



CHARLES UNIVERSITY
Third Faculty of Medicine



Dialysis therapy in Czech Republic – data of Registry of dialysis patients

Ivan Rychlík

1st Department of Medicine

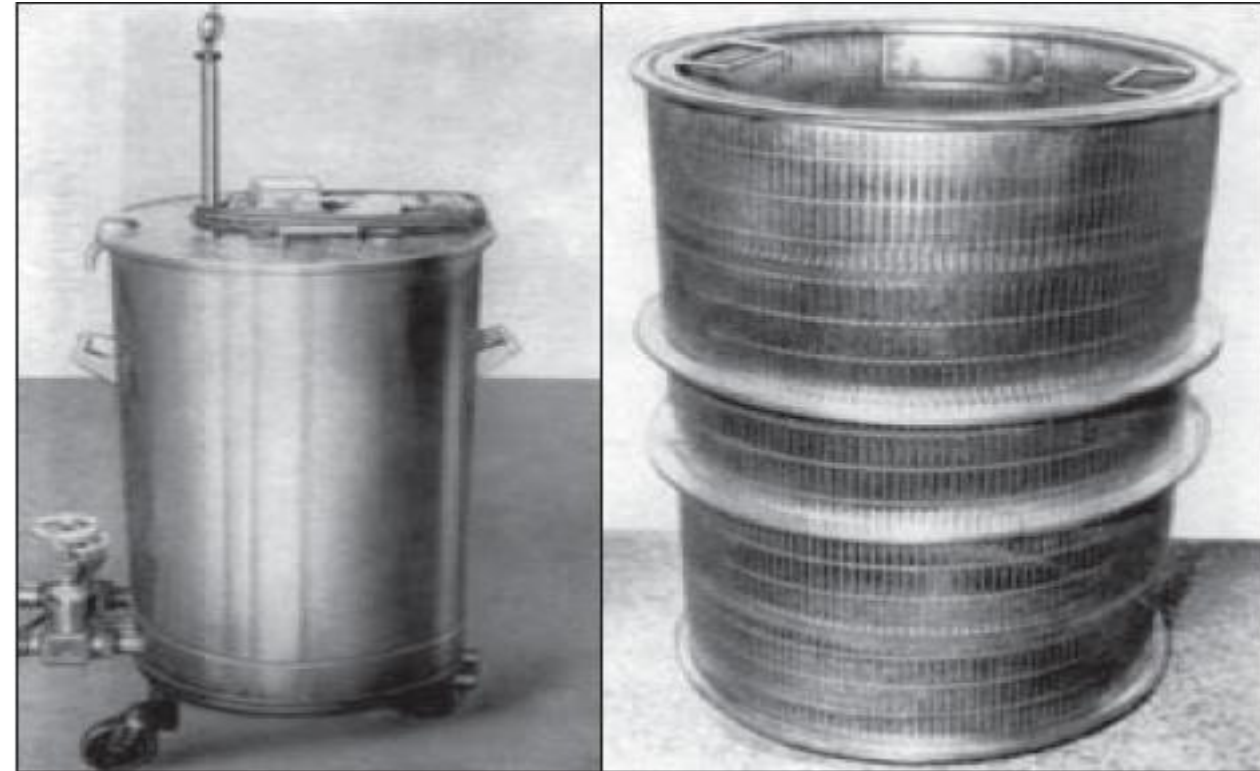
Third Faculty of Medicine, Charles University

Prague, Czech Republic

History of dialysis treatment in Czech Rep. – first acute hemodialysis

- 1955 – first HD in Central Europe

- MUC.Daum, Dr.Hornych,
Dr.Chytil (2.Dpt.Med.)
- Alwall dialysis device
- 5.HD unit in Europe
- ARF - intoxication sublimat
- altogether 3 successful HD sessions



First dialysis team in Prague - 1955:



Physicians (from right):

- S. Daum,
- M. Chytil
- K. Cholinský
- A. Hornych
- Fialová-Přecechtělová

nurse:

- M. Mrowcziková

further:

surgeons (vessel access)

- E. Hradec
- Bureš

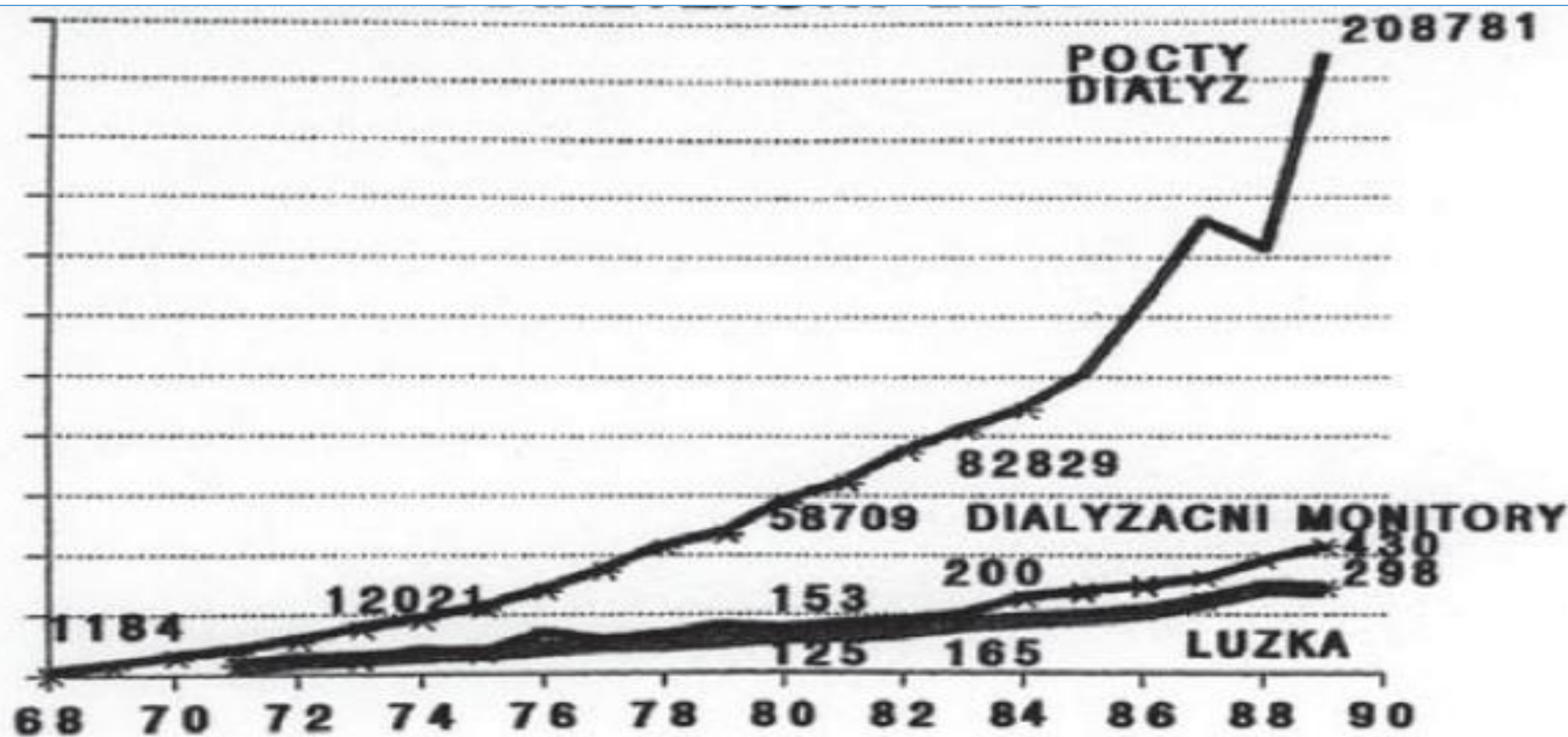


First acute
hemodialysis performed
in II.dept. med. in Prague
year 1955;
- Dr.Daum
- Dr.Chytil

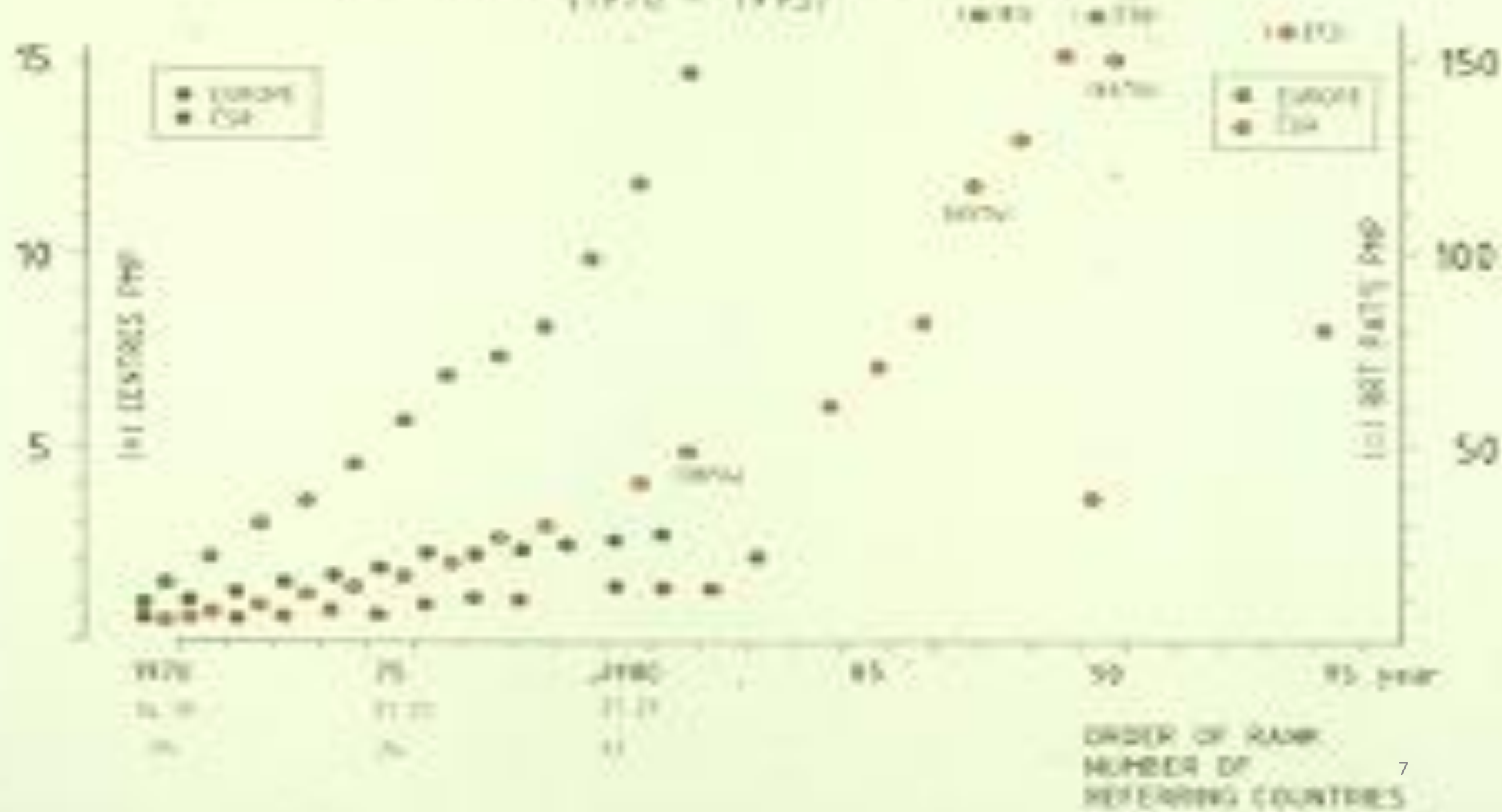
First successful kidney transplant – 21.3.1966



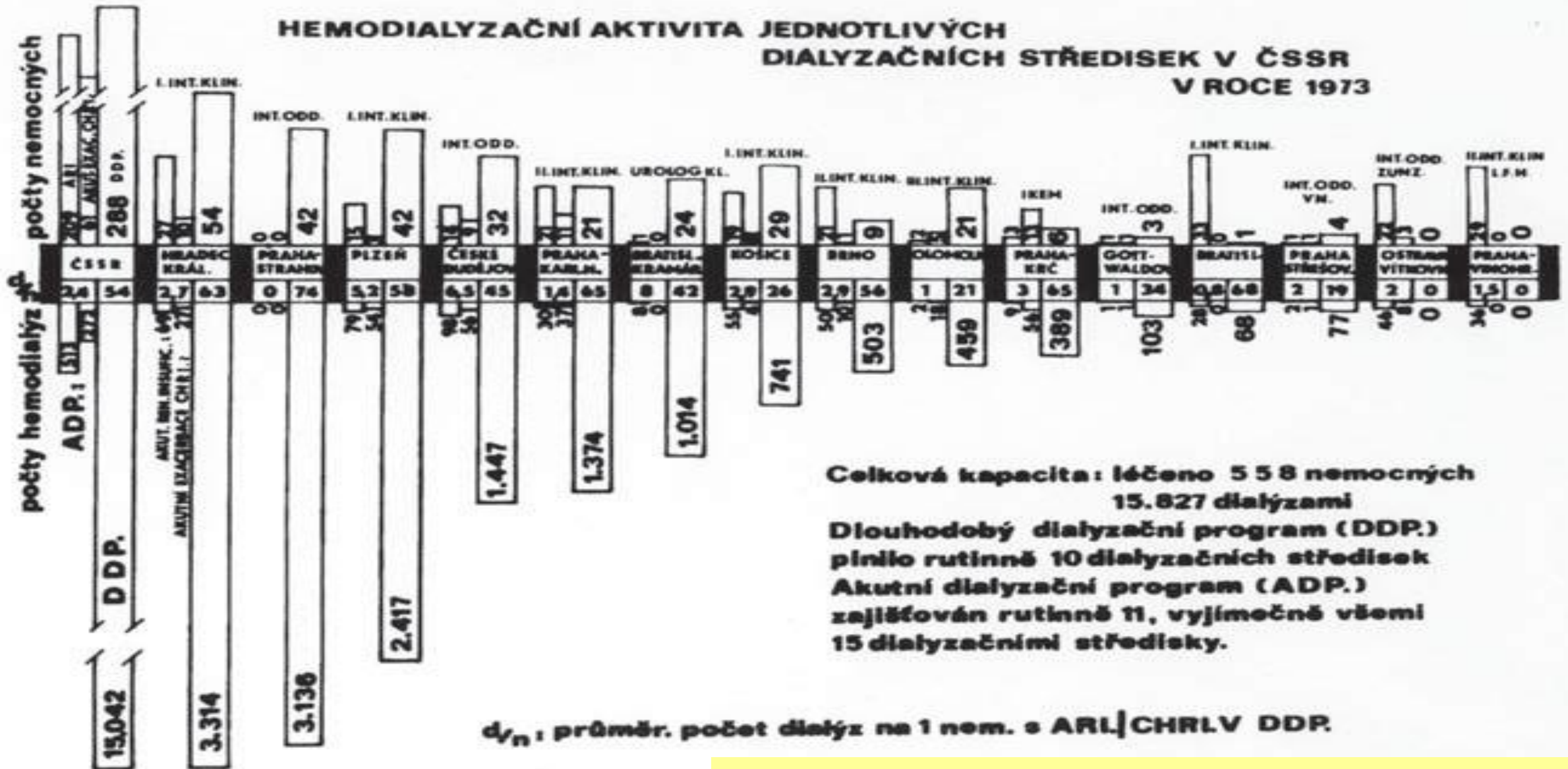
Development of chronic dialysis treatment in Czechoslovakia (1968-1989)



ROT CENTRES AND RRT PATIENT IN CZECHOSLOVAKIA AND IN EUROPE (1970 - 1995)



Hemodialysis therapy in Czechoslovakia in 1973 (558 pts, 15,827 sessions)



Historical and current RRT data collection in CR

A/ 1969 – Registry of dialysis therapy and transplantation in Czechoslovakia

After 1989 – velvet revolution, 1993 split of Czechoslovakia

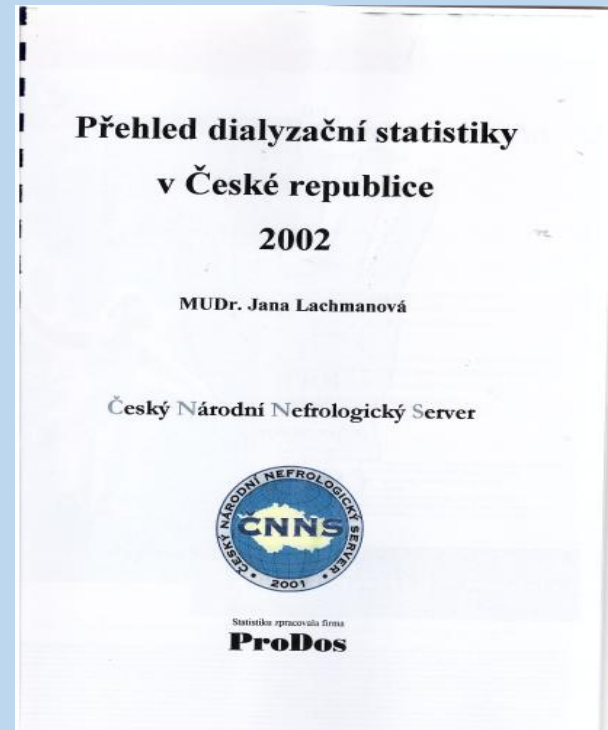
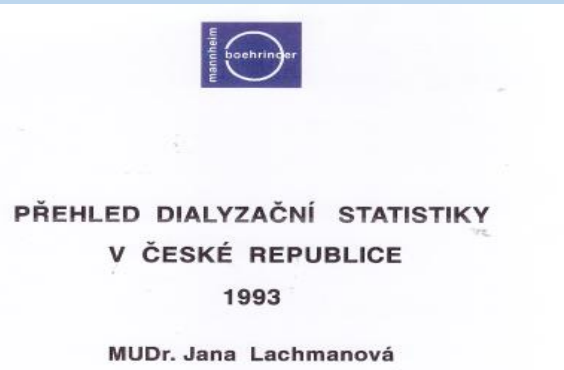
B/ since 1993 - **Statistical Yearbooks** of dialysis therapy in Czech Rep., 100% pts covered
- only cross-sectional data reported yearly on 31.12.

C/ since 2006 - **Registry of dialysis patients** (RDP) – run by the Czech Soc. of Nephrology,
- based on individual patient reported data, voluntary, ~ 80% pts covered
- regular follow-up of patients

D/ since 2003 - **Registry of transplanted pts**: waiting list + all transplantations/yr
- no follow-up available
- run by state authority (Ministry of Health), obligatory, 100% pts covered

Historical data – Review of dialysis therapy in the Czech Republic

- since 1993 published Statistical Yearbooks of Dialysis Therapy in CR (head: Dr. J. Lachmanová)



Za Českou nefrologickou společnost zpracovali
doc. MUDr. Ivan Rychlík, CSc., FASN
doc. Ing. František Lopot, CSc.



STATISTICAL YEARBOOK of Dialysis Treatment in the Czech Republic in year 2015

On behalf of the Czech Society of Nephrology with co-operation with ProDos company prepared:

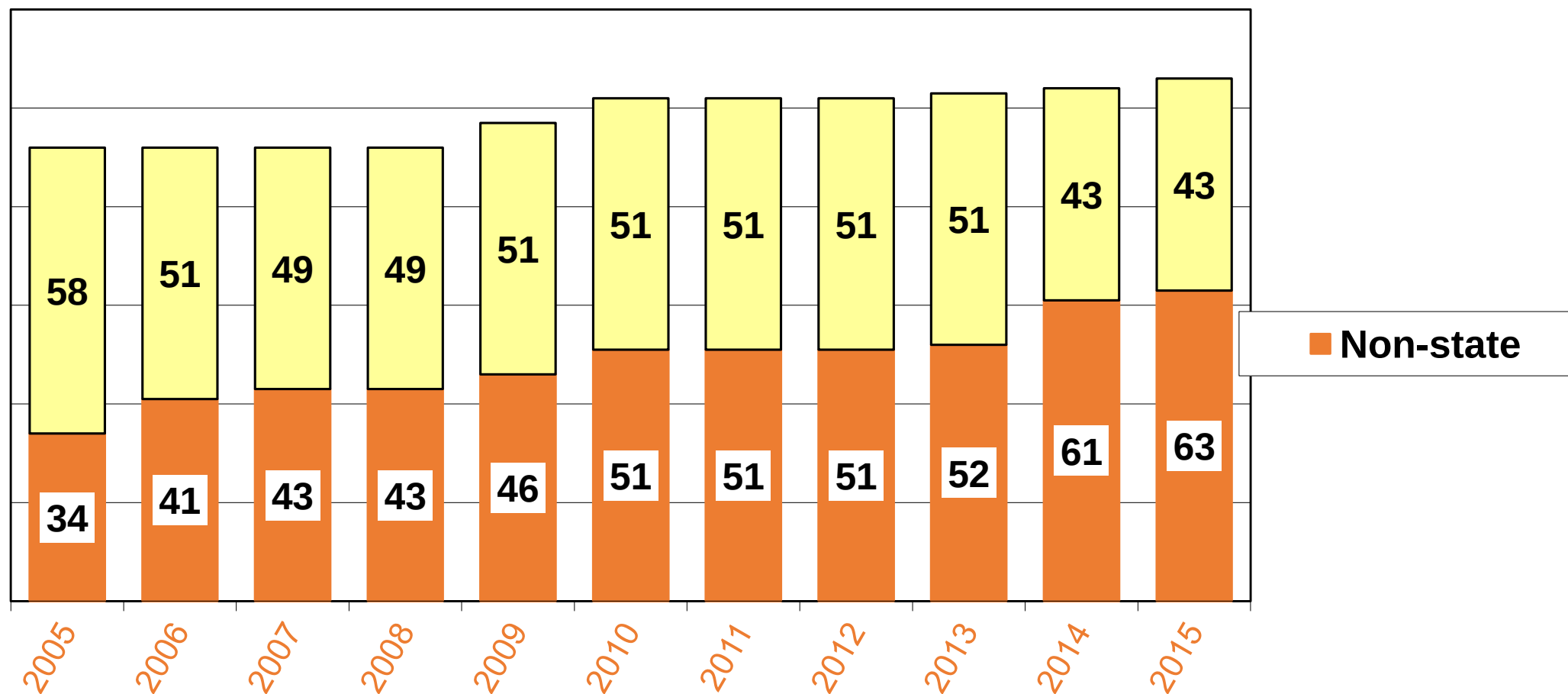
Prof. Ivan Rychlík, MD, PhD, FASN, FERA

Assoc. Prof. Ing. František Lopot, PhD

Czech Registry of dialysis patients - 2015

- **106 dialysis centers** in the Czech Republic. All of them are invited to contribute to registry data.
- **6668 patients** in chronic dialysis in Czech Republic, i.e. 635 patients per million inhabitants.
- 465 patients treated by **peritoneal** dialysis (**6,9%**).
- As of 31.12.2014 , 4526 kidney transplant patients survived with functioning graft.
- kidney transplant **453 pts**, out of them 53 from living donor
- altogether **11,196 pts in RRT program**, i.e. **1066 PMP**

