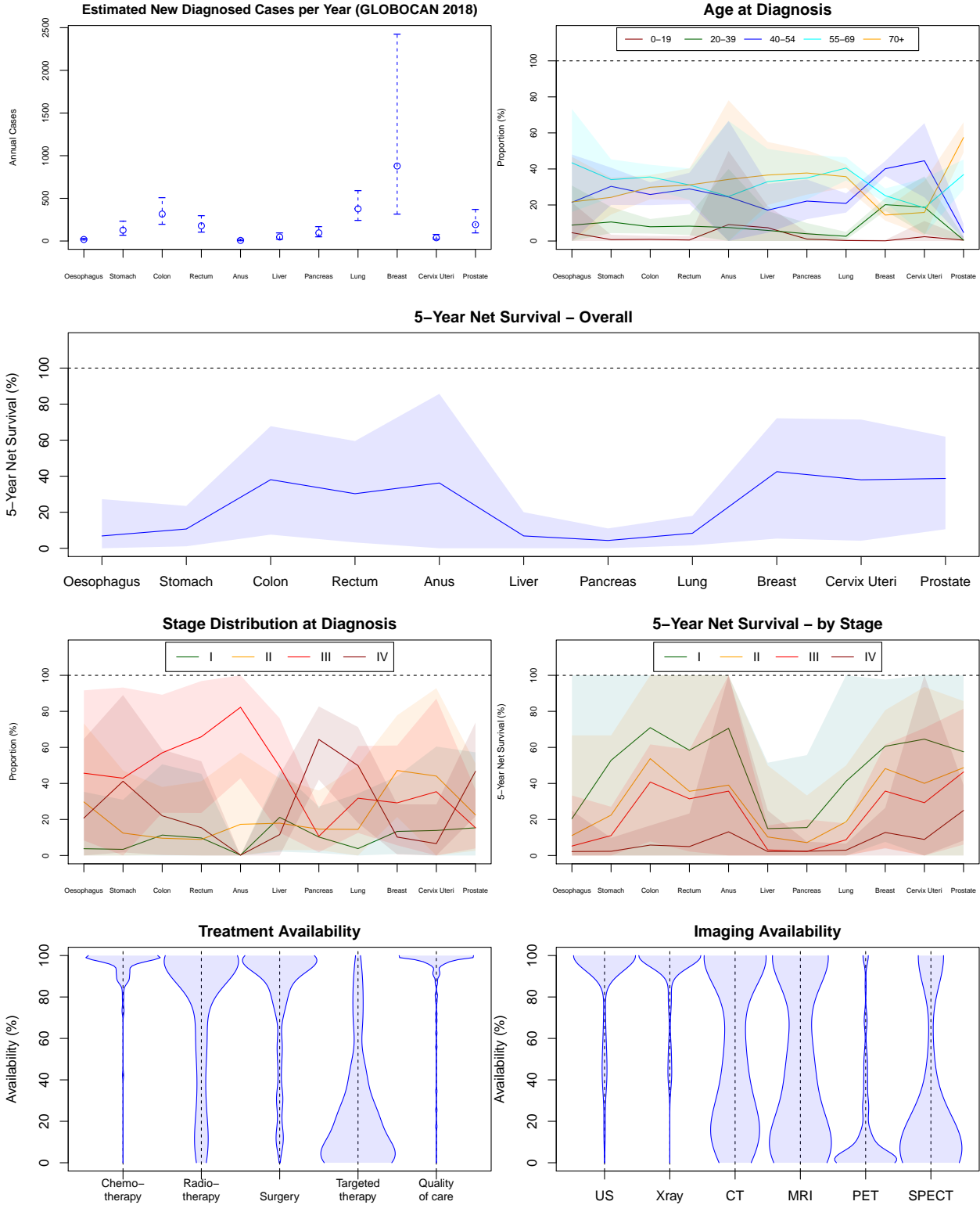
Sri Lanka

ISO Code	Region	Area	Income Group
LKA	Southern Asia	Asia	Lower middle income



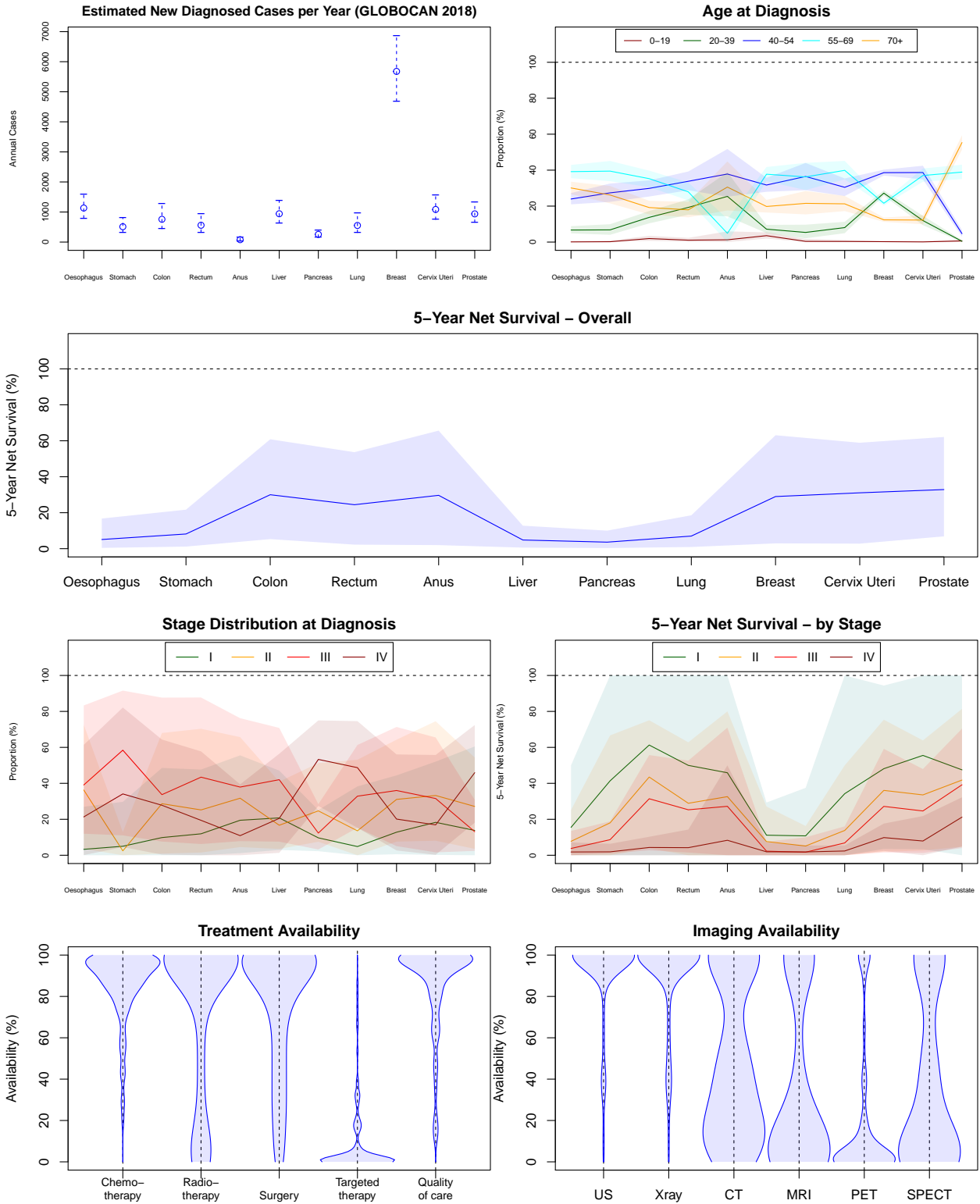
State of Palestine

ISO Code	Region	Area	Income Group
PSE	Western Asia	Asia	Lower middle income



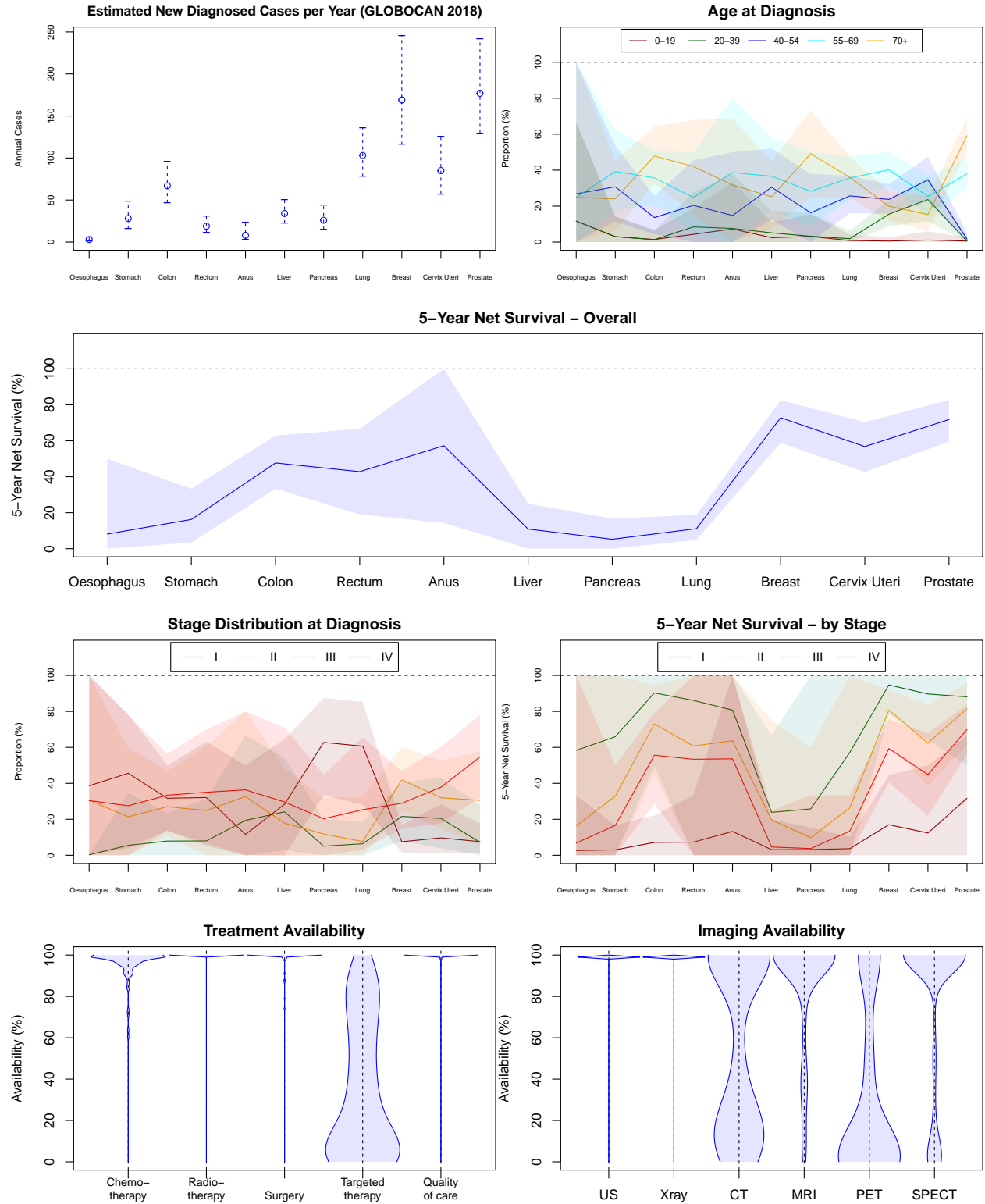
Sudan

ISO Code	Region	Area	Income Group
SDN	Northern Africa	Africa	Lower middle income



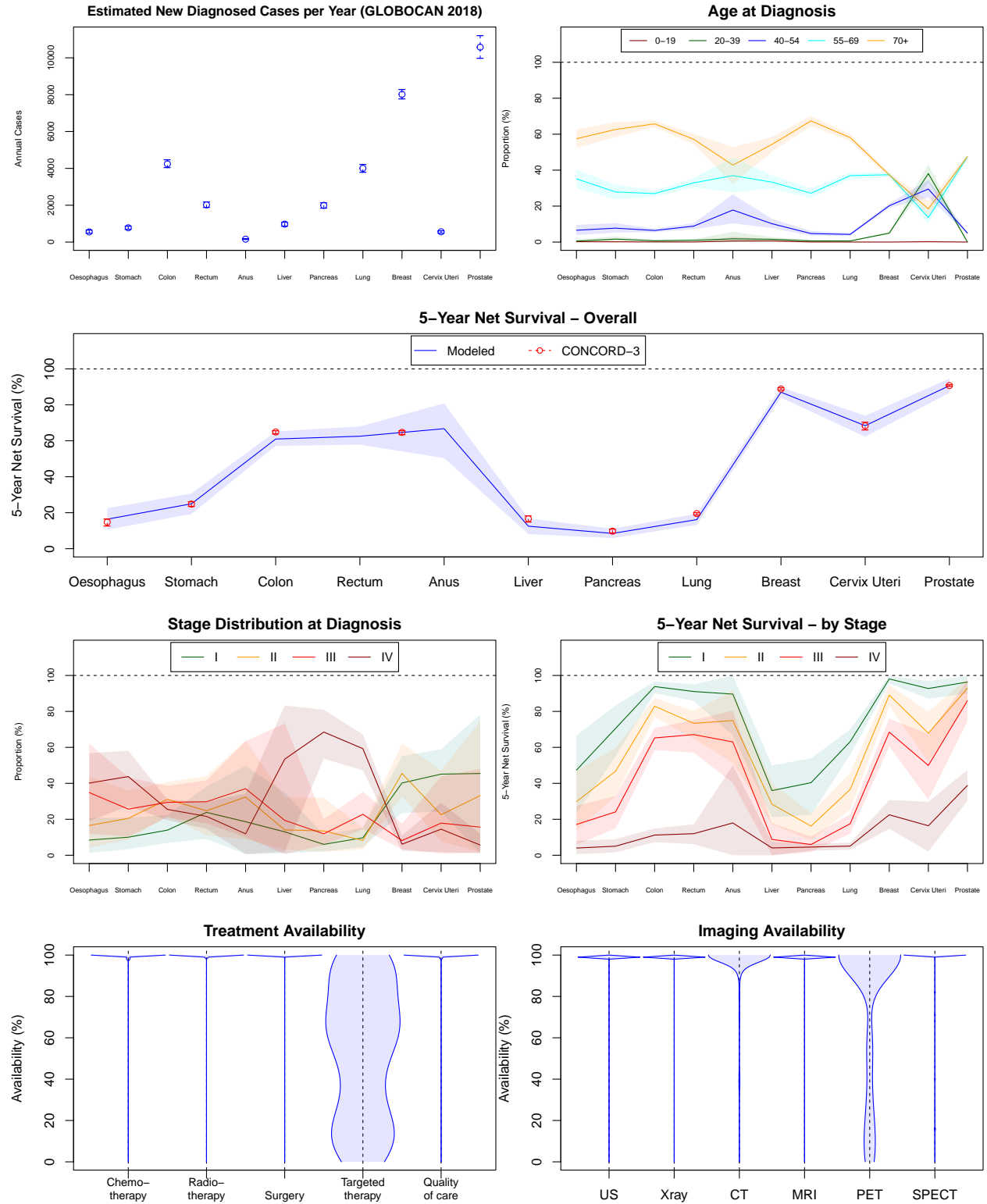
Suriname

ISO Code	Region	Area	Income Group
SUR	South America	Latin America and the Caribbean	Upper middle income



