Clinical evidence and treatment recommendations in localized and locally advanced prostate cancer

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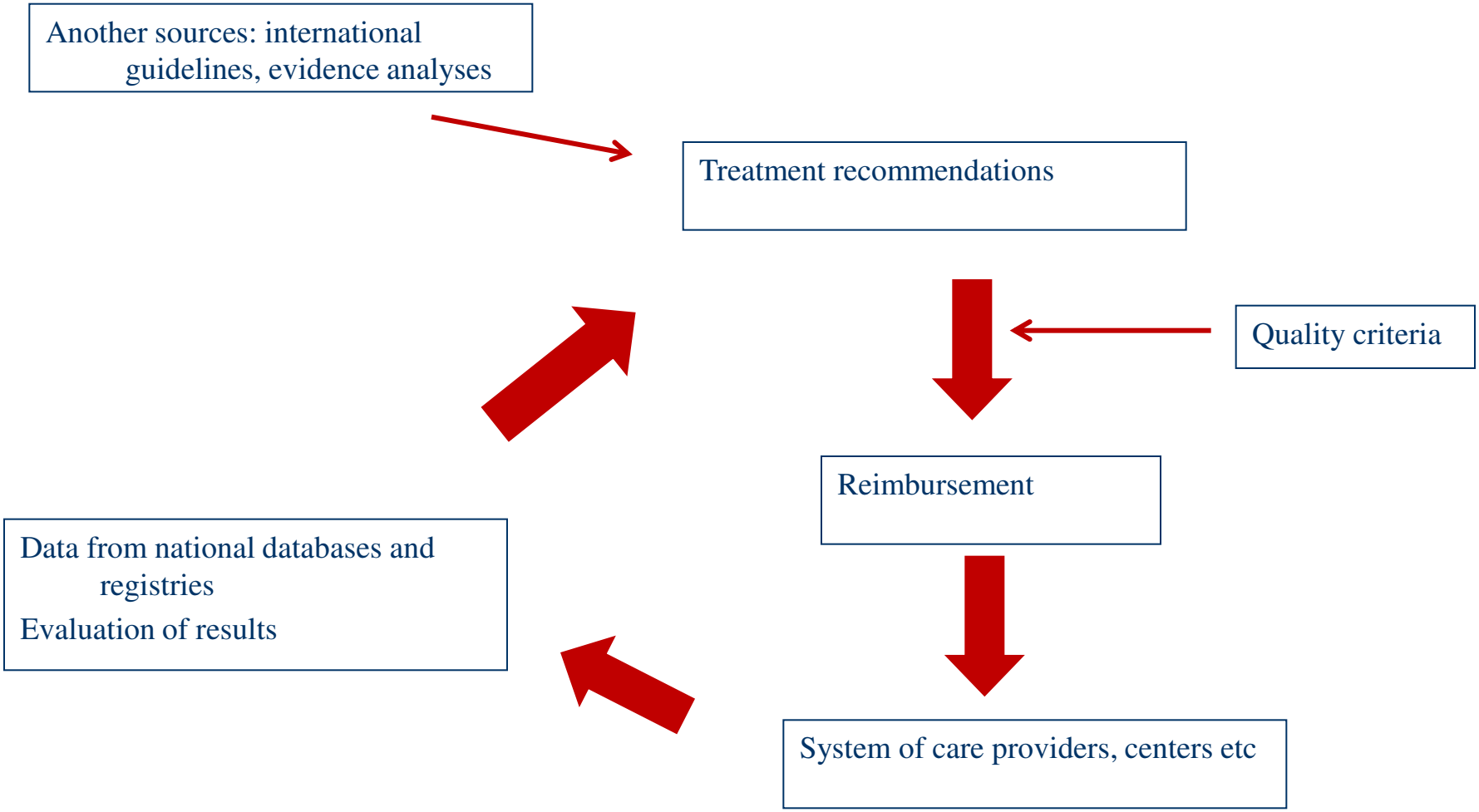
How should be the care organized and its quality controled?



Incidence and prevalence trends in ČR

(epidemiological data from ČR)

New CNCR data: total prostate cancer burden

7,049 patients with prostate cancer were diagnosed in the Czech Republic in 2015 (8.2% of all cancers).

1,327 persons died due to prostate cancer in the Czech Republic in 2015 (4.9% of all cancer-related deaths).

53,769 persons with a history of prostate cancer lived in the Czech Republic on 31/12/2015 (9.9 % of all cancers).

Czech National Cancer Registry – prostate cancer (C61)

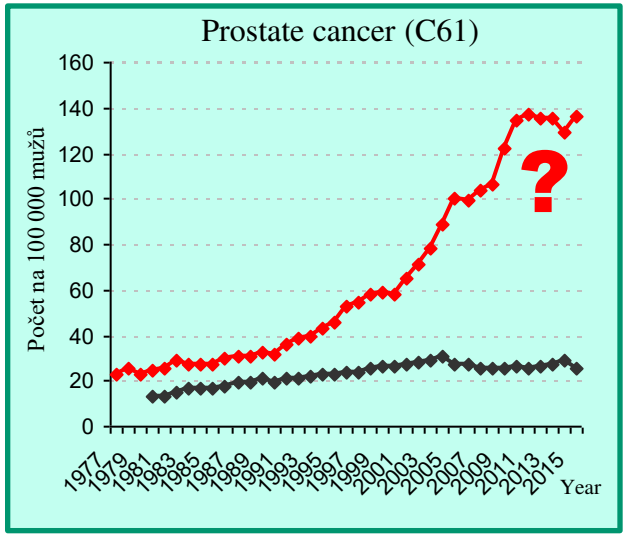
	2008	2009	2010	2011	2012	2013	2014	2015	*Mean interannual change 2011–2015*
Incidence	5 443	6 286	6 942	7 077	7 007	6 967	6 693	7 049	*+0.4%*
Mortality*	1 291	1 305	1 348	1 314	1 360	1 422	1 509	1 327	*-0.1%*
Prevalence	28 196	31 612	35 557	39 450	43 193	46 846	50 153	53 769	*+8.6%*

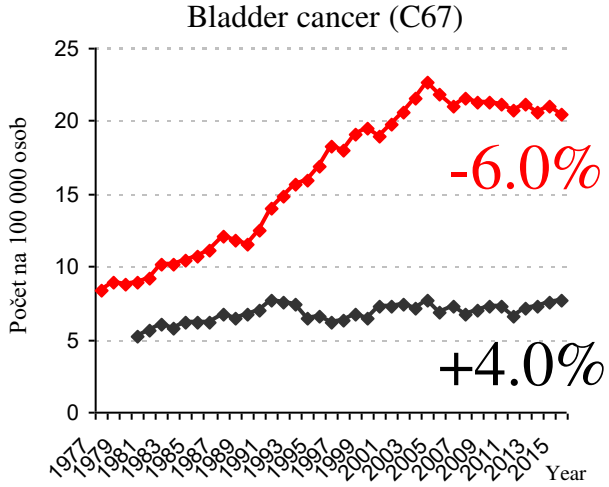
*Source: Czech Statistical Office

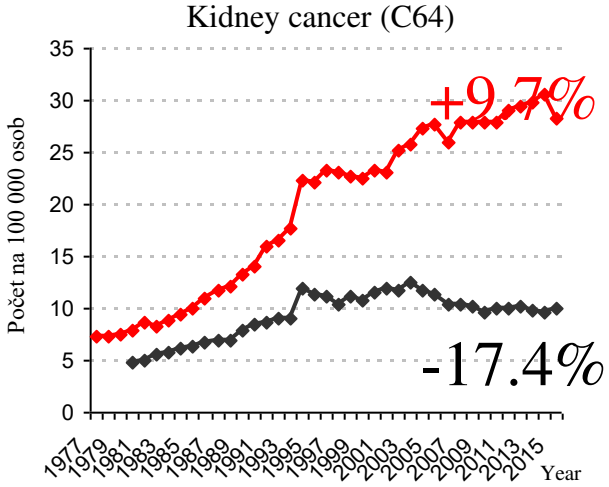
Main urinary system cancers: time trends

%: trend between years 2005–2015

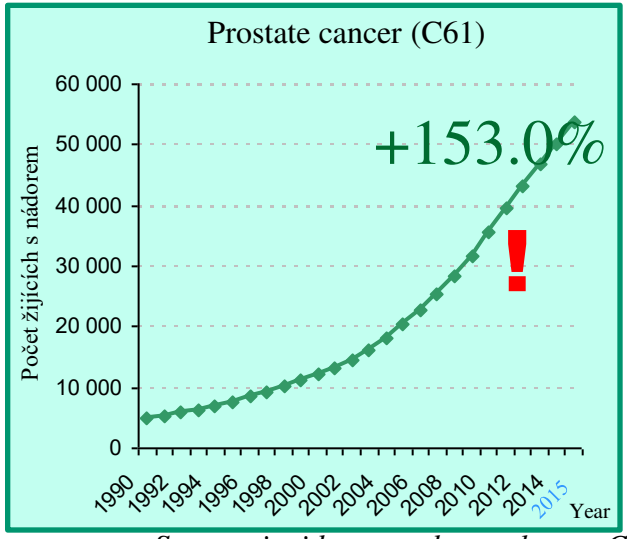
Trends of incidence and mortality — incidence — mortality