Numbers of dialysis units

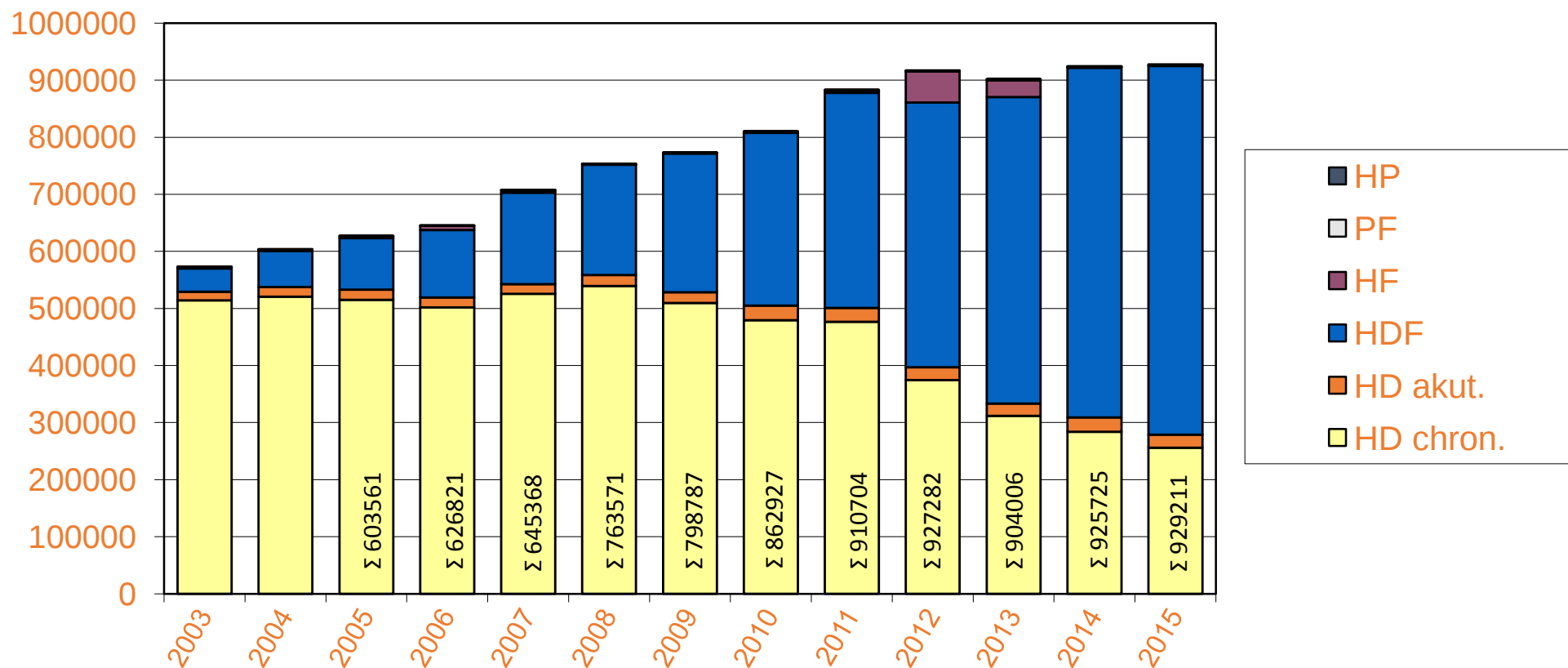


103 DS pro **dospělé** a **3** DS pro **děti** (Brno FDN, Ostrava Poruba, Praha Motol)

3 DS pouze **akutní** program (nem. Havířov, Praha 10 FNKV II.int., Praha 5 MJ Motol)

3 DS pouze **peritoneální** program (Praha 10 FNKV I.int., Praha 5 FN Motol Int., Rumburk)

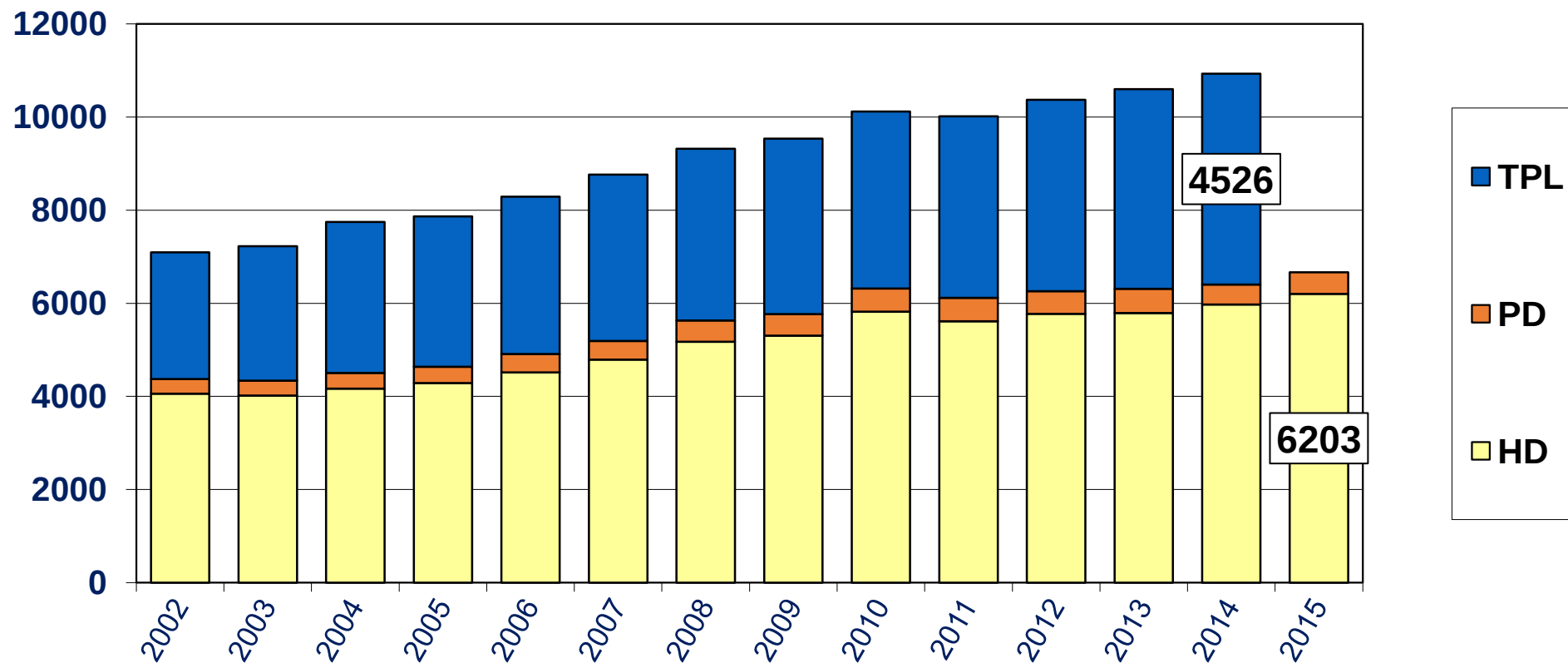
Numbers of hemopurification treatments



Počty výkonů v r. 2015:

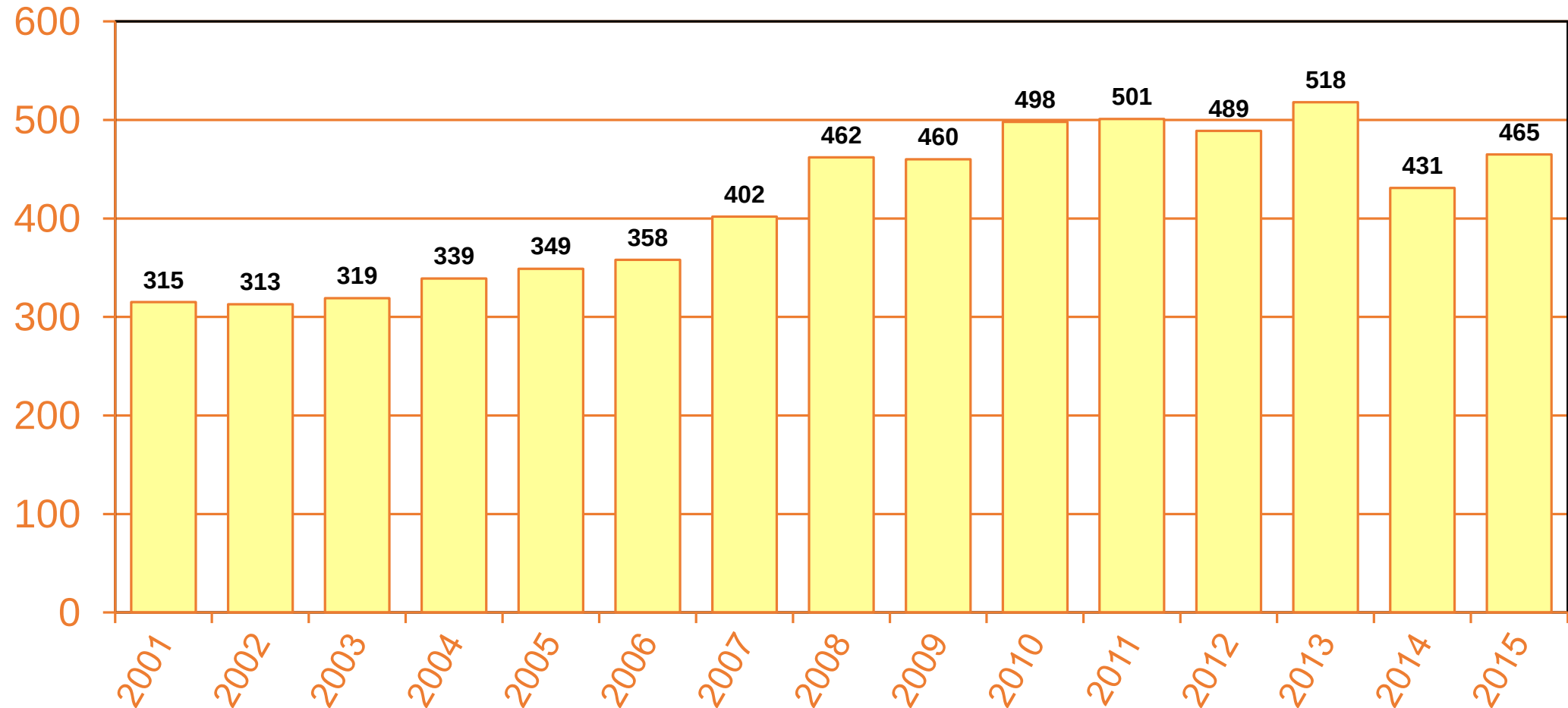
HD	255 736 (z toho ak. 9%)	PF	1 632
HDF	646 259 (= 70% ze všech)	HP	0
HF	969	jiné	241

Number of treated patients (prevalence) on 31.12. according to RRT method



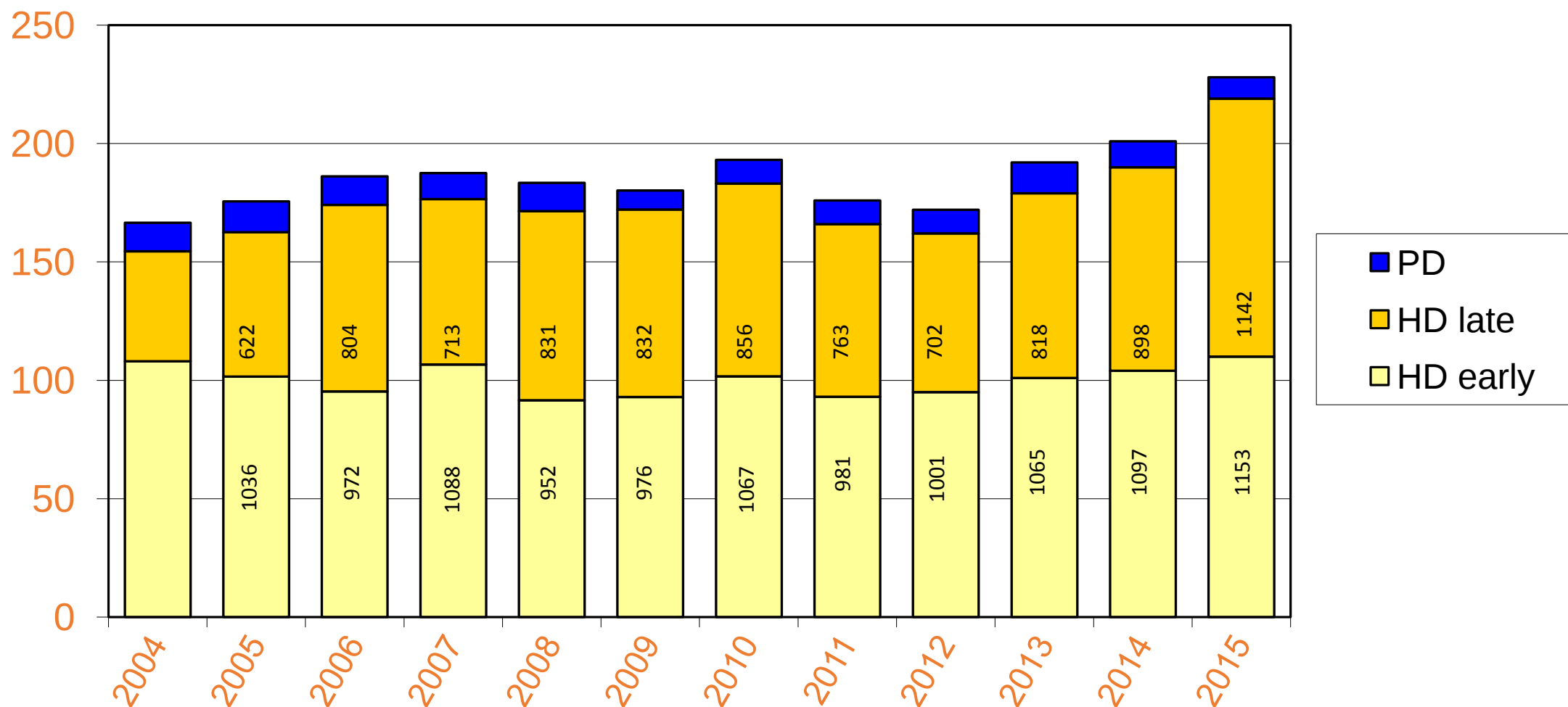
Number of patients on 31.12.2015: HD: 6203 pac. PD: 465 pac.(6,9%)
TPL: 4526 pac.(on 31.12.2014)

Number of prevalent patients in PD (on 31. 12.)



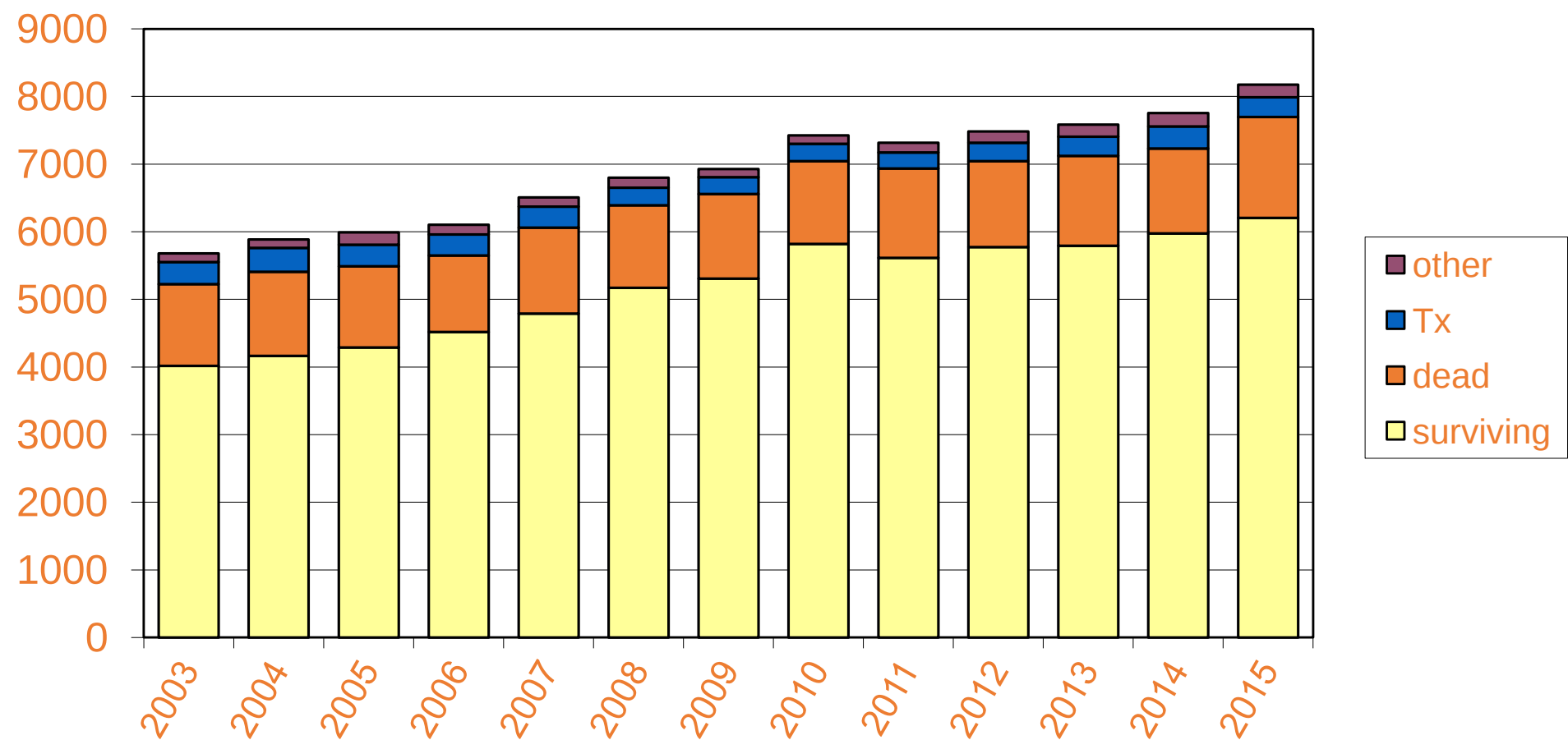
Incident patients starting dialysis treatment (early vs. late referrals HD and PD)

pts/1 mil. pop.(PMP)



Changes in patients number treated by chronic HD

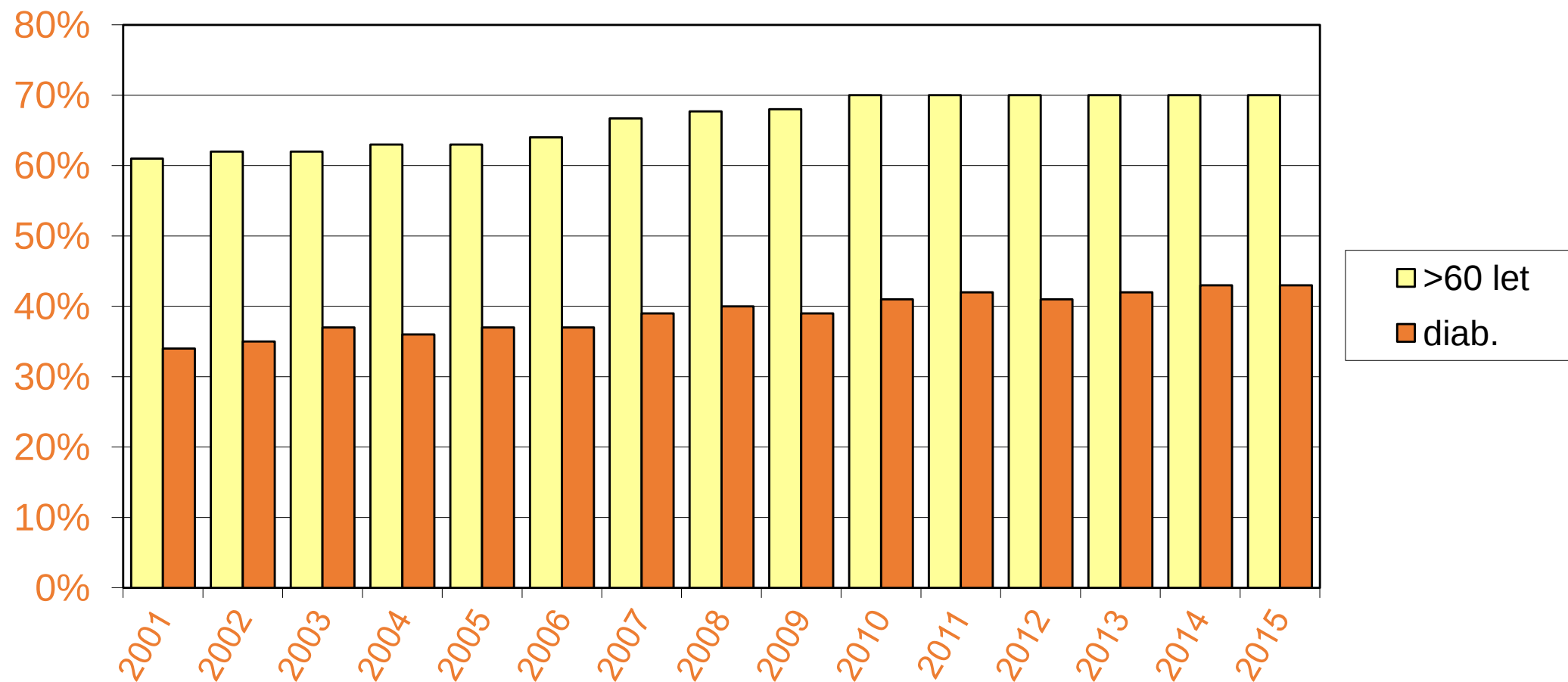
(during 2015 period on hemodialysis registered total 8176 pts)