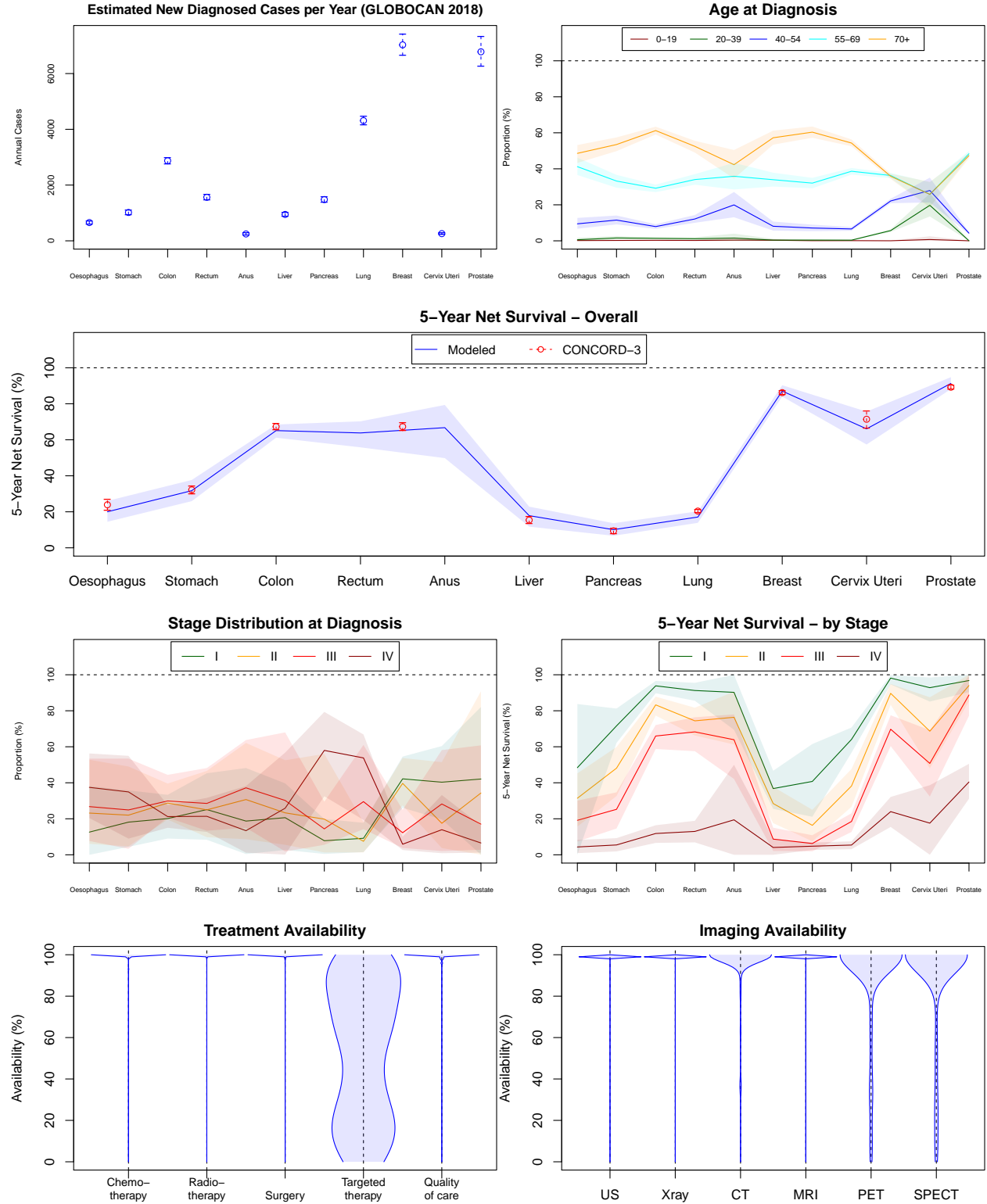
Sweden

ISO Code	Region	Area	Income Group
SWE	Northern Europe	Europe	High income



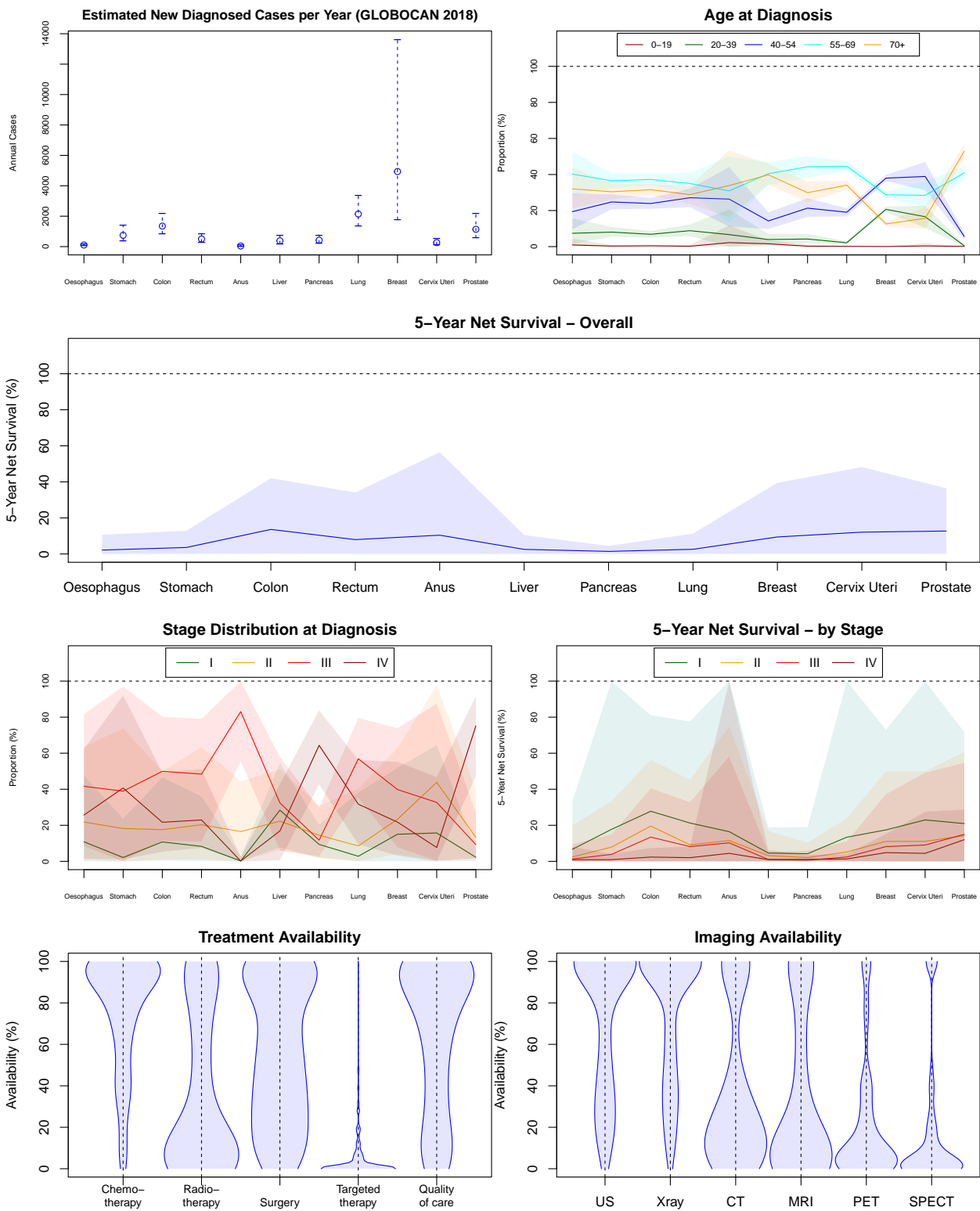
Switzerland

ISO Code	Region	Area	Income Group
CHE	Western Europe	Europe	High income



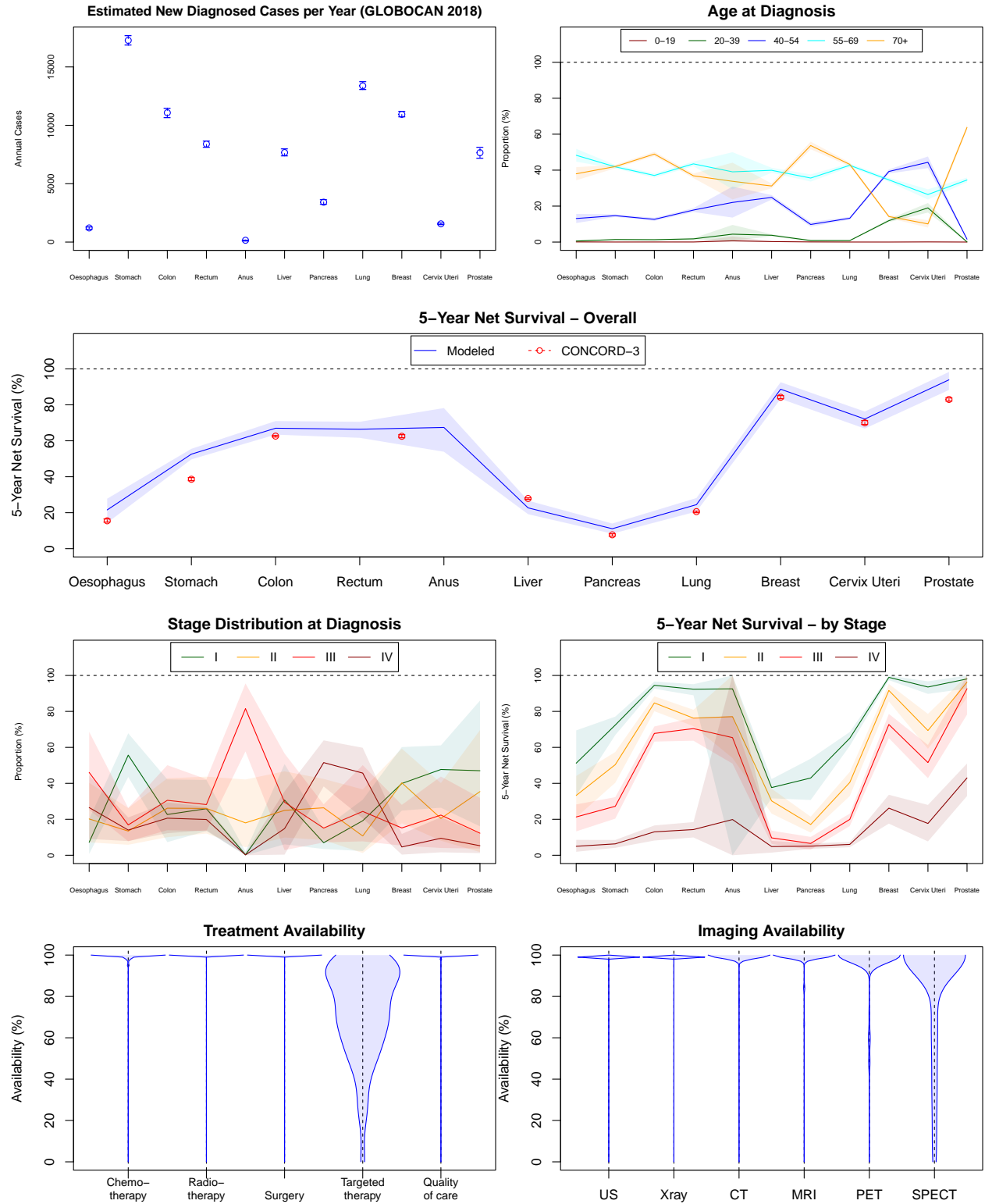
Syrian Arab Republic

ISO Code	Region	Area	Income Group
SYR	Western Asia	Asia	Low income



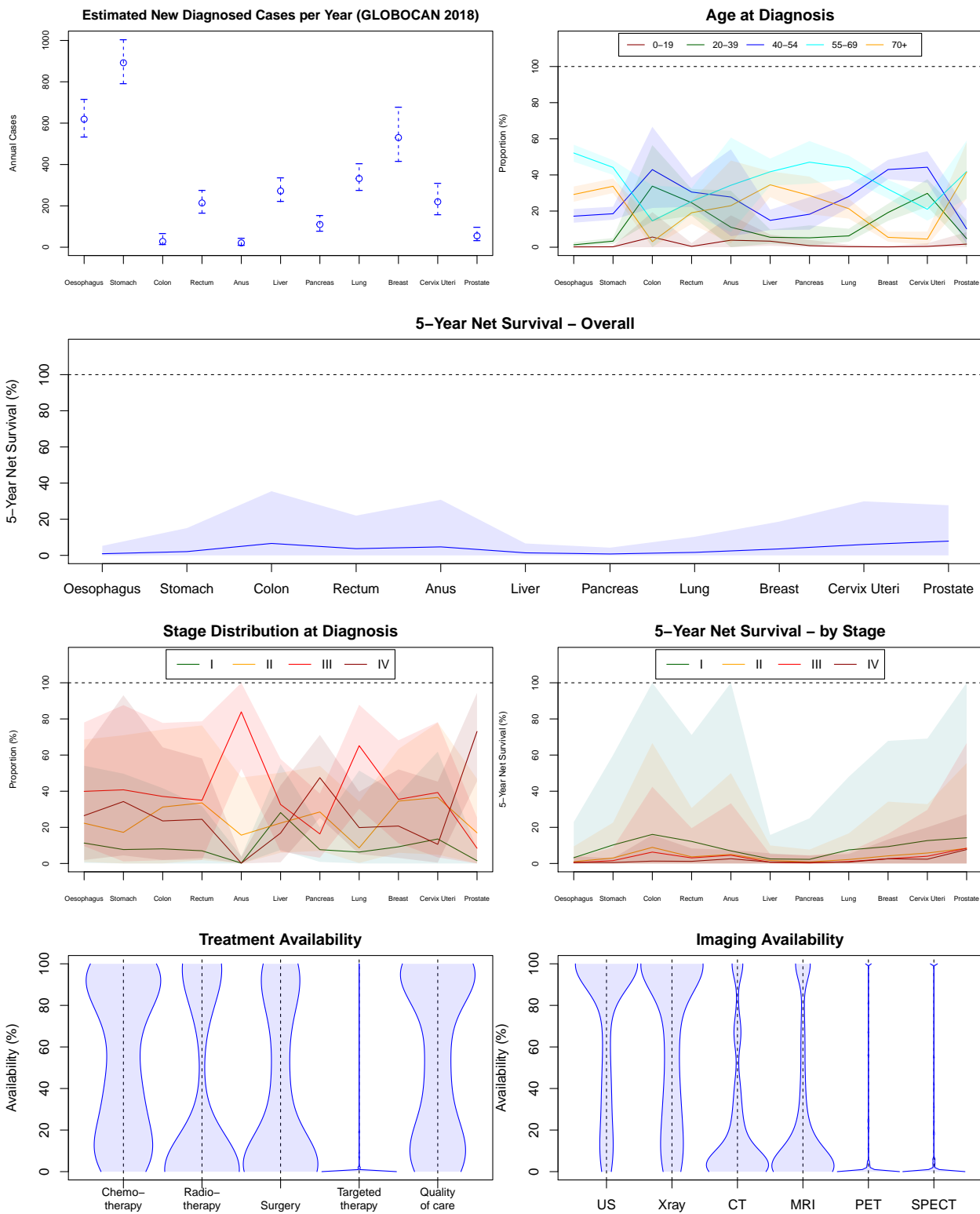
Taiwan

