



SIN-RIDT



Pazienti uremici 999 pmp



87,7%



12,3%

Pazienti in dialisi
circa 50.000
(prevalenza 722 pmp
Incidenza 159 casi all'anno)



Costo della dialisi:
2800 milioni di euro all'anno
2,3% della spesa sanitaria totale

ESRD Patients	3,010,000
thereof HD	2,106,000
thereof PD	252,000
thereof Tx	652,000
World Population	7.0 billion
Annual Growth Rates	
World population	1.1%
ESRD	~7%
HD	7-8%
PD	~8%
Tx	4-5%

Annual Regional Dialysis Population Growth Rates	
USA	3-4%
European Union	~2%
Japan	~2%
Other	~12%
Total	7-8%

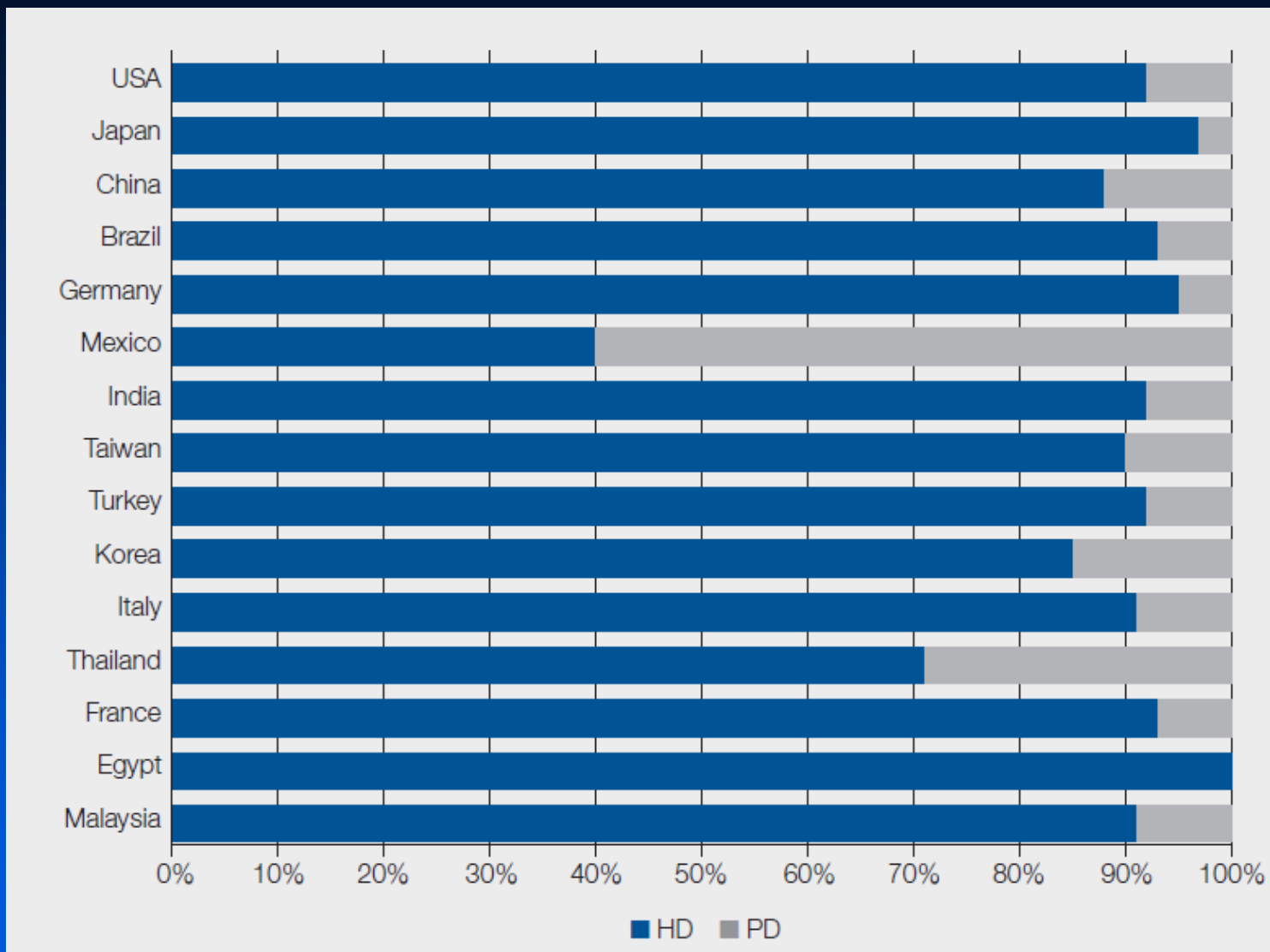


Figura 8 - Et  (%). Anni 1994-2011. Prevalenti.