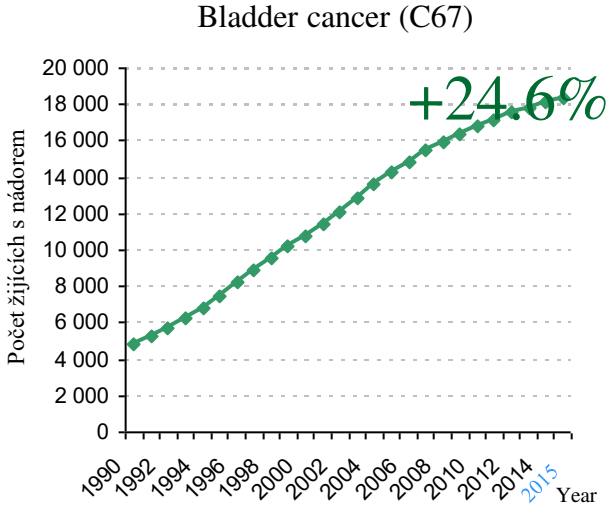


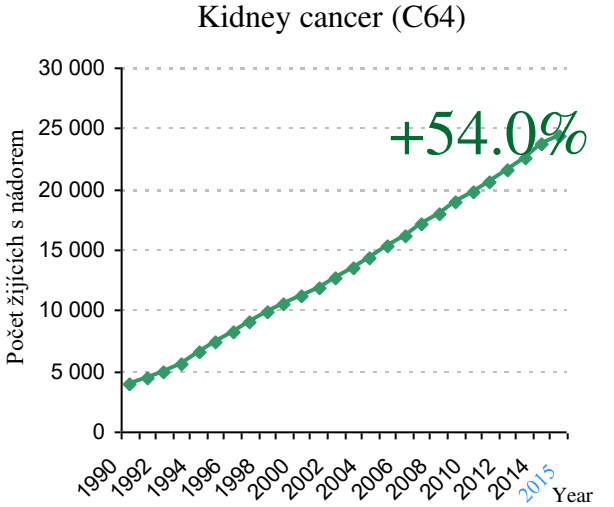




Trend of prevalence



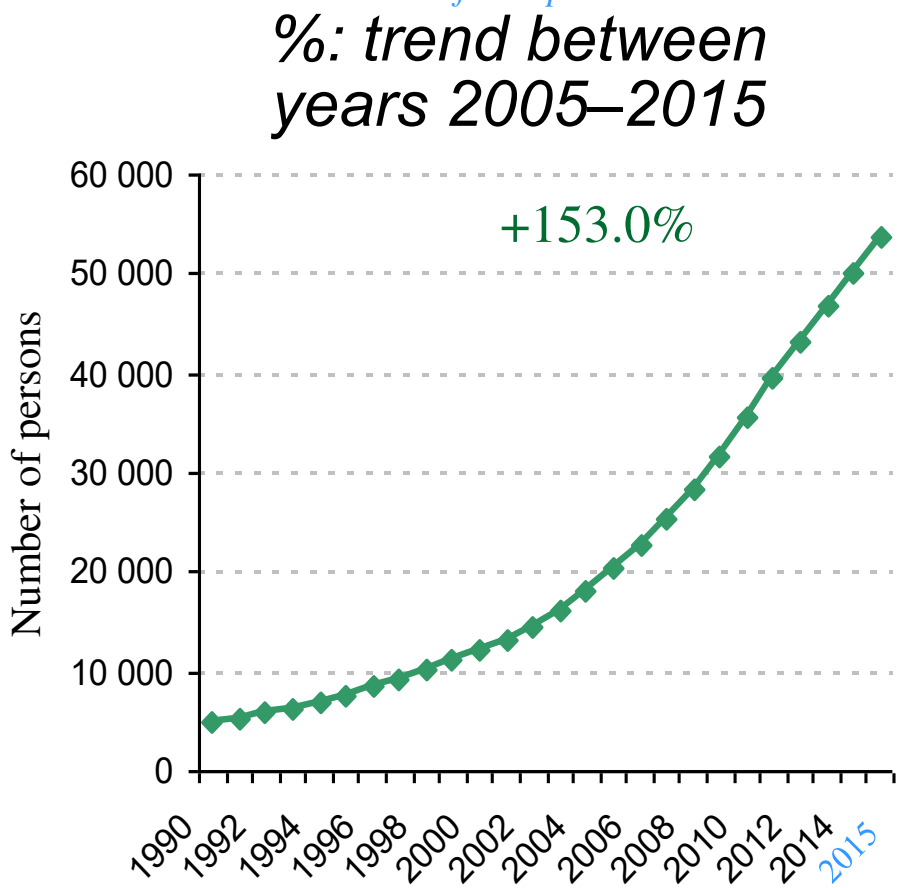




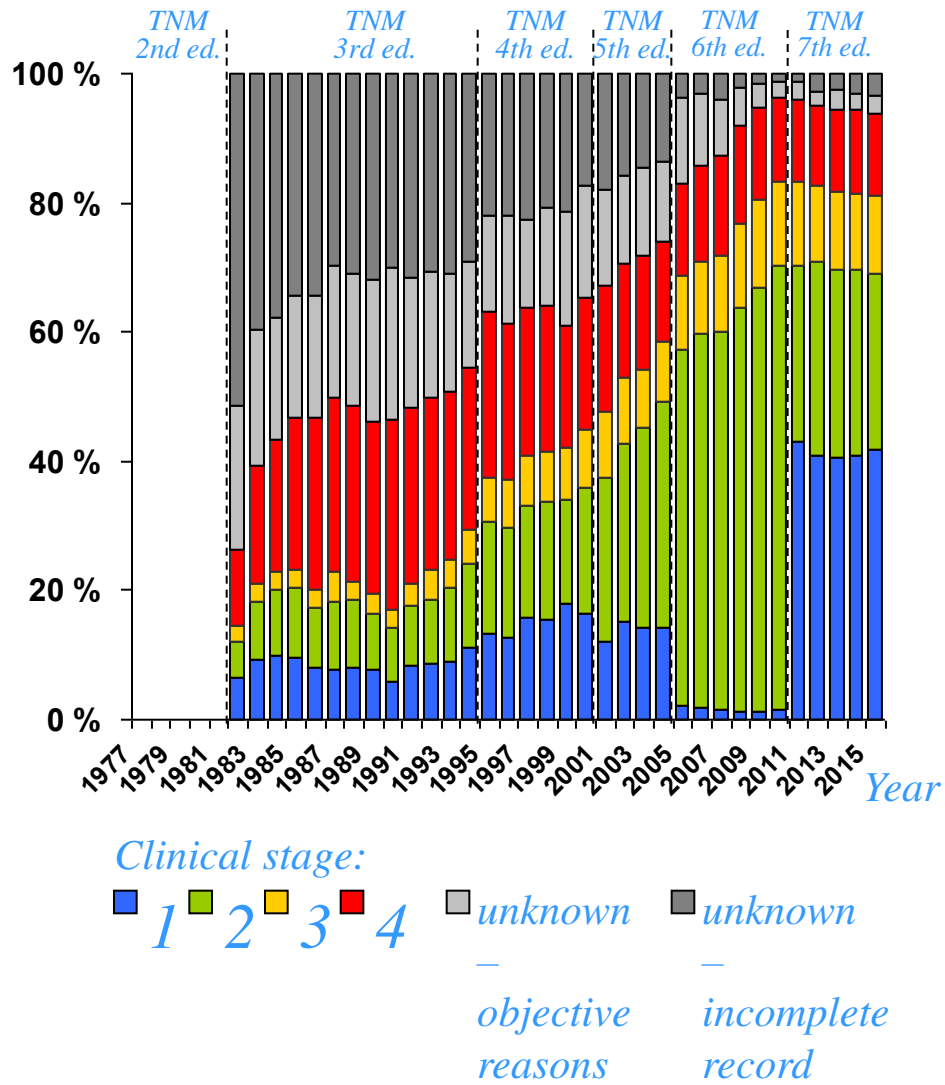
Source: incidence and prevalence: Czech National Cancer Registry, IHIS CZ; mortality 1994–2015: Czech Statistical Office

Epidemiology of C61: still existing high proportion of advanced stages

Trend of C61 prevalence



Trends in the diagnosis of clinical stages



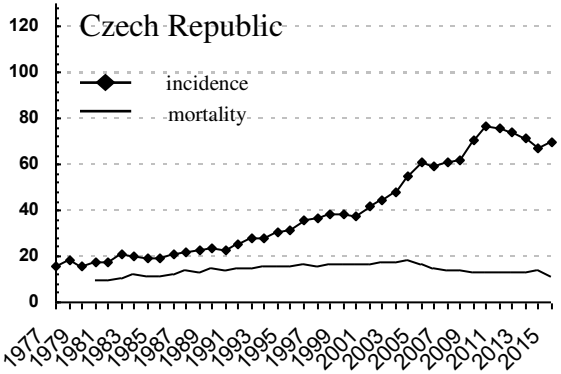
Epidemiology of the urinary system cancers in the Czech Republic

Czech National Cancer Registry: recent data (year) 2015

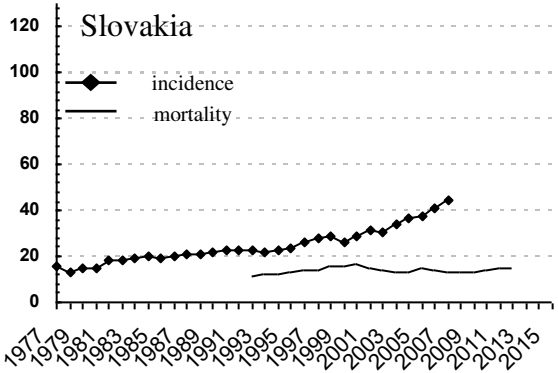
Diagnosis	Incidence (2015)		Mortalitay (2015)		Prevalence (on 31/12/2015)	
	Absol. number	Number per 100,000 persons	Absol. number	Number per 100,000 persons	Absol. number	Number per 100,000 persons
C60 MN of penis	126	2.4^{m}	34	0.7^{m}	822	15.9^{m}
C61 MN of prostate	**7,049**	**136.1^{m}**	**1,327**	**25.6^{m}**	**53,769**	**1,038.0^{m}**
C62 MN of testis	527	10.2^{m}	27	0.5^{m}	9 983	192.7^{m}
C63 MN of other and unspecified male genital organs	10	0.2^{m}	-	-	126	2.4^{m}
Total (C60–C63)	**7,712**	**148.9^{m}**	***1,388**	***26.8^{m}**	**64,563**	**1,246.3^{m}**
C64 MN of kidney, exc. renal pelvis	**2,988**	**28.3**	**1,055**	**10.0**	**24,385**	**231.3**
C65 MN of renal pelvis	177	1.7	101	1.0	1 064	10.1
C66 MN of ureter	87	0.8	23	0.2	456	4.3
C67 MN of bladder	**2,158**	**20.5**	**813**	**7.7**	**18,359**	**174.1**
C68 MN of other and unspecified urinary organs	16	0.2	-	-	146	1.4
Total (C64–C68)	**5,426**	**51.5**	****1,992**	****18.9**	**43,687**	**414.4**

Source: incidence and prevalence: Czech National Cancer Registry, IHIS CZ; mortality – Czech Statistical Office
**C60–C62, **C64–C67, ^{m} per 100 000 men*

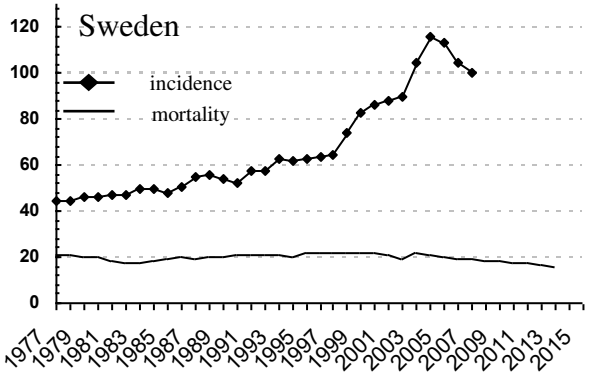
C61 incidence and mortality in international comparison



Source: Czech National Cancer Registry

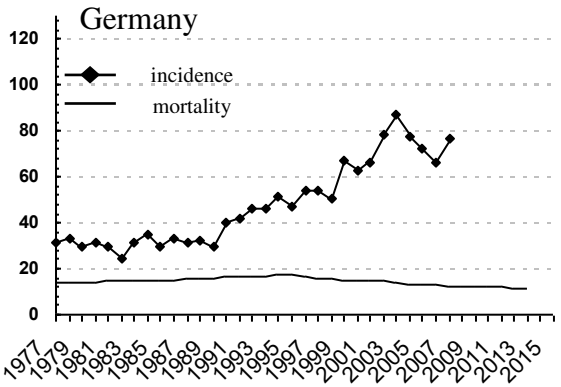


Source: Cancer Incidence in Five Continents Annual Dataset, Cancer Mortality database

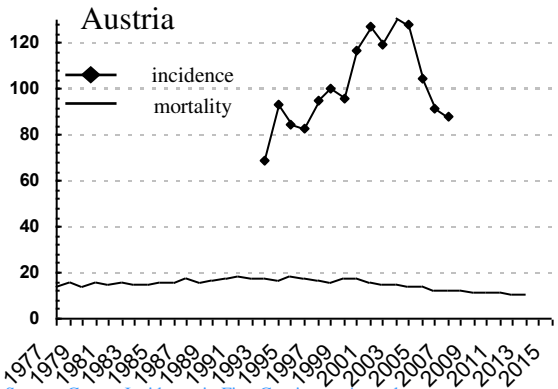


Source: Cancer Incidence in Five Continents Annual Dataset; Cancer Mortality Database

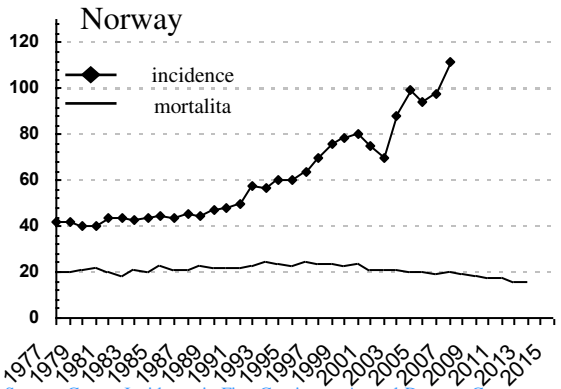
ASR (W)



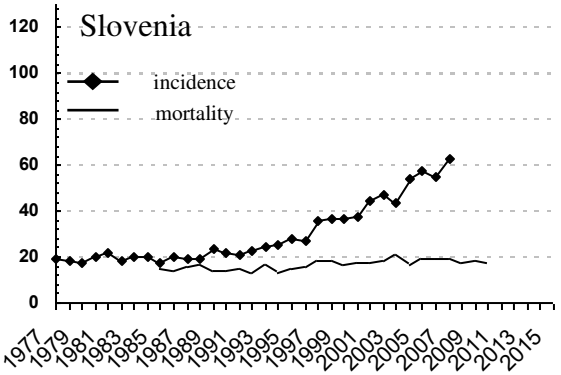
Source: Cancer Incidence in Five Continents Annual Dataset: Germany-Saarland; Cancer Mortality Database



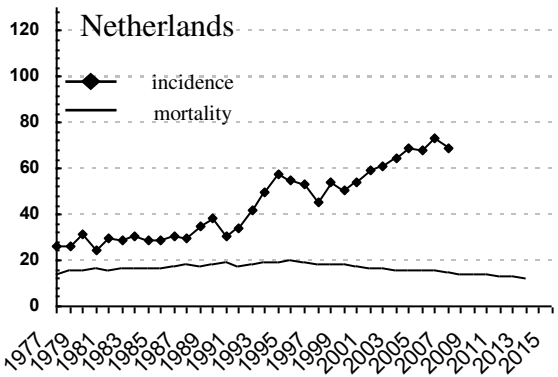
Source: Cancer Incidence in Five Continents Annual Dataset: Austria-Tyrol; Cancer Mortality Database