ISO Code	Region	Area	Income Group
TWN	Eastern Asia	Asia	High income



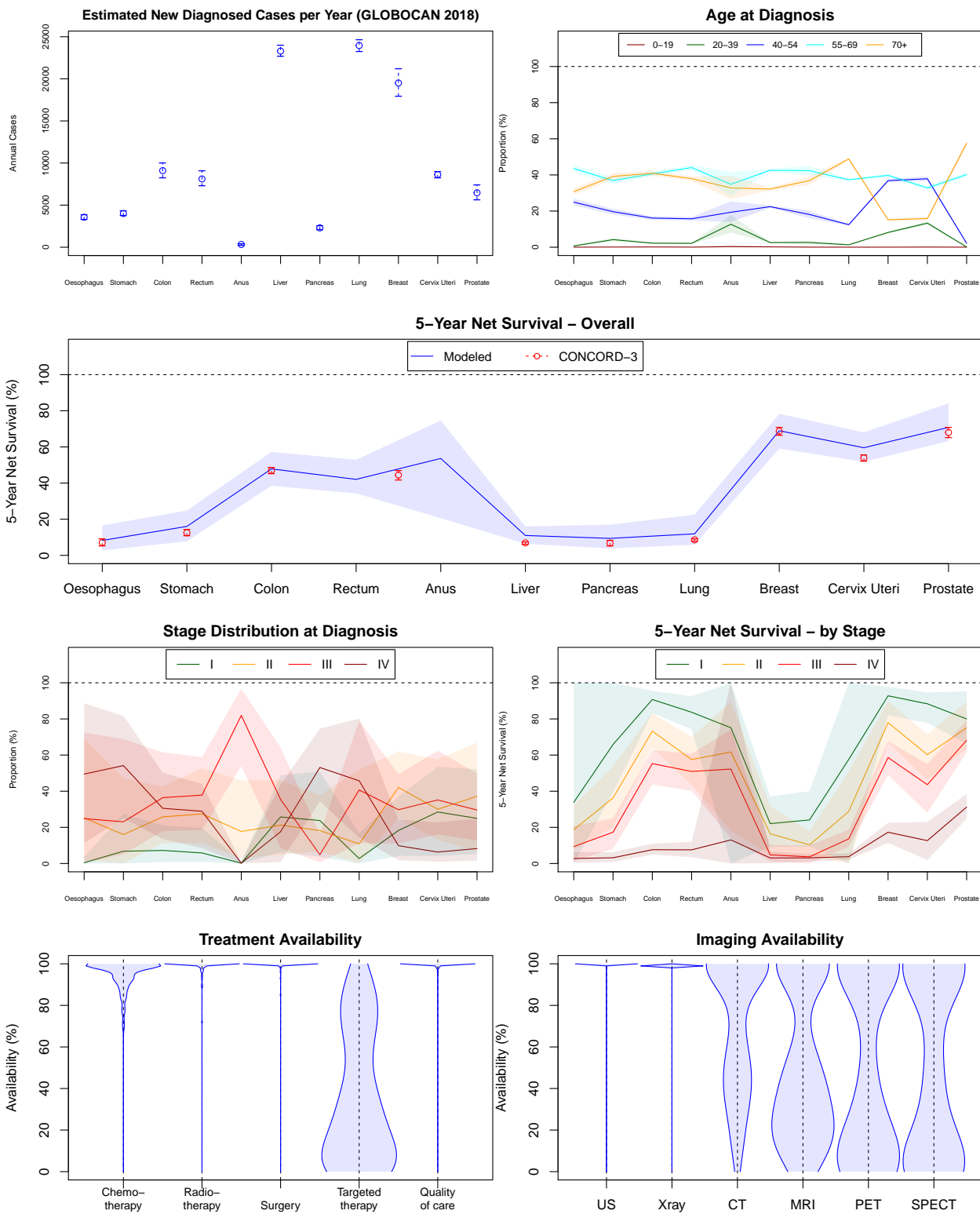
Tajikistan

ISO Code	Region	Area	Income Group
TJK	Central Asia	Asia	Low income



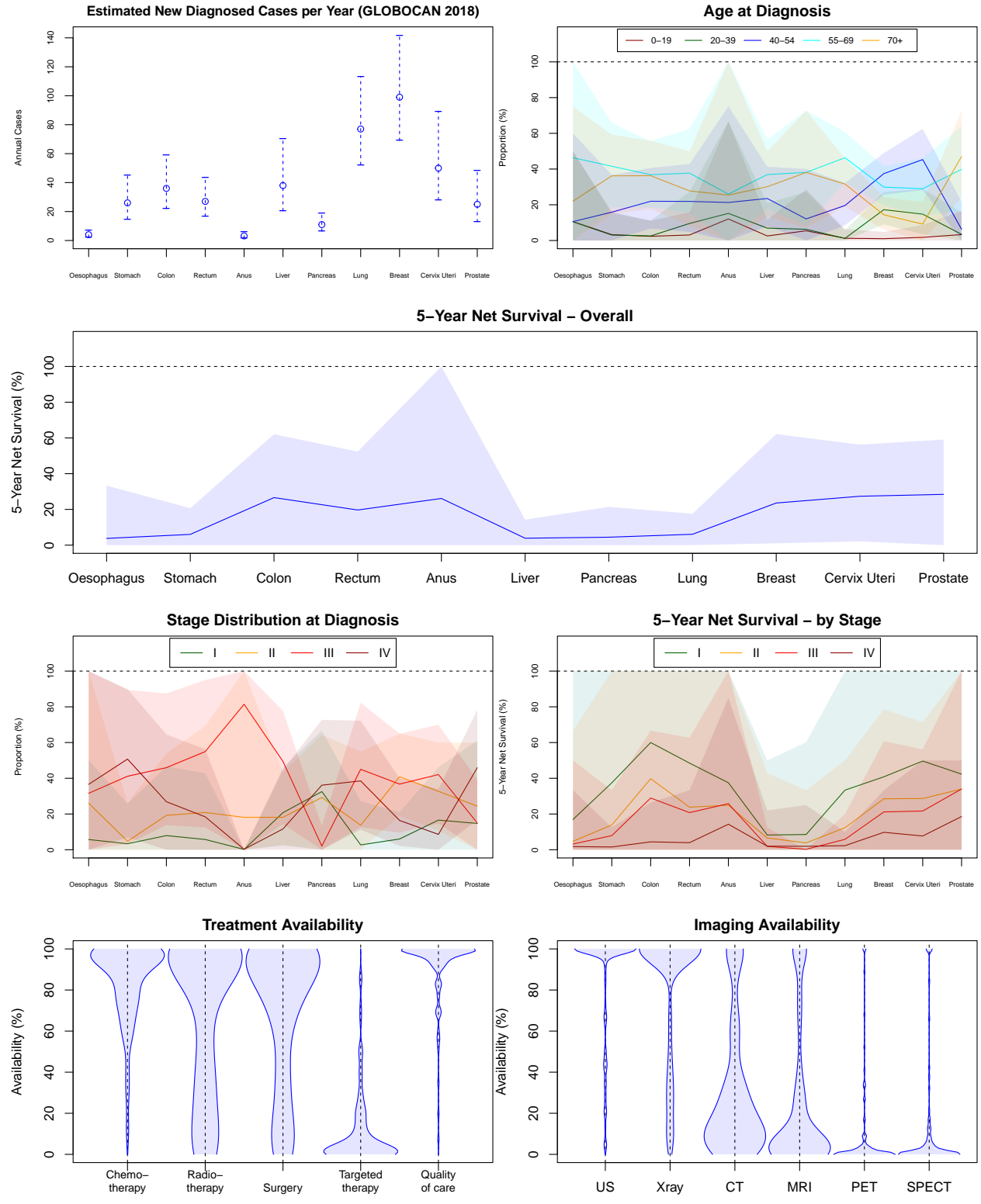
Thailand

ISO Code	Region	Area	Income Group
THA	South-Eastern Asia	Asia	Upper middle income



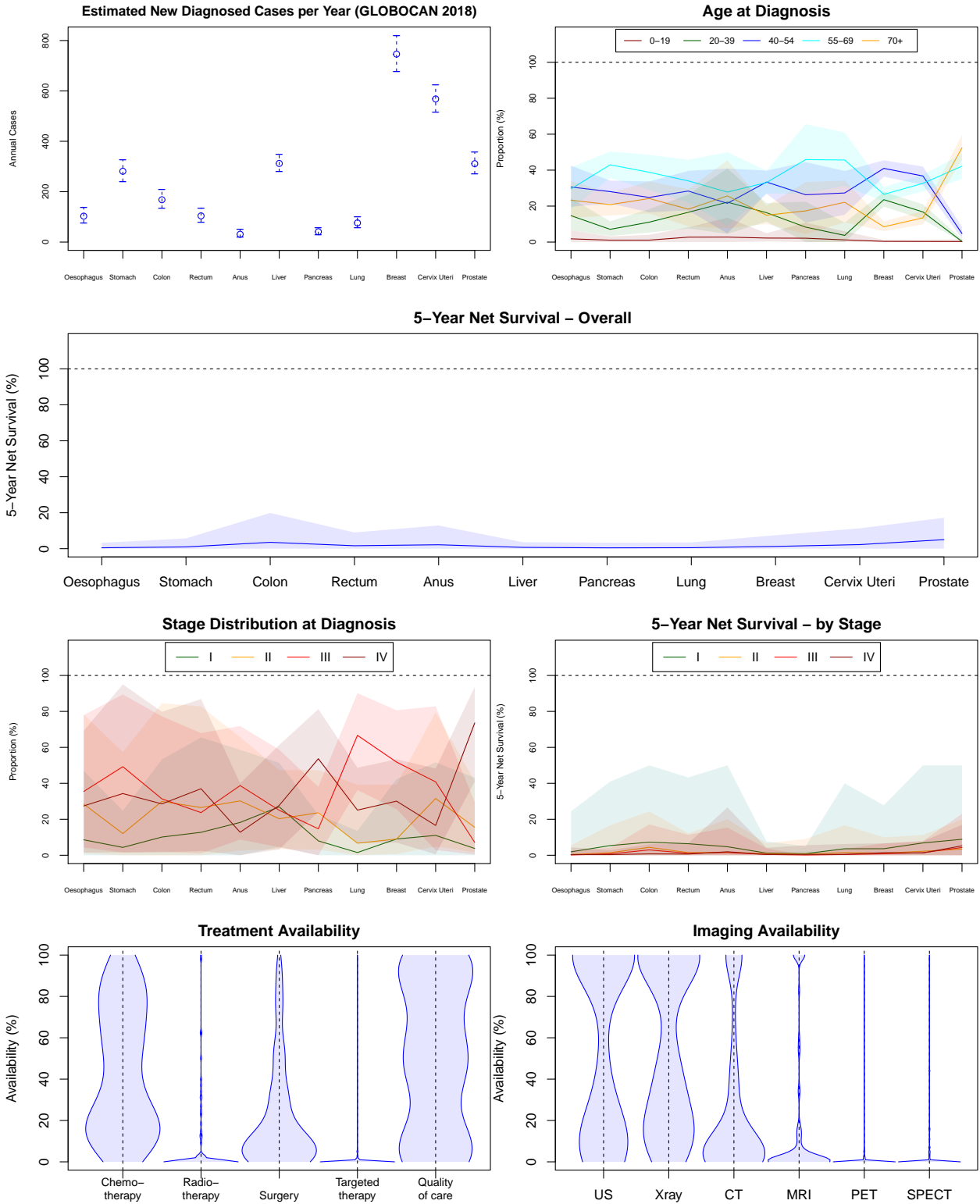
Timor-Leste

ISO Code	Region	Area	Income Group
TLS	South-Eastern Asia	Asia	Lower middle income