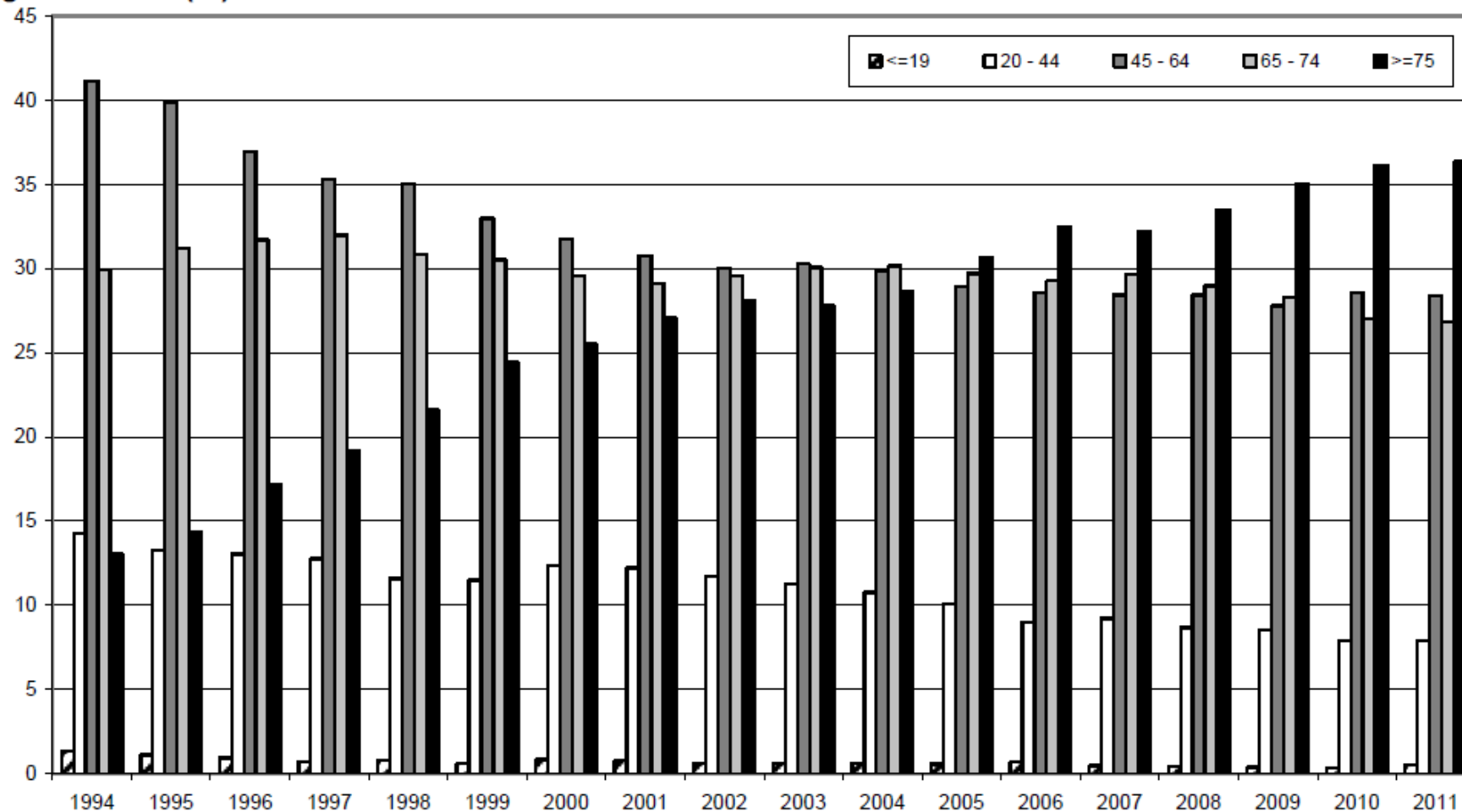
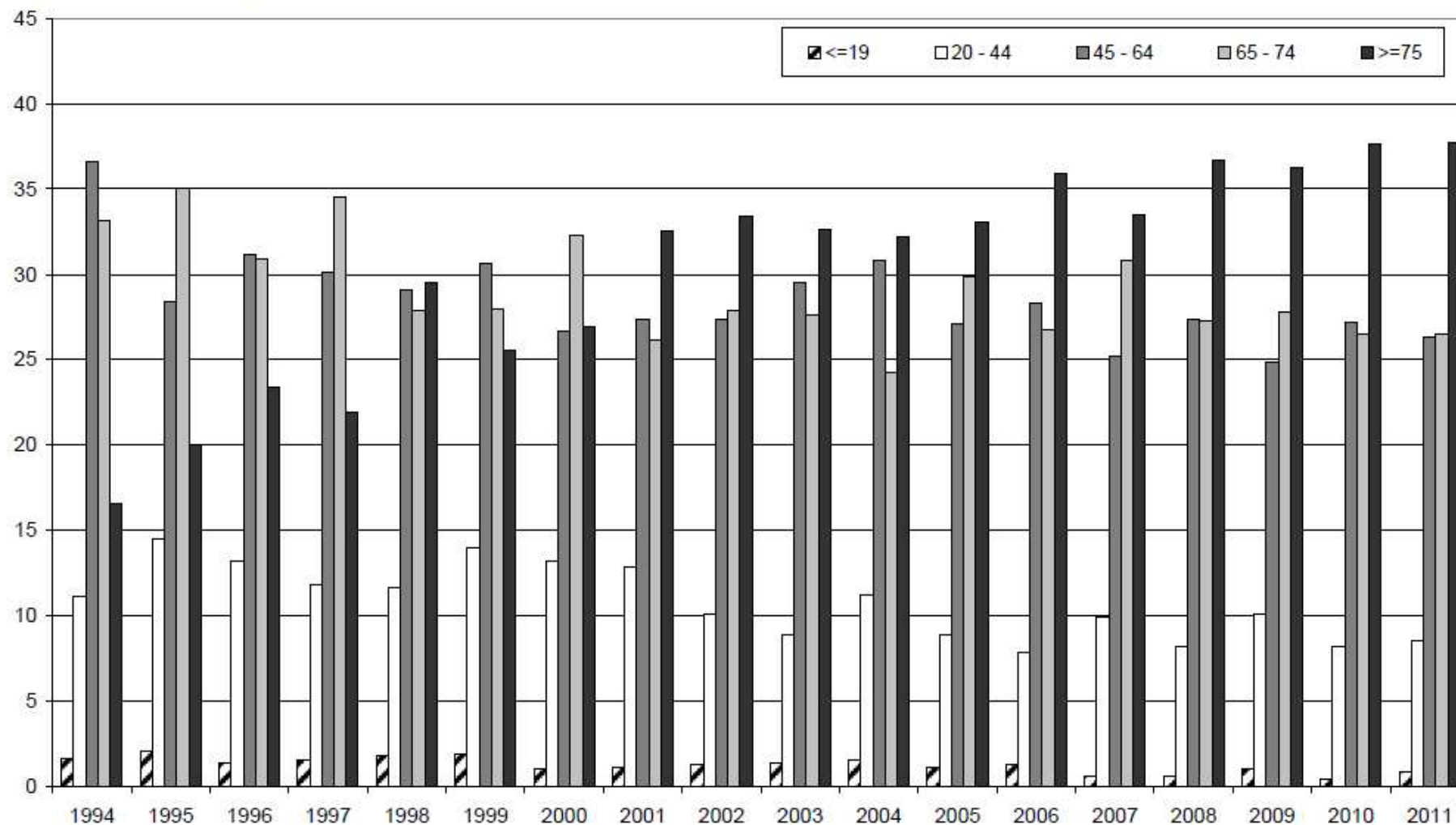


Figura 9 - Et  (%). Anni 1994-2011. Incidenti nell'anno.