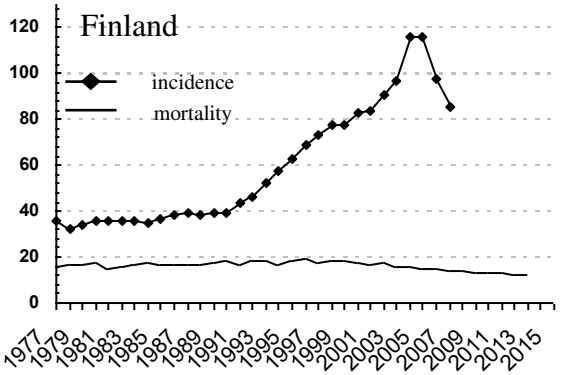
Source: Cancer Incidence in Five Continents Annual Dataset; Cancer Mortality Database



Source: Cancer Incidence in Five Continents Annual Datase; Cancer Mortality Database

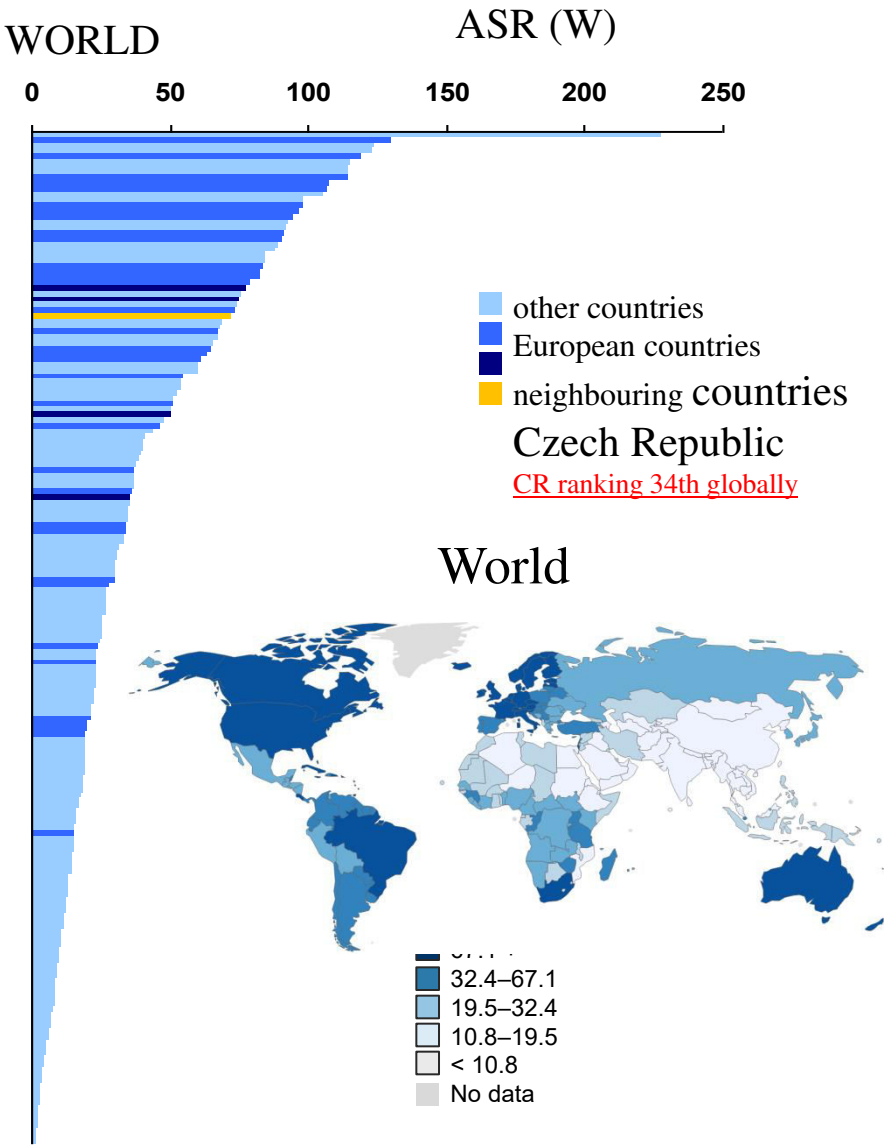


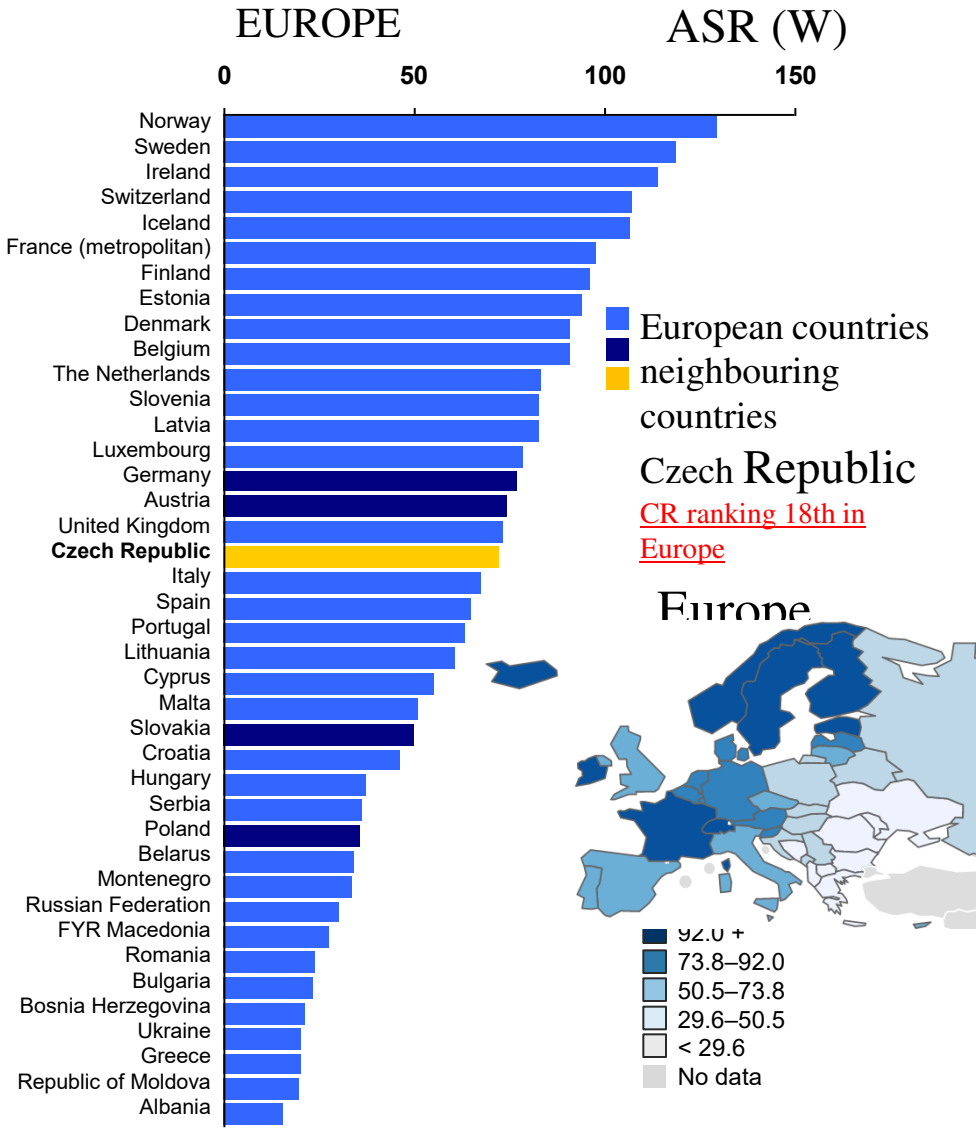
Source: Cancer Incidence in Five Continents Annual Dataset: Nizozemí-Eindhoven; Cancer Mrotality Database



Source: Cancer Incidence in Five Continents Annual Dataset; Cancer Mortality Database