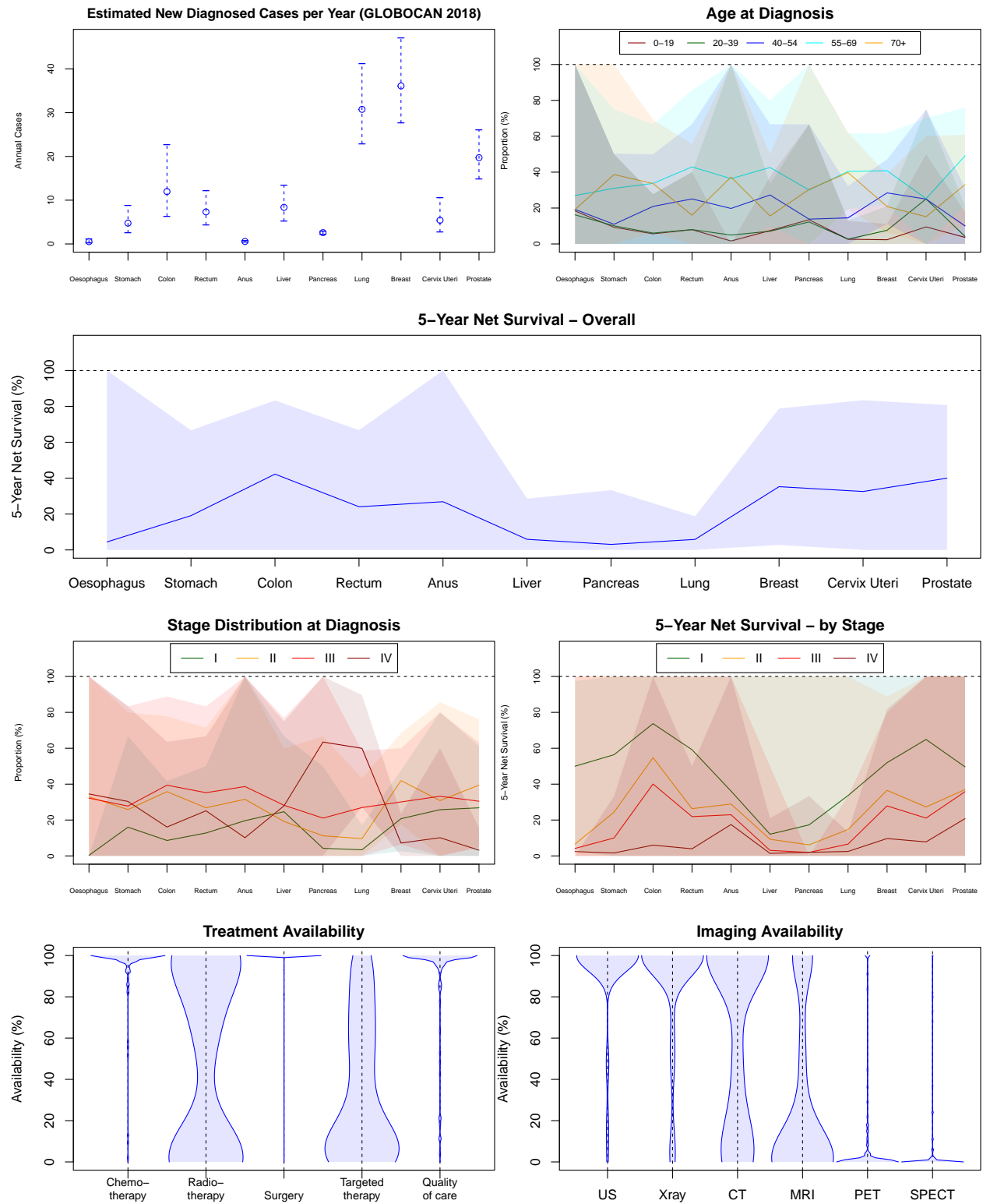
Togo

ISO Code	Region	Area	Income Group
TGO	Western Africa	Africa	Low income



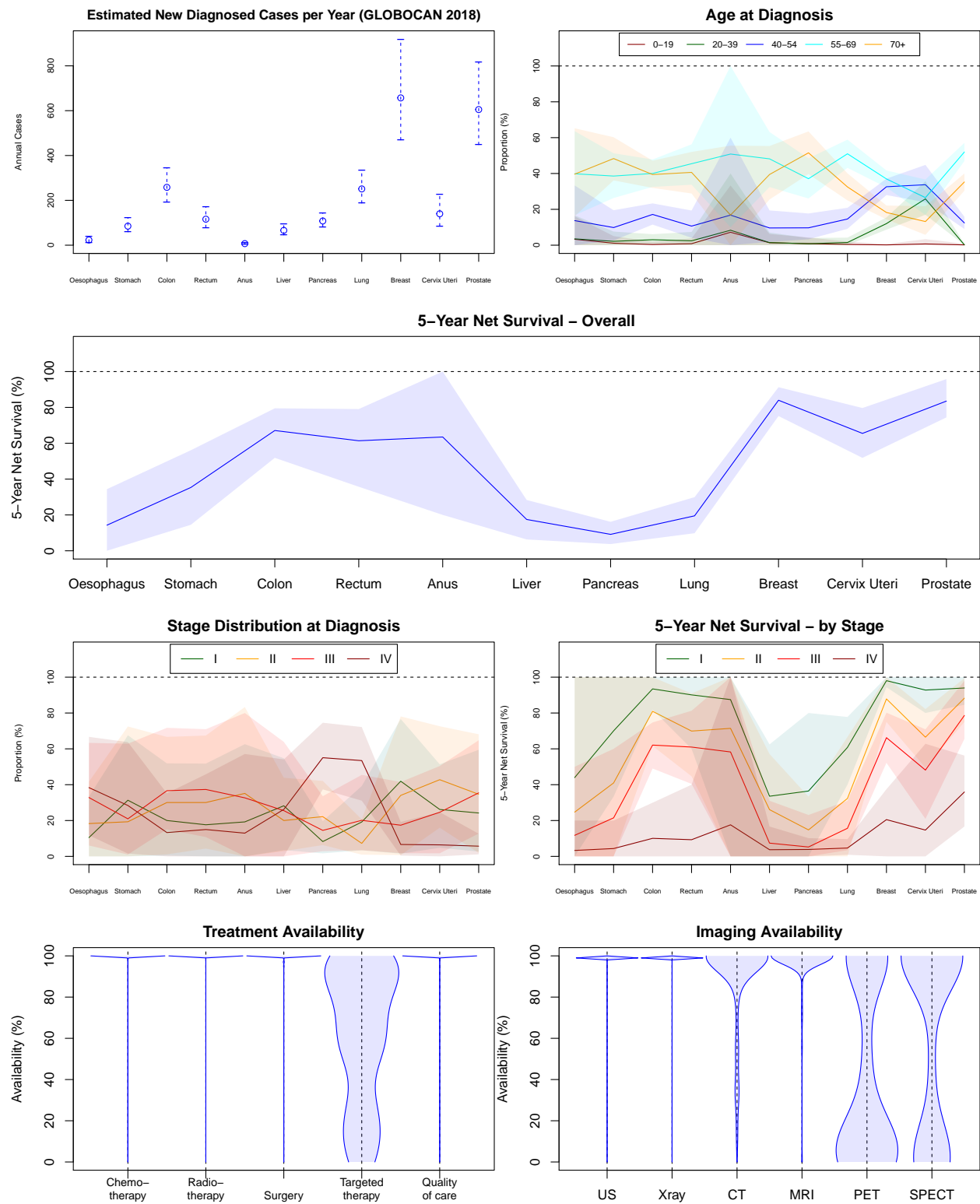
Tonga

ISO Code	Region	Area	Income Group
TON	Polynesia	Oceania	Upper middle income



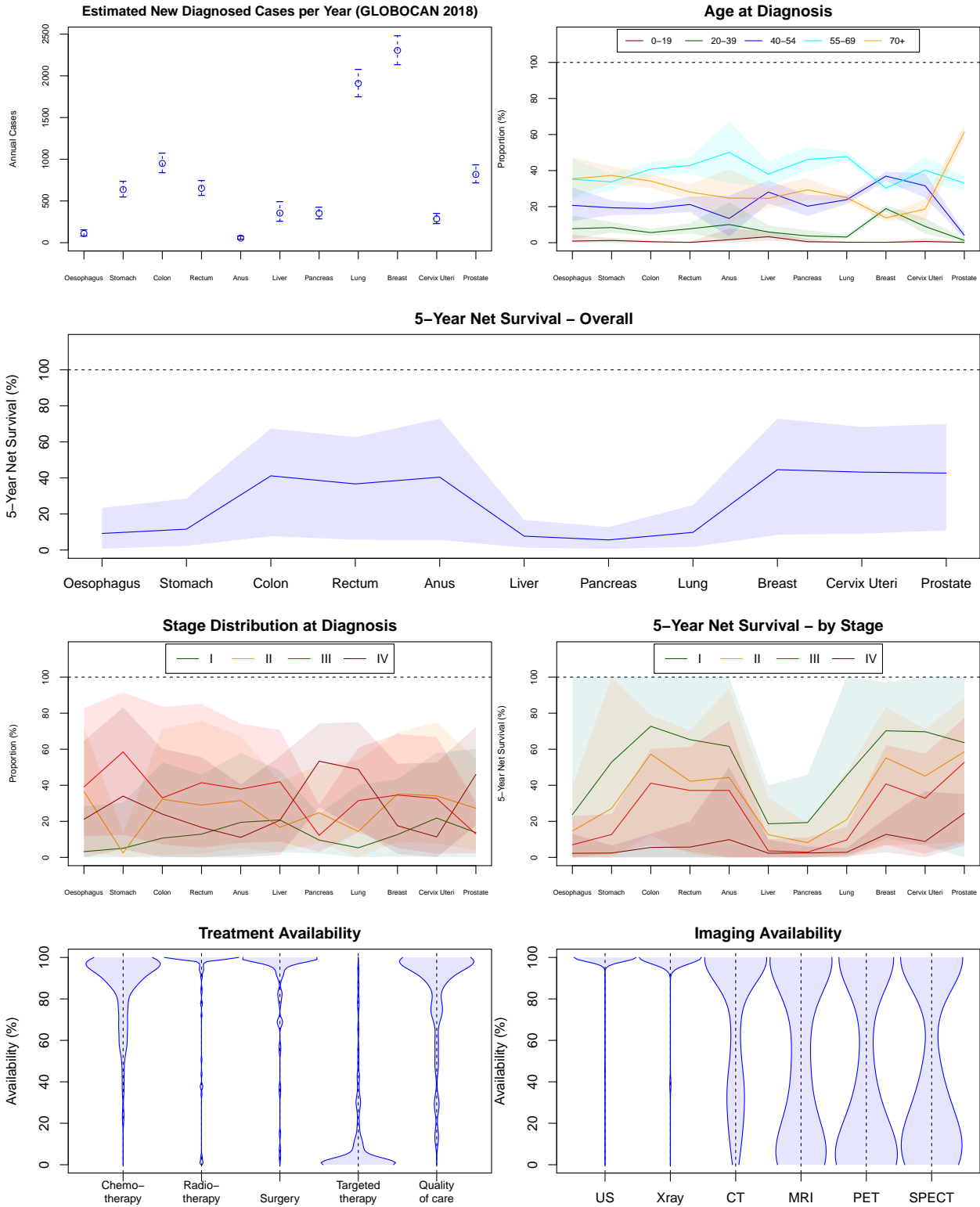
Trinidad and Tobago

ISO Code	Region	Area	Income Group
TTO	Caribbean	Latin America and the Caribbean	High income