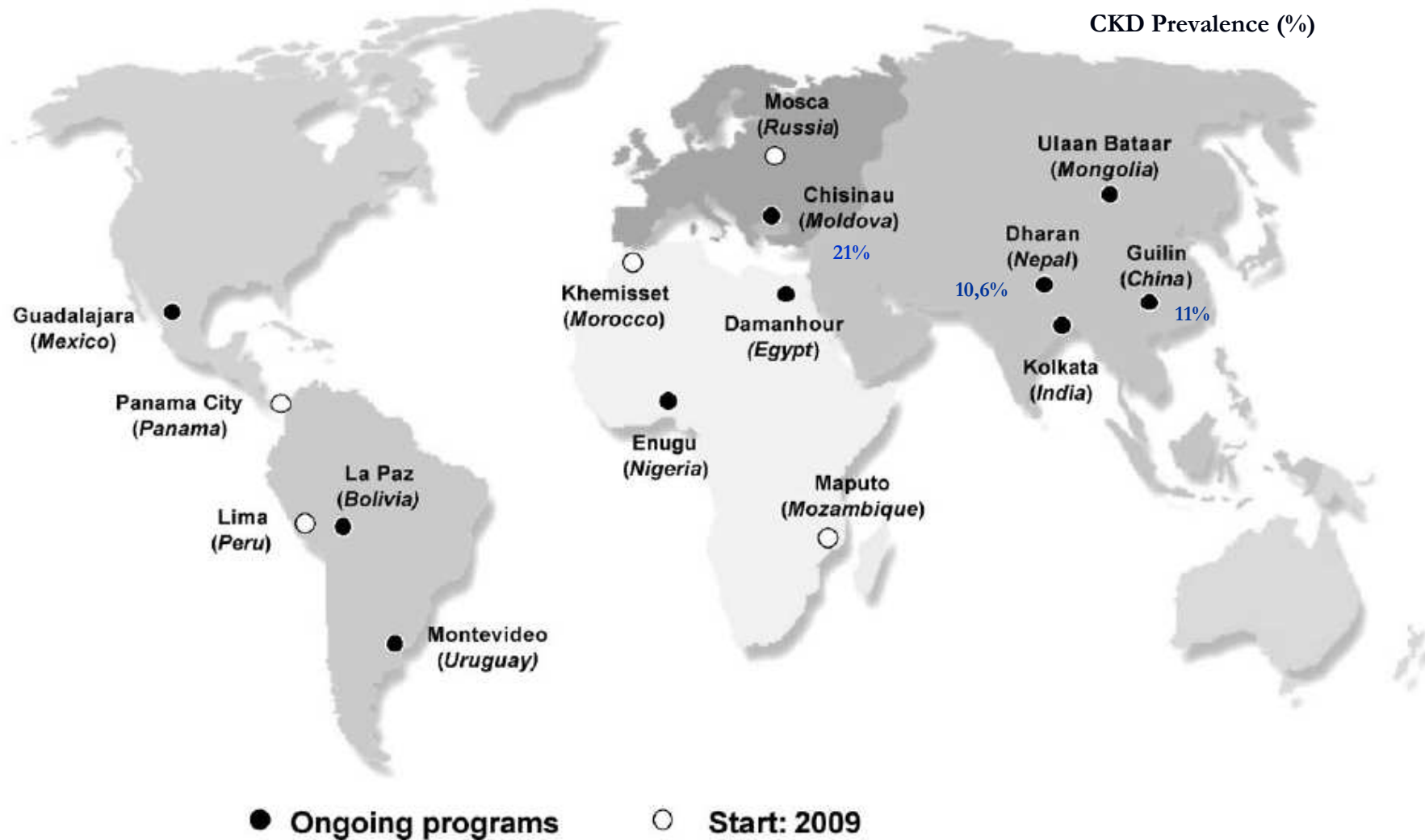


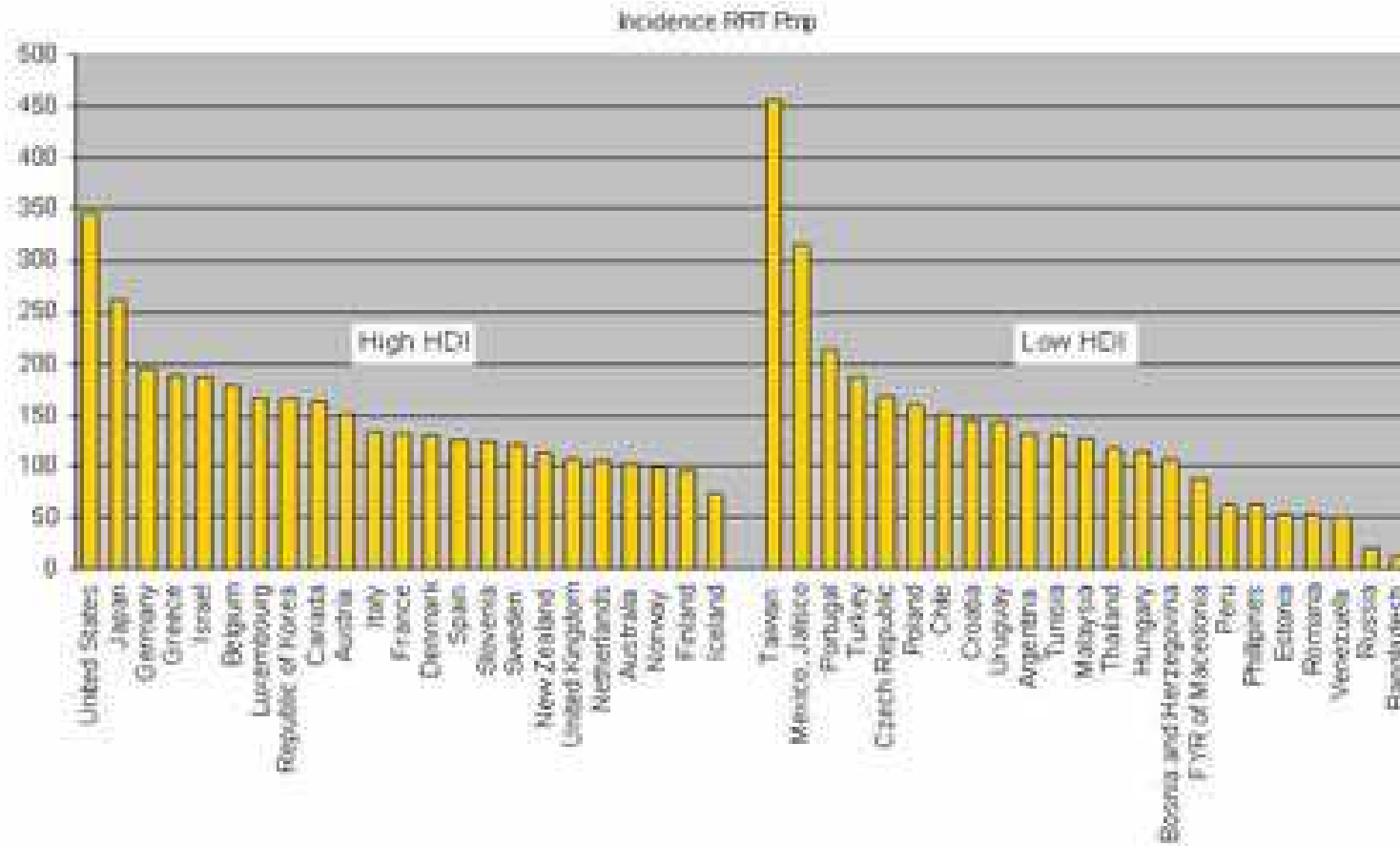
Fig. 1. Early detection and intervention programmes ongoing or planned to start in 2009 in low-, middle-income countries, based on the template proposed by the ISN-COMGAN Research and Prevention Committee.