C61 incidence in international comparison

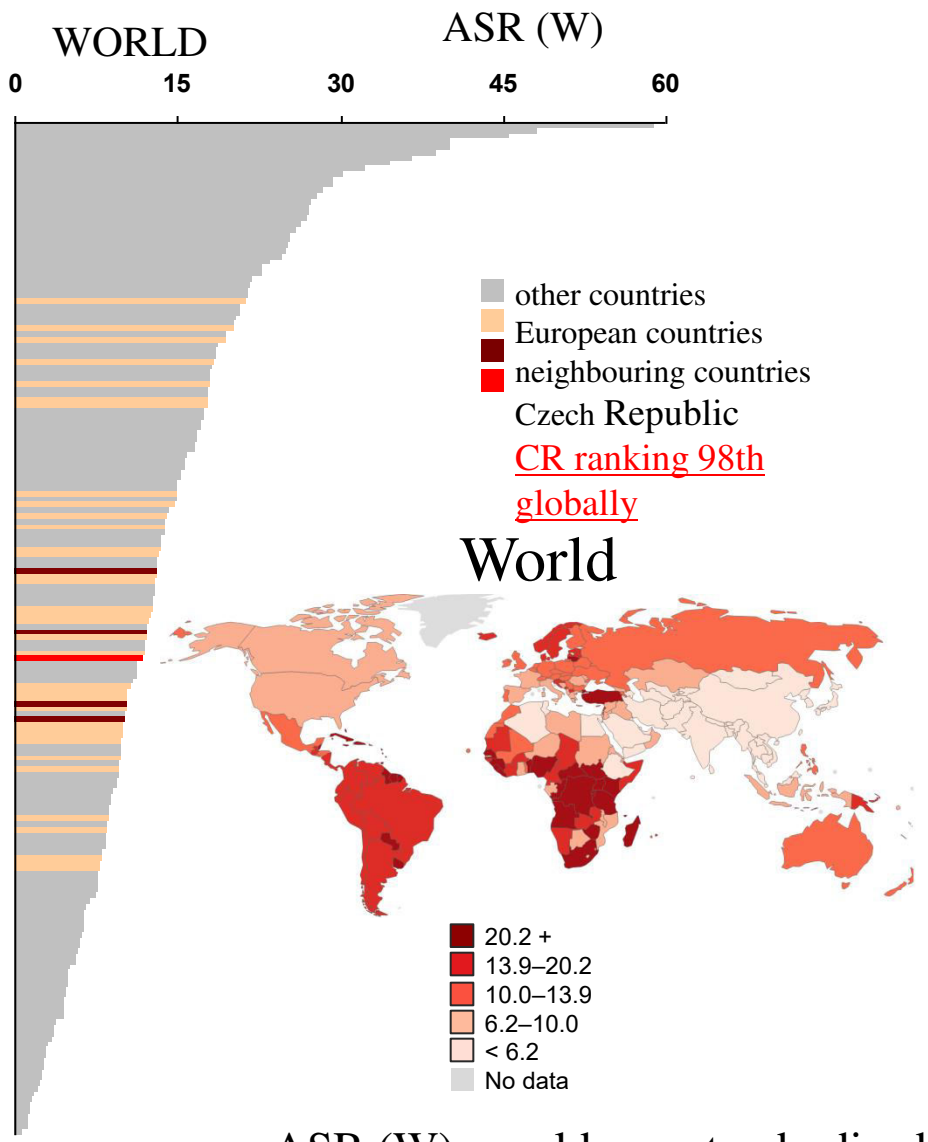


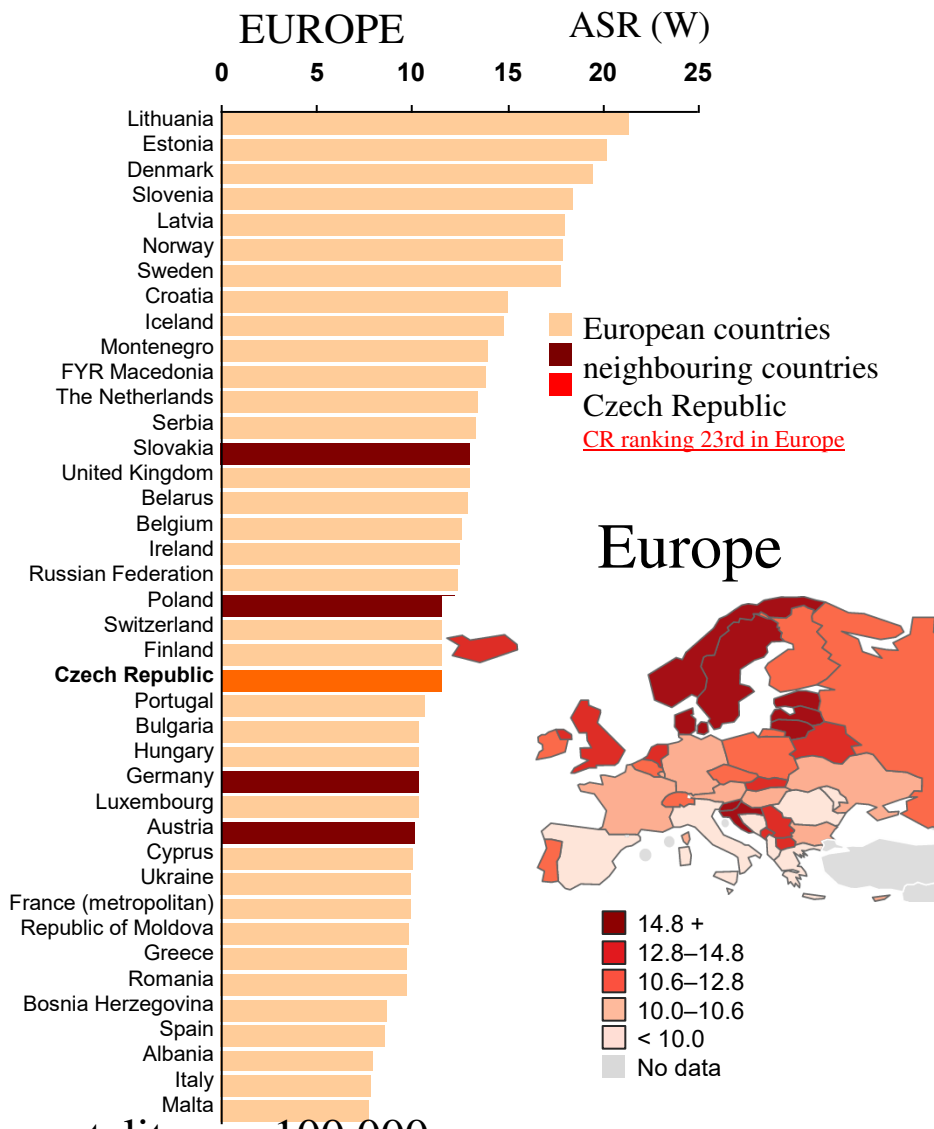


ASR (W): world age-standardised incidence per 100,000 persons

Source: Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray, F.GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: http://globocan.iarc.fr, 22/7/2017

C61 mortality in international comparison





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Treatment outcomes in ČR

(in different historical periods)

Prostate cancer – year 2015

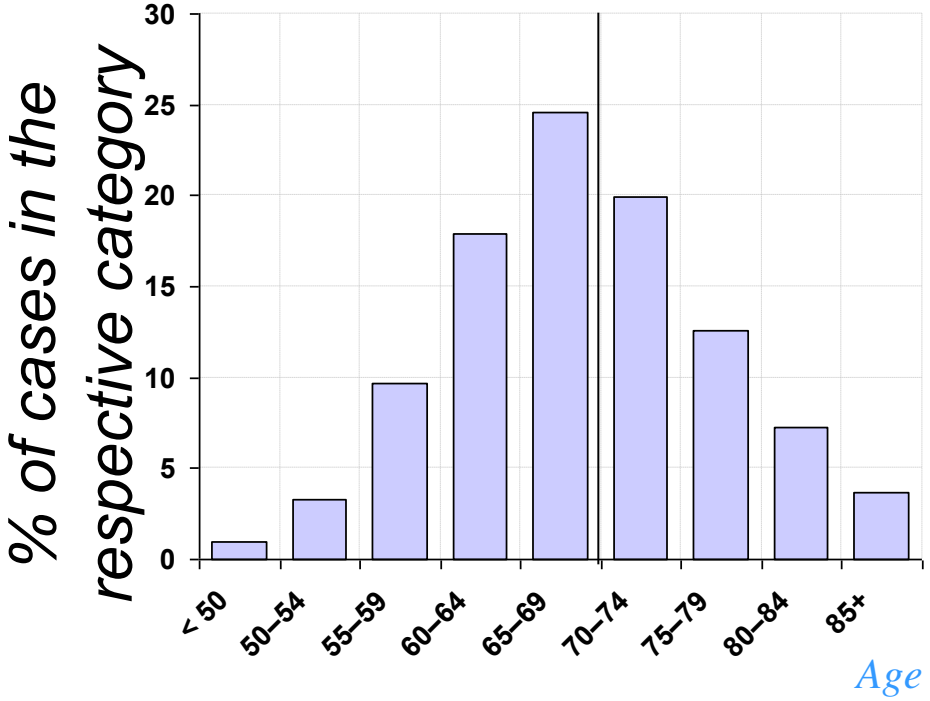
Incidence in 2015:
- total: 7,049 men
- of which clinical stage III–IV: 24.7%

- 13.8% of men were under 60 years

- 56.6 % of men were under 70 years

Age structure

Newly diagnosed cancers in the period 2011–2015

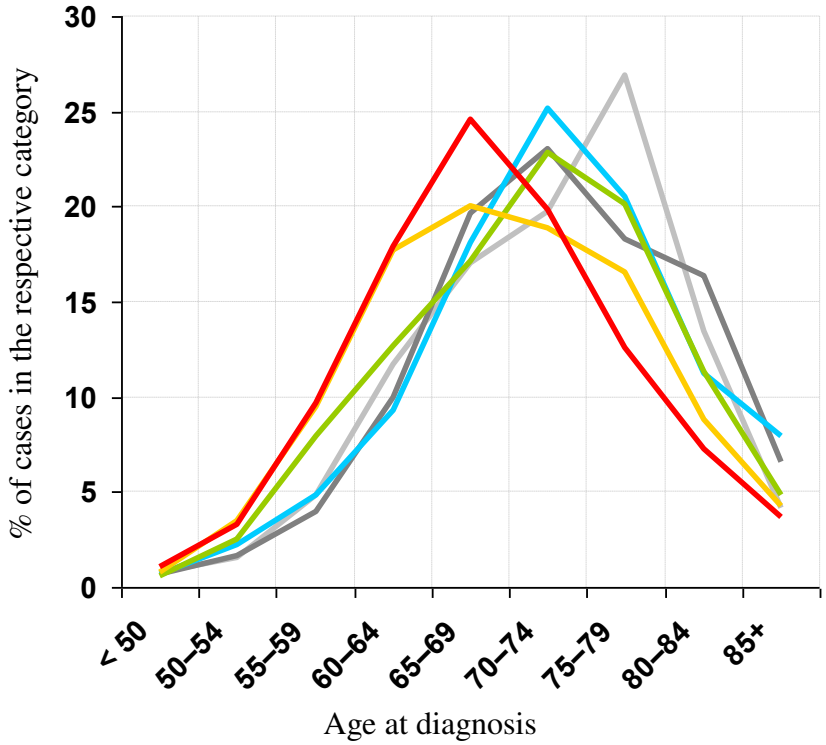


Prevalence in 2015:
- total: 53,769 men
- of which clinical stage III–IV at diagnosis : 19.4%

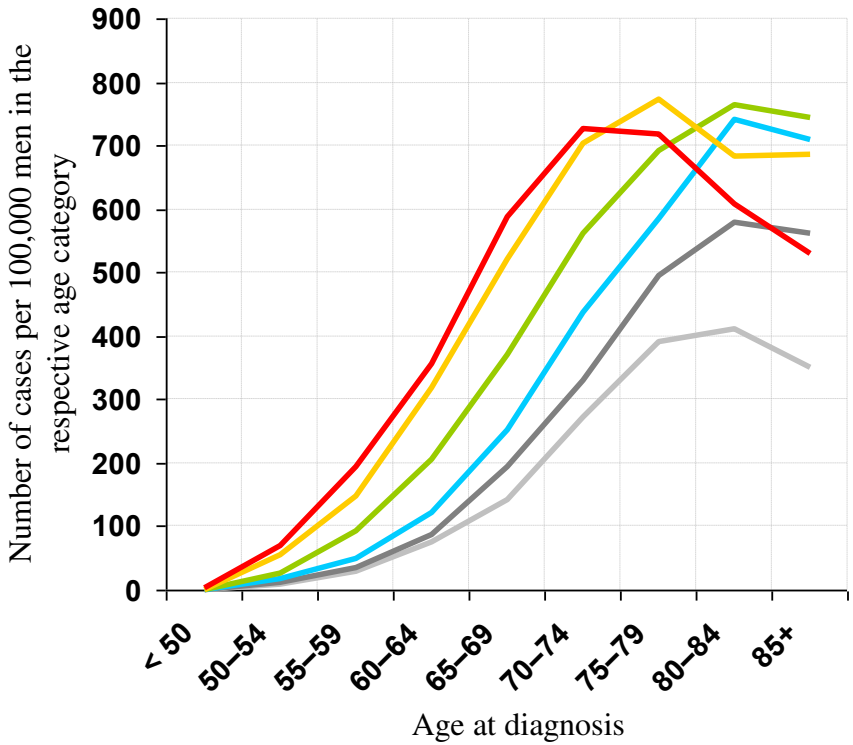
Source: Czech National Cancer Registry, IHIS CZ

Age of prostate cancer patients in time

Age structure



Age-specific incidence



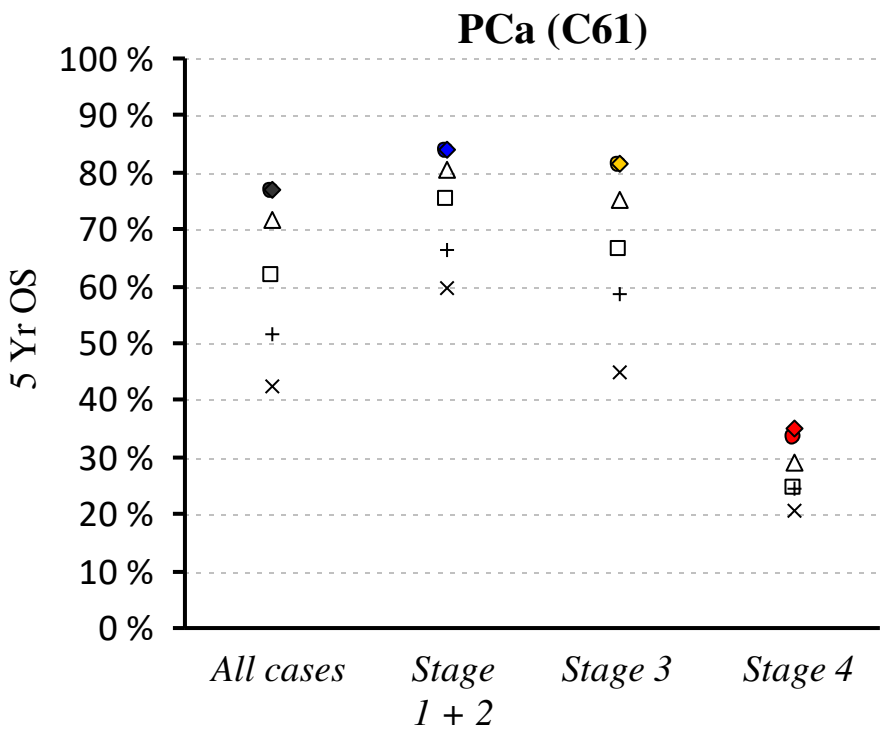
Period:	1986–1990	1991–1995	1996–2000	2001–2005	2006–2010	2011–2015
	N = 7,823	N = 10,192	N = 14,095	N = 20,066	N = 28,877	N = 34,793
Mean	72 years	73 years	72 years	71 years	69 years	69 years
Median	73 years	72 years	73 years	72 years	69 years	68 years
25th–75th perc.	66–78 years	67–79 years	67–78 years	65–77 years	63–76 years	63–74 years
% of persons below 70	35.8%	35.8%	35.1%	40.8%	51.5%	56.6%

!

Source: Czech National Cancer Registry, IHIS CZ

5Yr OS: treated patients with C61

Patients with anticancer treatment



- ◇ *Analysis of the period 2013–2016*
- △ *Cohort analysis 2005–2008*
- + *Cohort analysis 1995–1999*
- ⬭ *Cohort analysis 2009–2012*
- □ *Cohort analysis 2000–2004*
- × *Cohort analysis 1990–1994*

Age standardized.