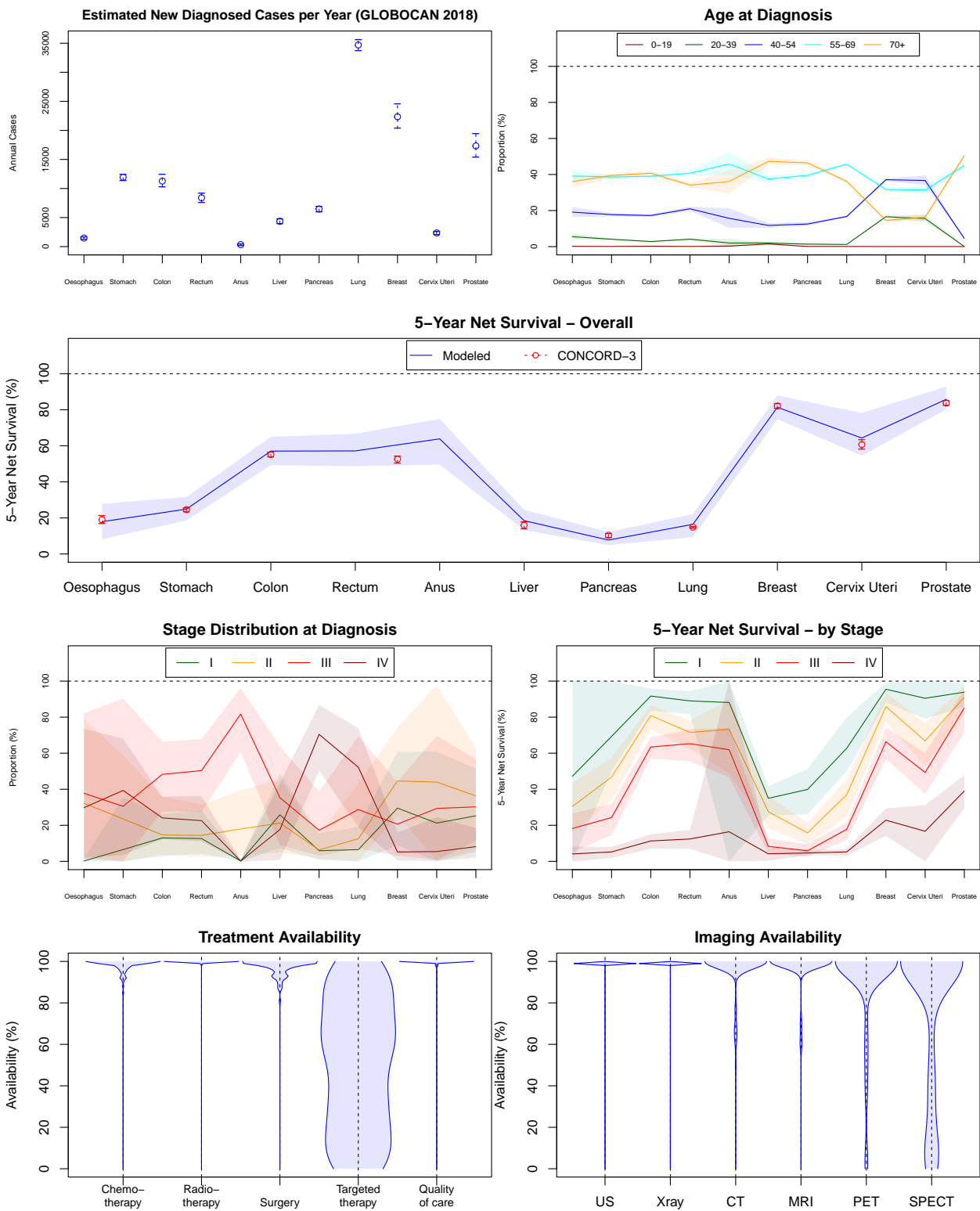
Tunisia

ISO Code	Region	Area	Income Group
TUN	Northern Africa	Africa	Lower middle income



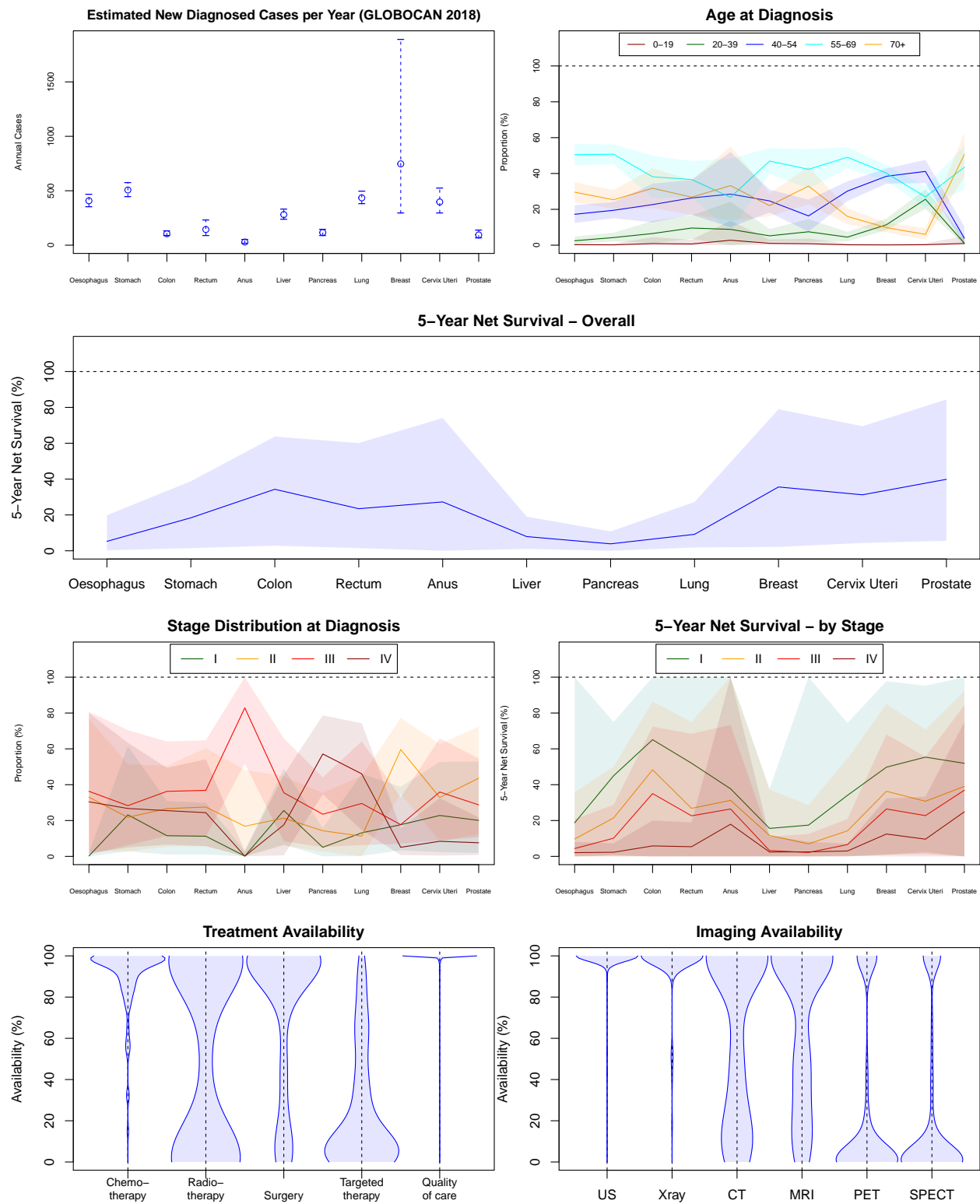
Turkey

ISO Code	Region	Area	Income Group
TUR	Western Asia	Asia	Upper middle income



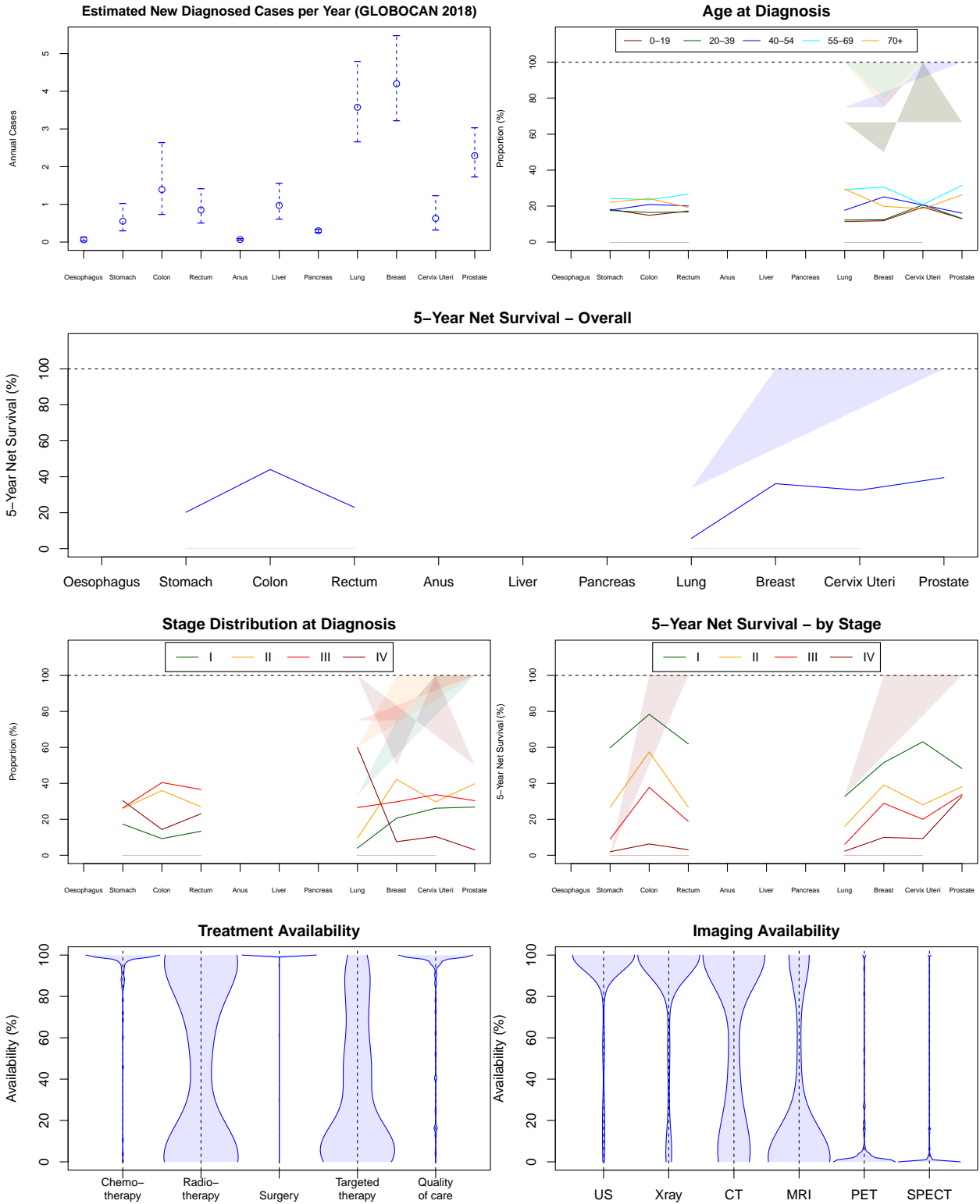
Turkmenistan

ISO Code	Region	Area	Income Group
TKM	Central Asia	Asia	Upper middle income



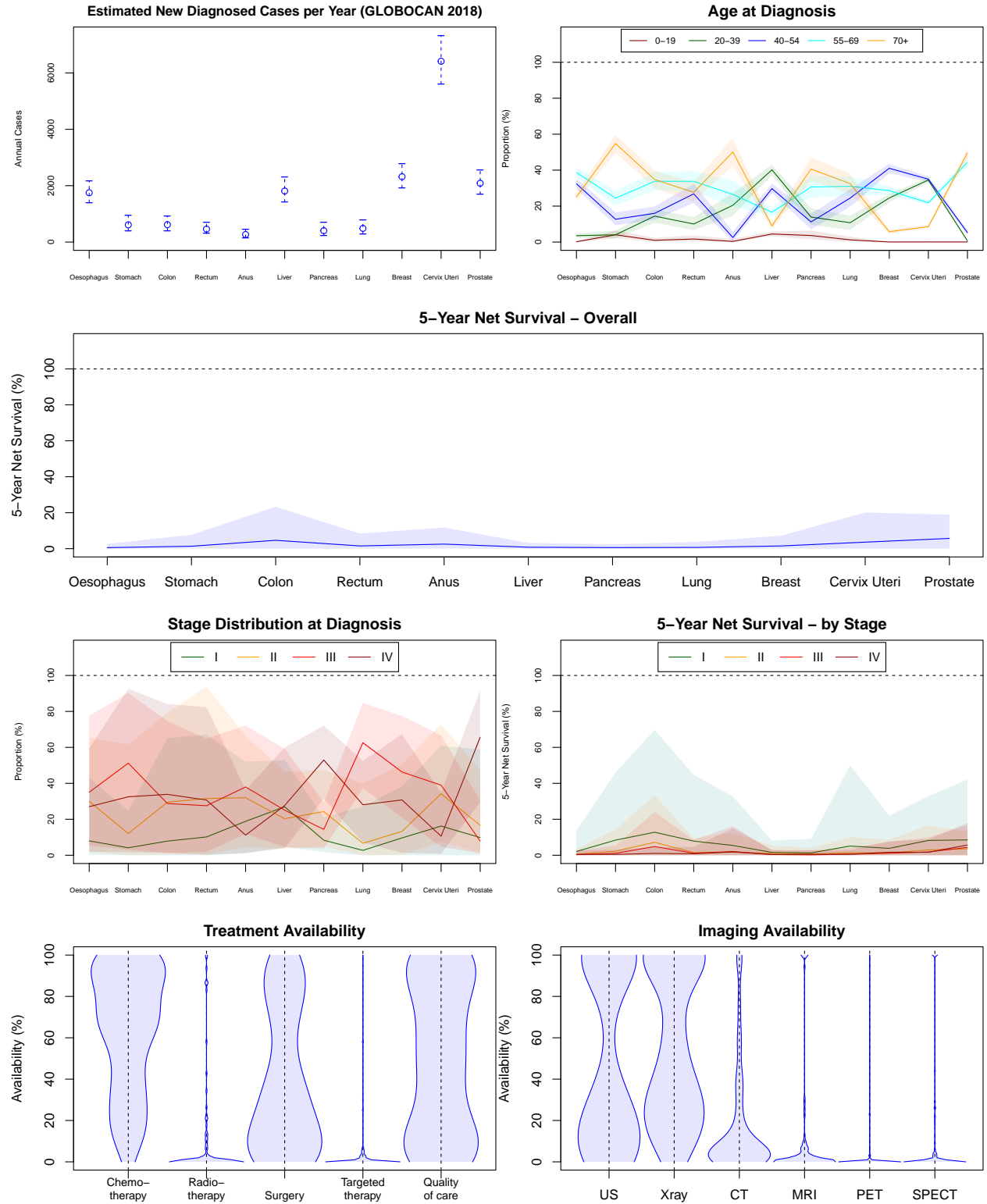
Tuvalu

ISO Code	Region	Area	Income Group