Caskey F, WCN Milano 2009

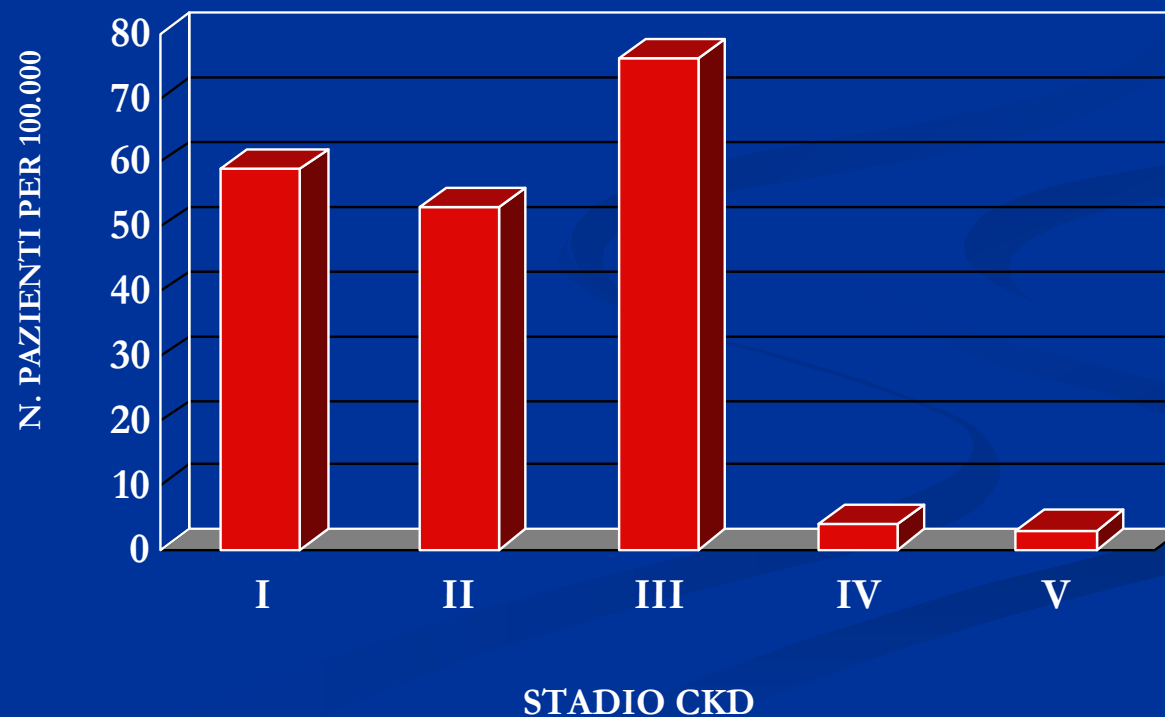


RRT incidence: HDI group





Negli U.S.A.
14% della popolazione generale
è affetta da CKD
cioè
30 MILIONI DI Americani



Prevalence of CKD IN Italy vs. US:

INCIPE (Veneto, NE Italy) vs. NHANES 2001-02 & 2003-04 & 2004-2006, caucasians only, >40yrs