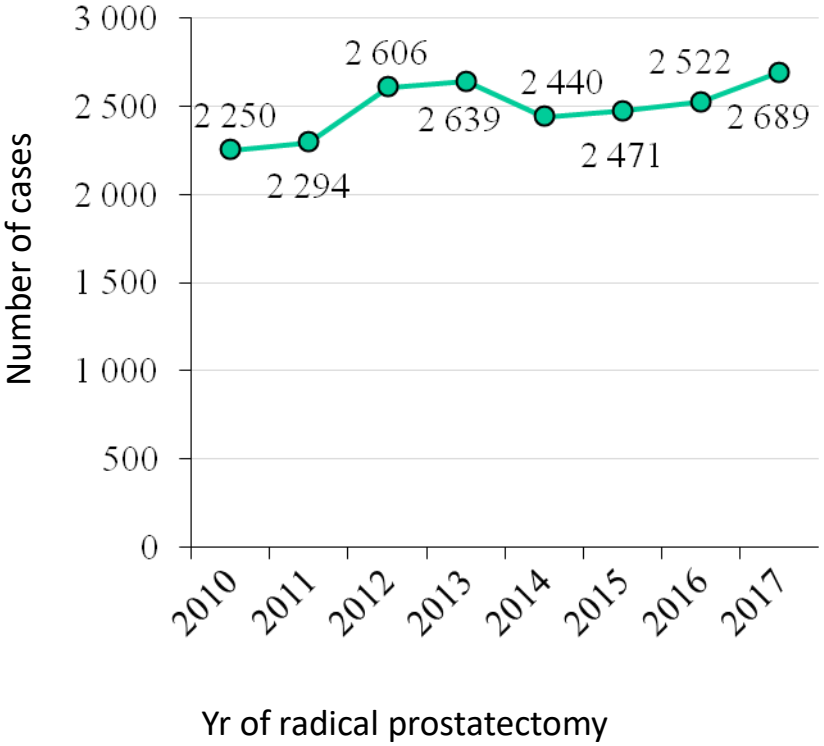
5Yr OS	Cohort analysis 1990–1994	Cohort analysis 1995–1999	Cohort analysis 2000–2004	Cohort analysis 2005–2008	Cohort analysis 2009–2012	Analysis of the period 2013–2016
Stage 1 + 2	59,7 %	66,6 %	75,2 %	80,7 %	83,7 %	84,1 %
Stage 3	45,0 %	58,8 %	66,6 %	75,5 %	81,3 %	81,8 %
Stage 4	20,8 %	24,6 %	24,5 %	29,4 %	33,6 %	35,1 %
All	42,5 %	51,8 %	61,8 %	71,7 %	76,6 %	77,2 %

Treatment trends and results in individual treatment modalities

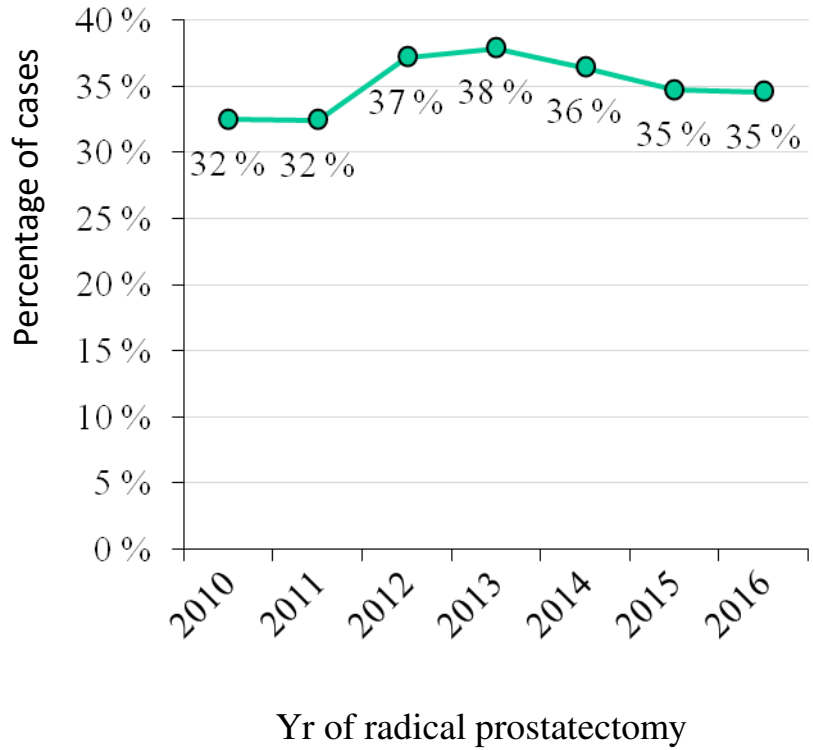
(example: radical prostatectomy)

Trends in number and percentage of patients with PCa and radical prostatectomy

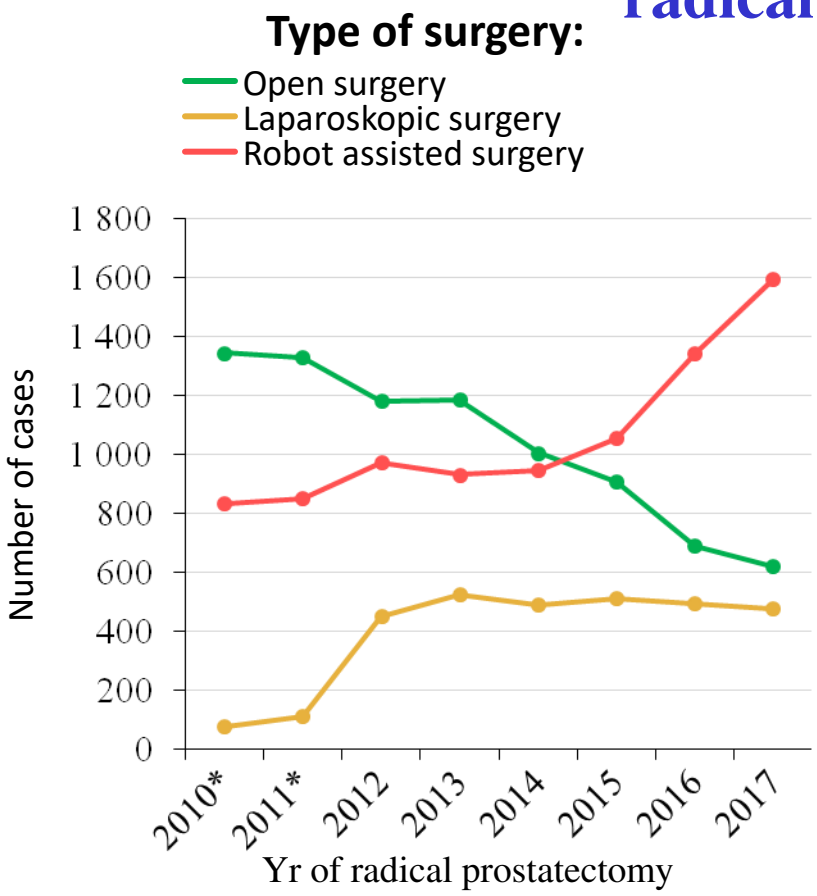
No. Of patients with radical prostatectomy

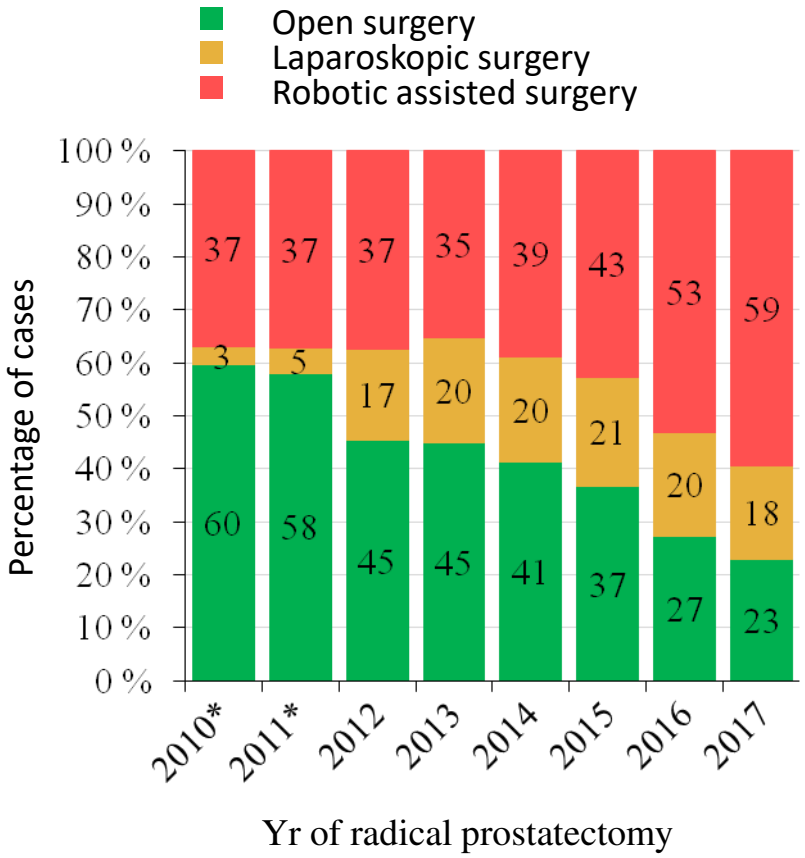


Percentage of pts.



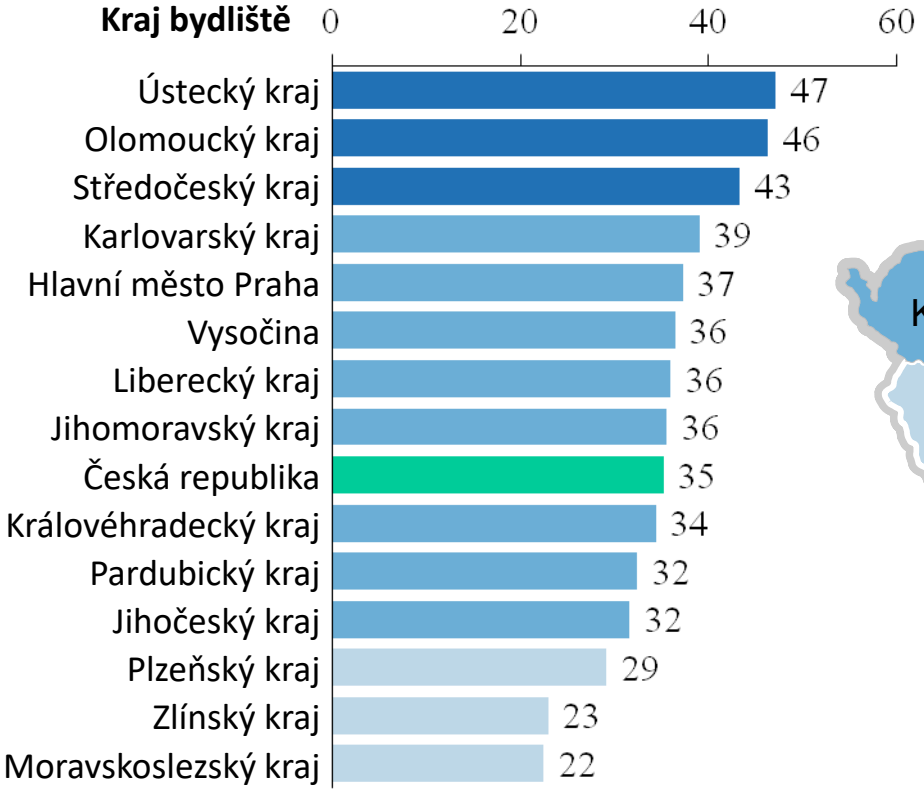
Trends in number and percentage of patients with PCa and radical prostatectomy