2015: surviving on 31.12.: 6203 dead: 1493 transplanted: 290

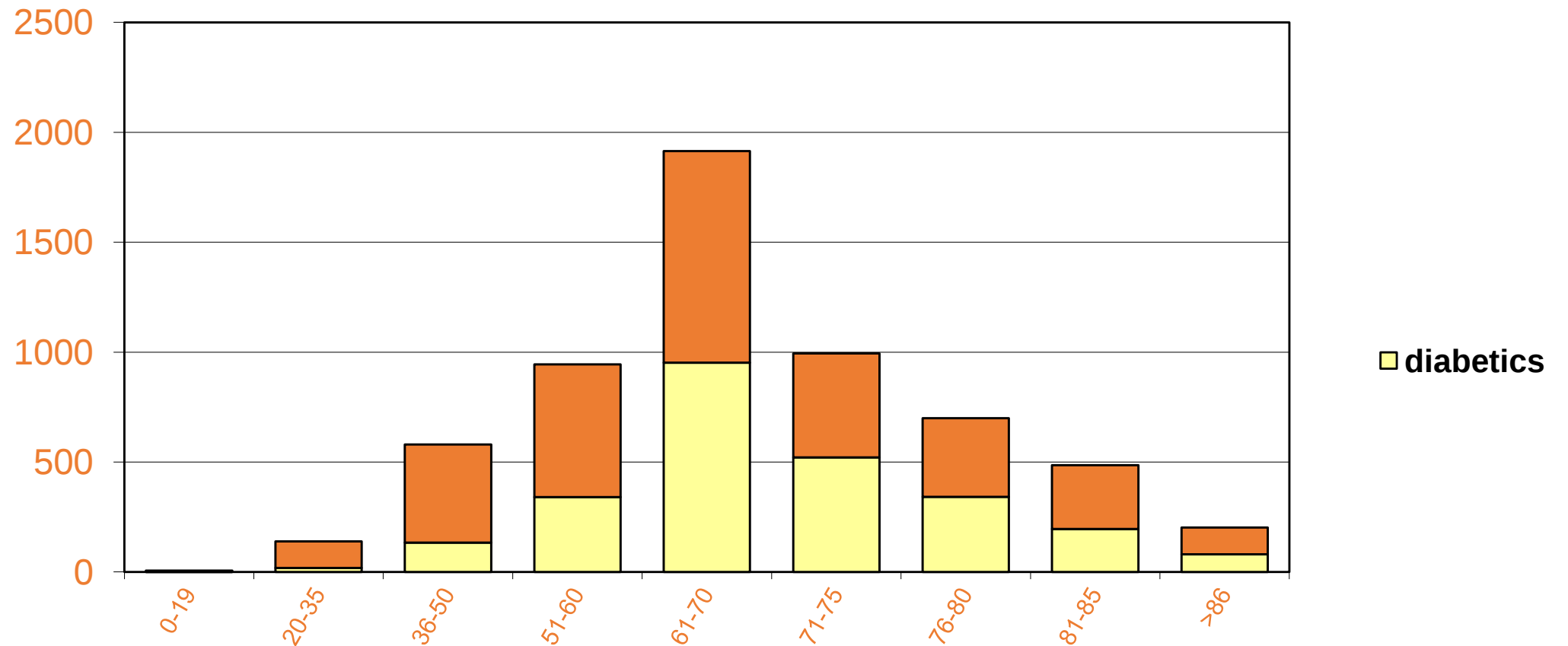
Patients older than 60-yr and diabetics in HD

(n=5965 pts)



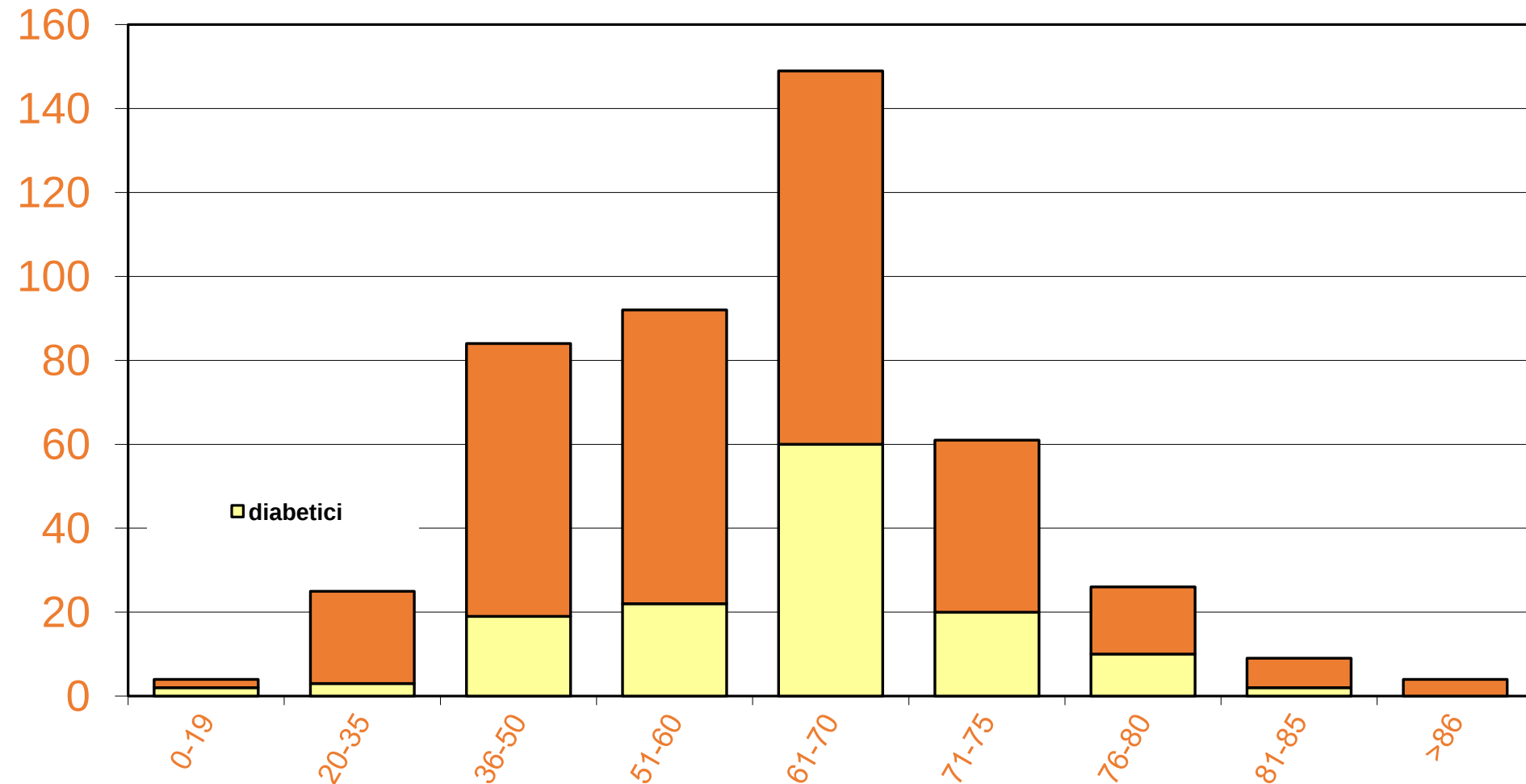
Patients age groups in HD

(n=5965 pac.)

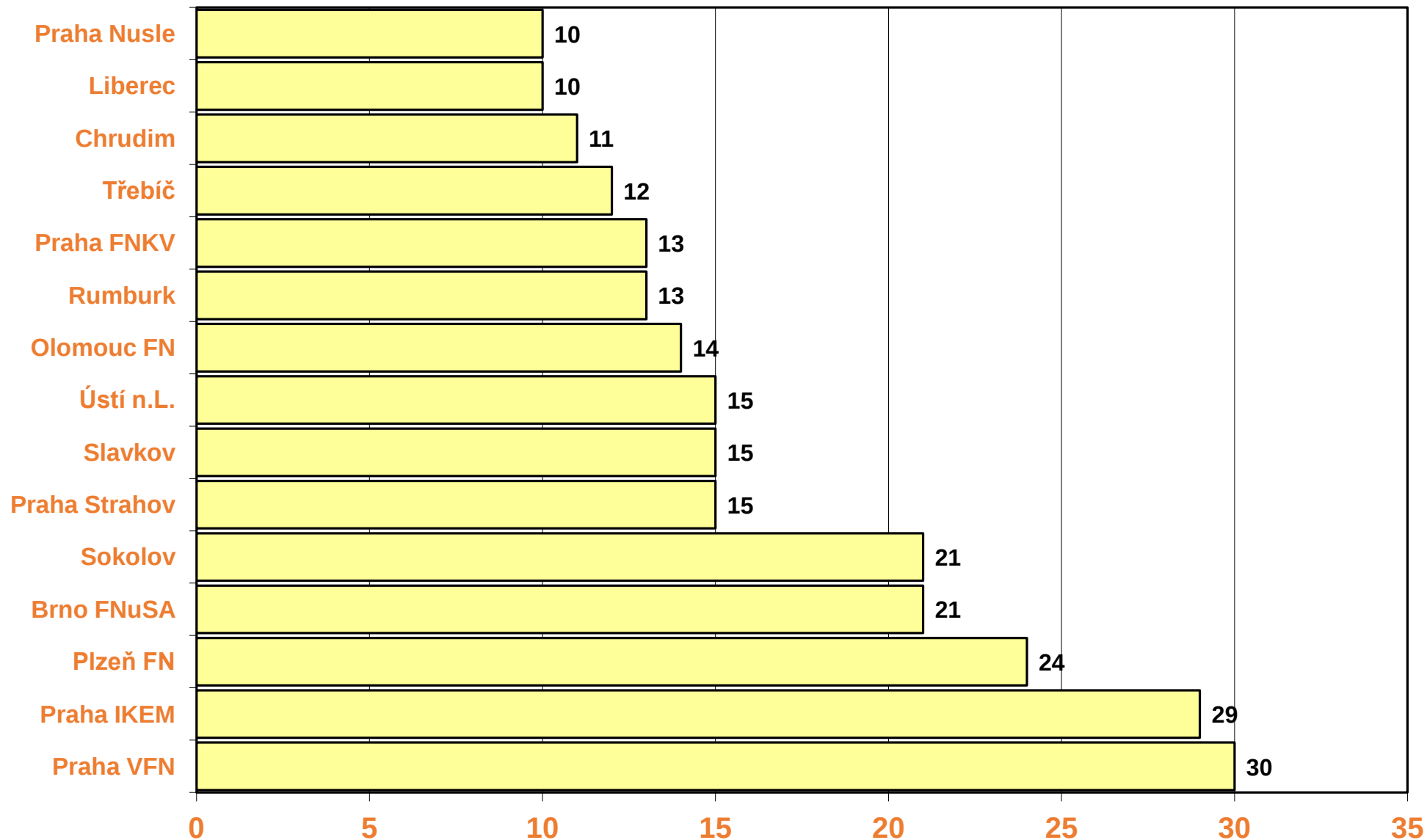


Patients age groups in PD

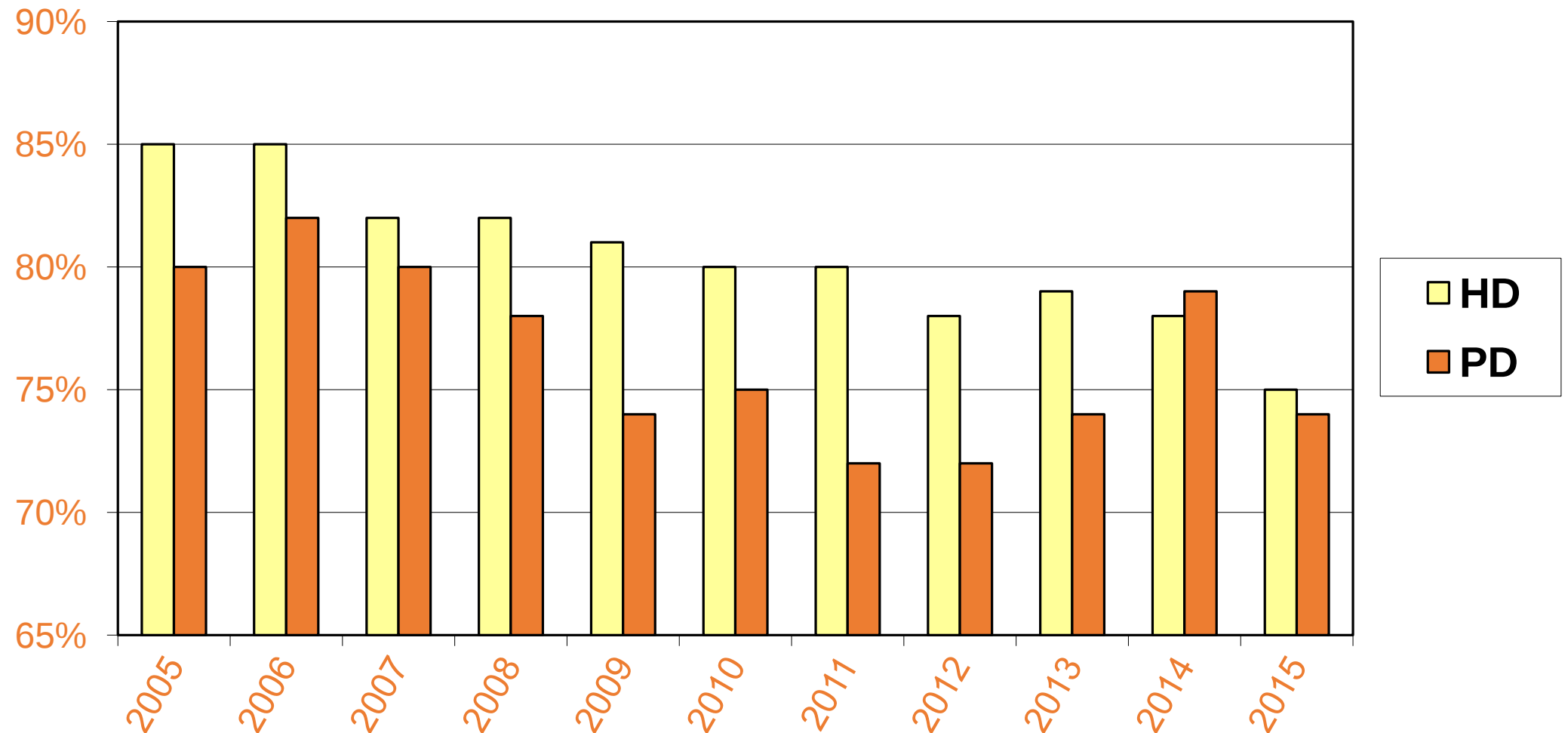
(n=454 pac.)



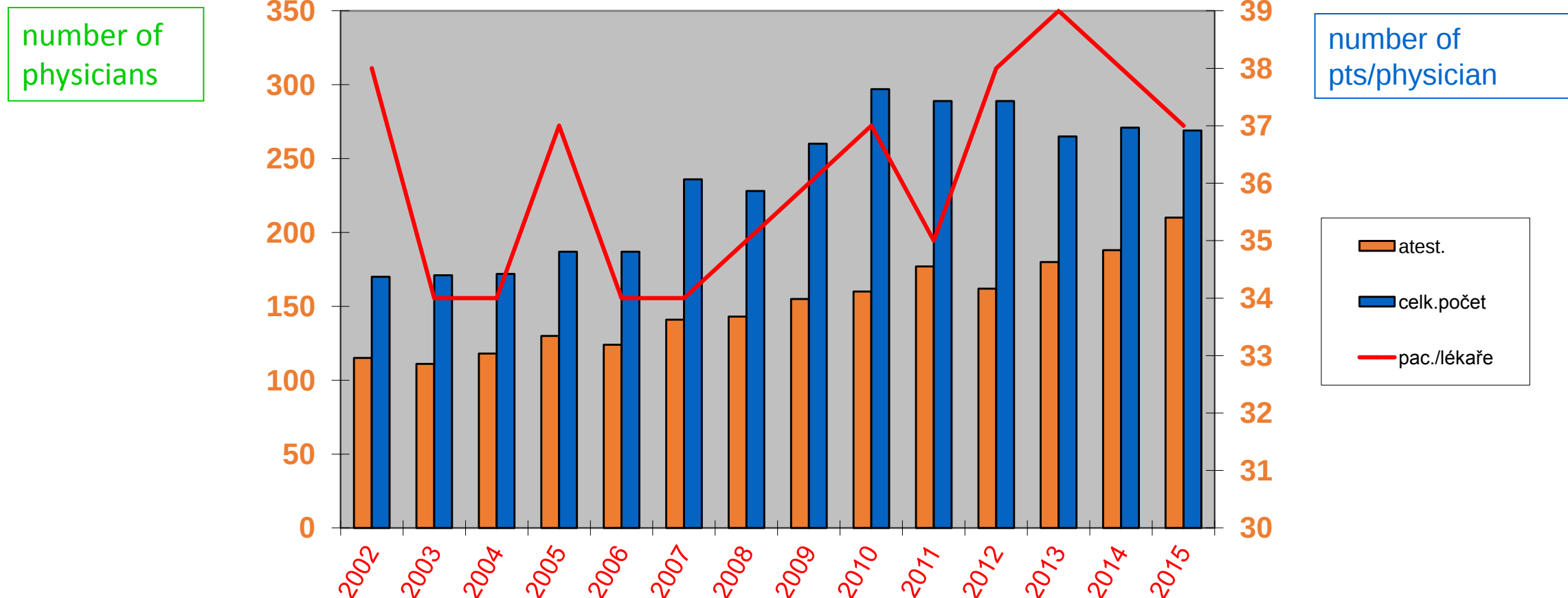
Dialysis units (n=15) according to PD patients 2015 (n >= 10 pac.)



Percentage of patients in dialysis treatment up to 3-ys

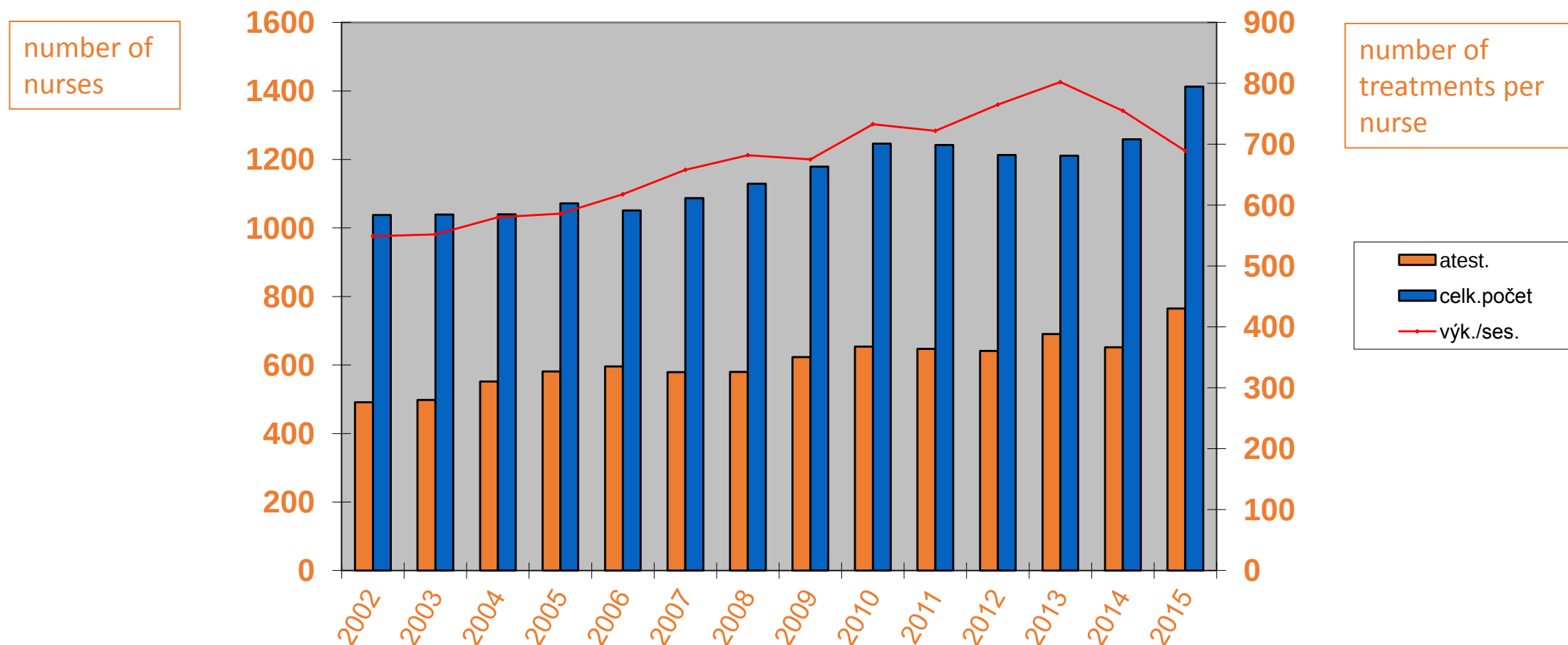


Staff on dialysis units in Czech Republic: number of physicians



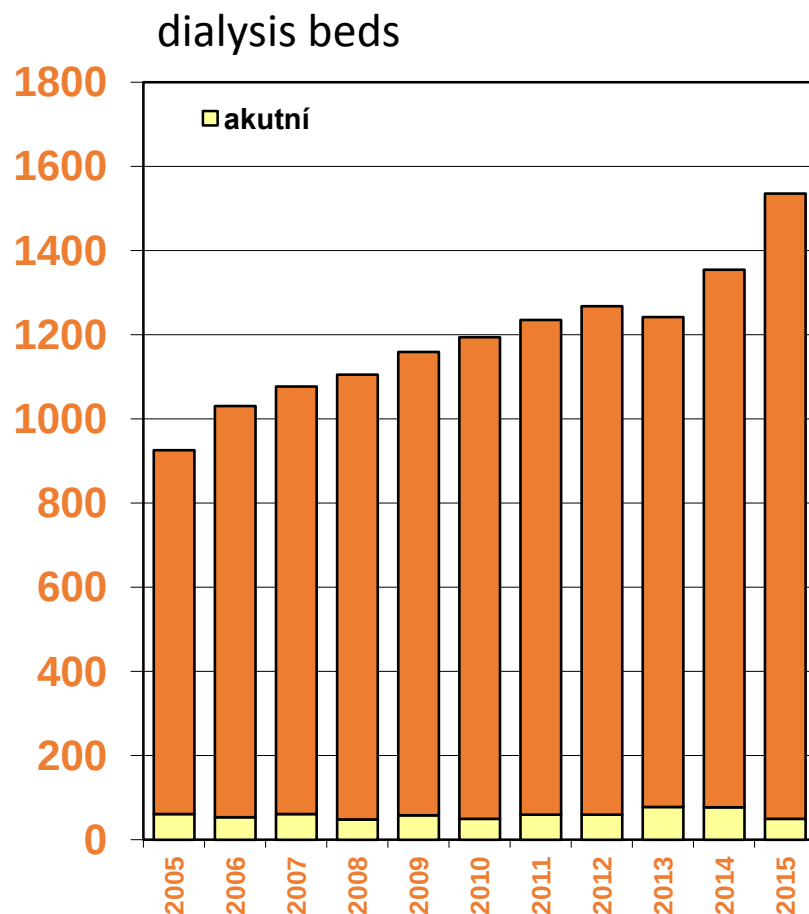
2015: physicians total: 269, certified in nephrology: 210 (78%) = 20.0 PMP
 number of pts on chronic dialysis th per one nephrologists: 37