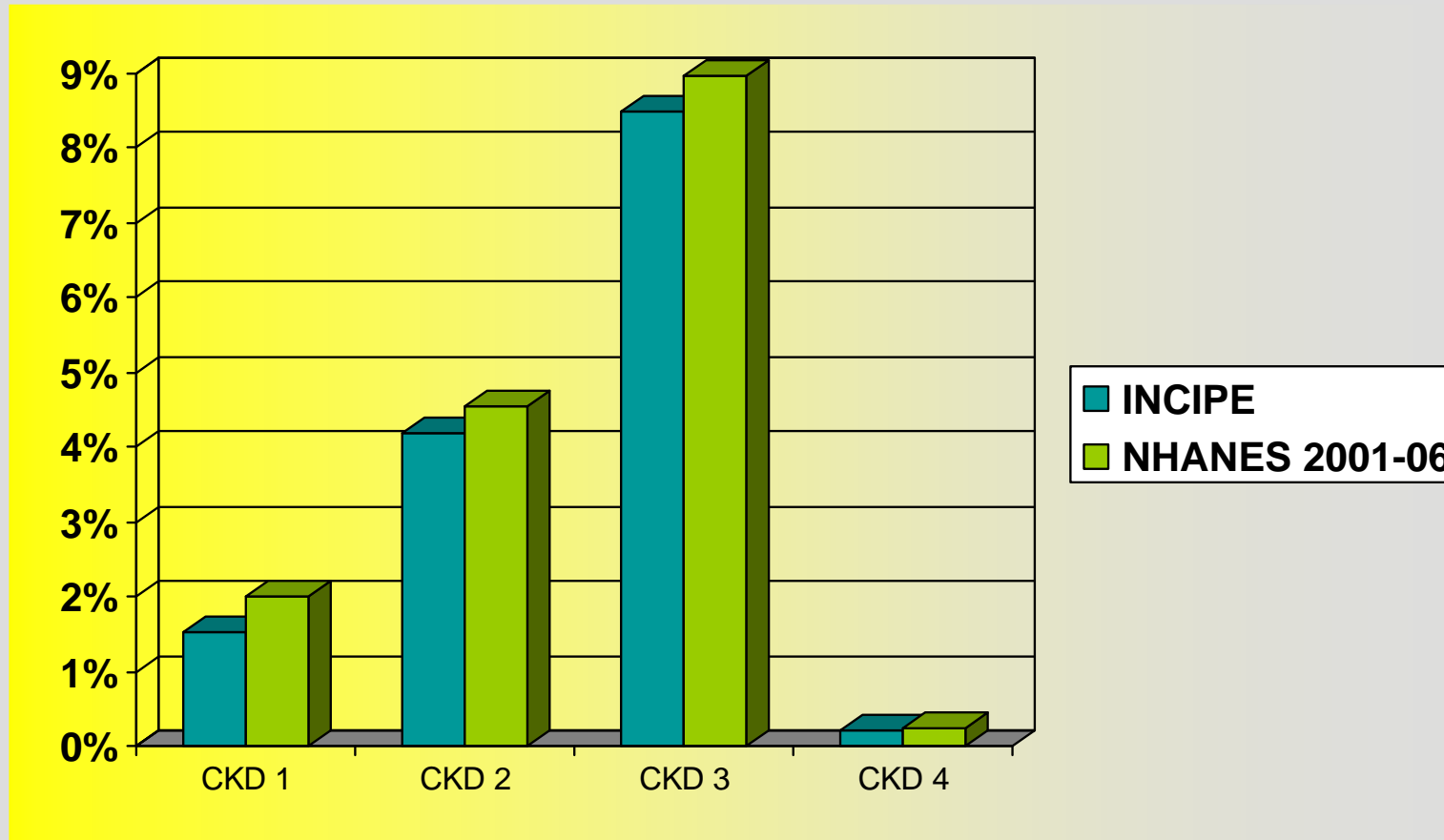


TABLE III

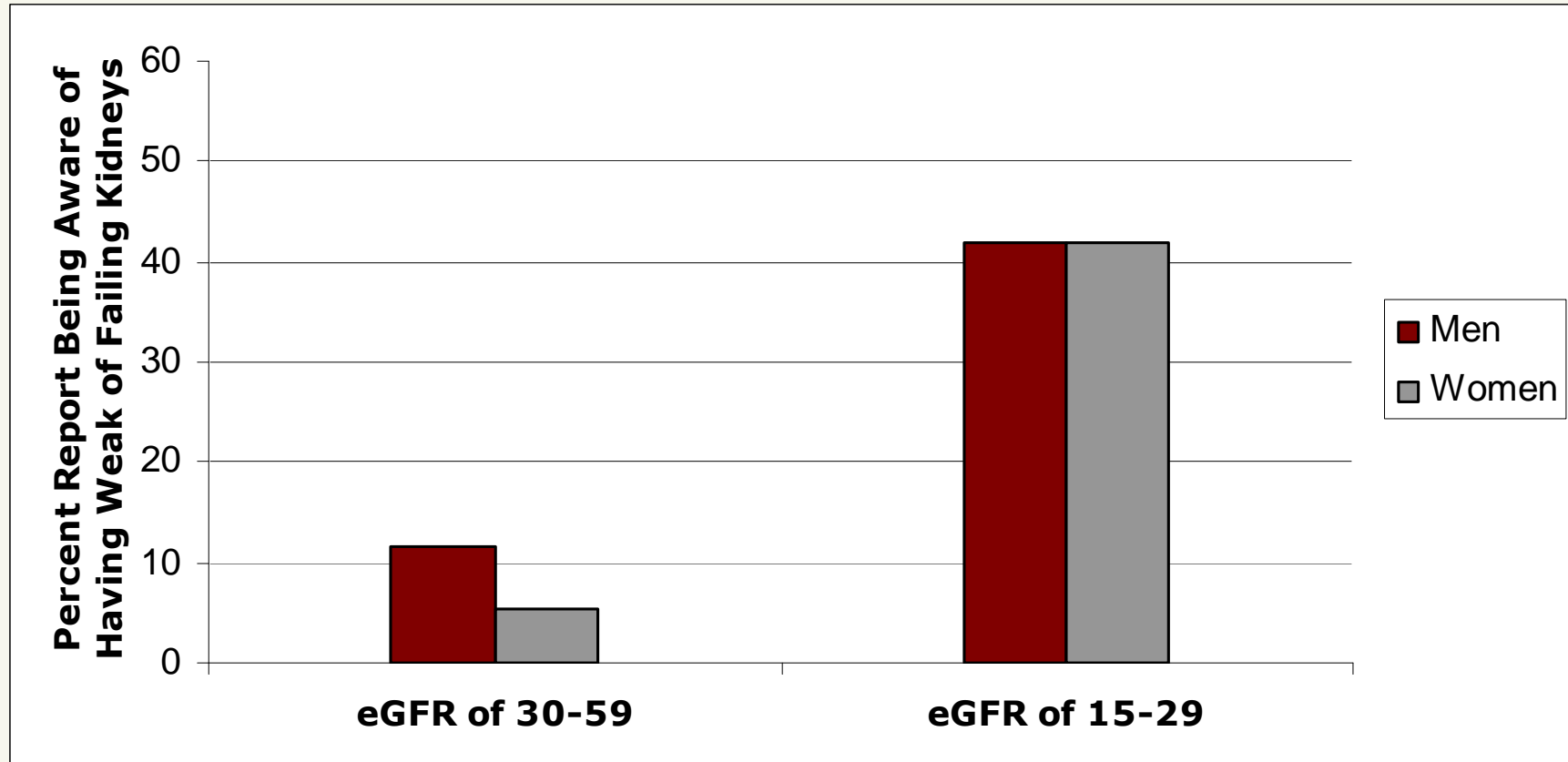
GLOMERULAR FILTRATION RATE (GFR) ESTIMATED BY MDRD EQUATION IN HEALTHY WHITE SUBJECTS (WITHOUT COMORBIDITY) IN NIJMEGEN BIOMEDICAL STUDY

Age	Male				Female			
	N	GFR	Range	CKD	N	GFR	Range	CKD
18-24	94	100 ± 13	72-137	77	187	91 ± 15	58-186	72
25-29	96	93 ± 13	67-125	74	159	85 ± 13	55-140	63
30-34	118	86 ± 13	63-133	68	171	85 ± 15	53-153	63
35-39	125	85 ± 14	61-118	65	193	79 ± 13	55-165	63
40-44	143	84 ± 13	54-124	66	195	77 ± 12	48-117	58
45-49	160	83 ± 13	50-123	63	227	74 ± 10	47-109	56
50-54	143	79 ± 12	46-120	60	191	73 ± 13	51-152	56
55-59	158	76 ± 13	27-118	58	174	70 ± 12	48-149	53
60-64	149	75 ± 15	48-199	59	180	68 ± 12	41-148	50
65-69	154	75 ± 14	51-165	56	156	66 ± 10	44-102	52
70-74	102	71 ± 12	38-102	54	95	66 ± 11	40-96	49
75-79	112	70 ± 13	41-110	45	77	62 ± 11	37-100	45
80-84	73	67 ± 15	41-129	43	40	64 ± 14	46-114	46
>85	33	62 ± 16	34-101	35	27	59 ± 14	30-87	36