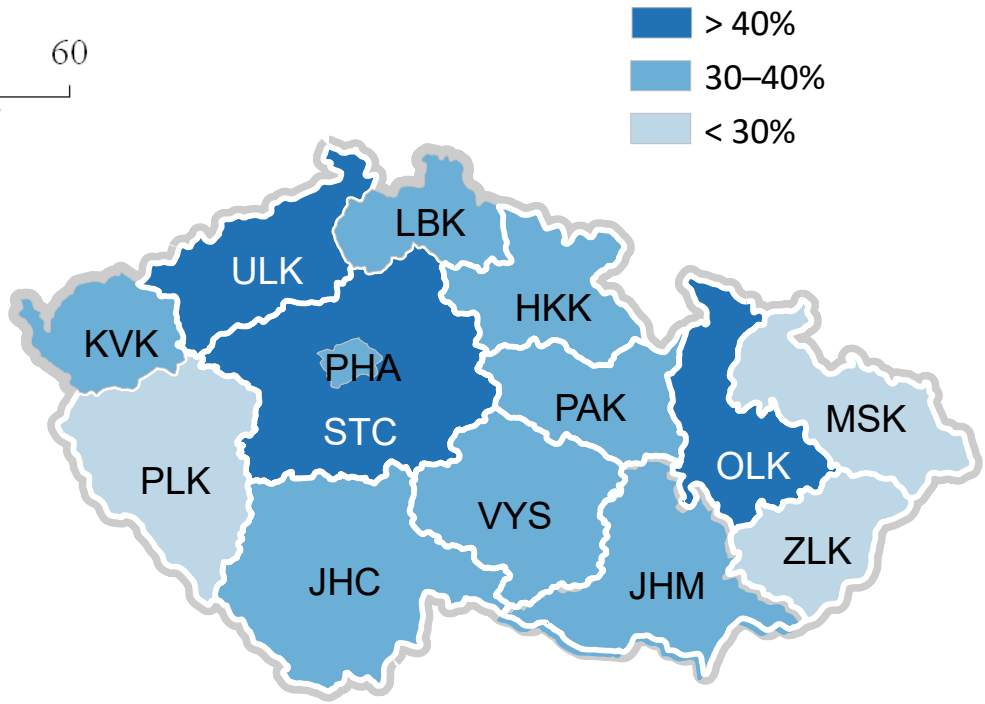




Percentage of pts. with radical prostatectomy in regions (2014–2017)

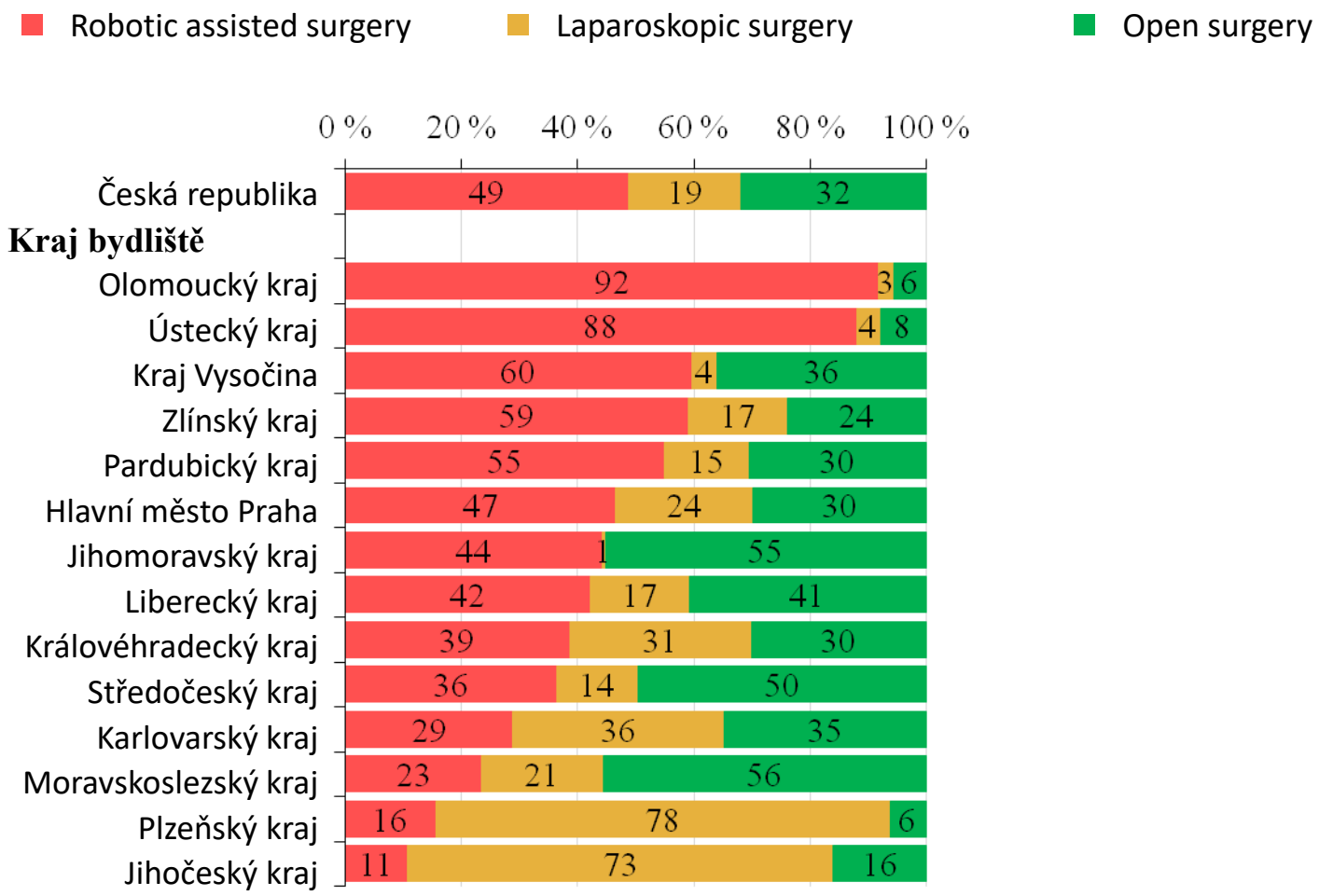
Percentage (%) of surgeries from all detected cases with Pca (2014–2016):



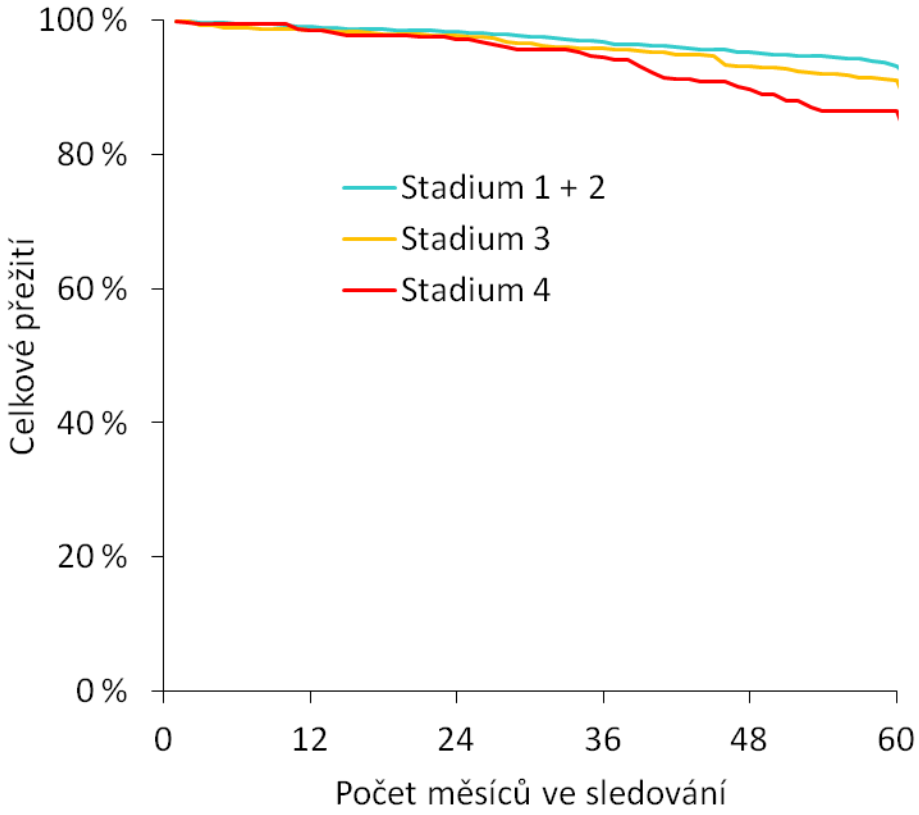


Radical prostatectomies in regions (2014–2017)

Type of surgery (average 2014–2017):



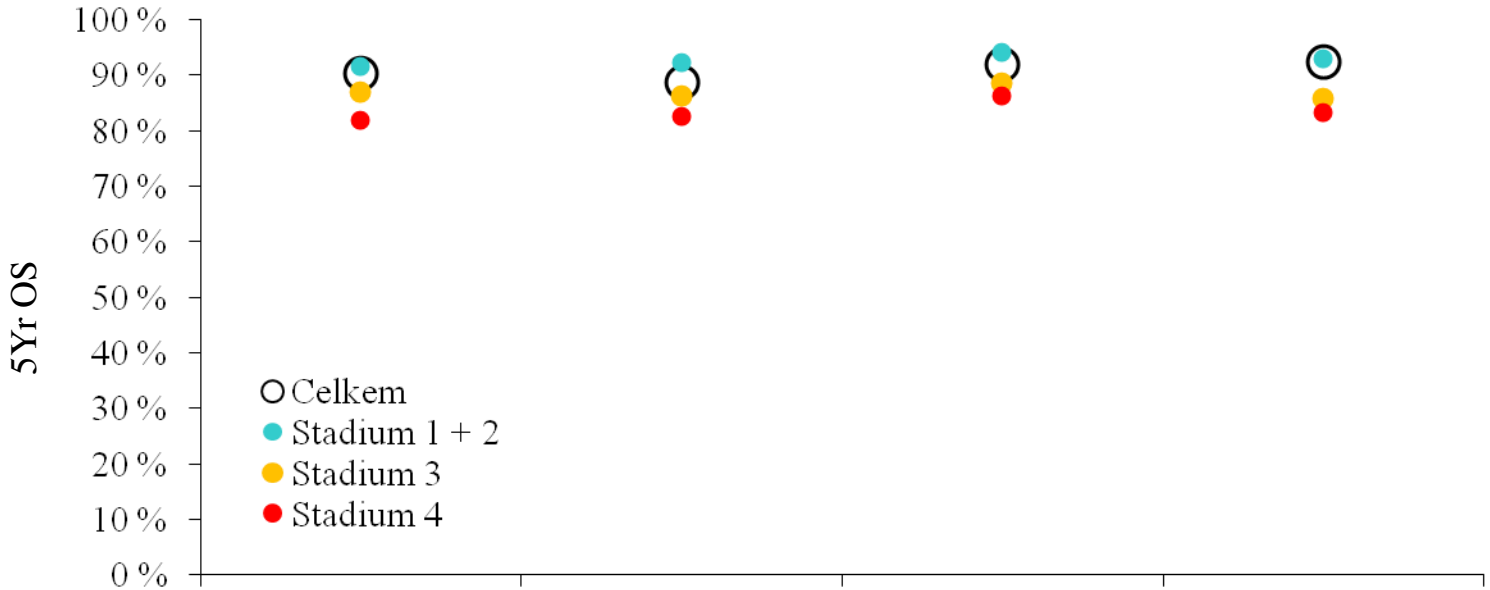
3Yr and 5Yr OS: patients after radical prostatectomy



	OS	
	3Yr	5Yr
All stages	96,1 %	90,4 %
Stage 1+2	96,4 %	91,6 %
Stage 3	95,6 %	86,9 %
Stage 4	94,1 %	81,8 %

3Yr and 5Yr OS after radical prostatectomy achieved 96,1%, and 90,4% respectivelly.

5Yr OS: patients after radical prostatectomy



	All	Open surgery	Laparoscopic surgery	Robotic assisted surgery
All cases	**90,4 %** (n = 12 647)	**88,8 %** (n = 4 960)	**92,0 %** (n = 2 456)	**92,5 %** (n = 5 231)
Stage 1+2	**91,6 %** (n = 8 807)	**92,1 %** (n = 3 308)	**94,0 %** (n = 1 789)	**93,0 %** (n = 3 710)
Stage 3	**86,9 %** (n = 2 177)	**86,1 %** (n = 915)	**88,5 %** (n = 387)	**85,7 %** (n = 875)
Stage 4	**81,8 %** (n = 483)	**82,6 %** (n = 265)	**86,1 %** (n = 70)	**83,3 %** (n = 148)

Prediction

Prostate cancer: estimated incidence rates

Prostate cancer (C61)	**Estimated incidence rates** (90 % confidence interval)						
	2016	**2017**	**2018**		**2020**		**2025**
Stage I+II	**4,926** (4,542; 5,311)	**4,969** (4,545; 5,394)	**4,989** (4,524; 5,456)		**5,002** (4,206; 5,799)		**4,877** (3,770; 5,984)
Stage III	**785** (720; 849)	**769** (700; 837)	**750** (677; 823)	.	**648** (551; 746)	.	**525** (400; 649)
Stage IV	**875** (811; 940)	**879** (809; 949)	**878** (802; 955)	. .	**781** (673; 889)	. .	**721** (566; 876)
Stage unknown[1]	**390** (304; 476)	**400** (307; 494)	**409** (308; 510)		**364** (222; 506)		**366** (170; 561)
TOTAL	**6,976** (6,377; 7,576)	**7,017** (6,361; 7,674)	**7,026** (6,311; 7,744)		**6,795** (5,652; 7,940)		**6,489** (4,906; 8,070)

[1] Objective reasons for missing clinical stage are DCO/autopsy-diagnosed tumours, early deaths, patients not treated due to contraindication or refusal of the anticancer therapy. If a reason for missing stage is not explained, the record is considered as incomplete. The incomplete records are not included in the estimated number of patients with the anticancer therapy.