Staff on dialysis units in Czech Republic: nurses

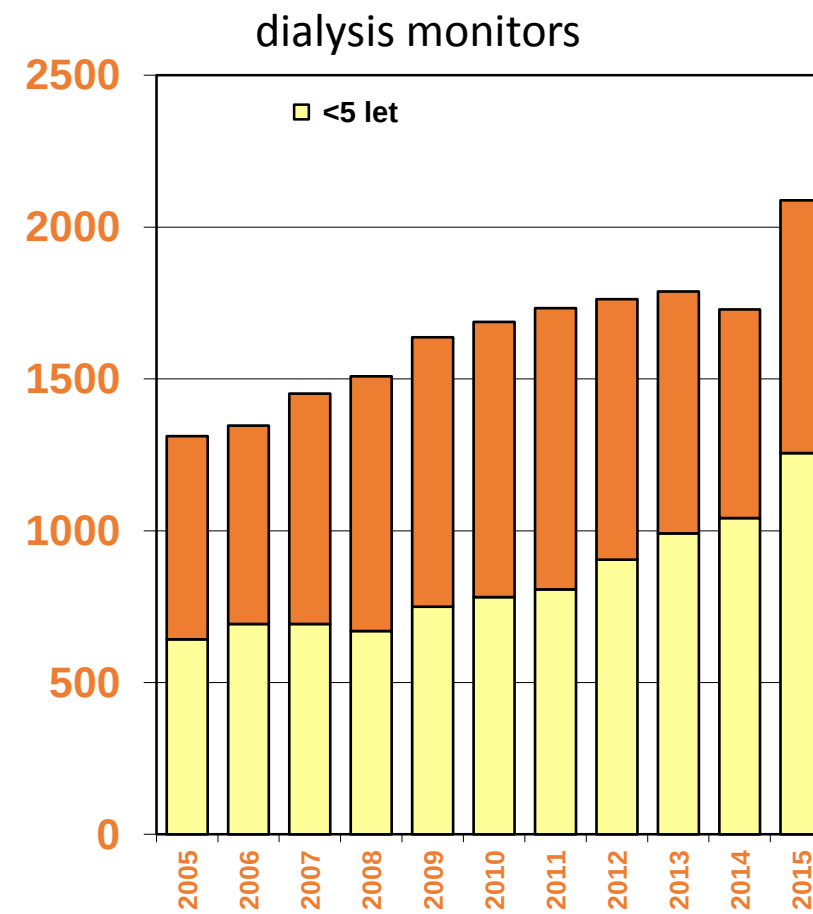


2015: Nurses total: 1413, certified in nephrology 765 (54%)
number of treatments per 1 nurse: **689**

Number of dialysis beds and dialysis monitors



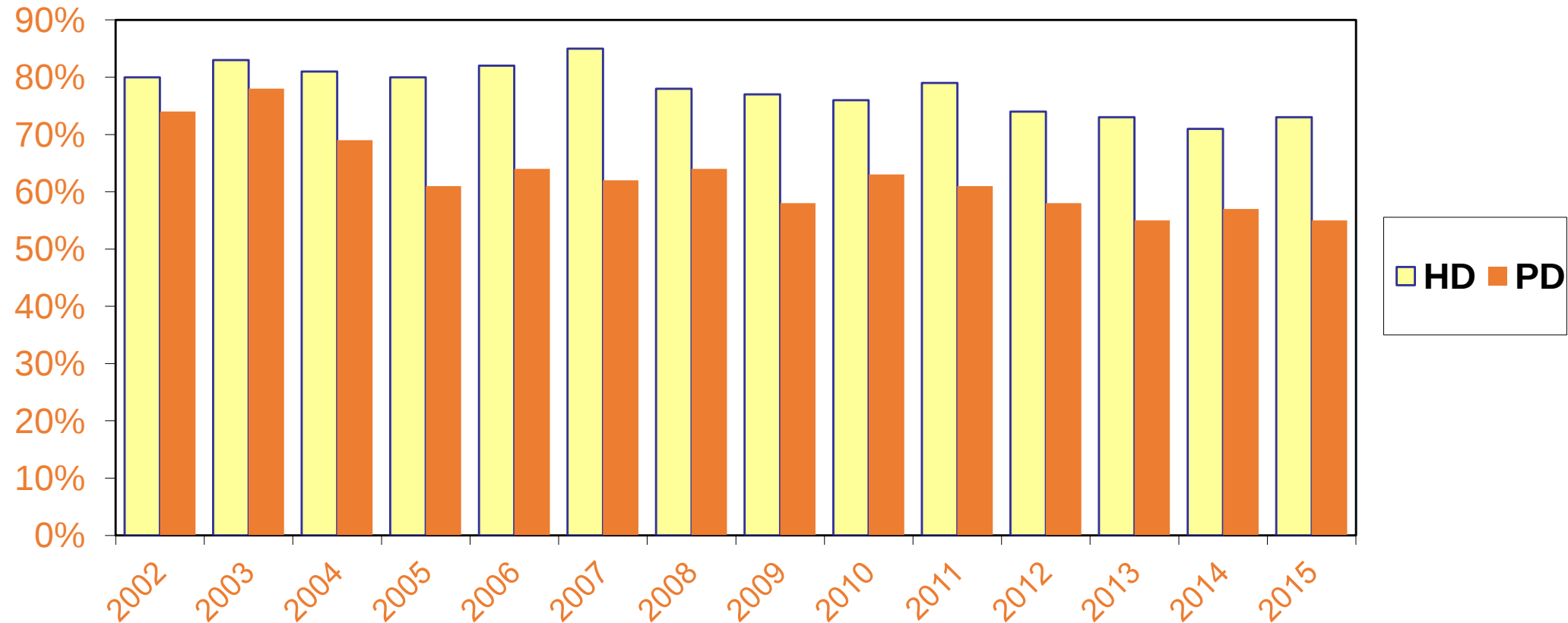
2015: dialyzačních lůžek: celkem 1536
chronických 1486
akutních 50



Dialyzační monitory: celkem 2088
z toho < 5 let 832

ESA treatment

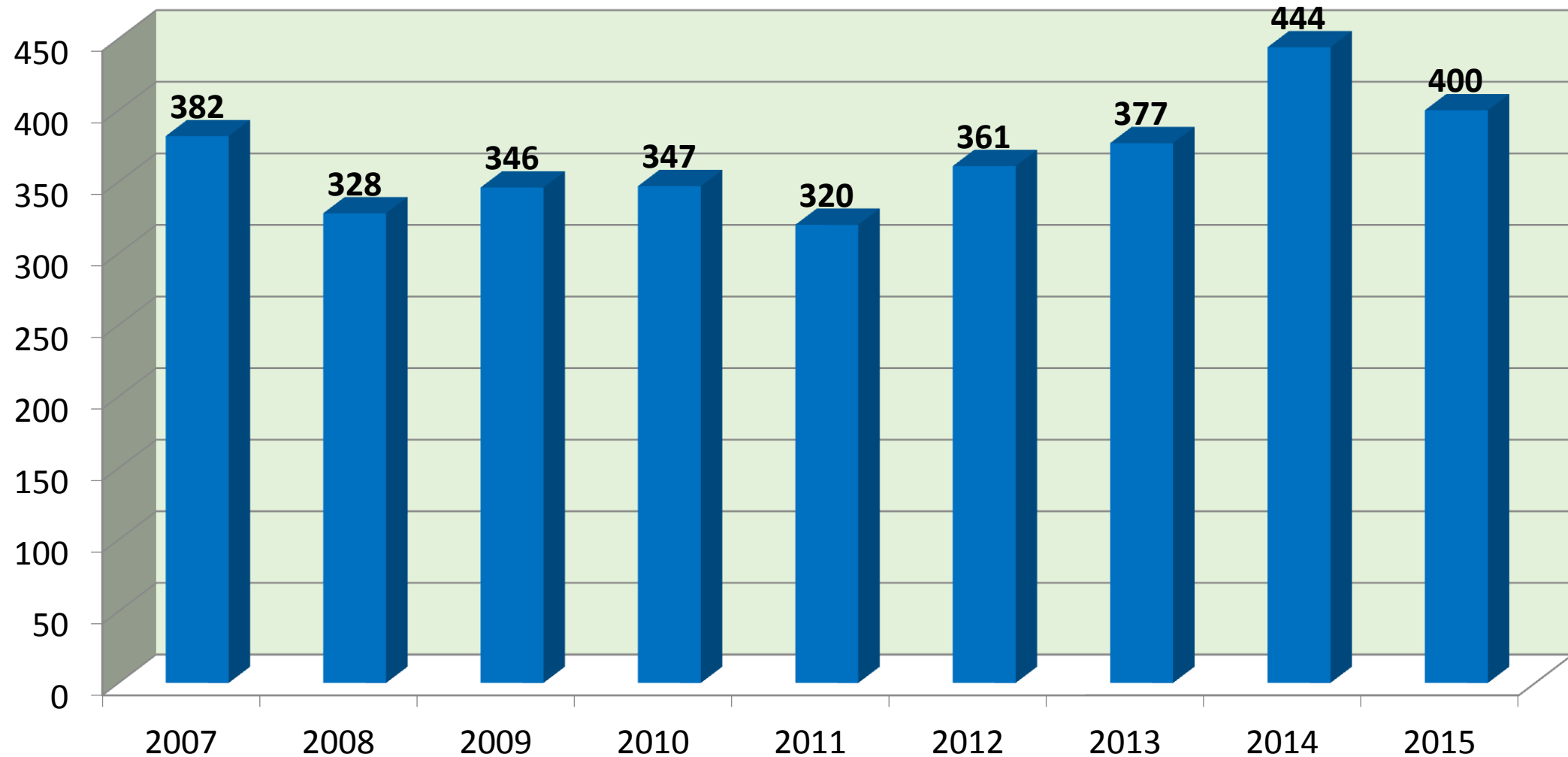
percentage of treated patients according to treatment modality



HD: treated 4553 pac. (**73%**), mean dosage 5787 j./pac./týden
PD: treated 256 pac. (**55%**), mean dosage 4626 j./pac./týden
predialysis out-pts.: treated 918 pac.

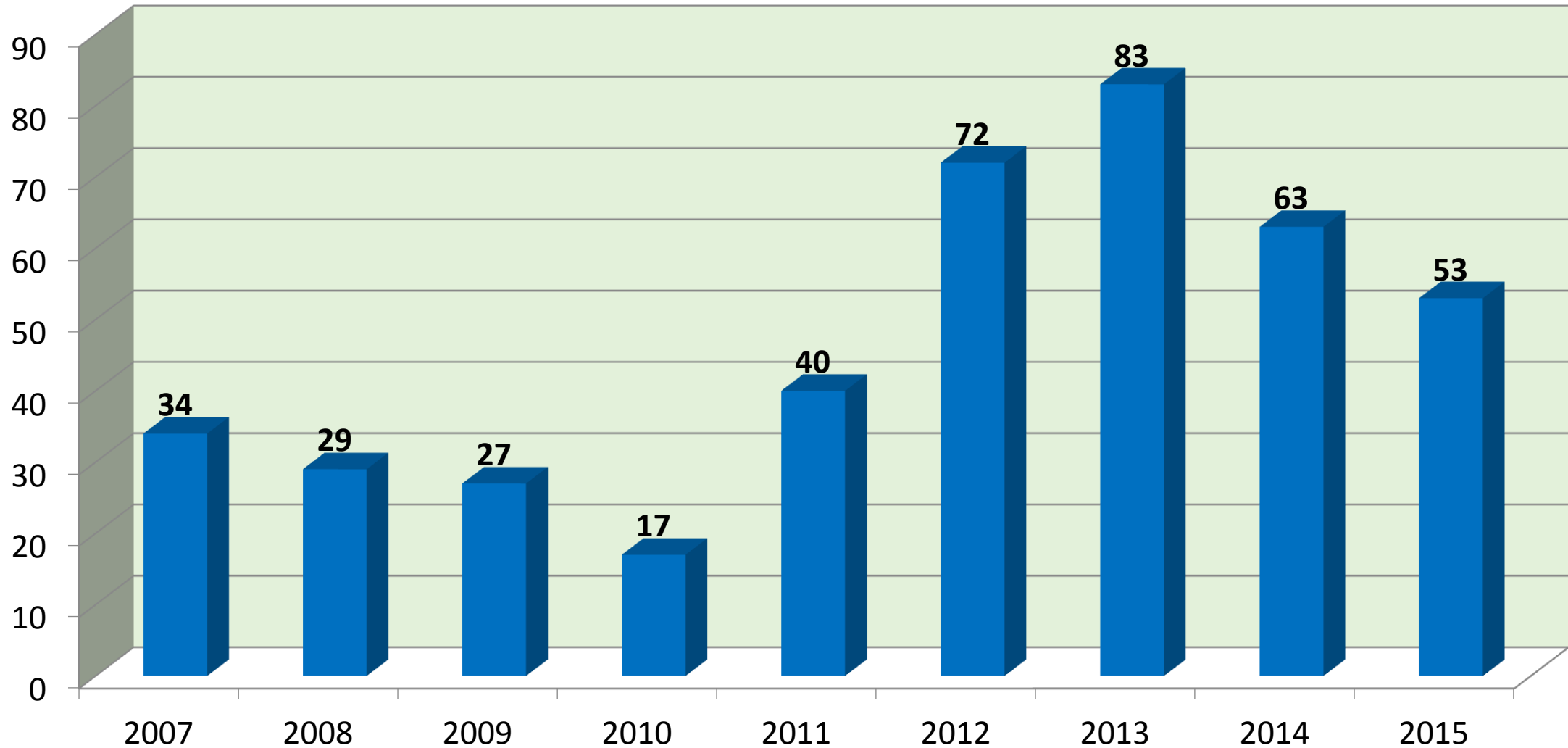
Kidney transplants in CR (2007 – 2015)

kadaver donors

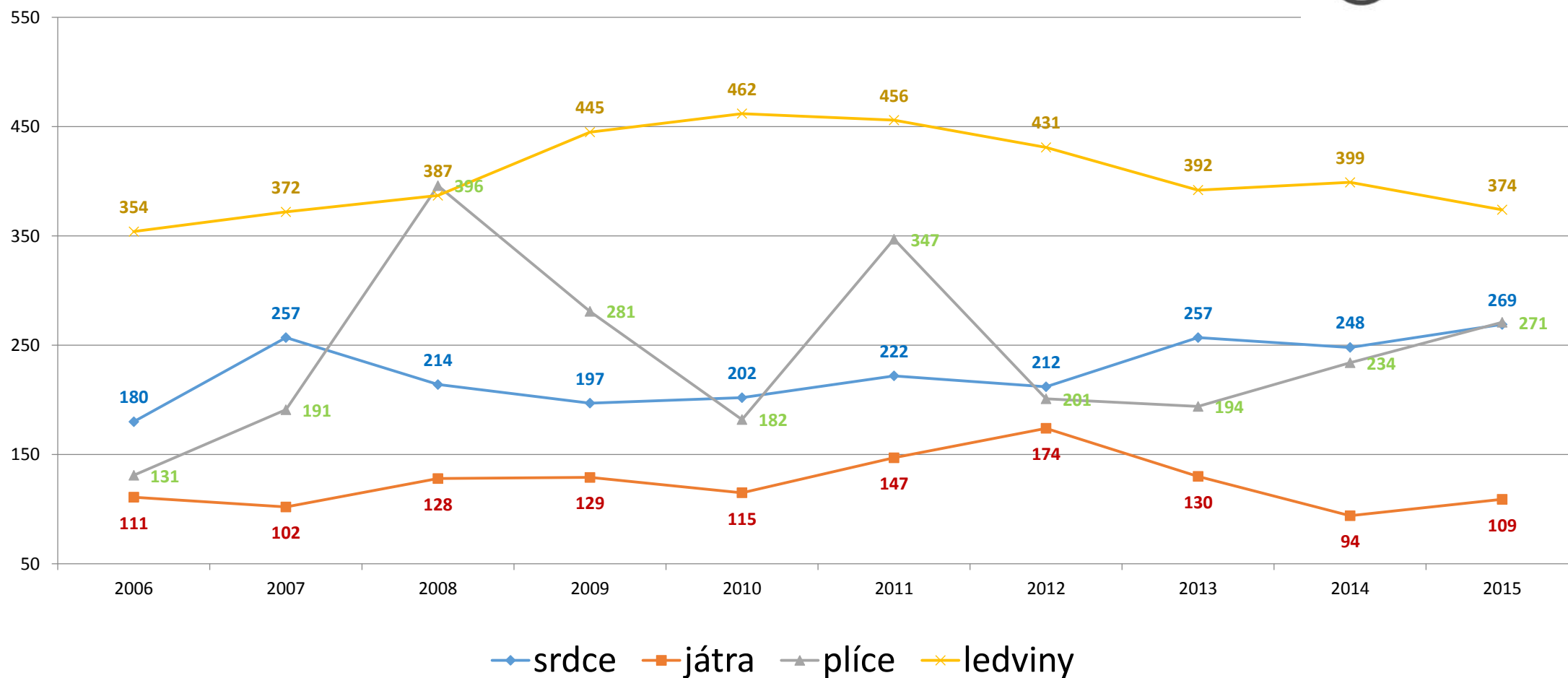


Kidney transplants in CR (2007 – 2015)

living donors



Mean waiting time (days) for different organ transplantation (2006 – 2015)





Registry of Dialysis Patients:

Selected examples of 2015 data – reviews based on individual patient's data reporting

RDP: status and principles

- established 2005 as a project of CNS
- voluntary data report
- financially supported and owned only by CNS
- based on individual patient data report
- fully registered by state authorities
- data report quarterly (trends)
- data transfer only electronically, own protected network

Regularly reported data

A/ 1x yearly - Data on dialysis centre

- Centre - technical data: type (state-owned / private); number of dialysis stations (total, out of those acute), number of shifts per week
- Medical equipment: dialysis monitors (numbers, on-line data collection from monitors),
 - water treatment (methods of treatment, disinfection frequency, frequency quality tests specified limits)
- Staff: Number of physicians, nurses, technicians, and others

B/ 4x yearly - database of the RDP-patients updated – 81% of all patients were registered on 31.12.2015

- Identification (encrypted): First name, Name, ID, Dial. Centre, Insurance company
- Base data: age, gender, primary dg. (cause of kidney failure, date of diagnosis), other dg. (at RRT start), vaccination (type, date), date of the RRT start and the 1st method used
- Vascular access (at RRT start): type, localisation, date of creation, date of failure
- Residual renal function (at RRT start): residual diuresis, eGFR
- Termination of treatment: date, reason

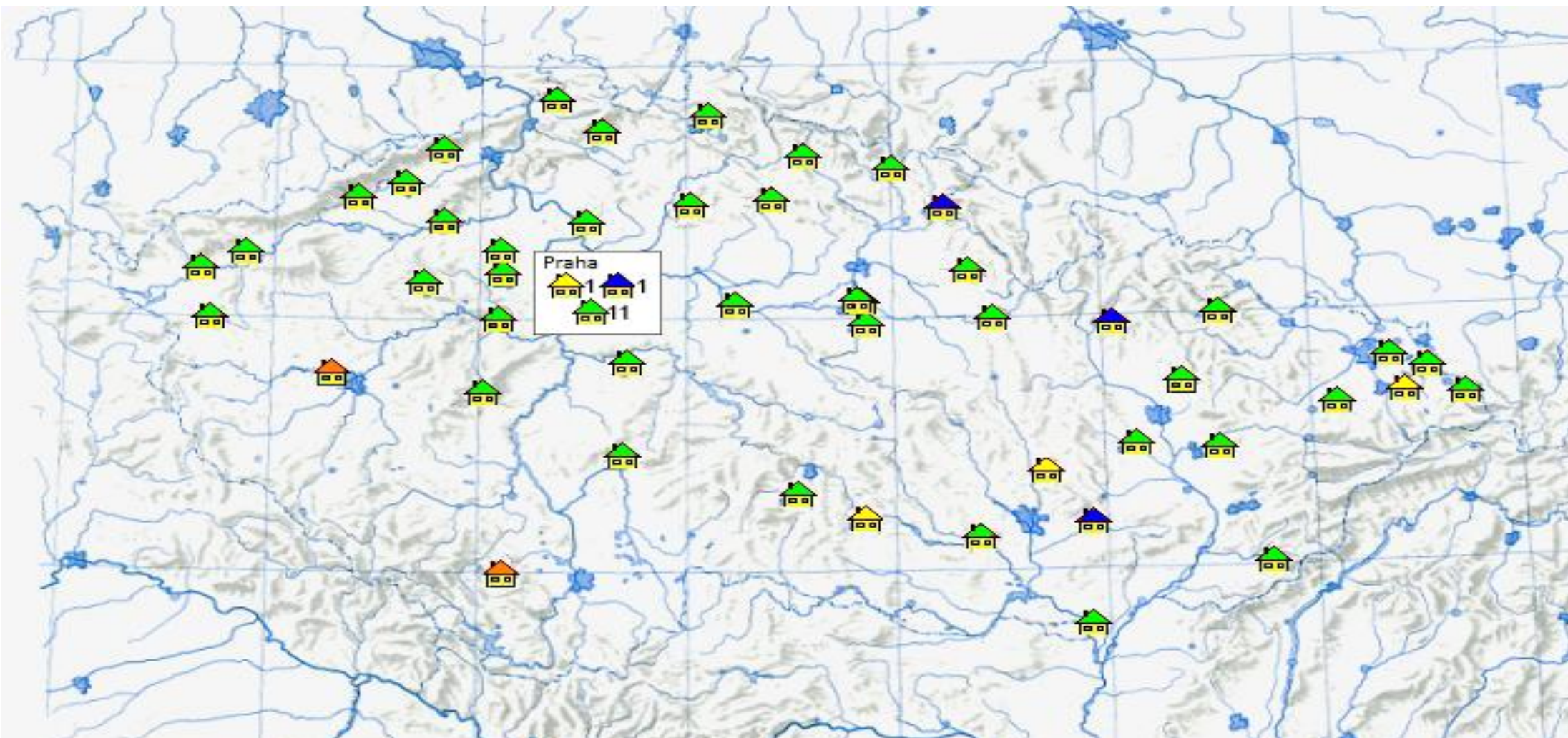
C/ 4x yearly- follow-up data of current patients

- Update of patient's basic data insurance company, new/other dg., parent dialysis centre, vascular access, vaccination
- **Current quarterly data:**
 - HD: number of HD per week and dialysis time, prescribed QB, dialyzer (hf/lf, membrane material, surface area), urea1, 2, 3, eKt/V, PCR
 - PD: mode, cycler (yes/no), total exchanged volume (l per 24 hours), dialysate type, weekly creat. clearance, Kt/V-PD
 - Pharm. treatment: EPO (yes/no, weekly dose), antihypertensives, phosphate binders, vit.D, hypolipidemics,
 - Biochemical data: Ca, P, PTH, Htc, Hb, HBSAg, HCV, HIV

Dialysis units – full reports

Celkový počet HDS v ČR: 102
z toho s RDP komunikuje 58 HDS (57%)

Celkový počet HD a PD pacientů v ČR (ke 31.12.13): 6310
z toho v RDP evidováno 4000 (65%)

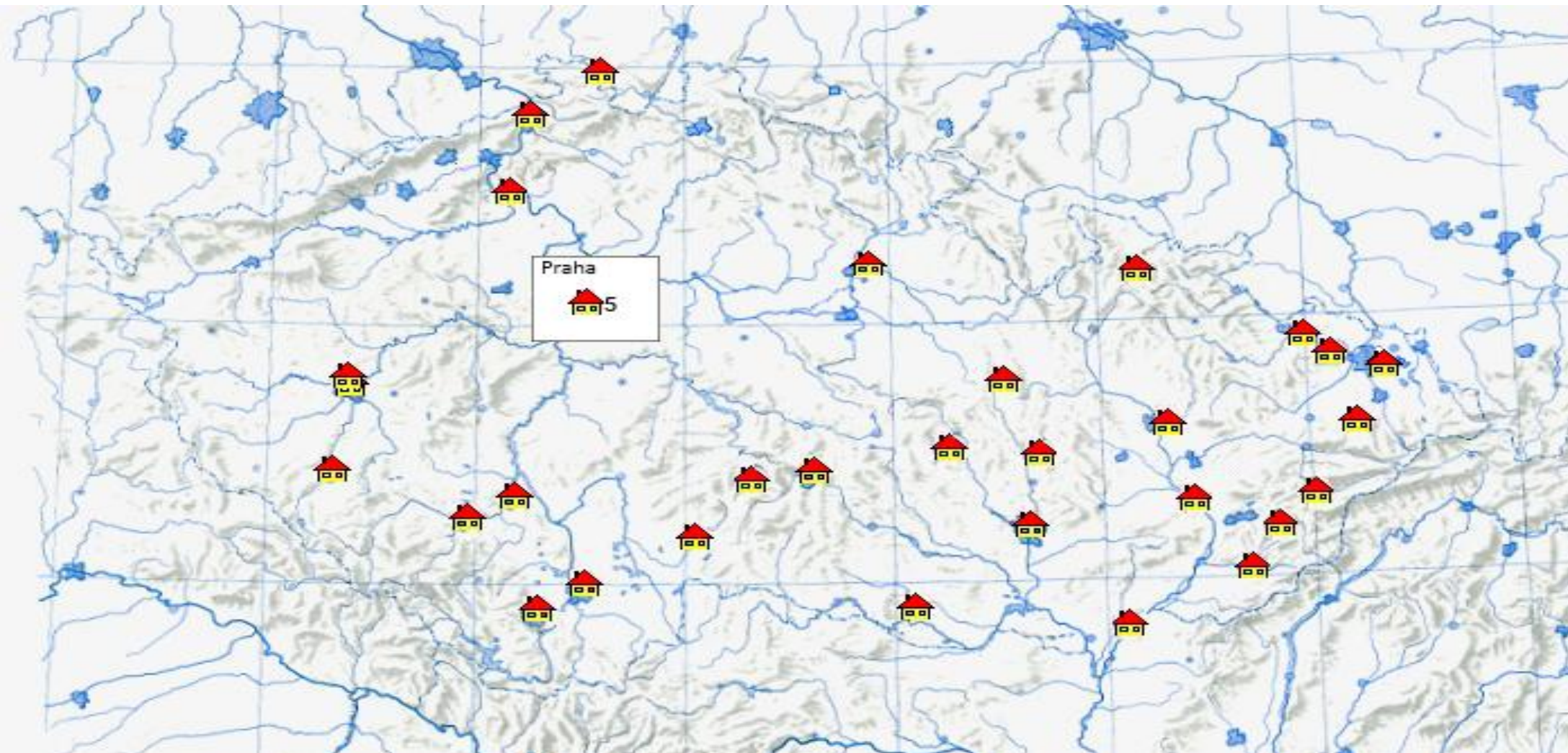


-  -přispívající střediska 4x/r
-    -3x, 2x, 1x /rok

Dialysis units – irregular/no reports

Celkový počet HDS v ČR: 102
z toho s RDP komunikuje 58 HDS (57%)

Celkový počet HD a PD pacientů v ČR (ke 31.12.13): 6310
z toho v RDP evidováno 4000 (65%)



- nepřispívající střediska

Breweries in CR....