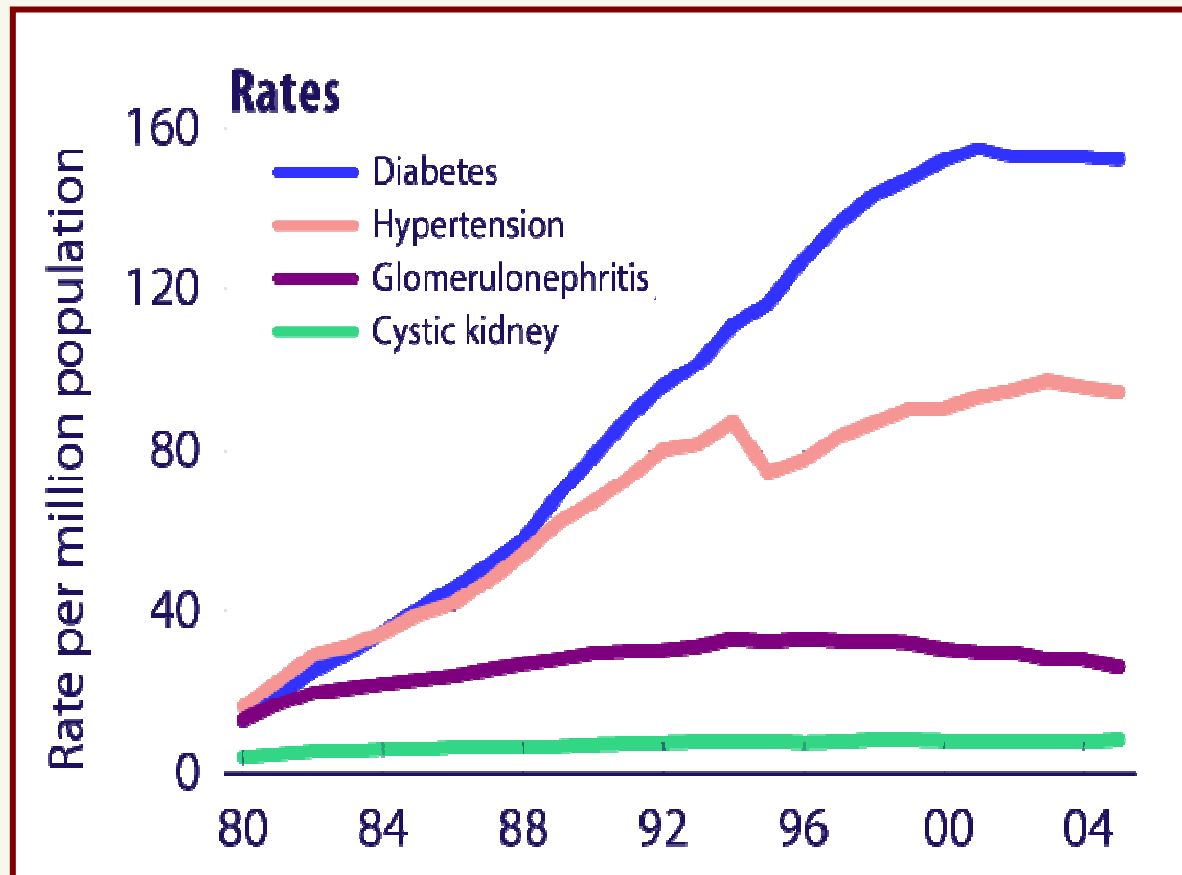
CKD was defined as GFR level <5th percentile.

CKD = chronic kidney disease; GFR = glomerular filtration rate (ml/min per 1.73 m²), estimated with MDRD equation.

But few are aware of it – even those with eGFR less than 30



Diabetes and hypertension are leading causes of kidney failure



Incident ESRD rates, by primary diagnosis, adjusted for age, gender, & race.

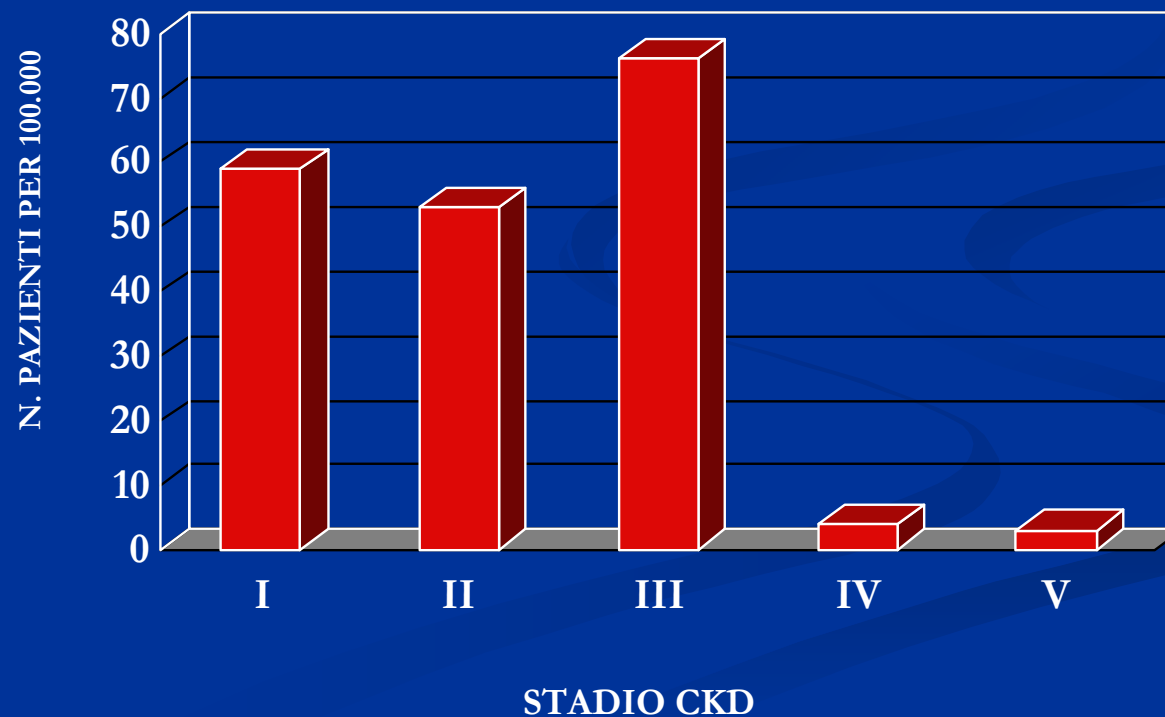
Adjusted Hazard Ratio for Death from Any Cause, Cardiovascular Events, and Hospitalization among 1,120,295 Ambulatory Adults, According to the Estimated GFR