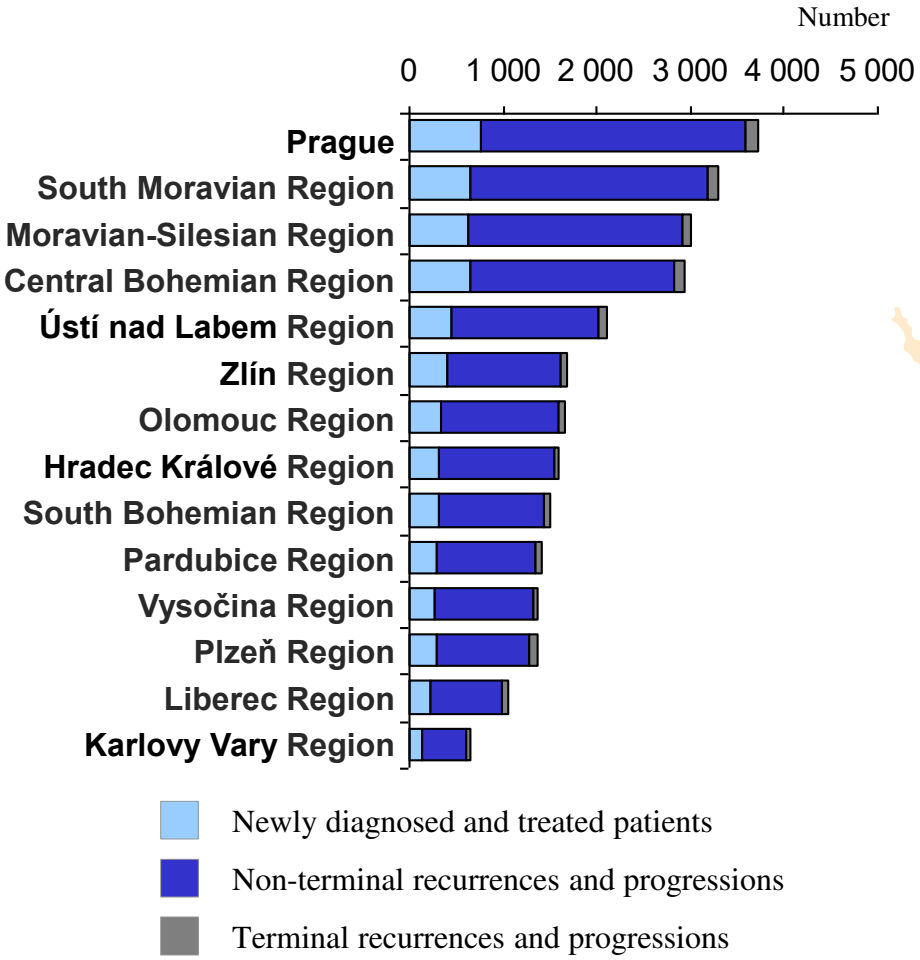
Prostate cancer: estimated prevalence rates

Prostate cancer (C61)	**Estimated prevalence rates** (90 % confidence interval)						
	2016	**2017**	**2018**		**2020**		**2025**
Stage I+II	**43,926** (43,581; 44,271)	**46,702** (46,347; 47,057)	**49,369** (49,004; 49,734)		**55,675** (55,287; 56,063)		**66,983** (66,557; 67,409)
Stage III	**7,541** (7,398; 7,684)	**7,917** (7,771; 8,063)	**8,249** (8,100; 8,398)	.	**8,849** (8,694; 9,004)	.	**9,734** (9,572; 9,896)
Stage IV	**5,169** (5,051; 5,287)	**5,223** (5,104; 5,342)	**5,249** (5,130; 5,368)	. .	**5,409** (5,288; 5,530)	. .	**5,315** (5,195; 5,435)
Stage unknown[1]	**3,714** (3,614; 3,814)	**3,628** (3,529; 3,727)	**3,565** (3,467; 3,663)		**3,529** (3,431; 3,627)		**3,546** (3,448; 3,644)
TOTAL	**60,350** (59,946; 60,754)	**63,470** (63,056; 63,884)	**66,432** (66,008; 66,856)		**73,462** (73,016; 73,908)		**85,578** (85,097; 86,059)

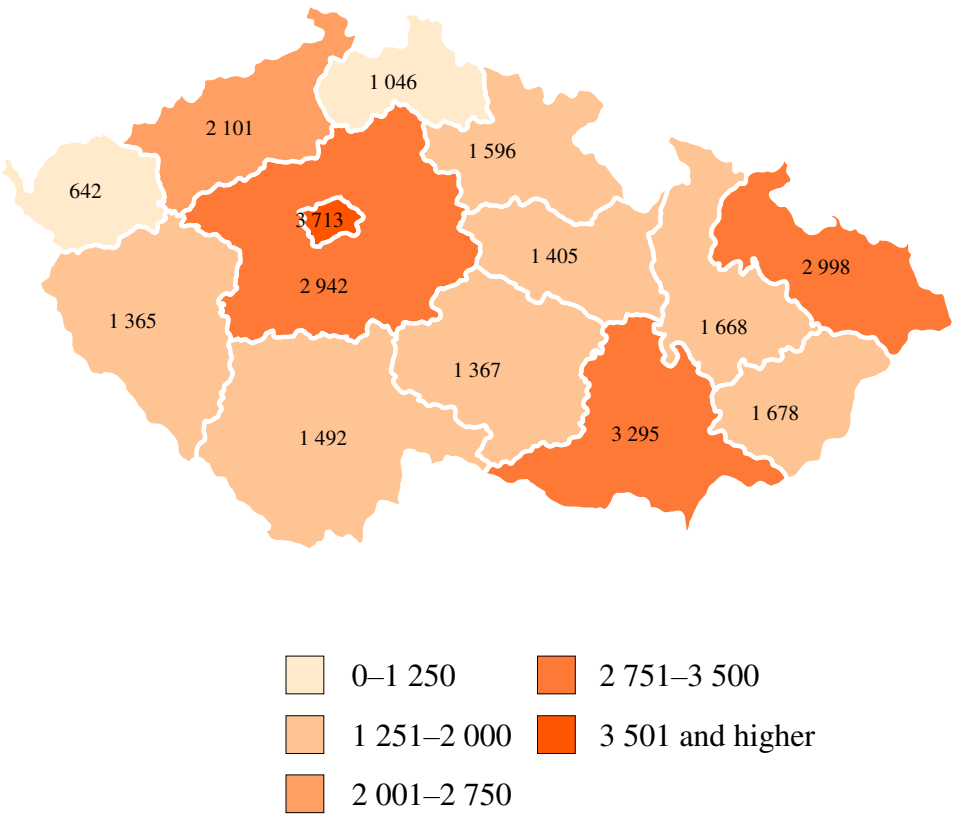
[1] Objective reasons for missing clinical stage are DCO/autopsy-diagnosed tumours, early deaths, patients not treated due to contraindication or refusal of the anticancer therapy. If a reason for missing stage is not explained, the record is considered as incomplete.

Regional estimates of numbers of prostate cancer (C61) patients with anticancer therapy in 2018

Number of patients referred for treatment according to region and phase of treatment

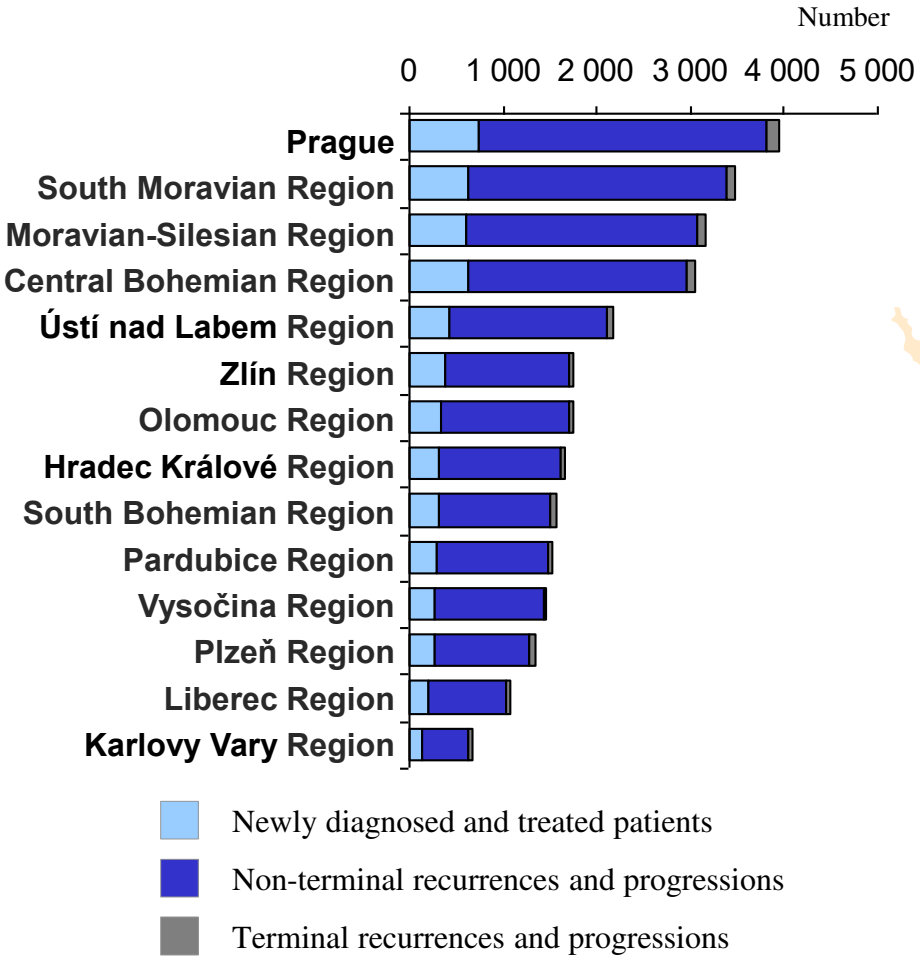


Total number of patients referred for treatment according to region

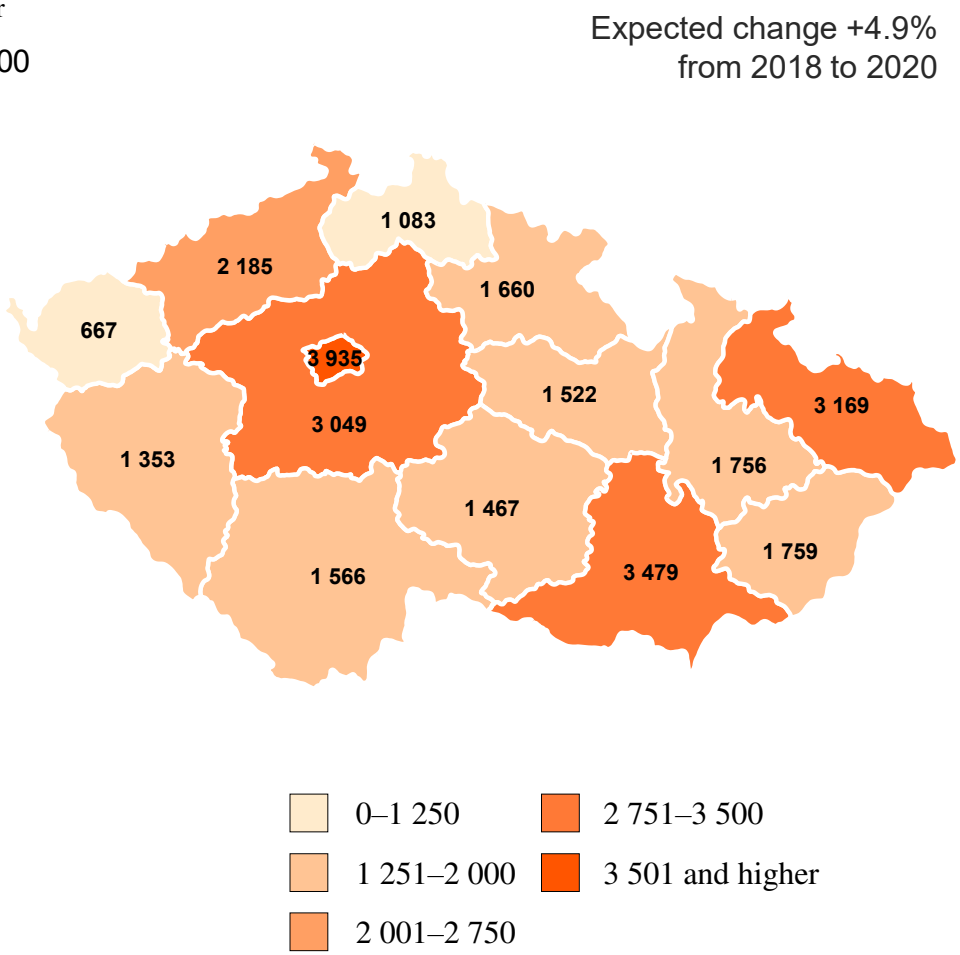


Regional estimates of numbers of prostate cancer (C61) patients with anticancer therapy in 2020