Following data and outcomes of RDP are available:

A/ current on-line data of Czech Rep.

- the same as Yearbook, but based on individual data reports

B/ back-report: dialysis unit data comparison to the mean values of the CR

- only for private access

C/ other statistics – specific data

Newly open 2016 – with identification of each dialysis unit:

D/ interactive graphics – basic lab values

E/ waiting list and Tx data

A/ On-line data RDP

- currently 11 parameters are displayed routinely
- in principle, all combinations of all registered parameters are available

Registry of dialysis patients – home page: www.nefro.cz



WELCOME TO NATIONAL REGISTER OF PATIENTS ON DIALYSIS

[Login](#)

[About RDP](#) [News](#) [Czech RRT data](#) [Presentations](#) [RDP Council](#) [Contacts](#) [Links](#)



Registry of
Dialysis
Patients

LOG IN RDP
Entry for registered users Dial.
centres - CZ



REGISTRY STATUS
RDP opened for entering data for
3. quarter 2016



ABOUT RDP

Registry of dialysis patients (RDP) is an activity of the Czech Nephrological Society (CNS), which is the sole owner of the collected data. Since 2006, the RDP serves the purpose of newly conceived collection of data from patients on regular dialysis treatment. It is based on prospective anonymized (both in terms of patient and centre identification) follow up of individual patients with quarterly collection of periodical data

LAST NEWS

09/12/2015
[WELCOME](#)

Welcome to our brand...

RDP – data collection

About RDP / Czech RRT data / National data

 Contributing centres

 Patients

 Treatment evaluation

 Mortality

 Cumulative survival

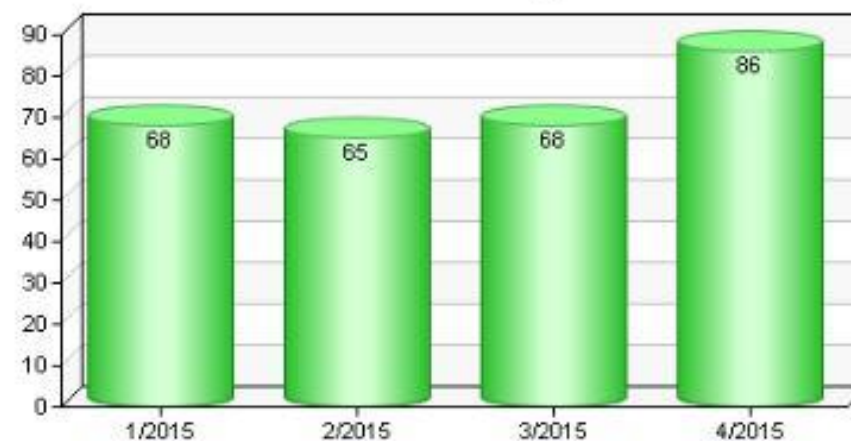
 Vascular access

 Comorbidities

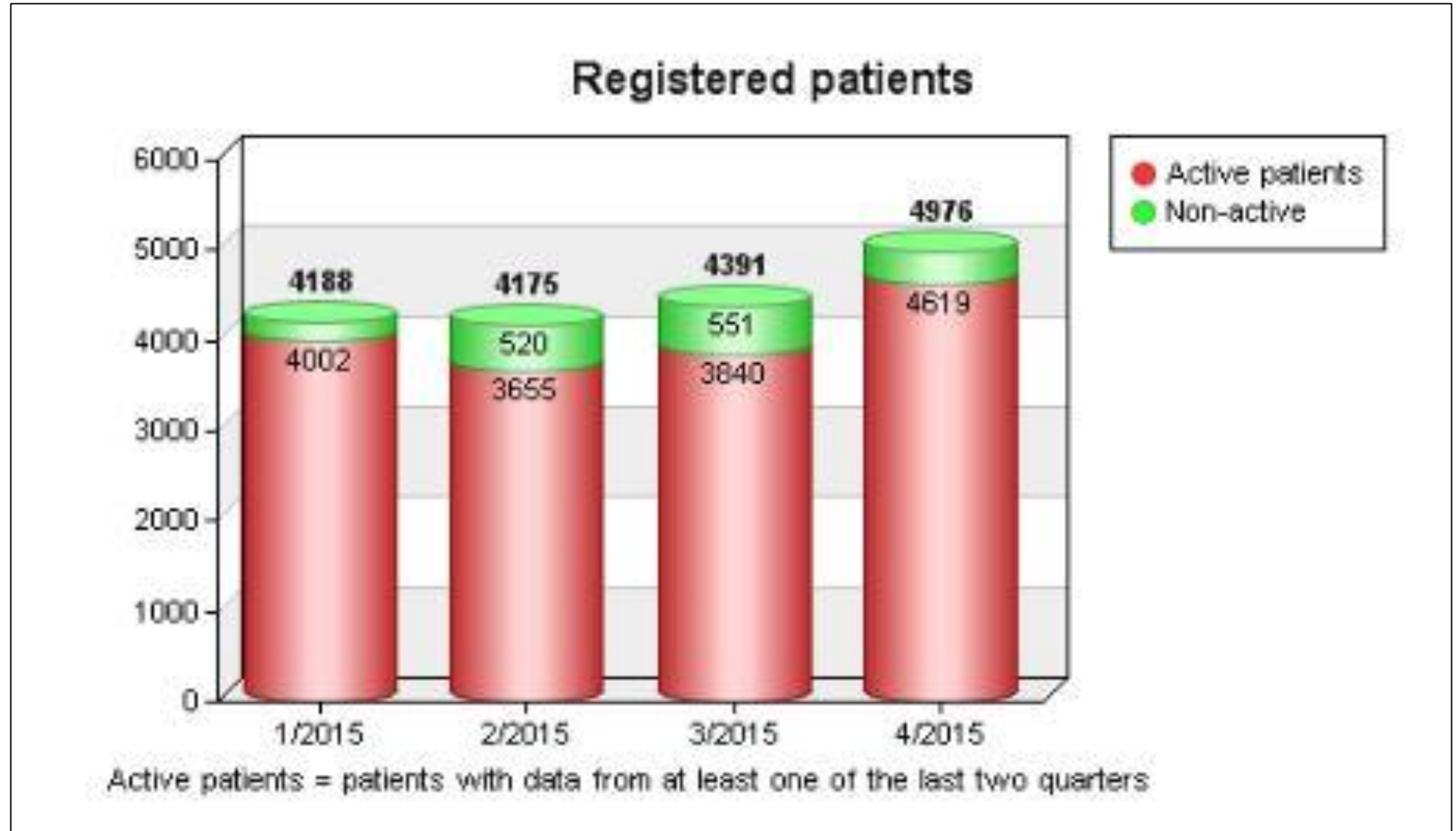
 Histogram of mean values

CONTRIBUTING CENTRES

Number of contributing centres

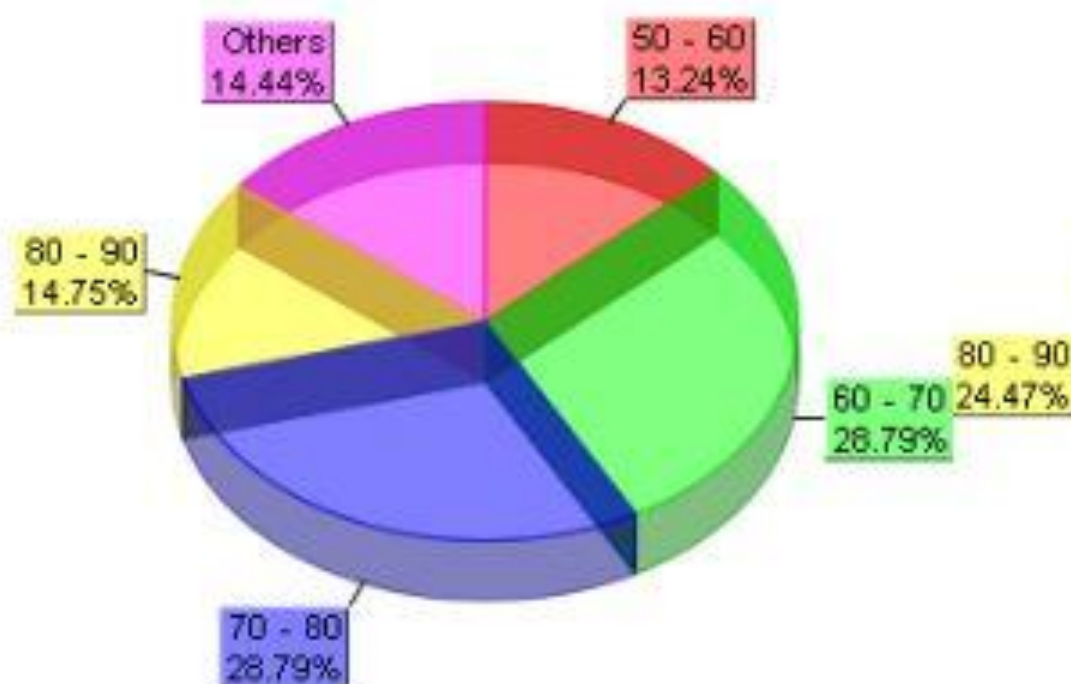


Numbers of registered patients



Age distribution of the patients

Males

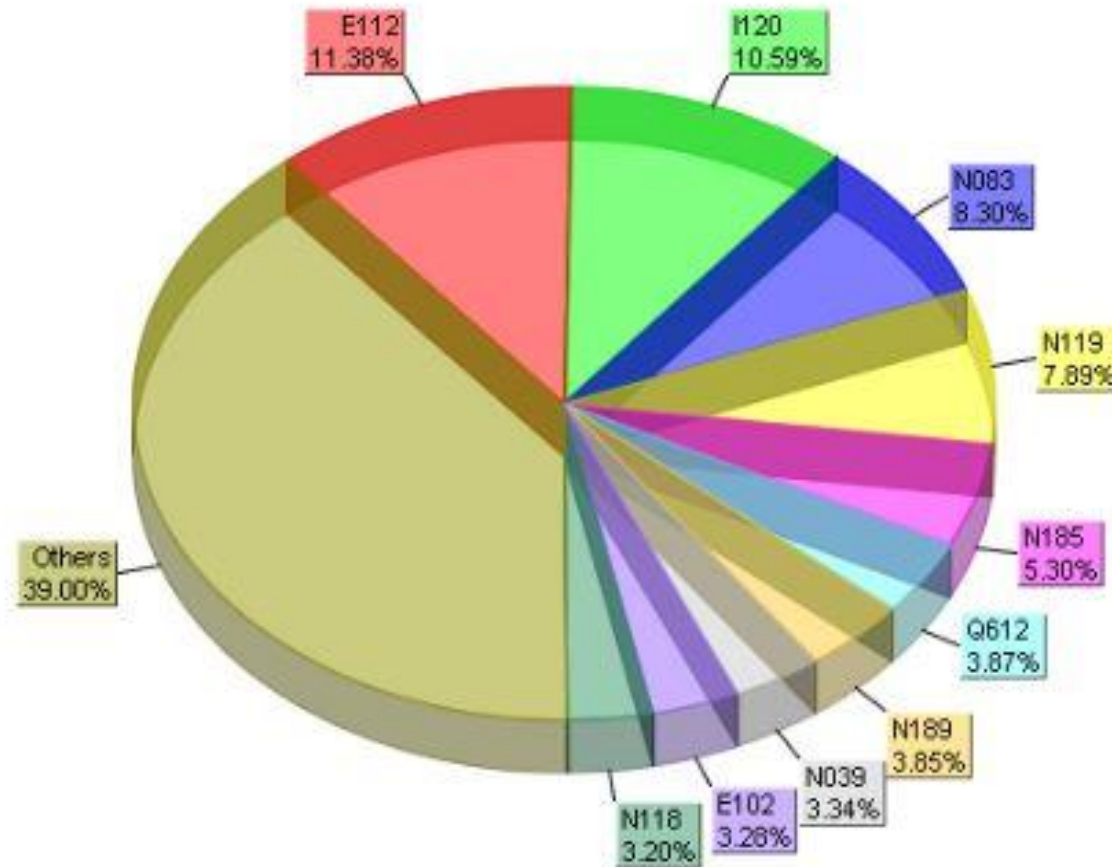


Females



Analysis performed for 3102 females and 4523 males registered at the end of 4/2015 quarter

data on-line RDP – **primary renal disease** (using ICD 10)
total 6,412 pts registered in 12/2015



Data filled-in for 6412 patients registered at the end of 4/2015 quarter
Acc. to ICD classification

≥ dg:

N119-TIN-PN
N180-CHRI n.s.
E112-diabetic nephropathy
N189-CHRS n.s.
I120-ICHL
N083-KSW
Q612-PCHL
E117-diab.nephropathy
N118-TIN other
N039-chron.GN

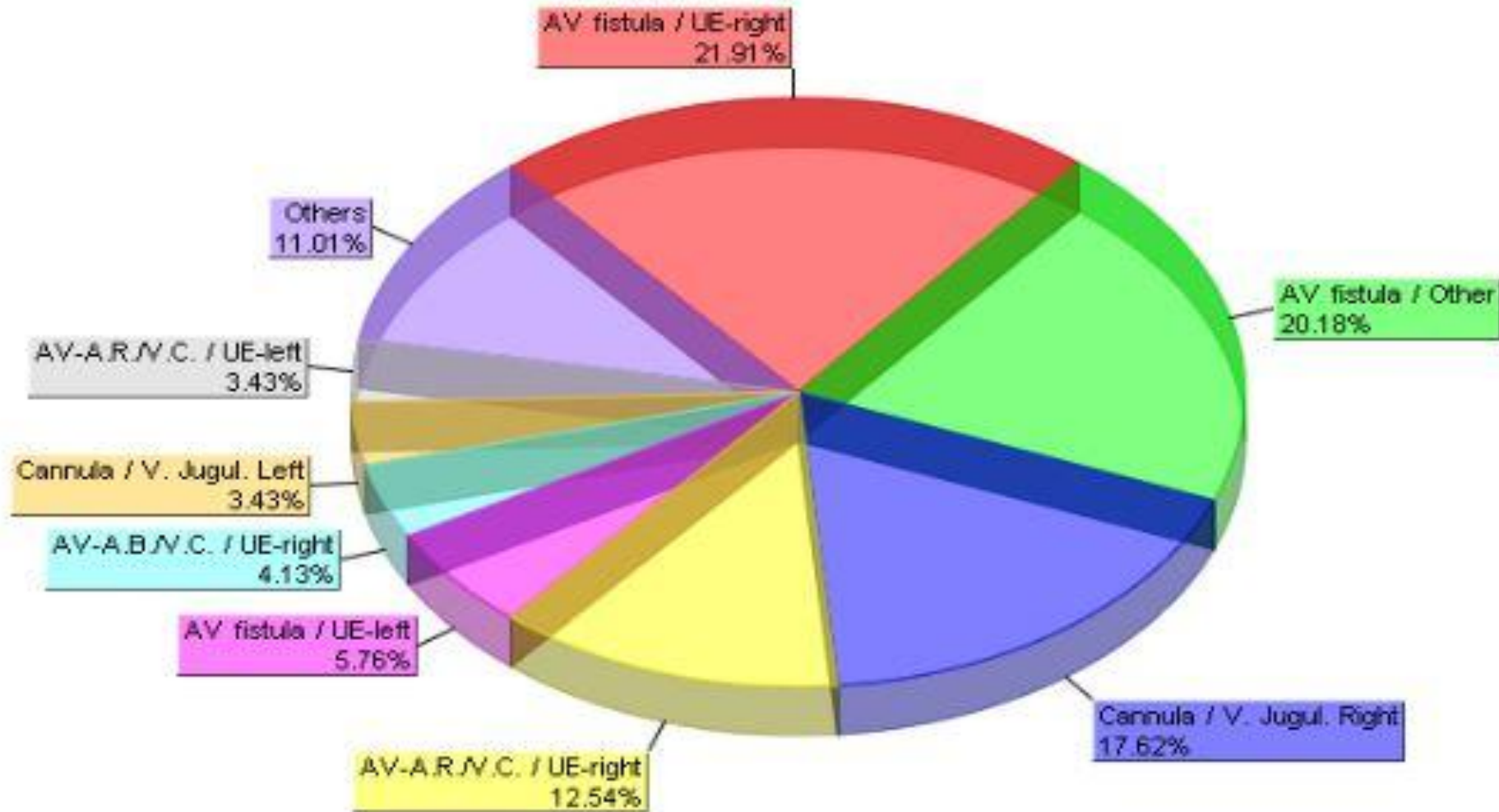
DN-total 19.7%

Primary renal disease (PRD)

PRD reported in **8146** patients

- Diabetes mellitus	27,0 %
- NDRD	7,3 %
- diabetic glomerulosclerosis	19,7 %
- Glomerulonephritidy	19,3 %
- CKD neurčená	18,4 % (!)
- Vascular nephrosclerosis	12,1%
- TIN	11,6%.
- PKD	5,8%

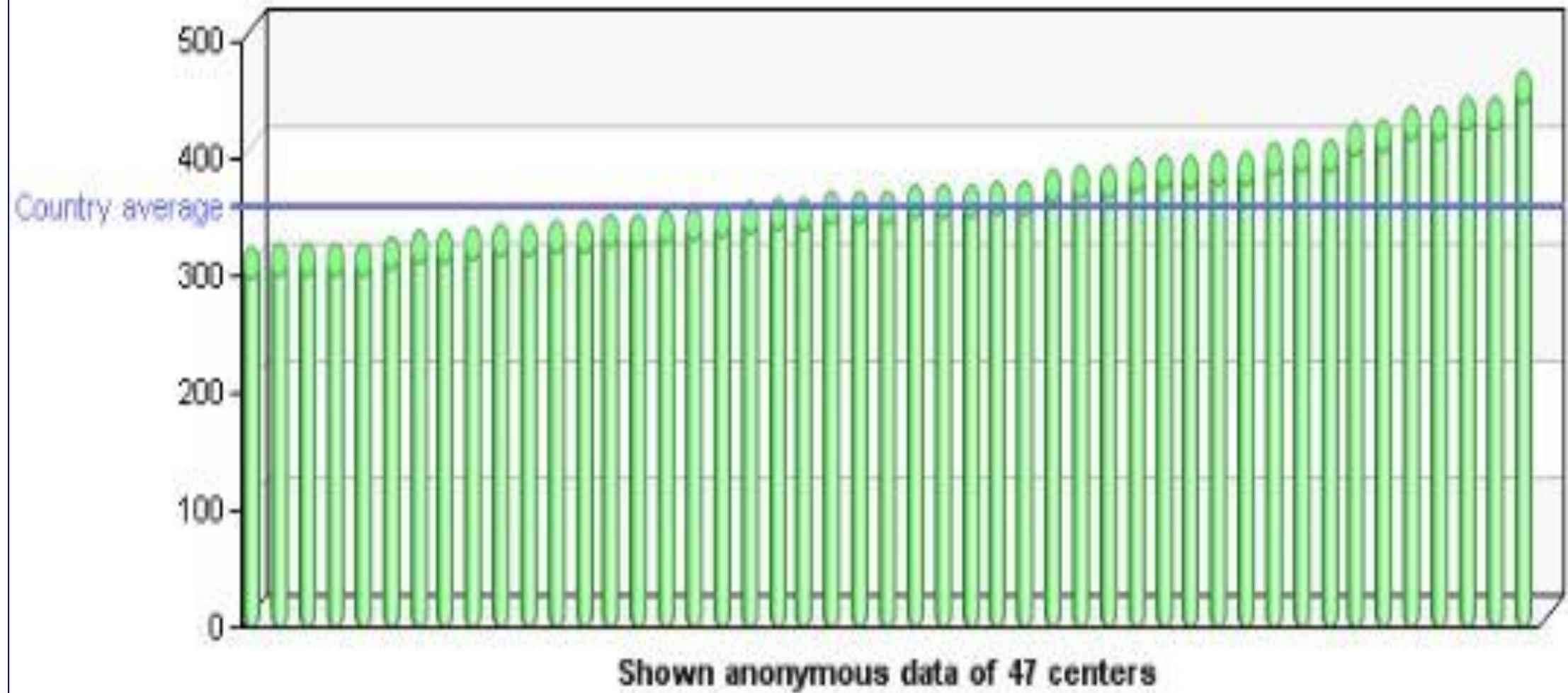
Vascular access (VA) counts according to type