TUV	Polynesia	Oceania	Upper middle income



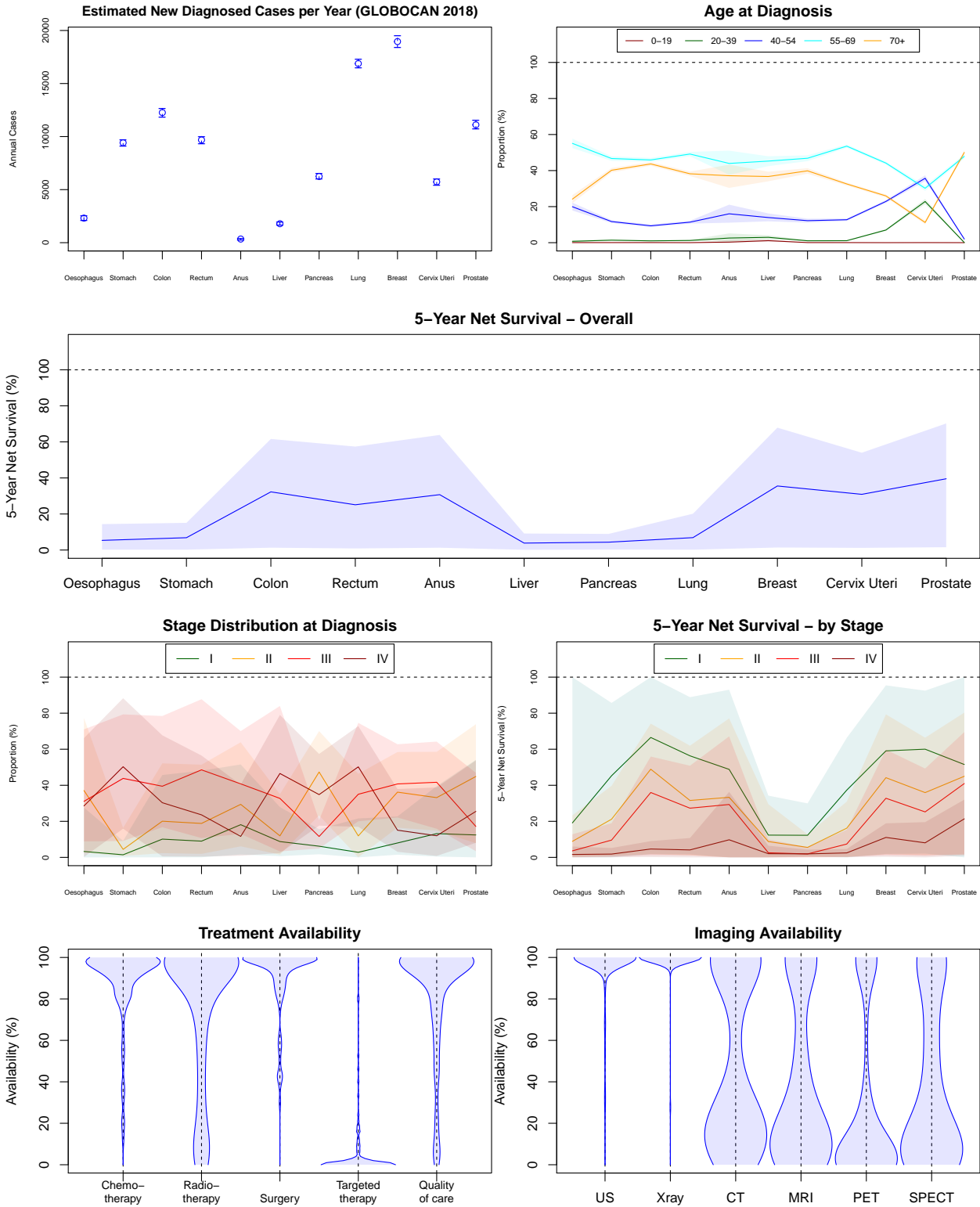
Uganda

ISO Code	Region	Area	Income Group
UGA	Eastern Africa	Africa	Low income



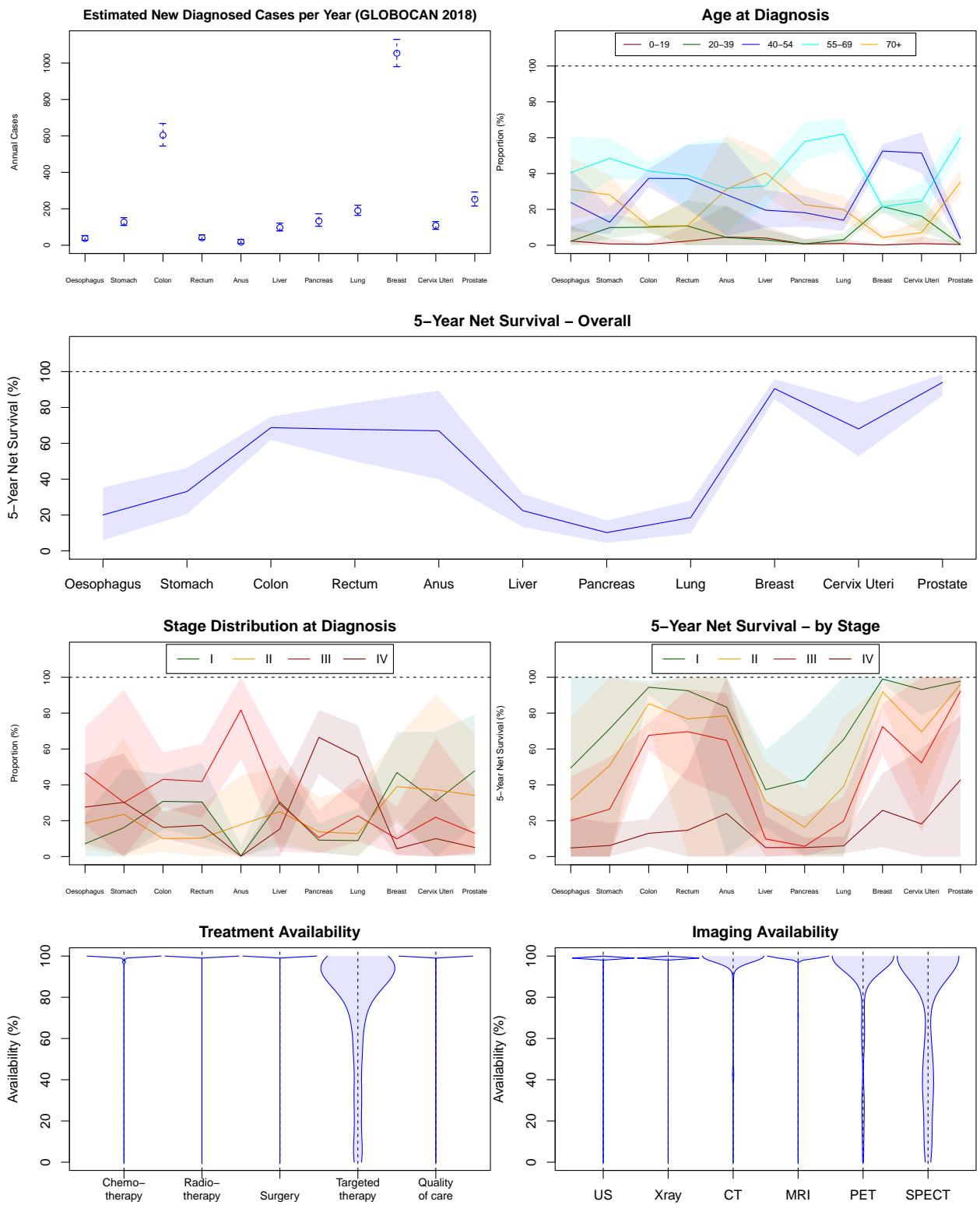
Ukraine

ISO Code	Region	Area	Income Group
UKR	Eastern Europe	Europe	Lower middle income



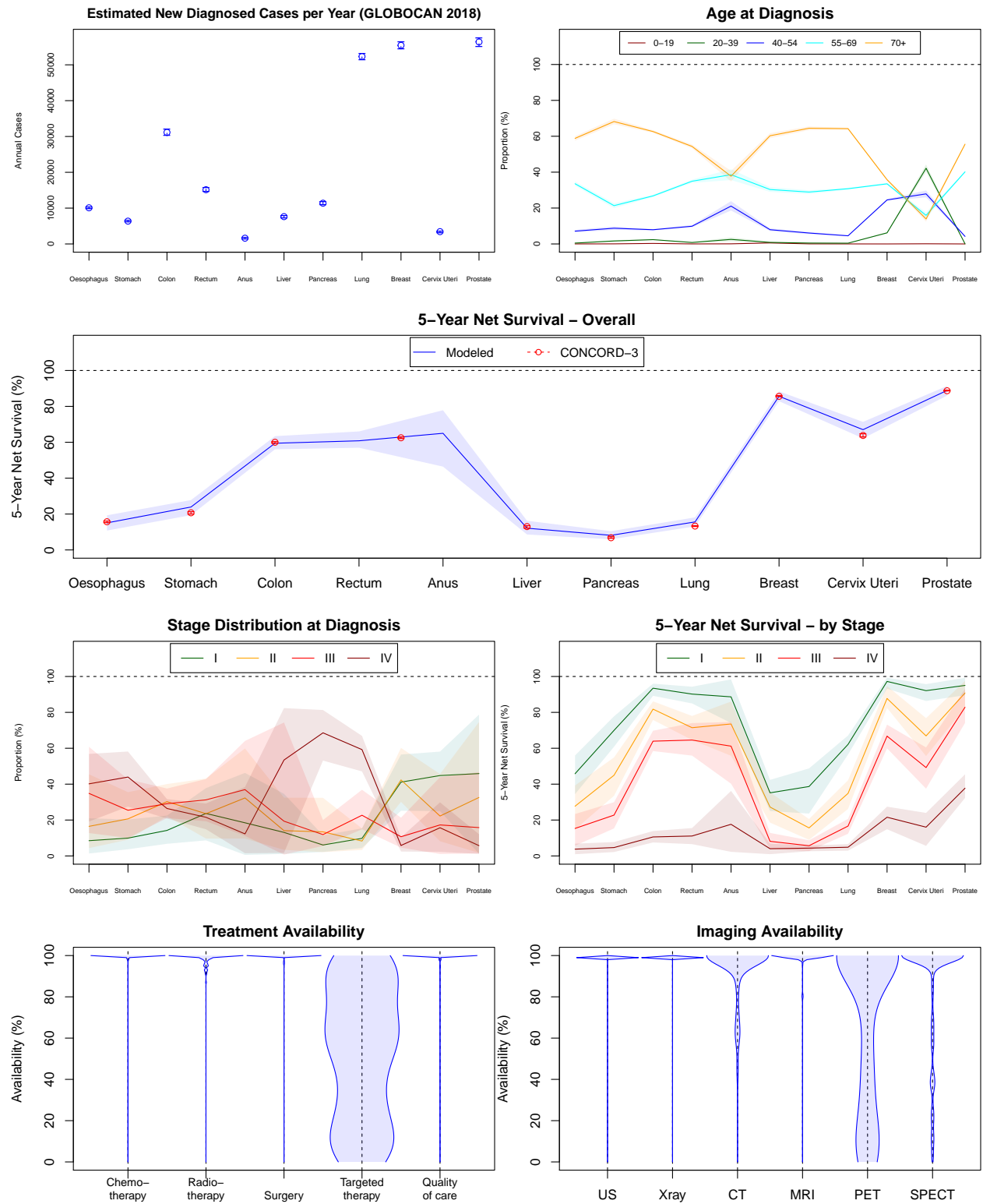
United Arab Emirates

ISO Code	Region	Area	Income Group
ARE	Western Asia	Asia	High income



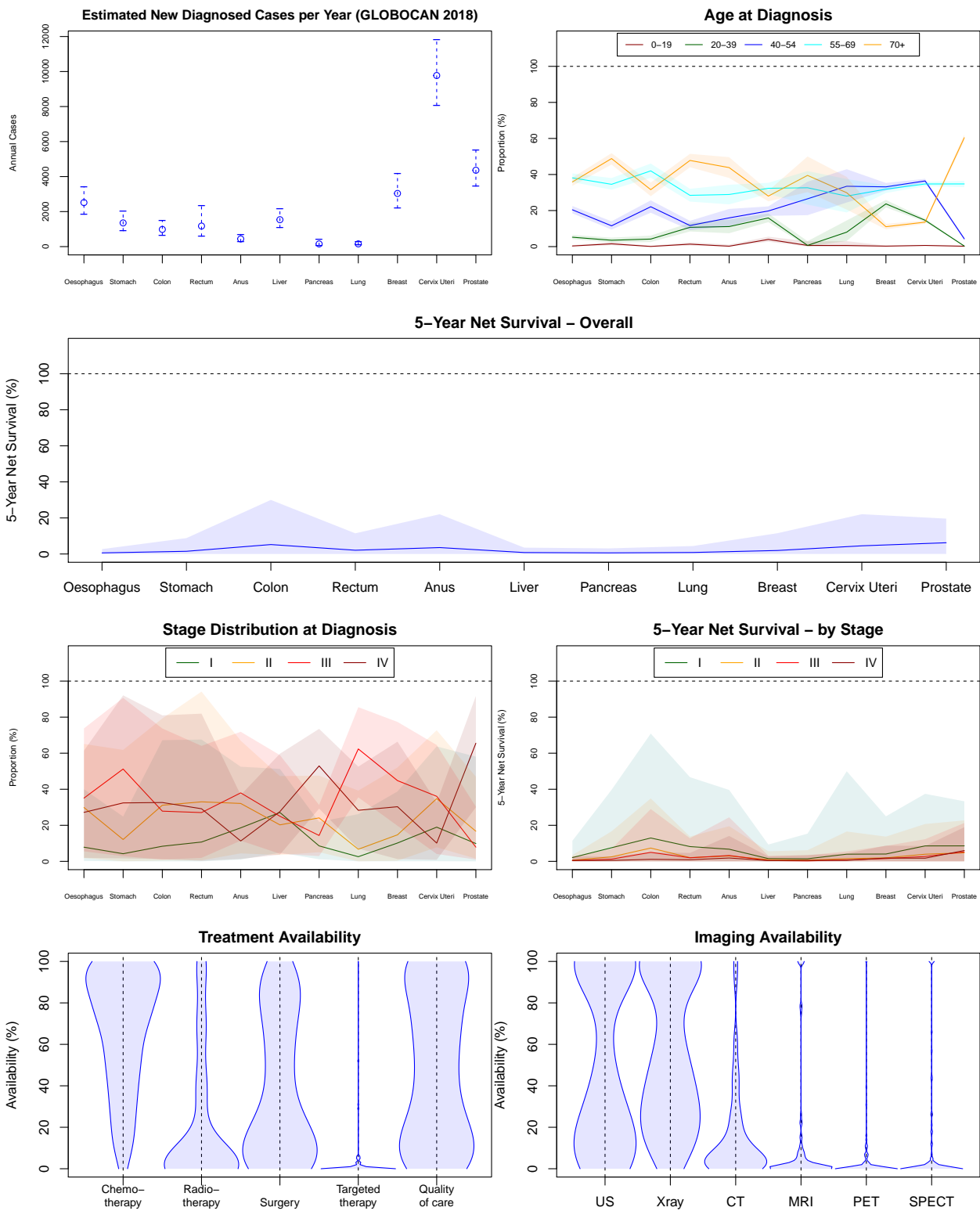
United Kingdom

ISO Code	Region	Area	Income Group