Estimated GFR	Death from any cause	Any Cardiovascular event	Any Hospitalization
<i>Adjusted hazard ratio (95 percent confidence interval)</i>			
≥ 60 ml/min/1.73 m²	1.00	1.00	1.00
45-59 ml/min/1.73 m²	1.2 (1.1-1.2)	1.4 (1.4-1.5)	1.1 (1.1-1.1)
30-44 ml/min/1.73 m²	1.8 (1.7-1.9)	2 (1.9-2.1)	1.5 (1.5-1.5)
15-29 ml/min/1.73 m²	3.2 (3.1-3.4)	2.8 (2.6-2.9)	2.1 (2.0-2.2)
< 15 ml/min/1.73 m²	5.9 (5.4-6.5)	3.4 (3.1-3.8)	3.1 (3.0-3.3)

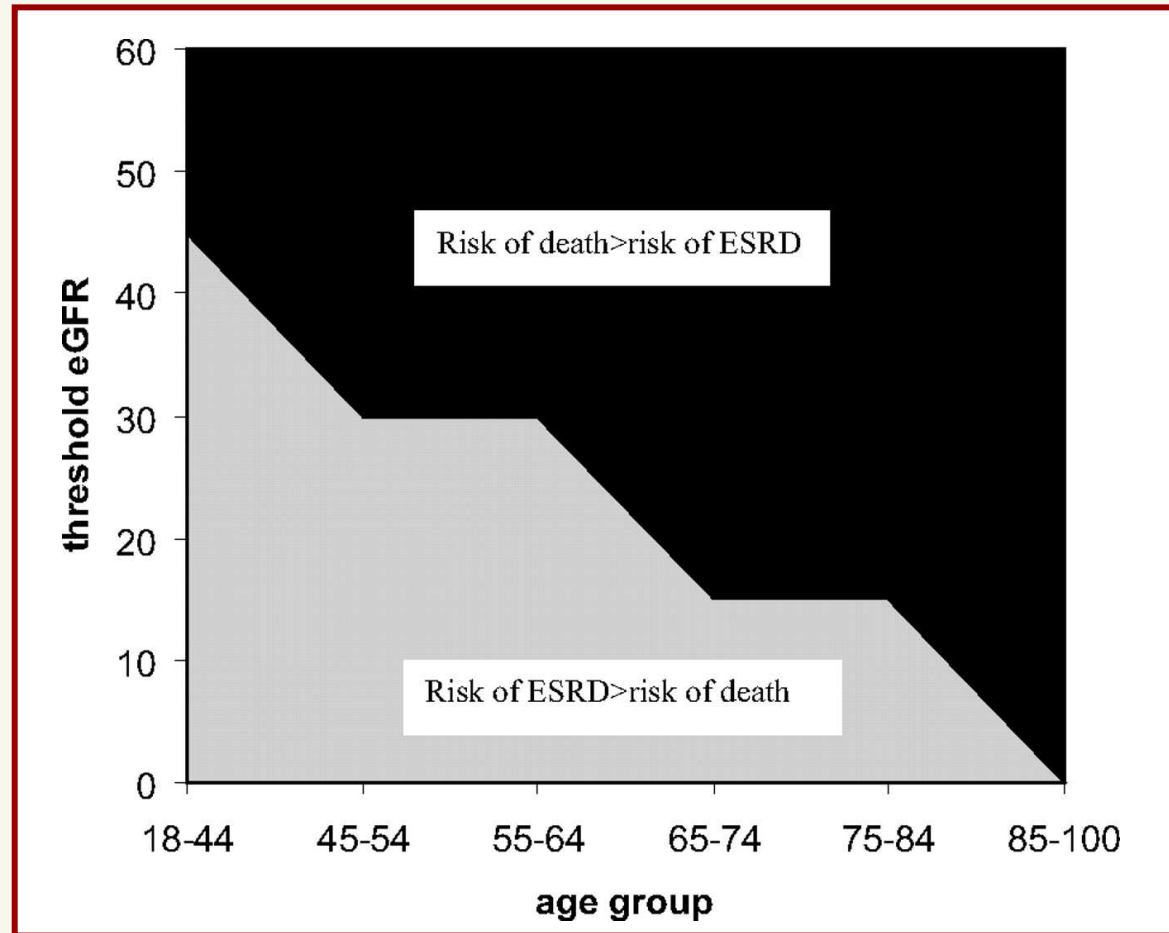
N Engl J Med 2004; 351: 1296-305



Negli U.S.A.
14% della popolazione generale
è affetta da CKD
cioè
30 MILIONI DI Americani



Younger people with CKD are more likely to develop ESRD before death



Annual mortality by age group and eGFR.

Risk for chronic kidney disease in the general population

Italian reports for World Kidney Days 2007-2009

Galassi A., Brancaccio D., Andreucci V.E.; the local coordinators of the project*