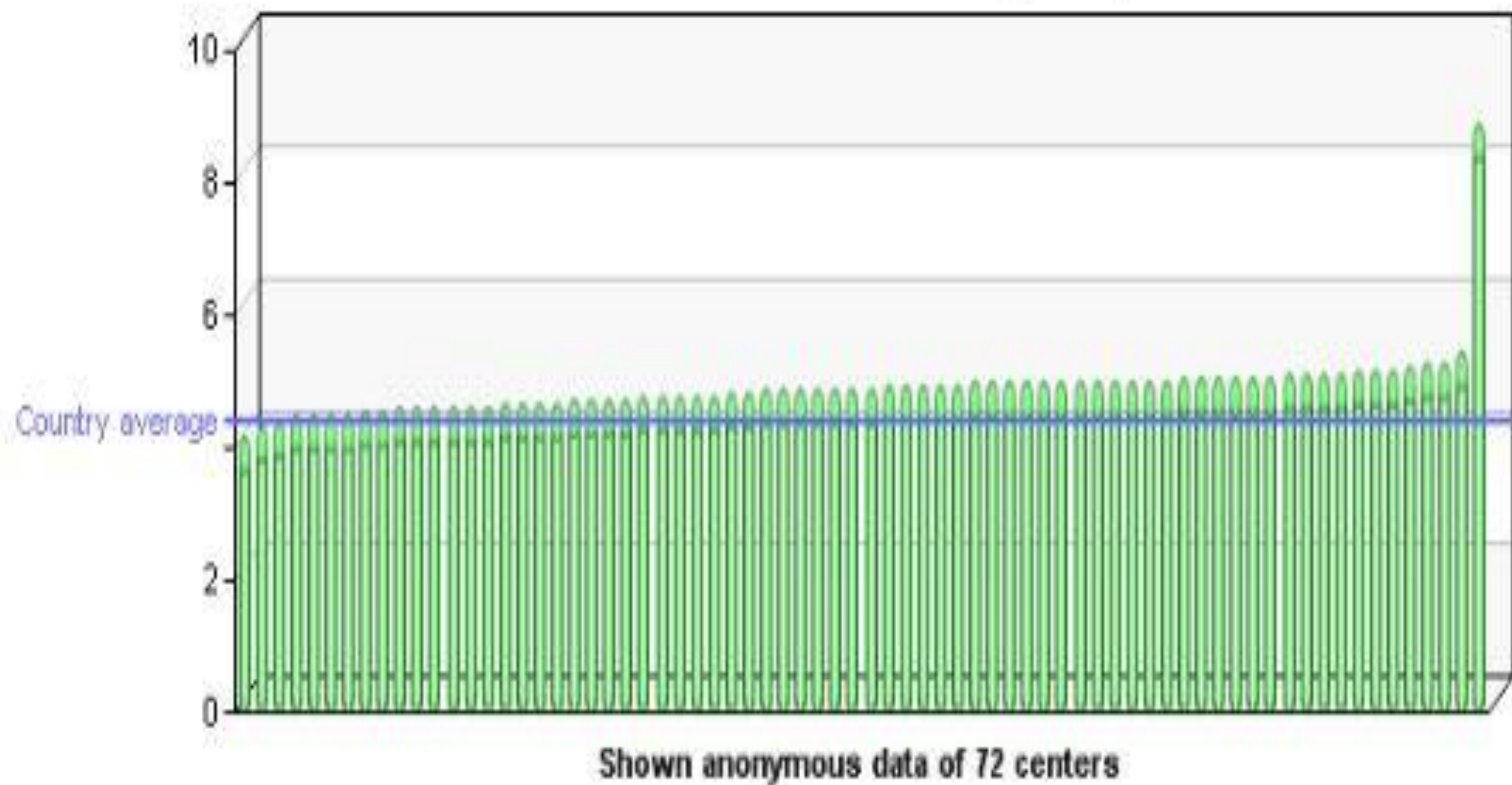
Data filled-in for 5887 patients registered at the end of 4/2015 quarter

N = 5887 pts
 AVF 67,9 %
 AVG 11.0 %
 CVC 21.1 %

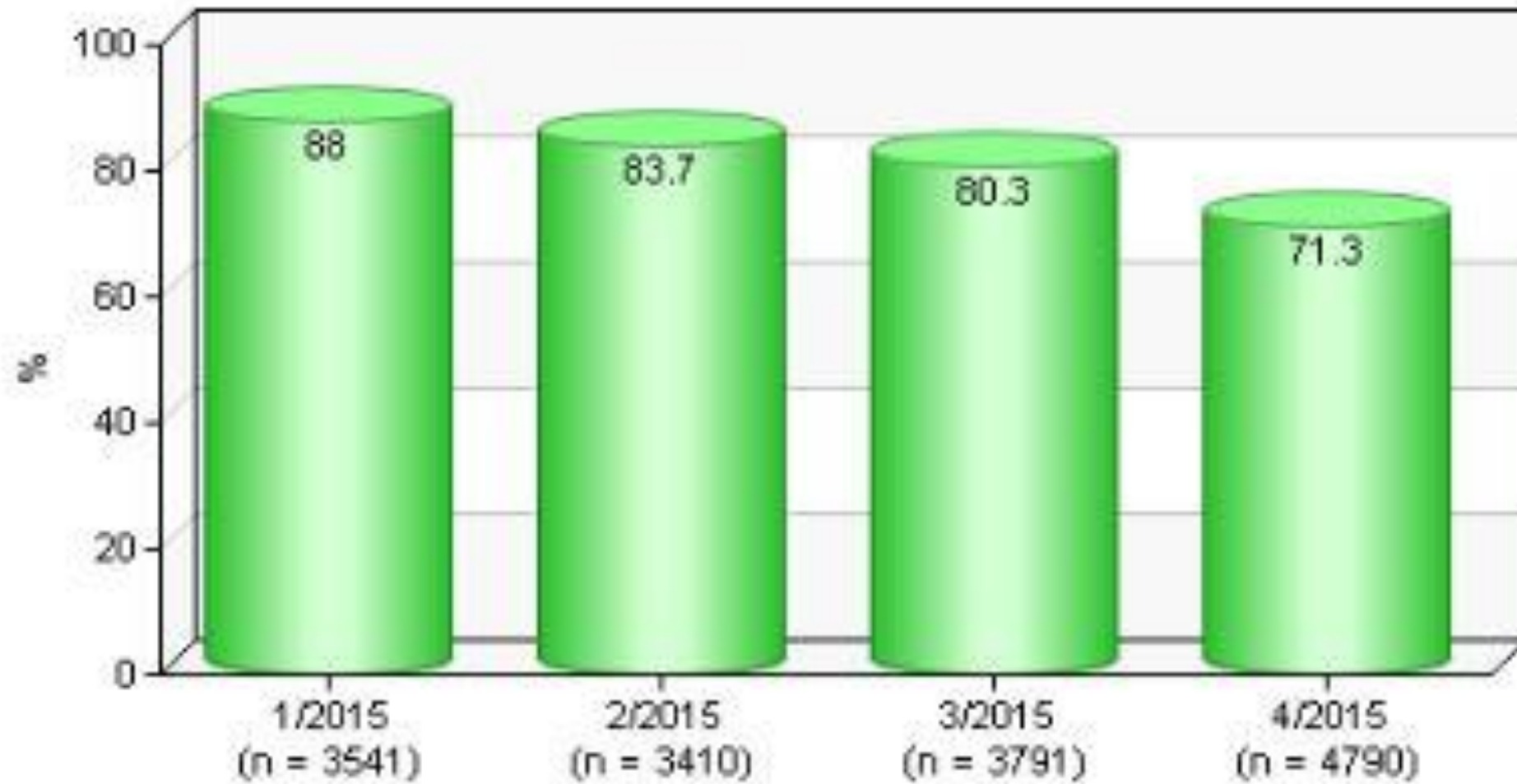
Prescribed blood flow Q_b [ml/min]



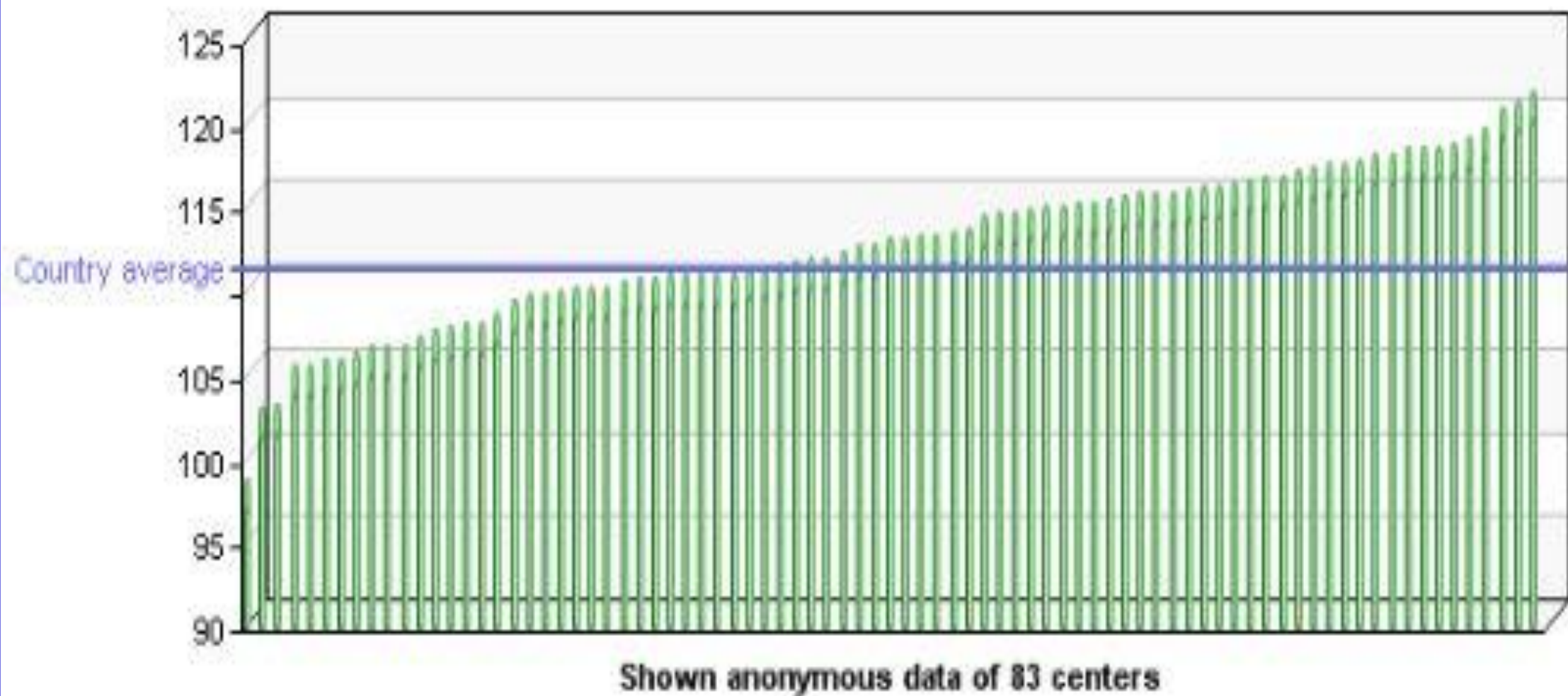
Duration of HD session [hour]



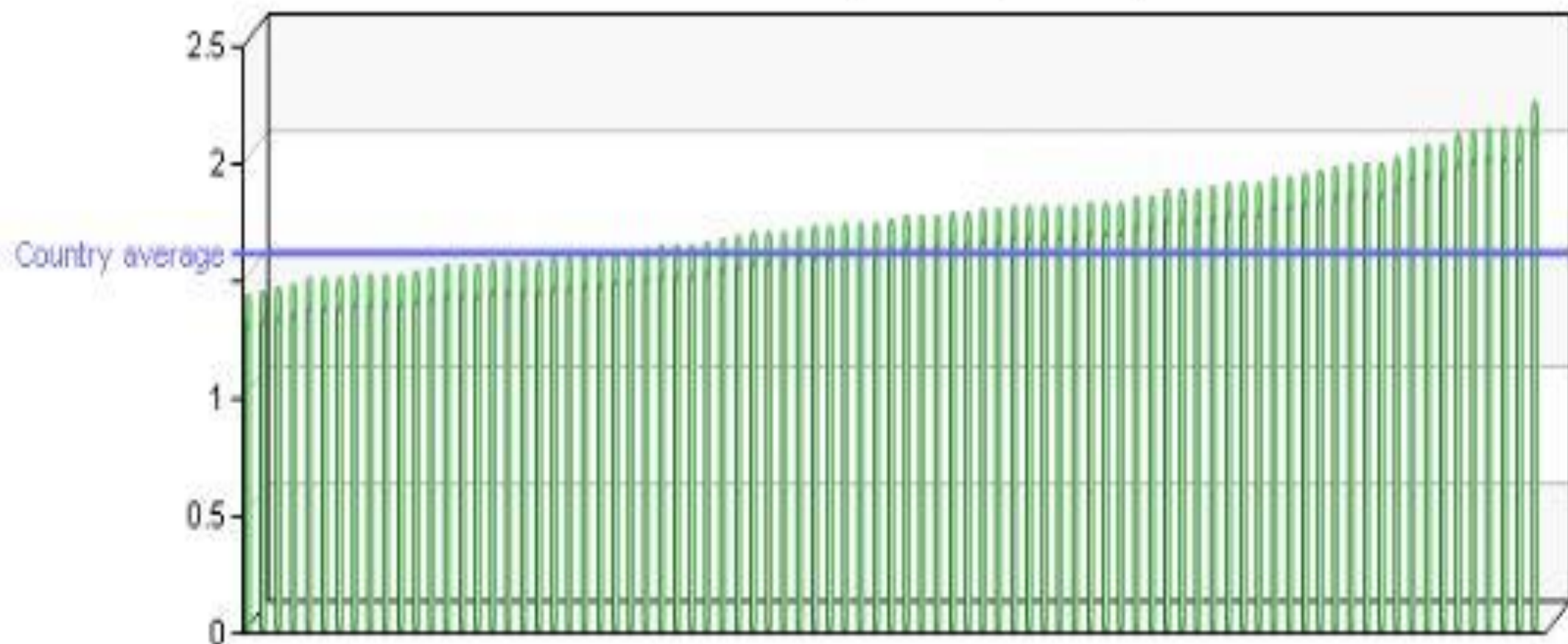
Percentage of patients with 60% or more lab data



Hemoglobin [g/l]



Serum Phosphates [mmol/l]



Shown anonymous data of 85 centers

B/ Back-report: dialysis unit data comparison to the mean values of the CR

- data accessible only for each single dialysis unit (privat area)
- data base structure identical as national

www.nefro.cz – data open to public/private data



VÍTEJTE V NÁRODNÍM REGISTRU DIALYZOVANÝCH PACIENTŮ



Přihlásit

[O RDP](#) [Aktuality](#) [RRT data v ČR](#) [Prezentace](#) [Rada RDP](#) [Kontakty](#) [Odkazy](#)



Registr
Dialyzovaných
Pacientů

PŘIHLÁSIT SE DO RDP

Vstup pro registrované DS ČR



STAV REGISTRU

RDP otevřen pro zaslání dat za
1. kvartál 2016



O RDP

Registr dialyzovaných pacientů (ČNS), která je koncipována jako základní nástroj pro sledování kvality dialyzační péče. RDP je ziskový nástroj, který umožňuje...

Browser window showing the login page of the National Register of Dialysis Patients (Národní registr dialyzovaných pacientů ČR). The URL is <https://rdp.nefro.cz/>. The page title is "NÁRODNÍ REGISTR DIALYZOVANÝCH PACIENTŮ ČR". The user is logged in as "Uživatel: Nepřihlášen".

Below the browser window, there is a login form titled "Přihlášení uživatele". It contains fields for "Jméno" (Name) and "Heslo" (Password), and a "Přihlásit" (Login) button.

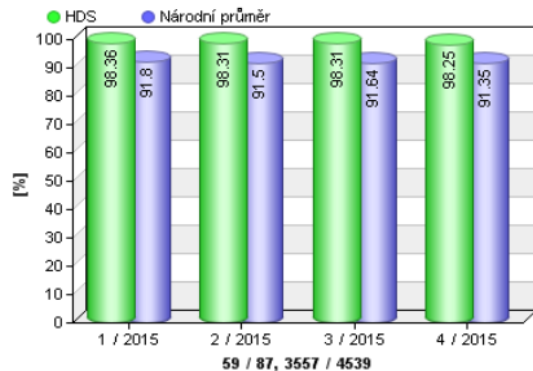
POSLEDNÍ AKTUALITY

02.12.2015

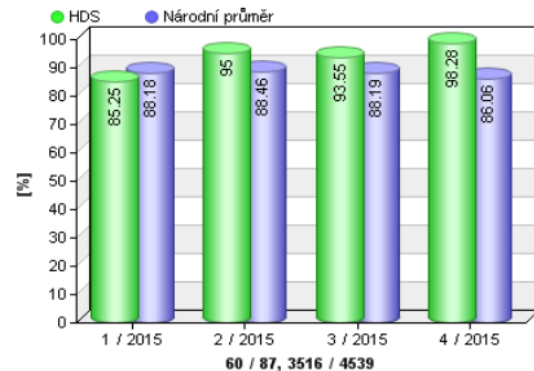
ÚVOD KE ZVEŘEJNĚNÍ DAT JEDNOTLIVÝCH DIALYZAČNÍCH STŘEDIŠK NA PODKLADĚ REPORTOVÁNÍ DAT INDIVIDUÁLNÍCH PACIENTŮ.

conditions for entry: 1/ user, 2/ personal password; 3/ certified computer

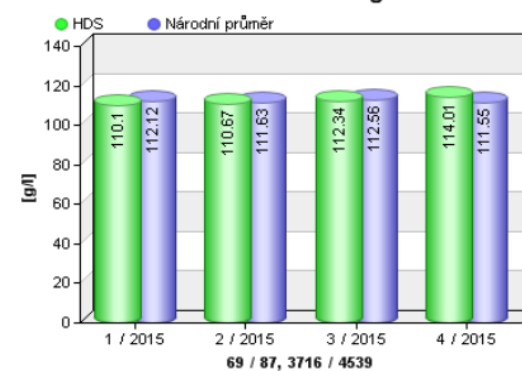
Procento pac. dial. 3x týdně



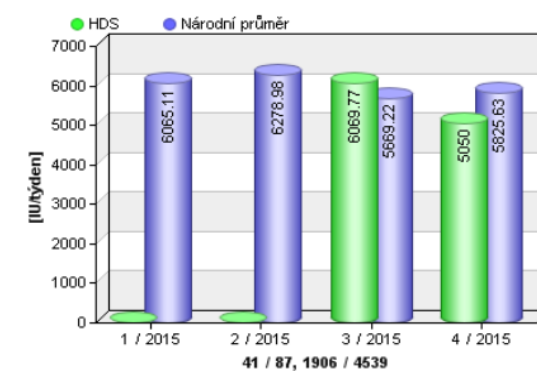
Procento pac. s eKTV $\geq 1,2$



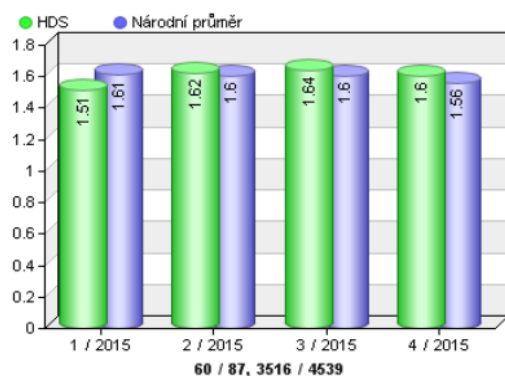
Průměrná hodnota hemoglobinu



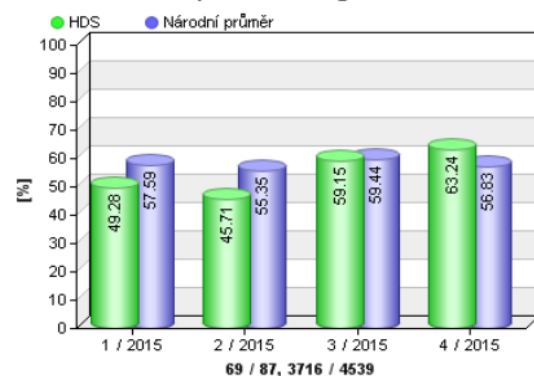
Průměrná hodnota EPO



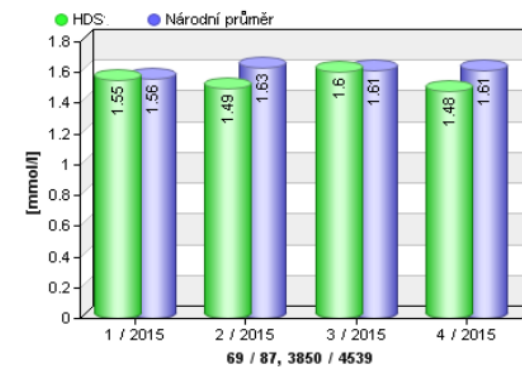
Průměrná hodnota eKTV



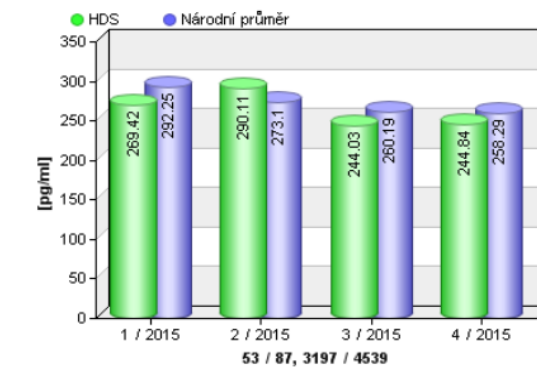
Procento pac. s hemoglob. ≥ 110



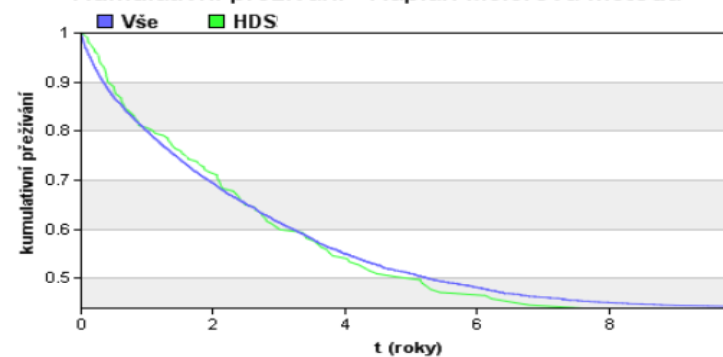
Průměrná hodnota fosfátů



Průměrná hodnota PTH



Kumulativní přežívání - Kaplan-Meierova metoda



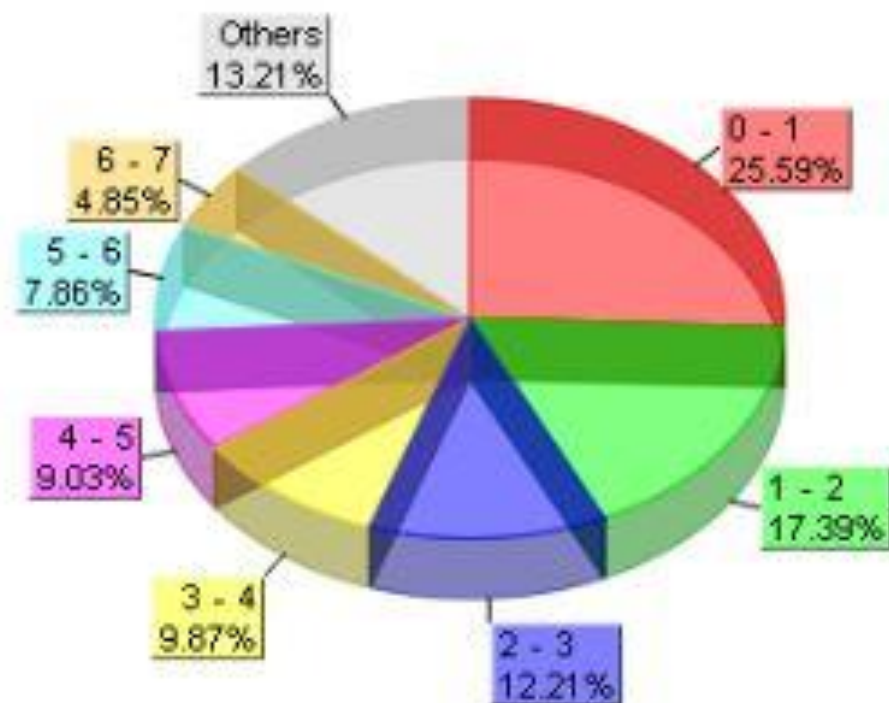
Graf byl vytvořen za období 1.1.2006 - 31.3.2016.
Sledováno 9432 / 209 pacientů, kteří v tomto období zahájili RRT.