GBR	Northern Europe	Europe	High income



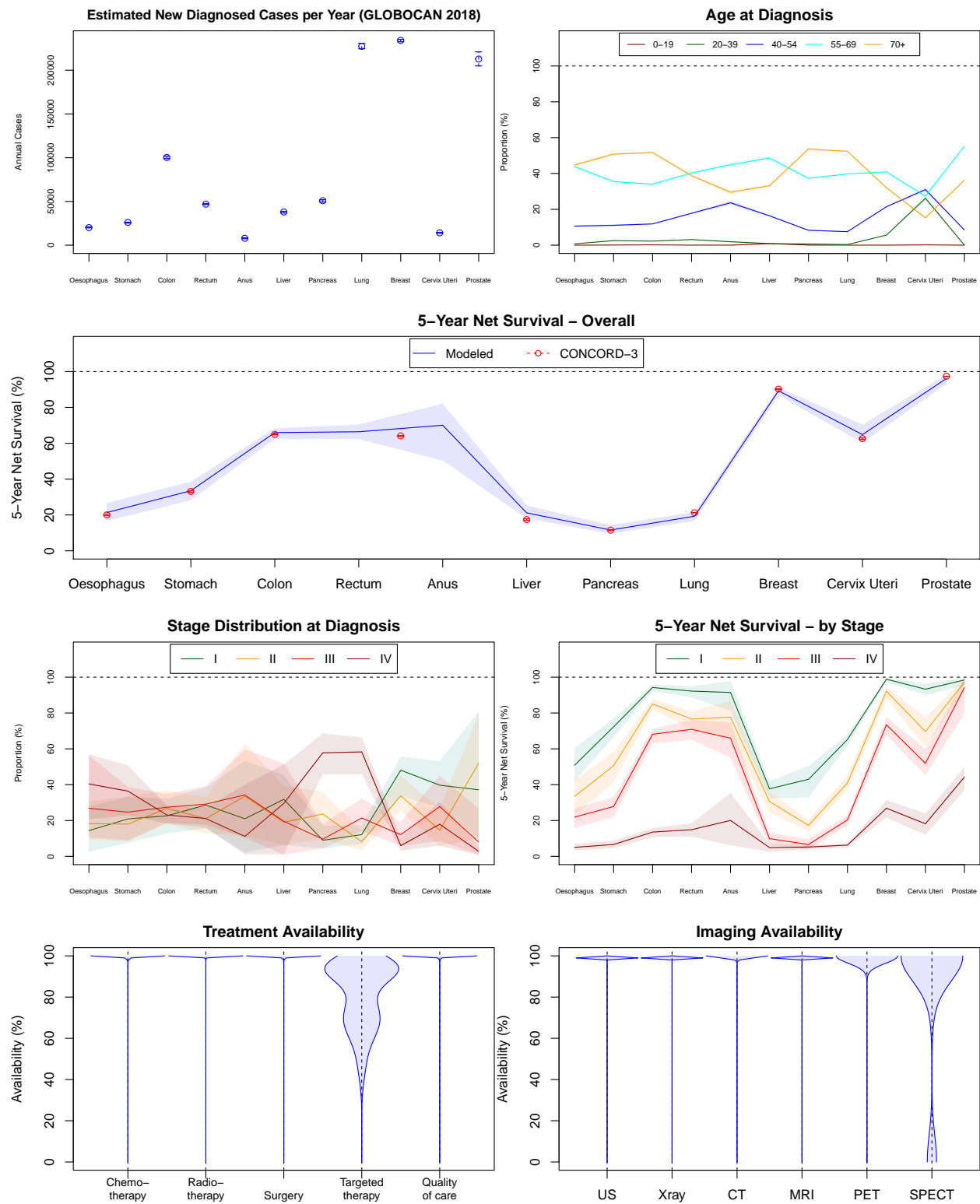
United Republic of Tanzania

ISO Code	Region	Area	Income Group
TZA	Eastern Africa	Africa	Low income



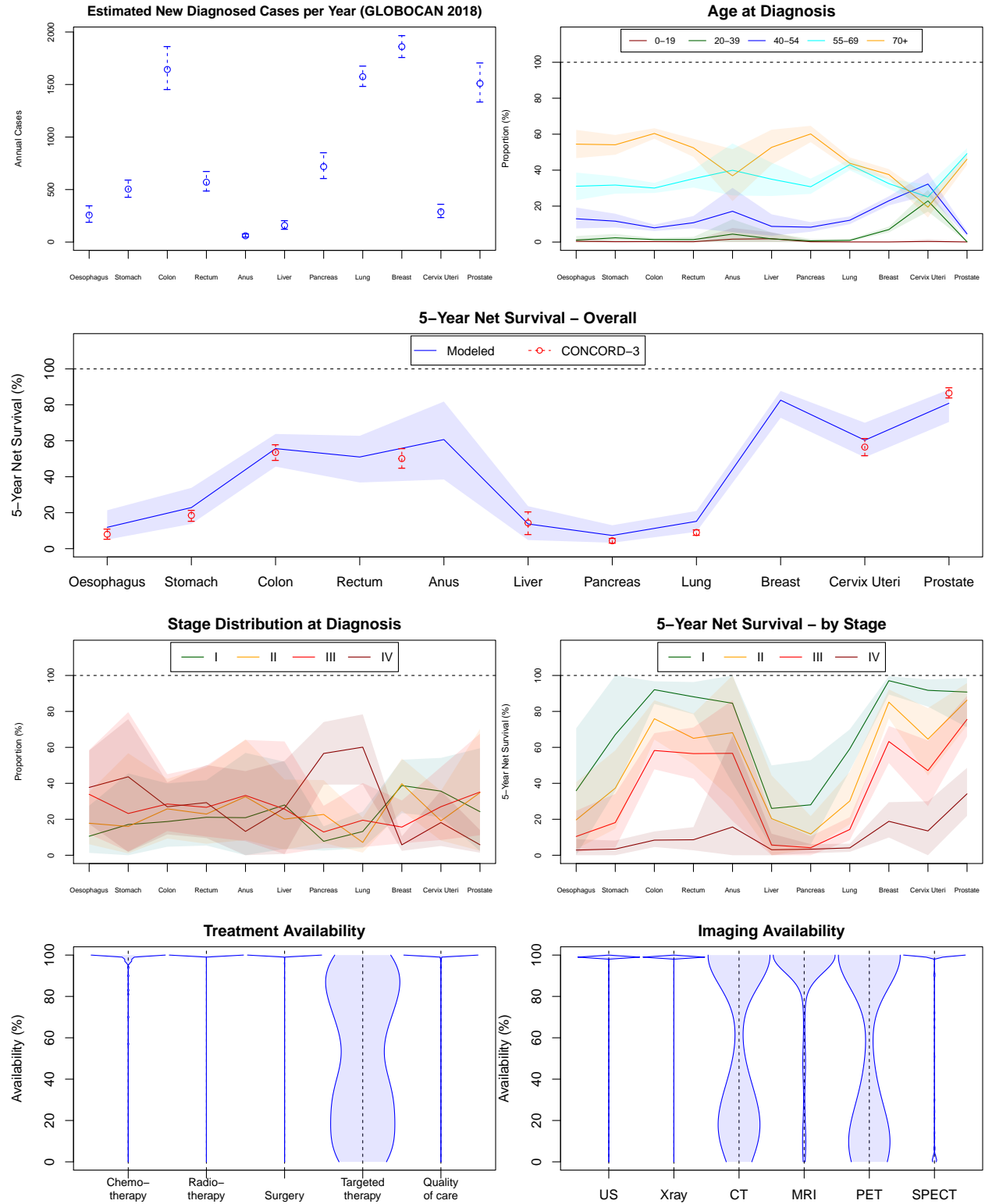
United States of America

ISO Code	Region	Area	Income Group
USA	Northern America	Northern America	High income



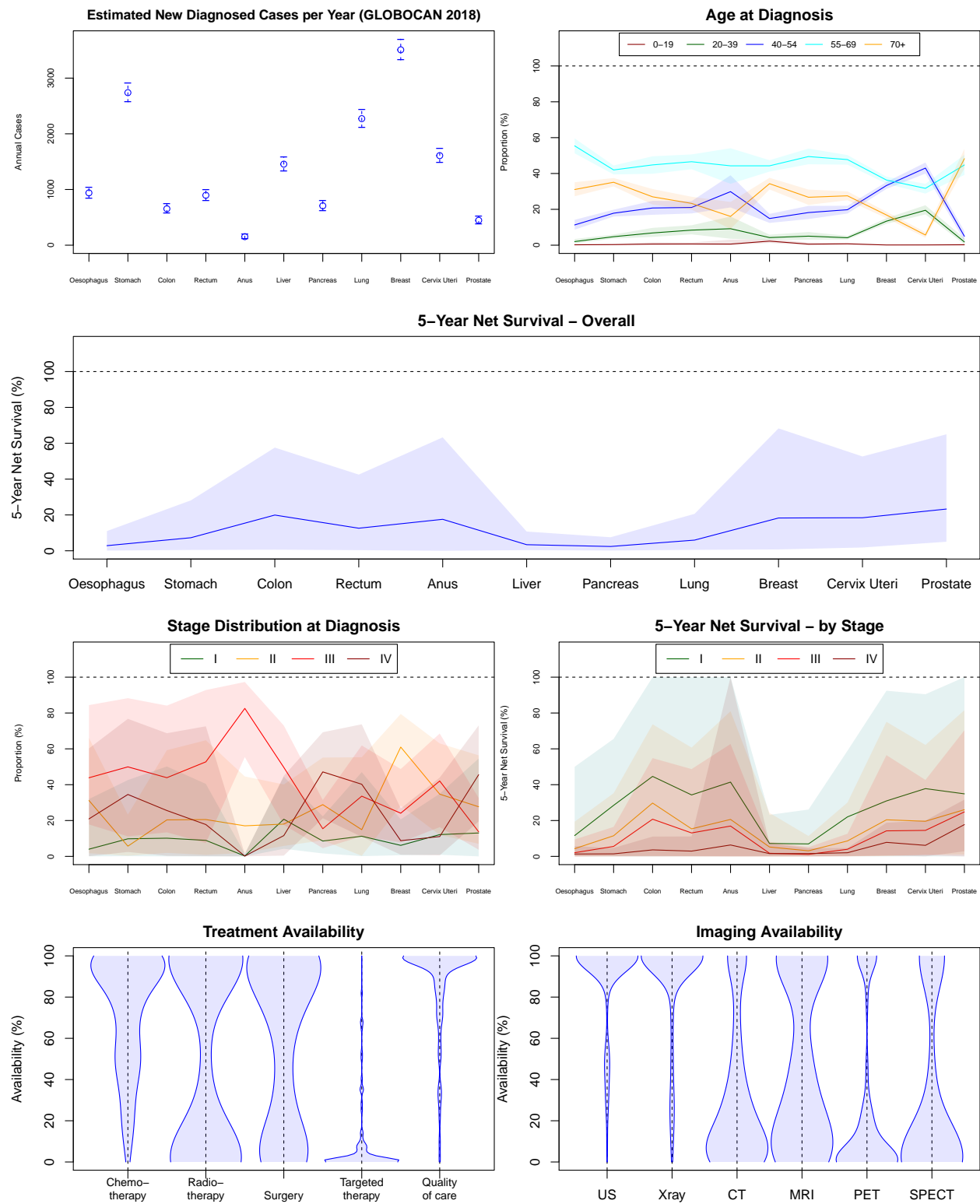
Uruguay

ISO Code	Region	Area	Income Group
URY	South America	Latin America and the Caribbean	High income