Number of patients referred for treatment according to region and phase of treatment

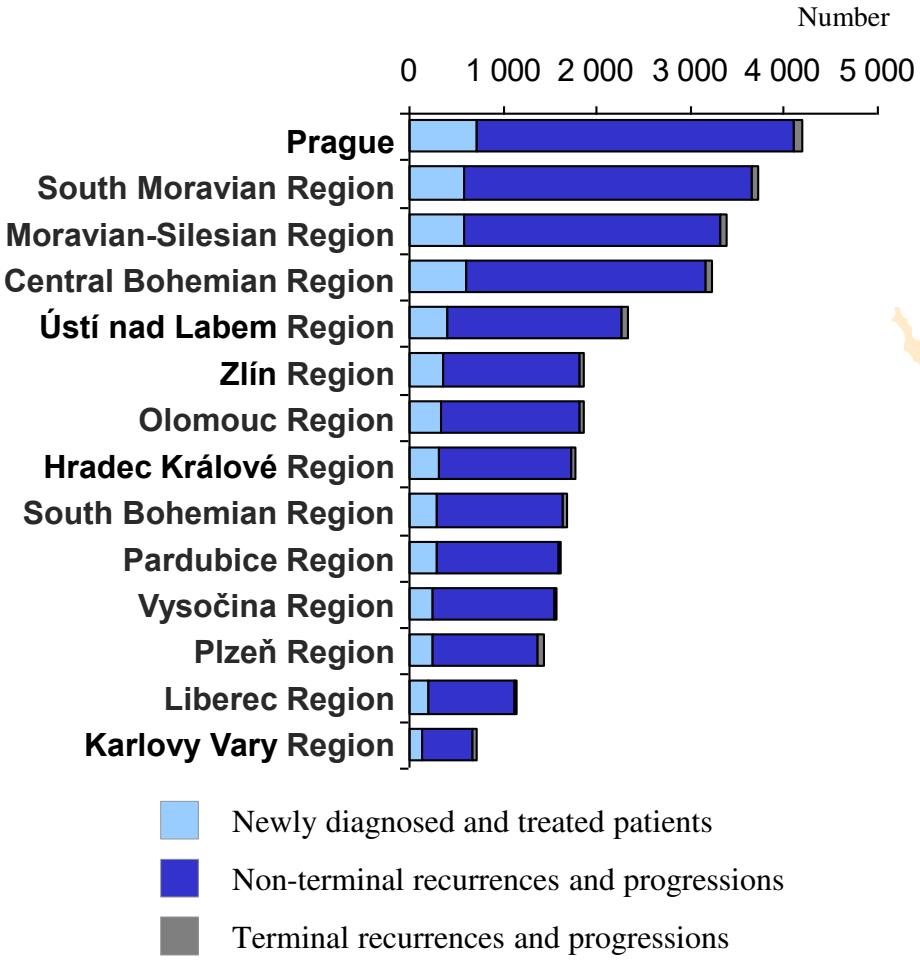


Total number of patients referred for treatment according to region

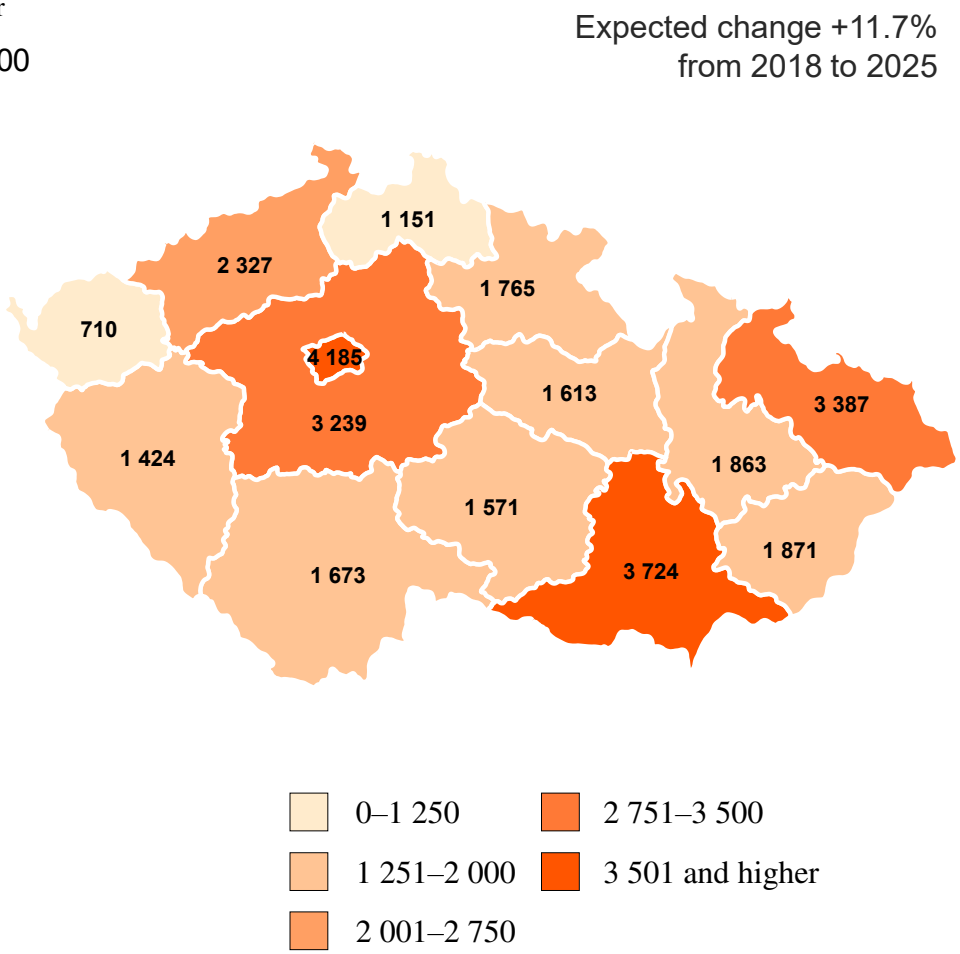


Regional estimates of numbers of prostate cancer (C61) patients with anticancer therapy in 2025

Number of patients referred for treatment according to region and phase of treatment



Total number of patients referred for treatment according to region



Treatment recommendations

(source data)

Treatment recommendations

available guidelines

EAU - ESTRO - ESUR - SIOG Guidelines on

Prostate Cancer

N. Mottet (Chair), R.C.N. van den Bergh, E. Briers (Patient Representative), L. Bourke, P. Cornford (Vice-chair), M. De Santis, S. Gillessen, A. Govorov, J. Grummet, A.M. Henry, T.B. Lam, M.D. Mason, H.G. van der Poel, T.H. van der Kwast, O. Rouvière, T. Wiegel
Guidelines Associates: T. Van den Broeck, M. Cumberbatch, N. Fossati, T. Gross, M. Lardas, M. Liew, L. Moris, I.G. Schoots, P.M. Willemse

NICE National Institute for Health and Care Excellence

NICE guideline

Prostate cancer: diagnosis and management

clinical practice guidelines

Annals of Oncology 26 (Supplement 5): v69–v77, 2015
doi:10.1093/annonc/mdv222
Published online 22 July 2015

Cancer of the prostate: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up†

C. Parker[1], S. Gillessen[2], A. Heidenreich[3] & A. Horwich[4], on behalf of the ESMO Guidelines Committee*

International guidelines:

- EAU, ESMO

National guidelines:

- NCCN, AUA, NICE etc.

Prospective controlled trials

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 OCTOBER 13, 2016 VOL. 375 NO. 15

10-Year Outcomes after Monitoring, Surgery, or Radiotherapy for Localized Prostate Cancer

F.C. Hamdy, J.L. Donovan, J.A. Lane, M. Mason, C. Metcalfe, P. Holding, M. Davis, T.J. Peters, E.L. Turner, R.M. Martin, J. Oxley, M. Robinson, J. Staffurth, E. Walsh, P. Bollina, J. Catto, A. Doble, A. Doherty, D. Gillatt, R. Kockelbergh, H. Kynaston, A. Paul, P. Powell, S. Prescott, D.J. Rosario, E. Rowe, and D.E. Neal, for the ProtecT Study Group*

- ProtecT study
- Localized CaP
- PSA 4.6ng/ml, 77% GS 6, 76% T1c

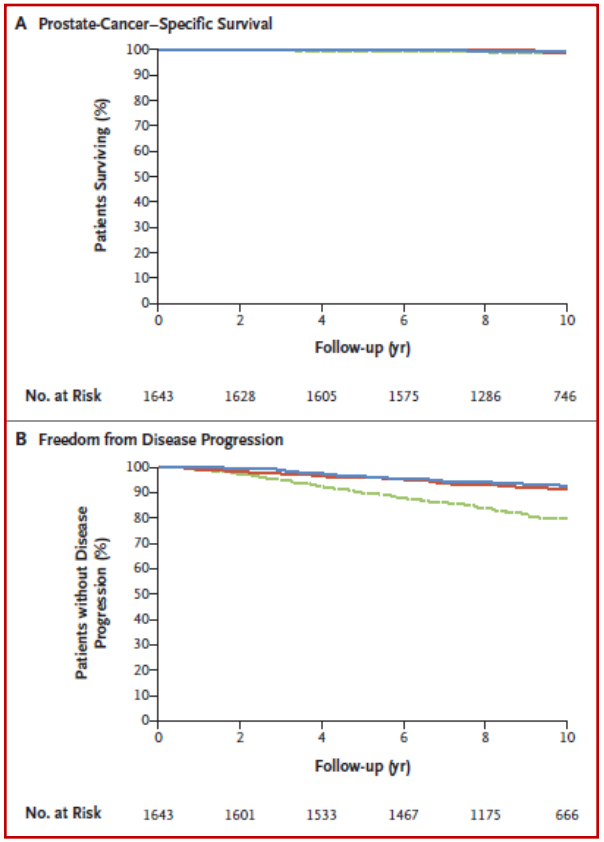


Table 1. Prostate-Cancer Mortality, Incidence of Clinical Progression and Metastatic Disease, and All-Cause Mortality, According to Randomized Treatment Group.

Variable	Active Monitoring (N=545)	Surgery (N=553)	Radiotherapy (N=545)	P Value*
Prostate-cancer mortality				
Total person-yr in follow-up	5393	5422	5339	
No. of deaths due to prostate cancer†	8	5	4	
Prostate-cancer–specific survival — % (95% CI)†				
At 5 yr	99.4 (98.3–99.8)	100	100	
At 10 yr	98.8 (97.4–99.5)	99.0 (97.2–99.6)	99.6 (98.4–99.9)	

Treatment recommendations in localized and locally advanced PCa

critical points

- Staging methods
- Risk assessment and stratification
- Deferred treatment (active surveillance, WW)
- Active treatment (surgery, RT)
- Monitoring
- Definition of treatment failure
- Secundary measures

Epidemiology of prostate cancer in the Czech Republic

Epidemiology-related challenges for organising the healthcare

Prostate cancer as a subsequent primary cancer in cancer patients

INSTITUTE OF BIOSTATISTICS AND ANALYSES, Faculty of Medicine, Masaryk University, Brno

Incidence: first and subsequent primary cancers in the Czech Republic

Diagnosis	First/subsequent cancer	Period 1986–1995	Period 1996–2005	Period 2006–2015
		N per year (% of newly diagnosed)	N per year (% of newly diagnosed)	N per year (% of newly diagnosed)
Prostate cancer (C61)	**first cancer**	**1,646 (91.4%)**	**2,952 (86.4%)**	**5,430 (85.3%)**
	subsequent primary cancer	**155 (8.6%)**	**464 (13.6%)**	**937 (14.7%)**

Source: Czech National Cancer Registry, IHIS CZ