C/ Other statistics and data evaluation

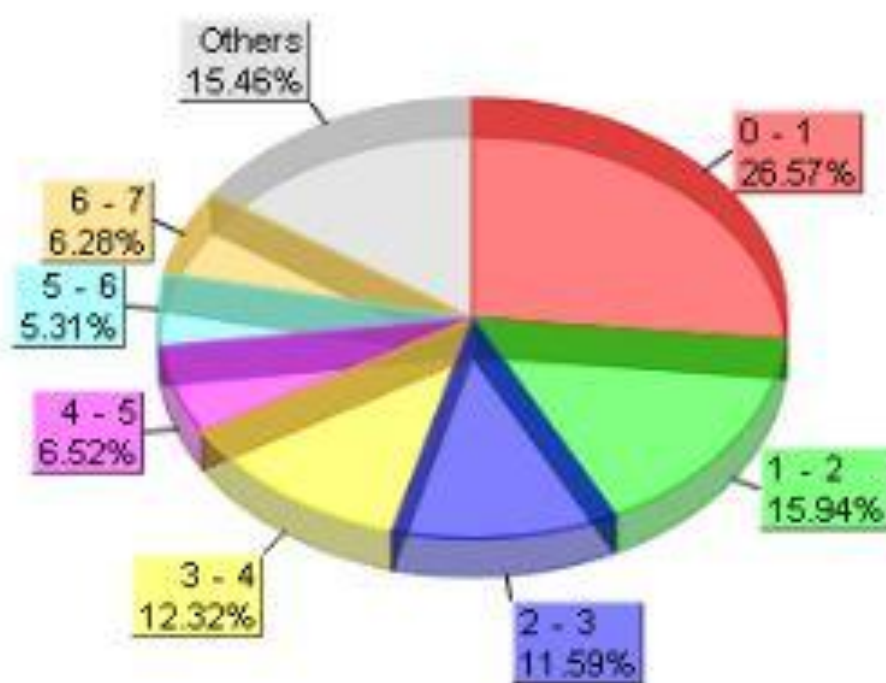
- Mortality
- Survival
- Ca-P-PTH metabolismus

Died patients - distribution according to RRT duration (years)

Males



Females

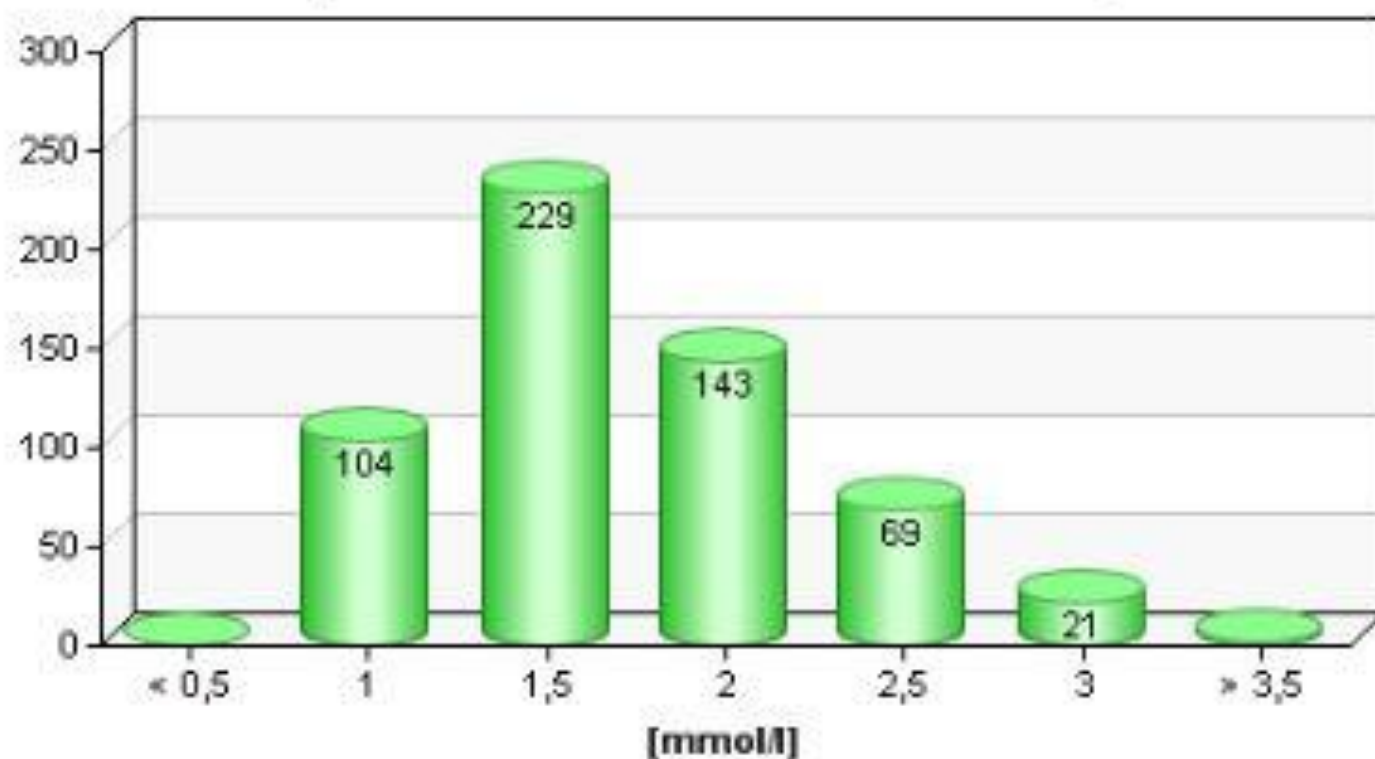


No. of pts:
Male 596
Female 414

Analysis performed for 414 females and 598 males registered at the end of 4/2015 quarter

No. of pts: 567

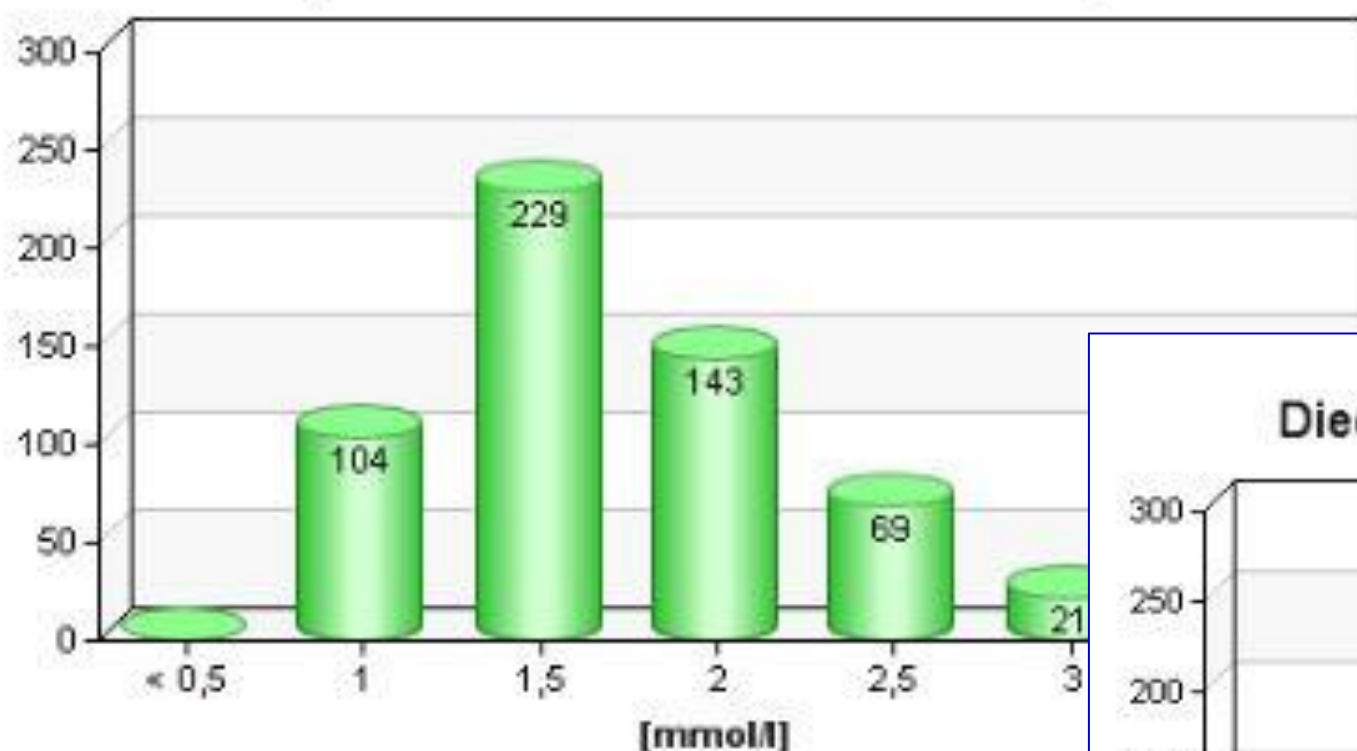
Died patients - distribution according to P



Data filled-in for 567 patients registered at the end of 4/2015 quarter

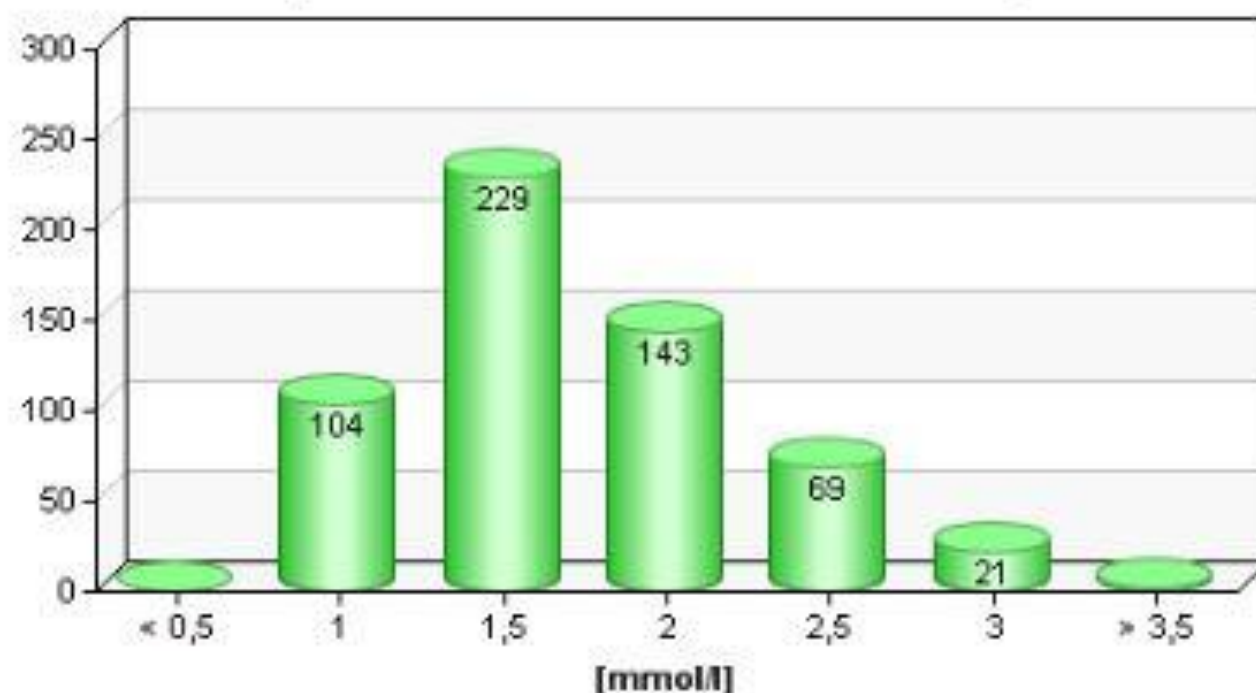
No. of pts: 567

Died patients - distribution according to P



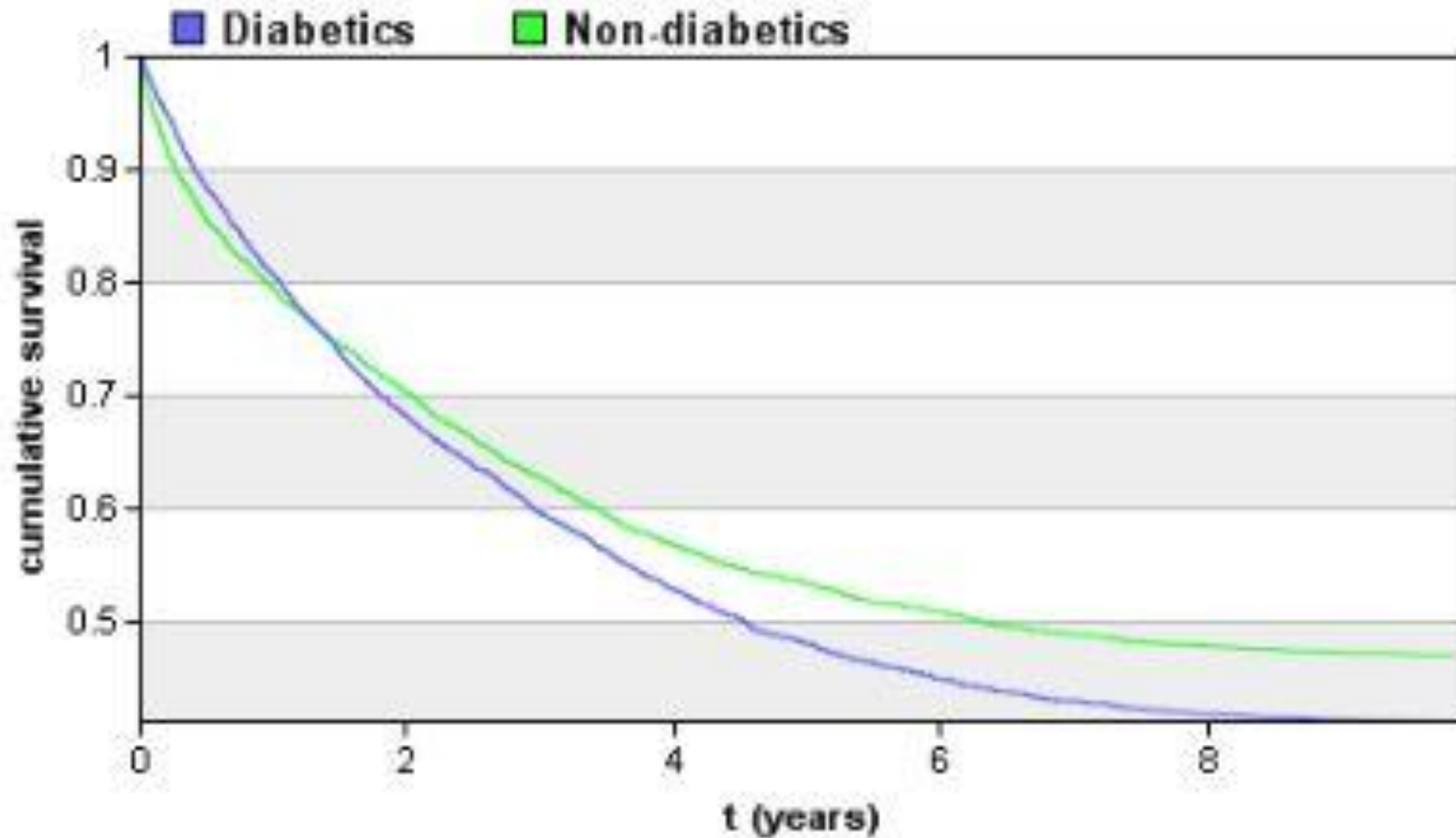
Data filled-in for 567 patients registered at the end of 4/2015

Died patients - distribution according to P



Data filled-in for 567 patients registered at the end of 4/2015 quarter

Cumulative survival (acc. to Kaplan-Meier)

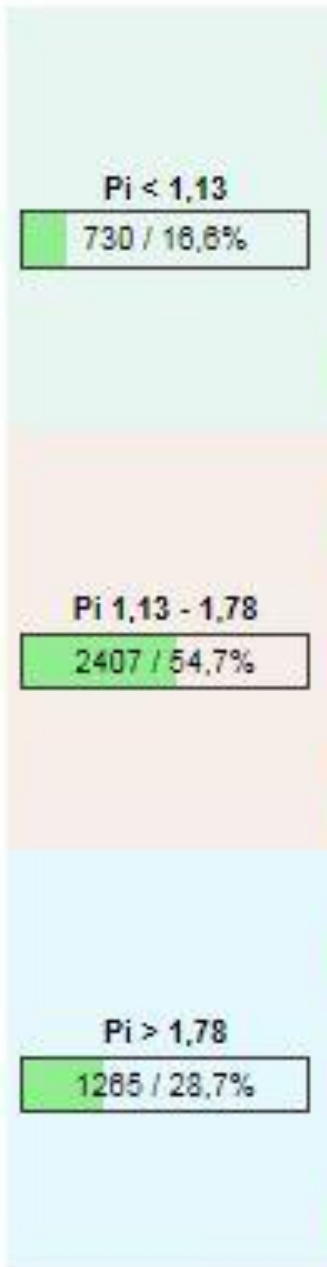


Plot created for the period 1.1.2008 - 31.3.2016.

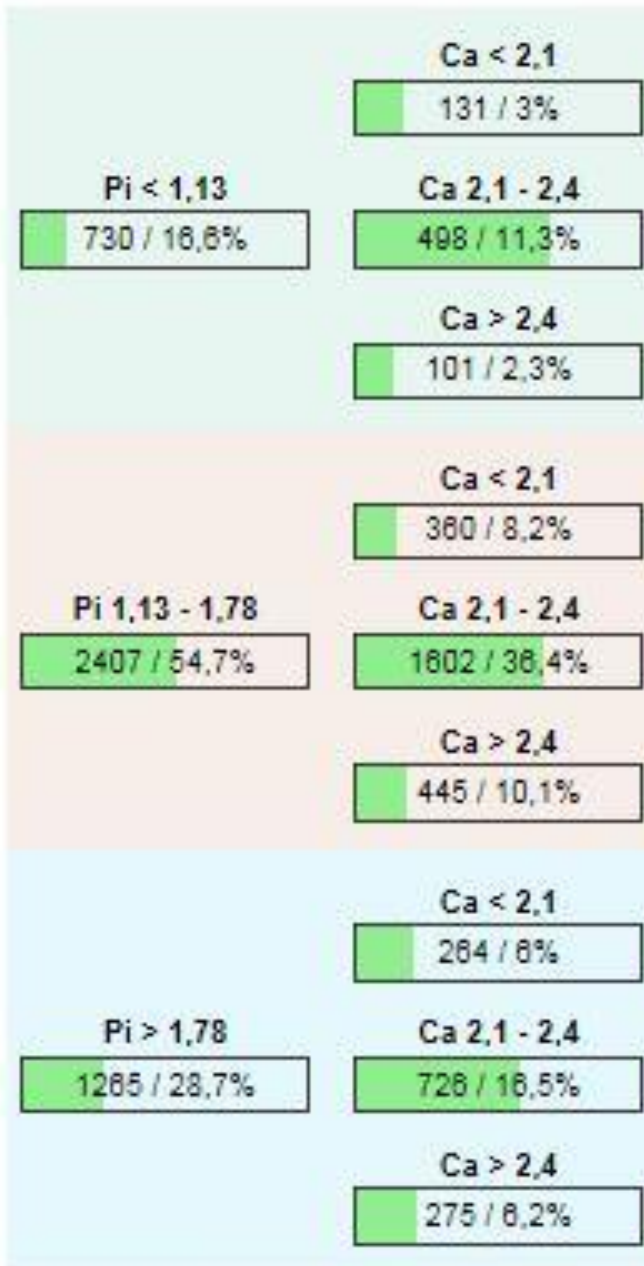
included 4039 / 5382 patients, who started their RRT during that period.