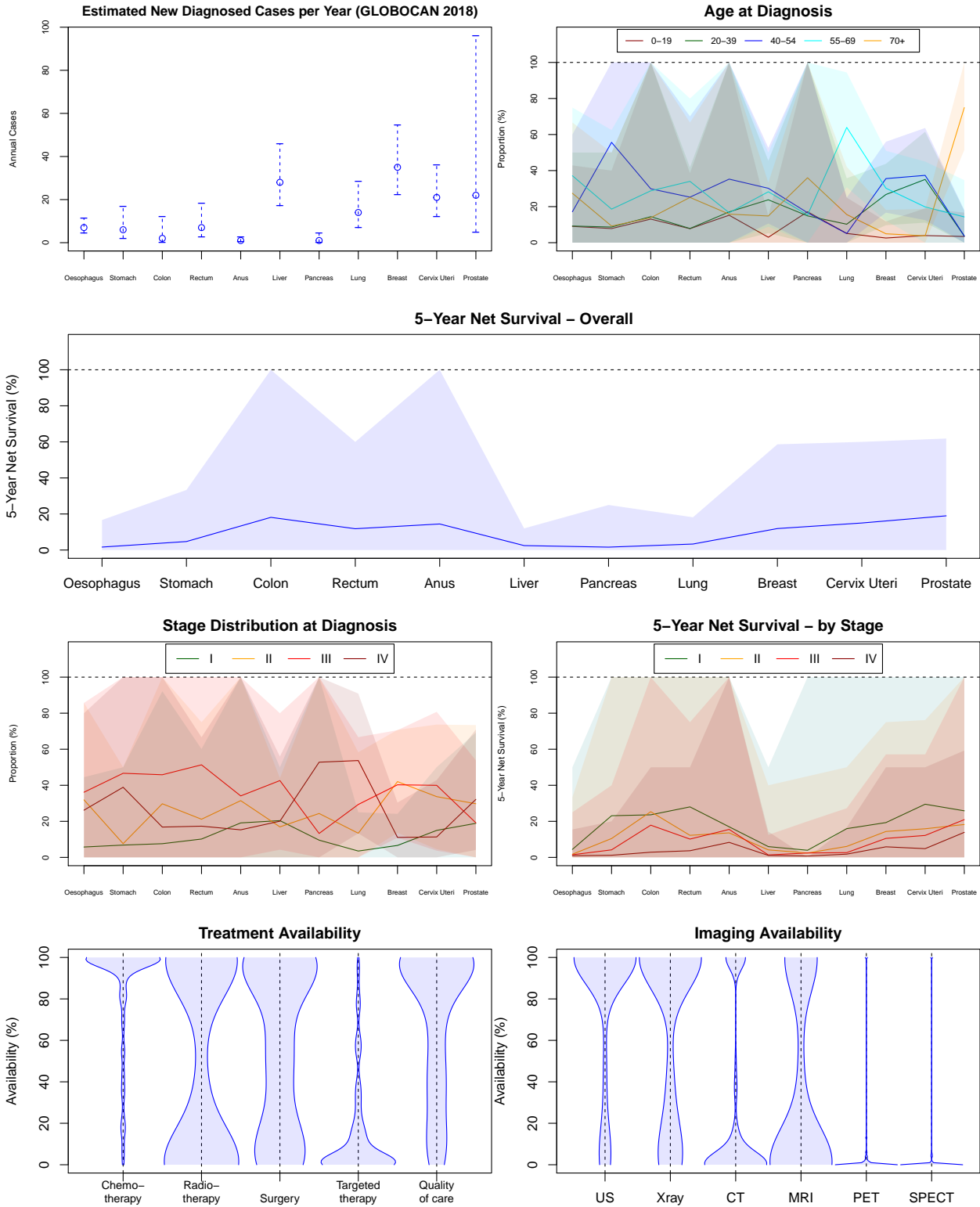
Uzbekistan

ISO Code	Region	Area	Income Group
UZB	Central Asia	Asia	Lower middle income



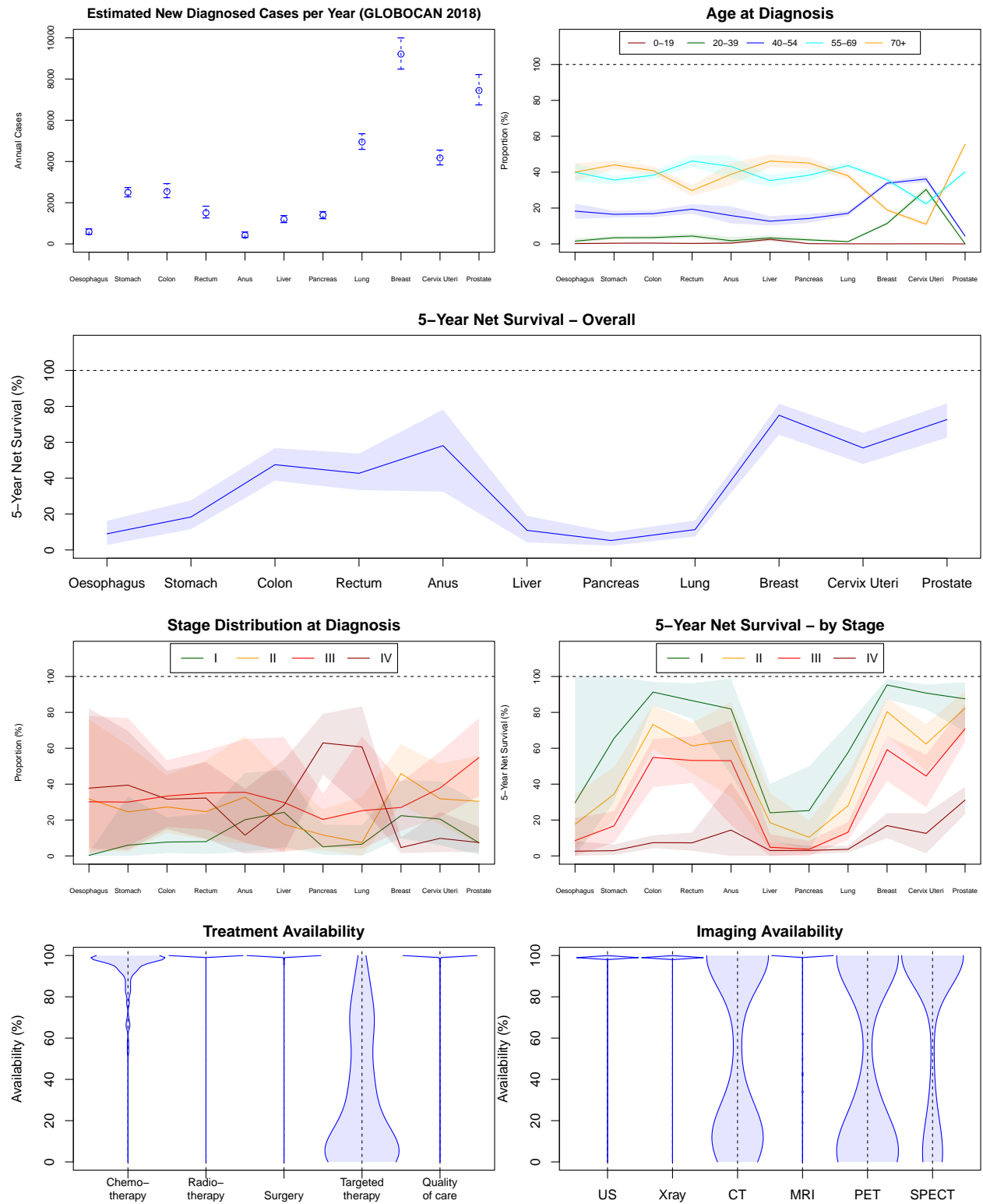
Vanuatu

ISO Code	Region	Area	Income Group
VUT	Melanesia	Oceania	Lower middle income



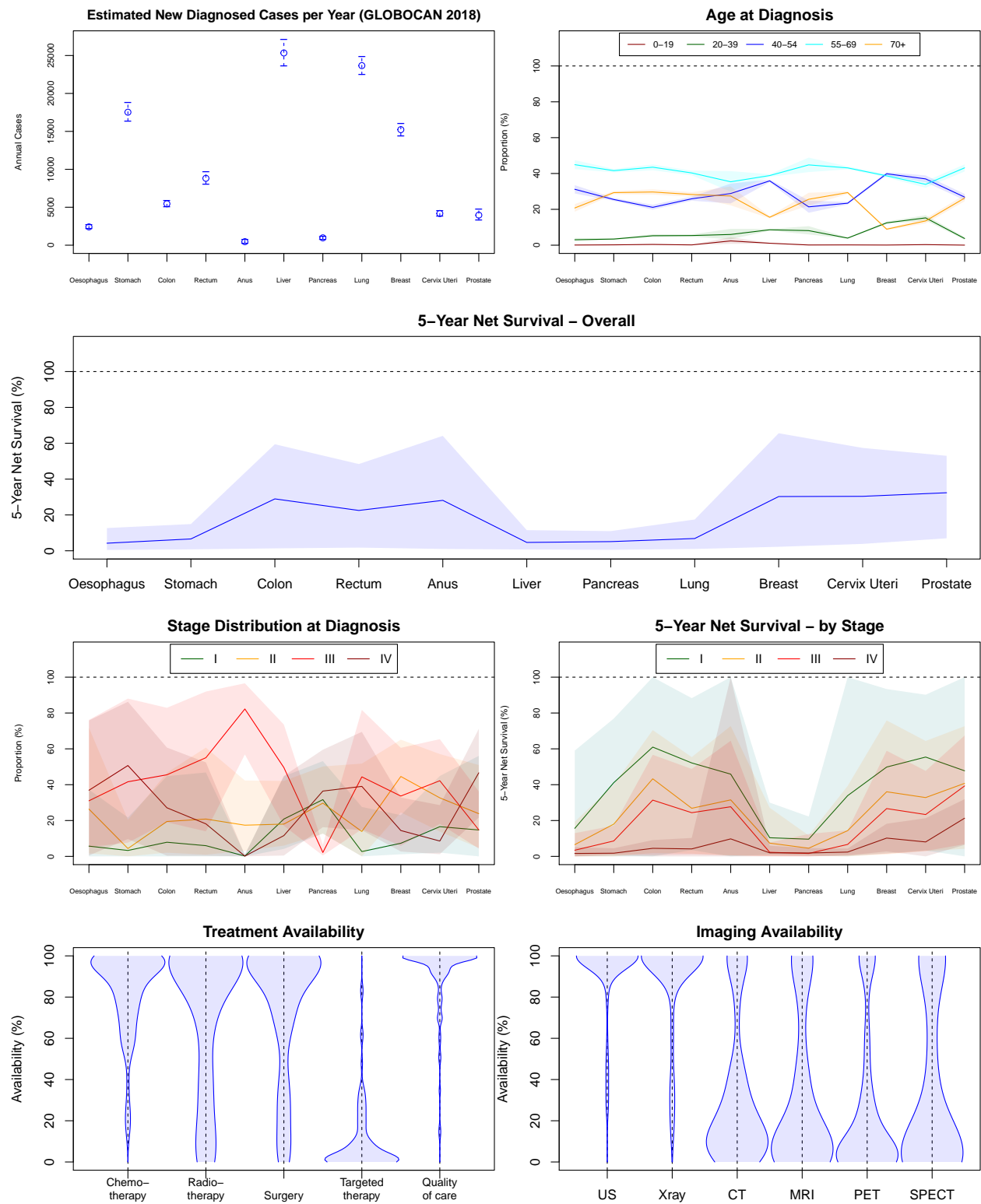
Venezuela (Bolivarian Republic of)

ISO Code	Region	Area	Income Group
VEN	South America	Latin America and the Caribbean	Upper middle income



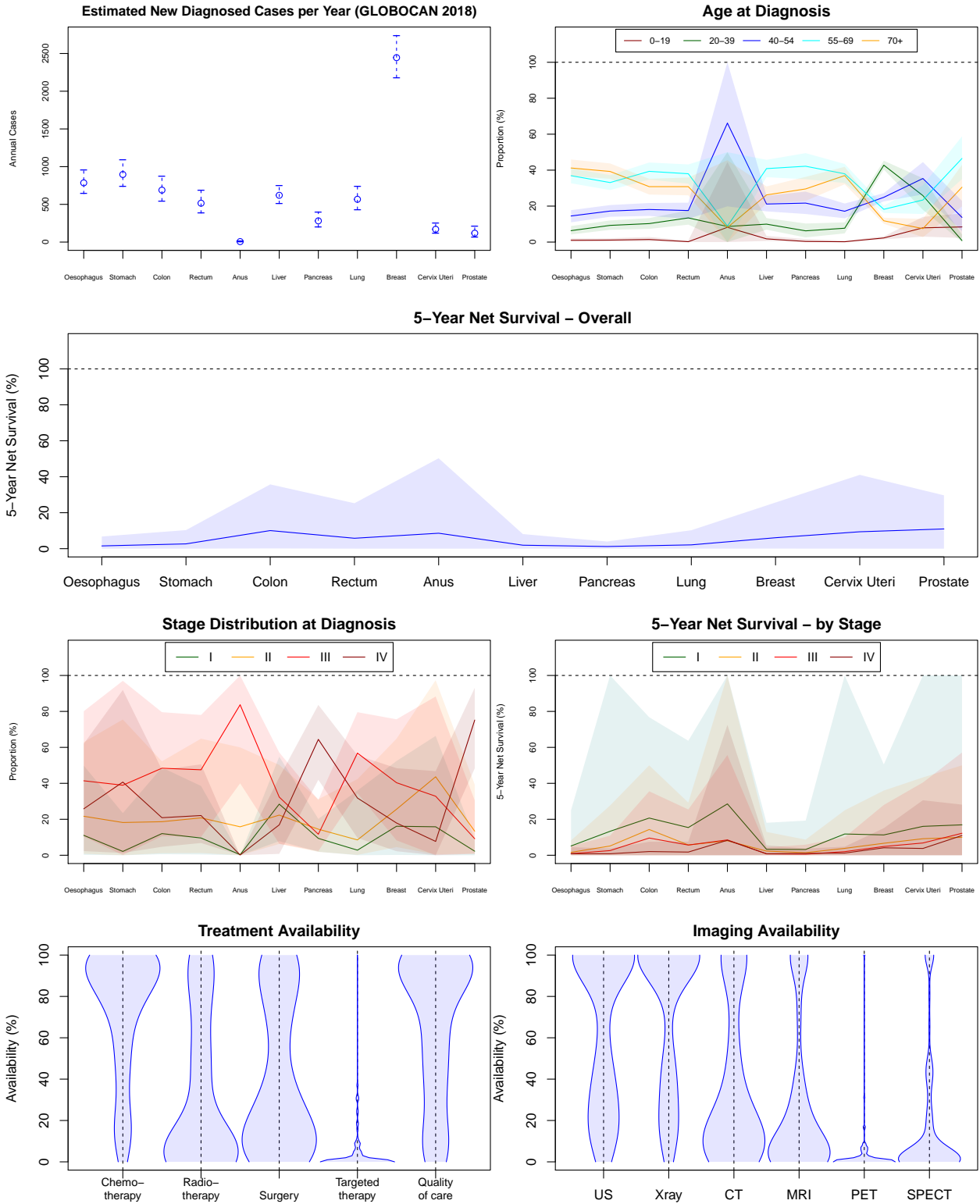
Viet Nam

ISO Code	Region	Area	Income Group
VNM	South-Eastern Asia	Asia	Lower middle income



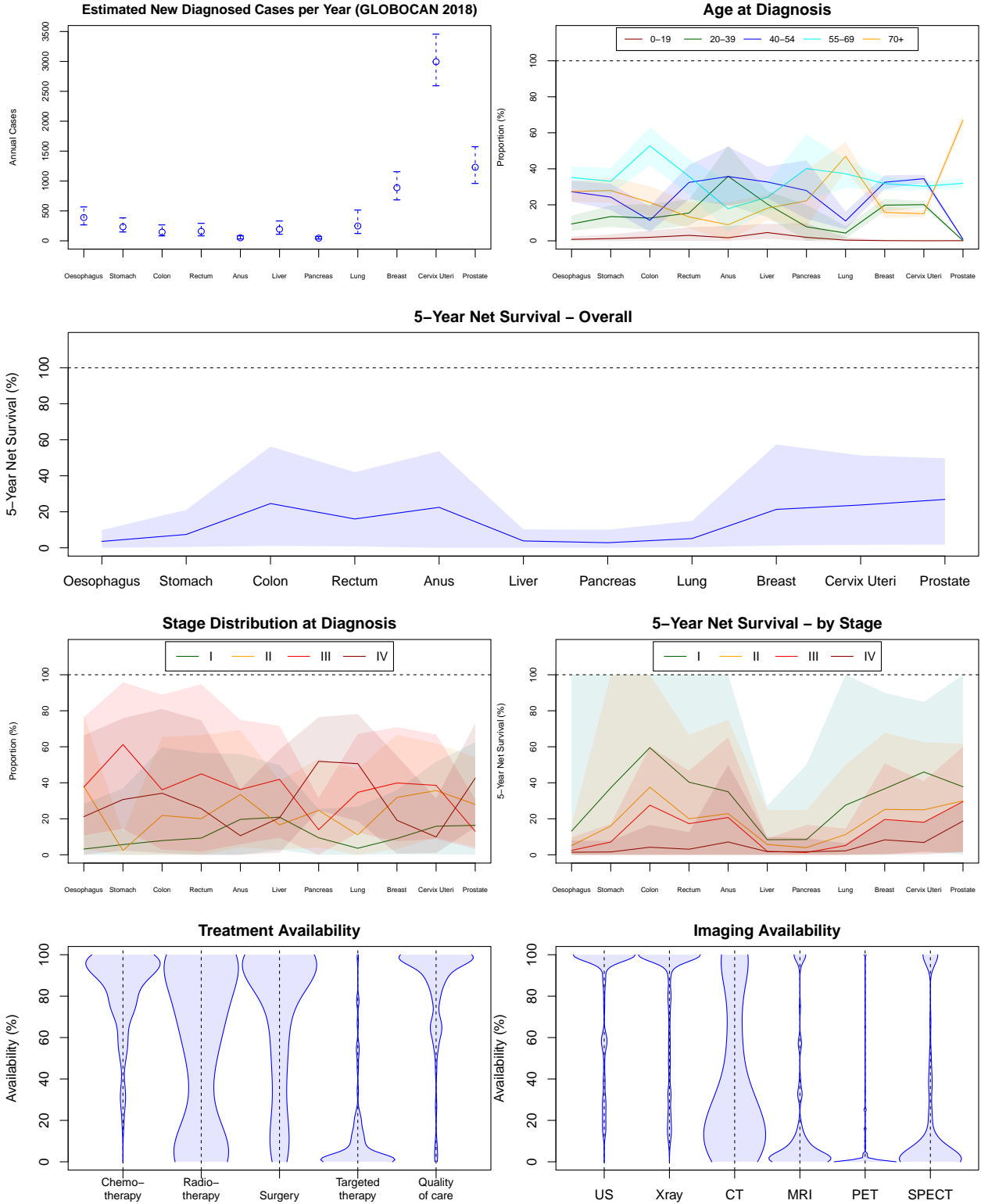
Yemen

ISO Code	Region	Area	Income Group
YEM	Western Asia	Asia	Low income



Zambia

ISO Code	Region	Area	Income Group
ZMB	Eastern Africa	Africa	Lower middle income



Zimbabwe

ISO Code	Region	Area	Income Group
ZWE	Eastern Africa	Africa	Low income