No. of pts:
non-DM 5382
DM 4039

Ca-P-PTH
data
n=4402 pts

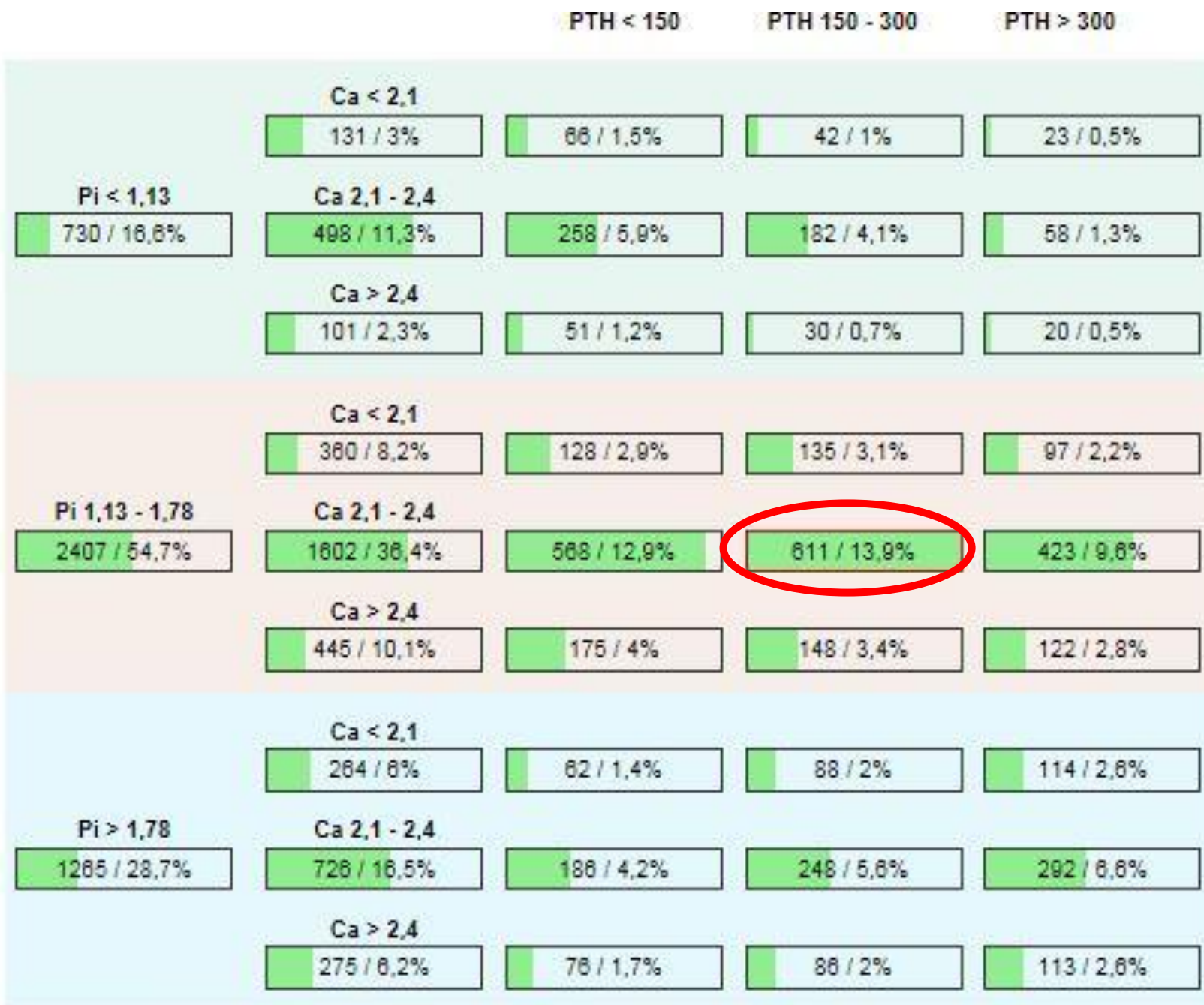


Ca-P-PTH data n=4402 pts



Analysis was performed for 4402 pa

Ca-P-PTH
data
n=4402 pts



Analysis was performed for 4402 patients and data from the interval of 1/2015 - 4/2015 quarter

D/ interactive graphics – basic lab values

E/ waiting list and Tx data

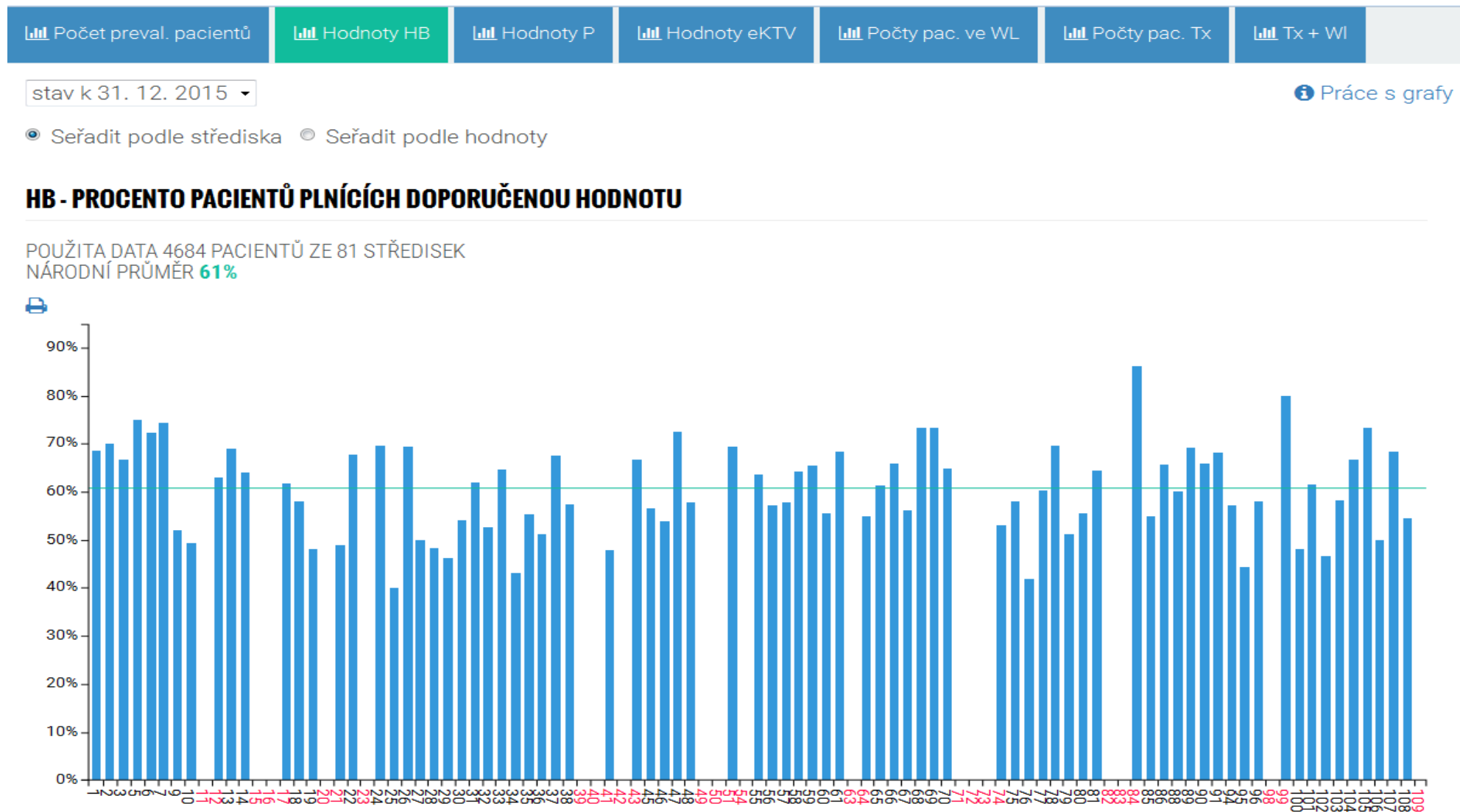
- we have opened data for public with
identification of each dialysis unit
- in collaboration with Tx Registry

Interactive graphics display:

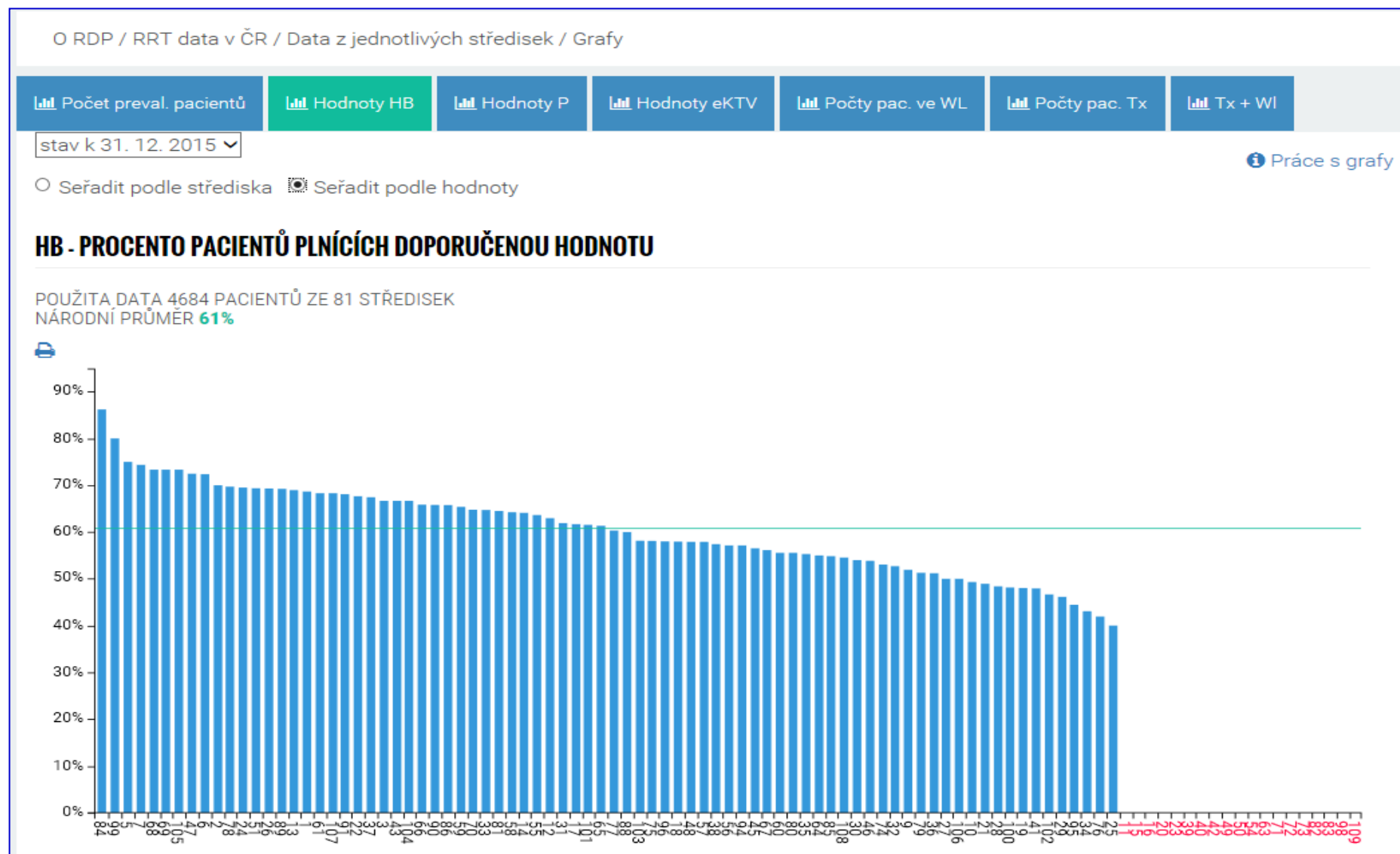
- **percentage** of pts fulfilling recommended interval in **last year**
- **mean value** of selected parameter in **last year**
- **percentage** of pts fulfilling recommended interval in **selected period**
- **mean value** of selected parameter in **selected period**
- **standart deviations** of all values



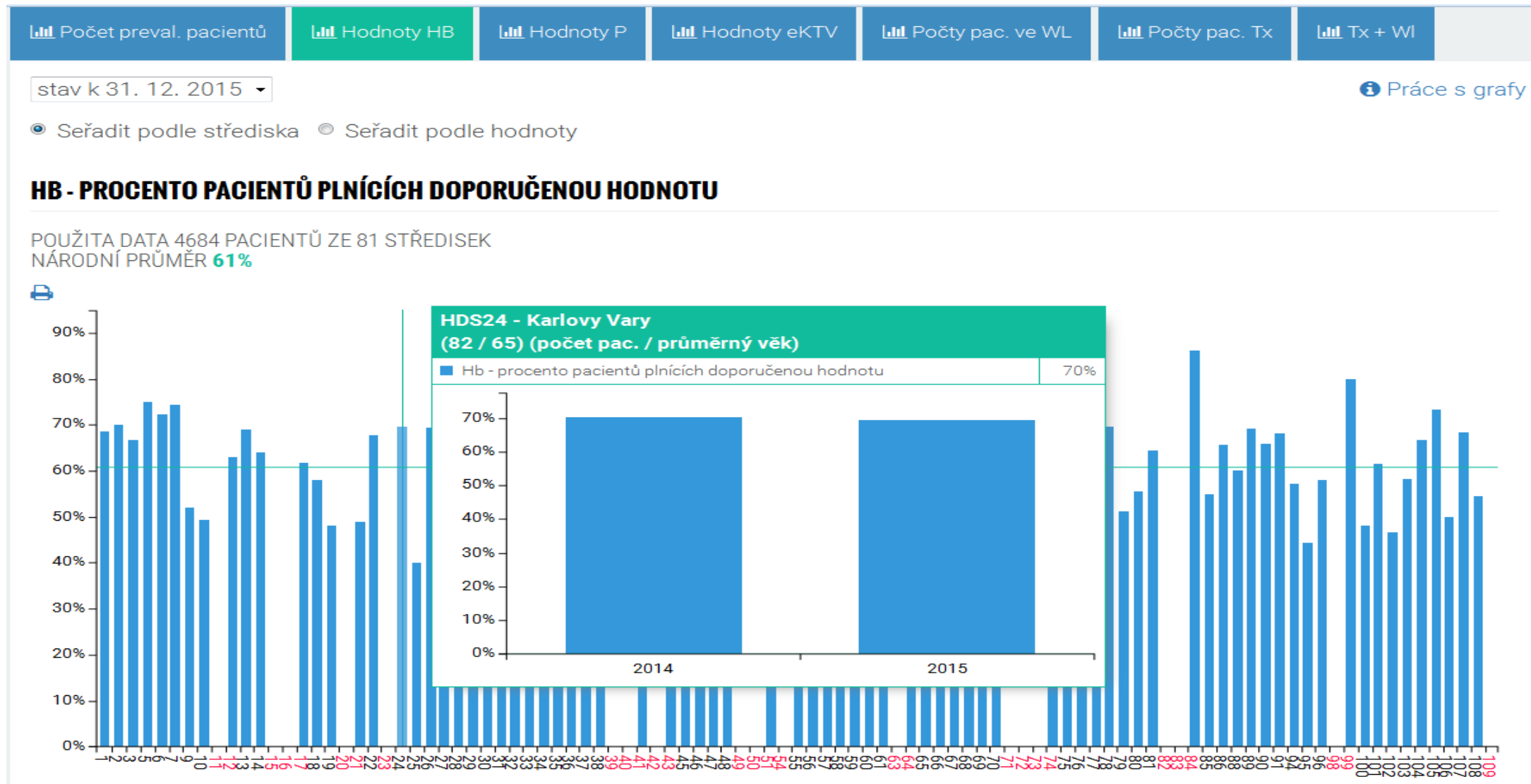
Interactive graphics according to dialysis units:



Interactive graphics according to lab value:

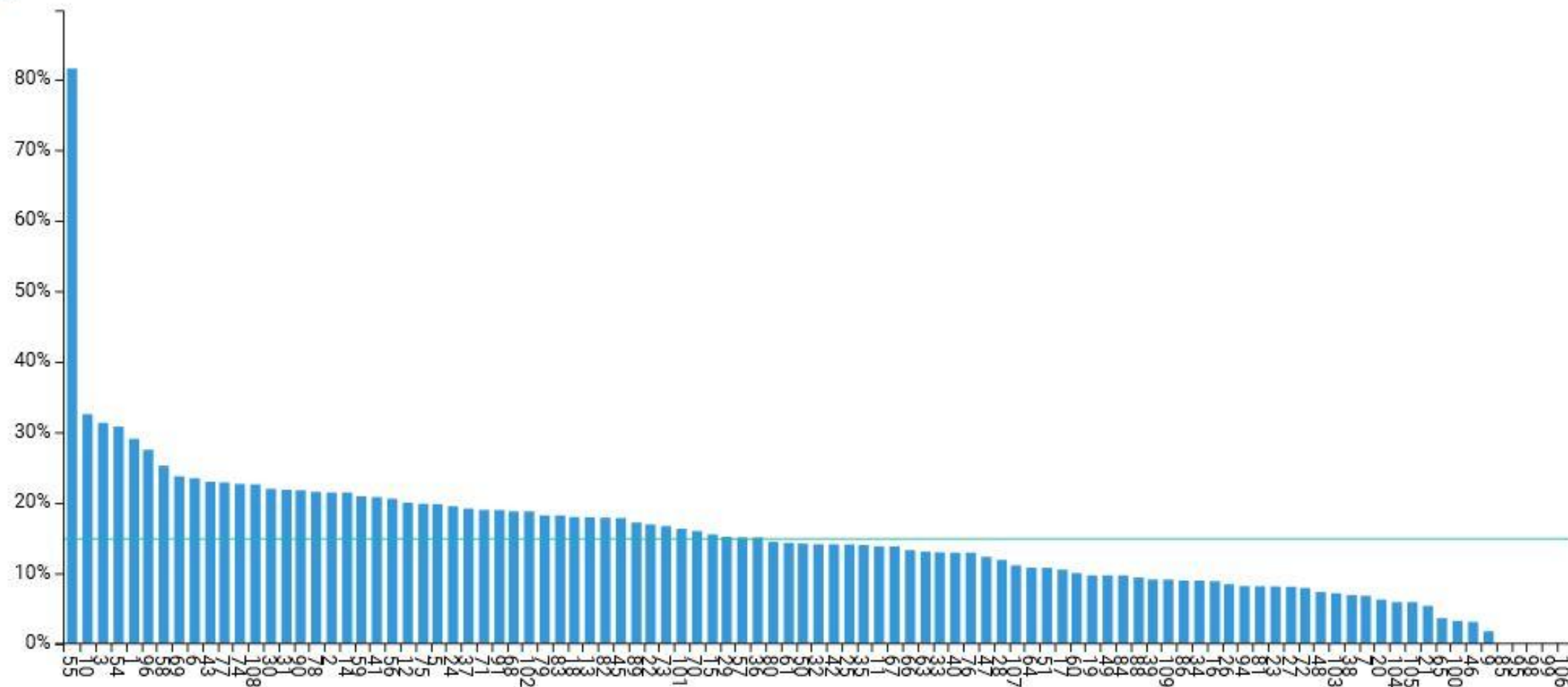


Interactive graphics – in detail:

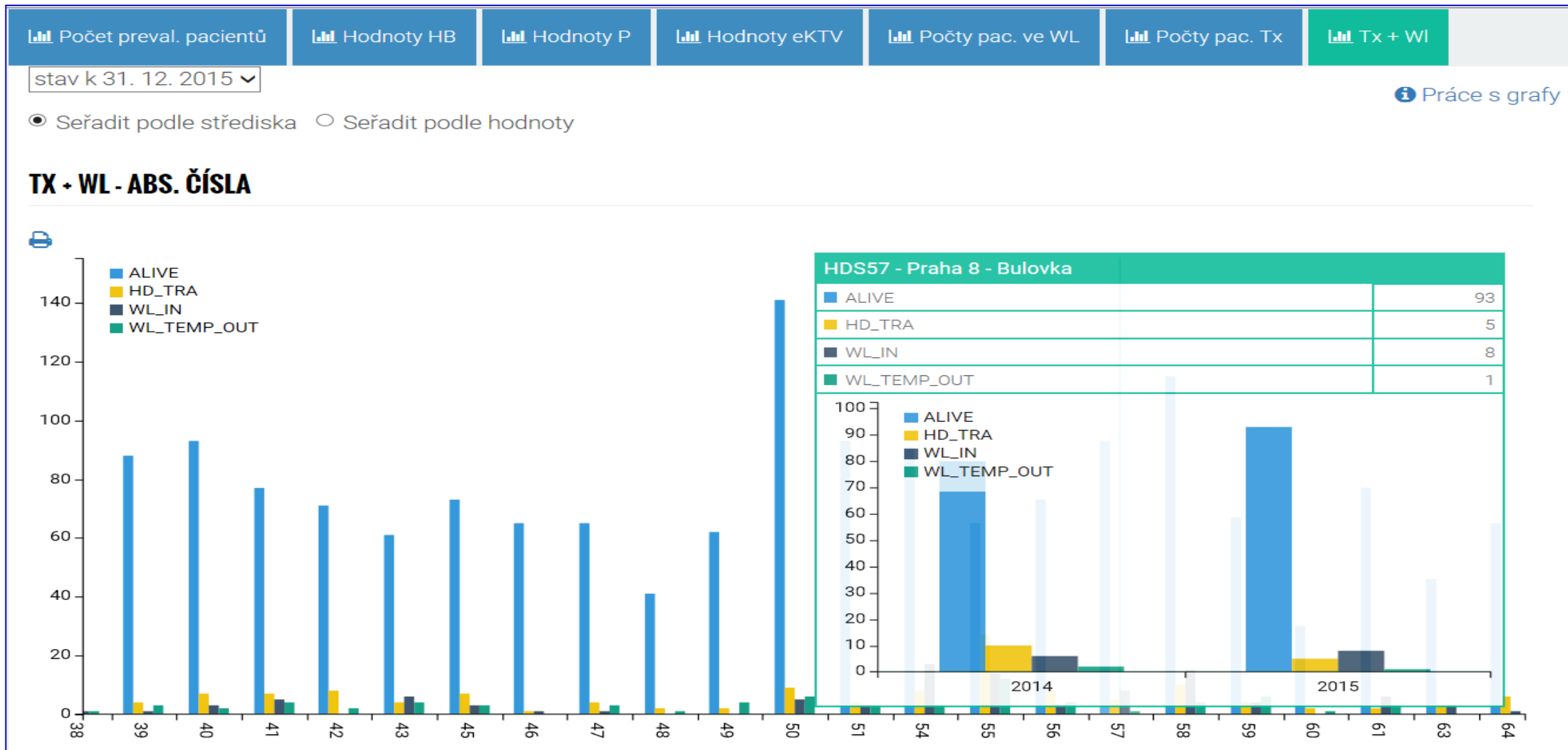


TX + WL - PERCENT

NATIONAL AVERAGE 15%



Tx + WL data – in detail



Summary 1

- RDP
 - high quality data available
 - fully comparable with other European registries
 - certainly one of the most detailed Registry
- What is better ?
 - frequency of data delivery (trends)
 - extend of data (and is possible further enlarged)
 - economy (cheaper)
- What is worse ?
 - coverage (80% of the Czech population)
 - still low publication outputs
 - not yet individual data delivery for ERA Registry

Summary 2

GOALS and TARGETS:

- 100% coverage in individual data reporting
- on-going research and scientific outputs (survival, PRDs, diabetic pts, seniors, PKD pts, treatment of Ca-P-PTH, waiting list
- regular report to ERA-EDTA Registry
- merging with Tx Registry $\Rightarrow$ RRT Registry of Czechia

Thank you for your attention