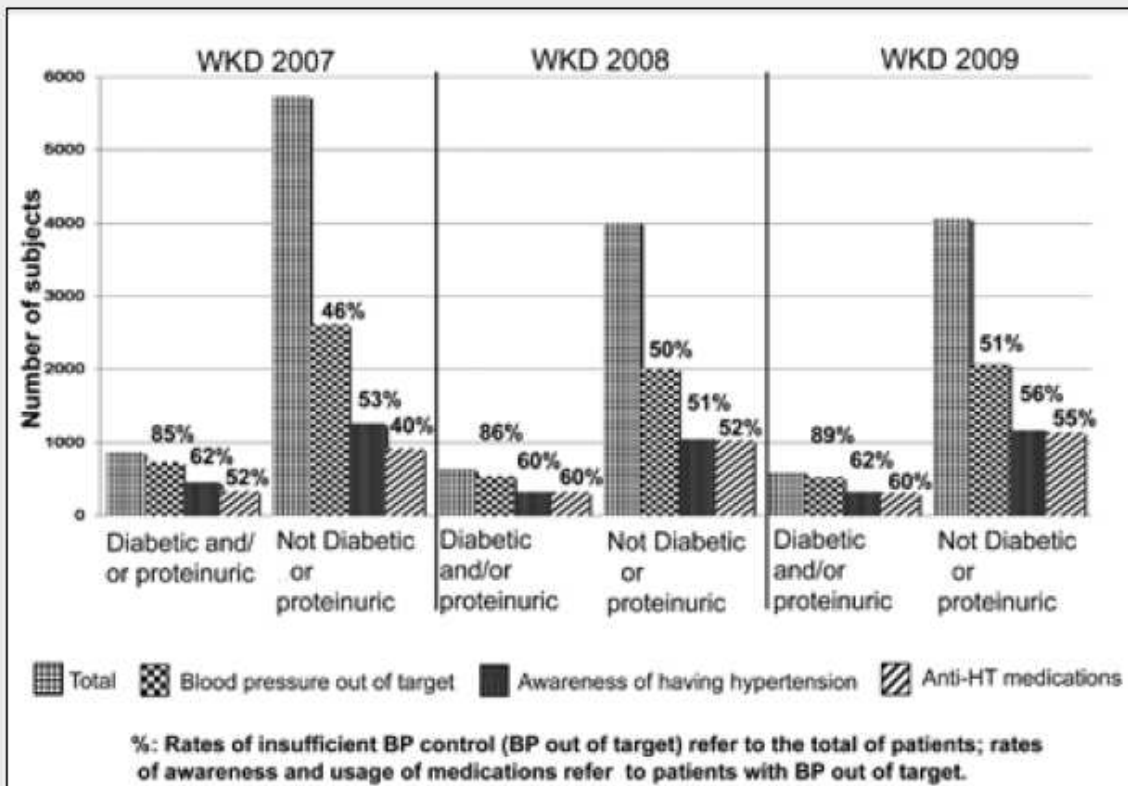
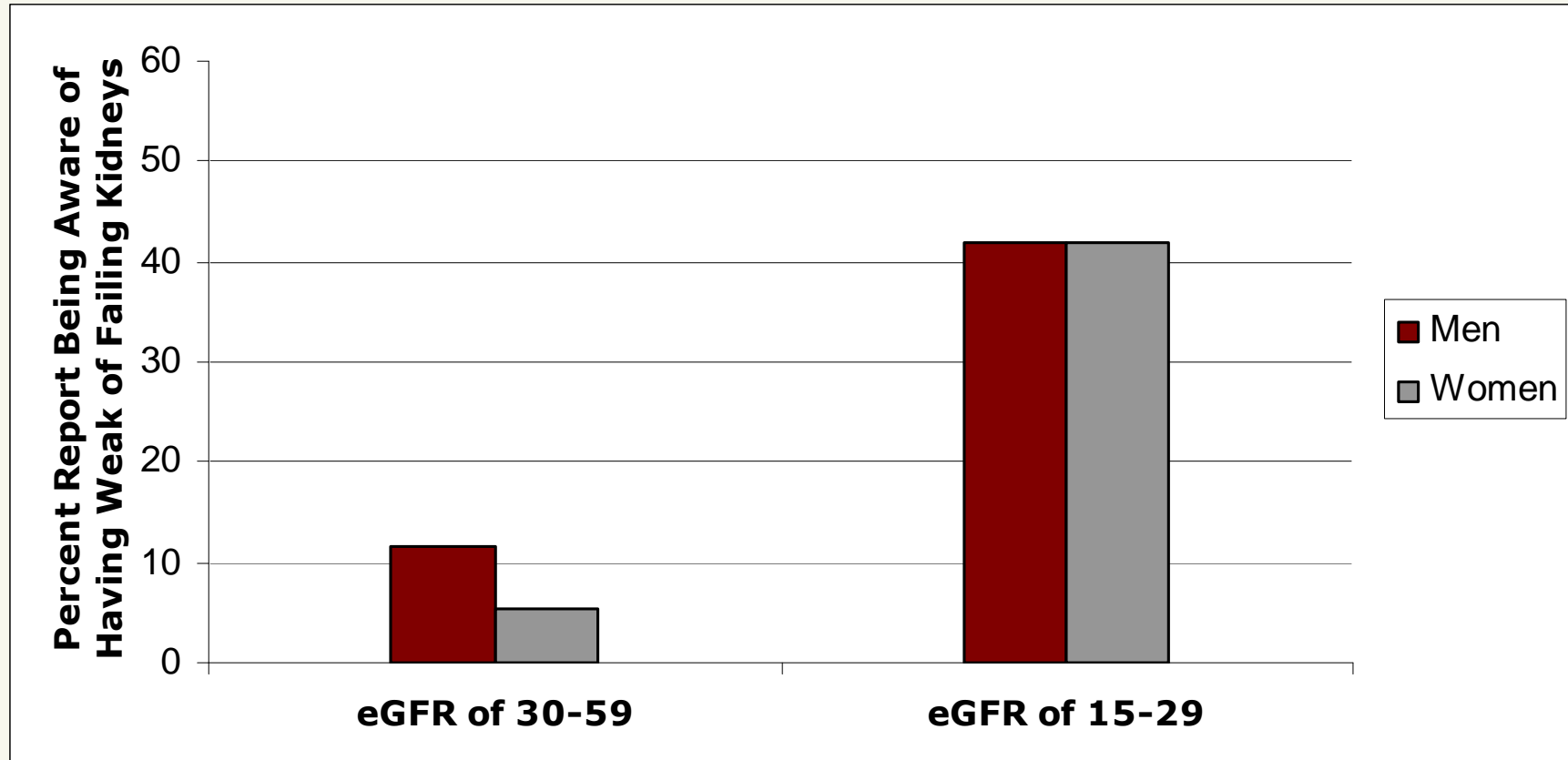


Fig. 1 - Number of subjects with hypertension (HT), awareness of hypertension and usage of antihypertensive medications, according to the presence of diabetes and/or proteinuria. BP = blood pressure; WKD = World Kidney Day.

But few are aware of it – even those with eGFR less than 30



Controllo PA

- Dati Euroaspire (Kotseva, Lancet, 14/03/2009):
PA elevata nel

}	57%(1995-96)
	55%(1999-00)
	64%(2006-07)
- Survey Italiana(Tocci, J Hypertension, June 2012):
150.000 pz. seguiti nei centri di ipertensione o negli ambulatori di Medicina Generale dal 2005 al 2011, si otteneva un controllo adeguato nel 37% dei soggetti.

Frequenza ipertensione resistente

E' associata ad un maggior rischio di eventi cardiovascolari e renali

- Prevalenza negli ipertesi in generale : 8-10%,negli USA cioè 6 milioni (Persell,Hypertension,2011), in Italia potrebbe essere di un milione
- In uno studio brasiliano (Massirier, Arquivos Brasileiros de Cardiologia, July 2012), la prevalenza è diminuita al 3% una volta escluse le ipertensioni secondarie,la scarsa compliance e la “white coat”
- Nei soggetti con CKD la prevalenza sale al 23-25%,dunque almeno TRE volte superiore rispetto agli ipertesi essenziali (Borrelli,Int J of Hypertension,2013)

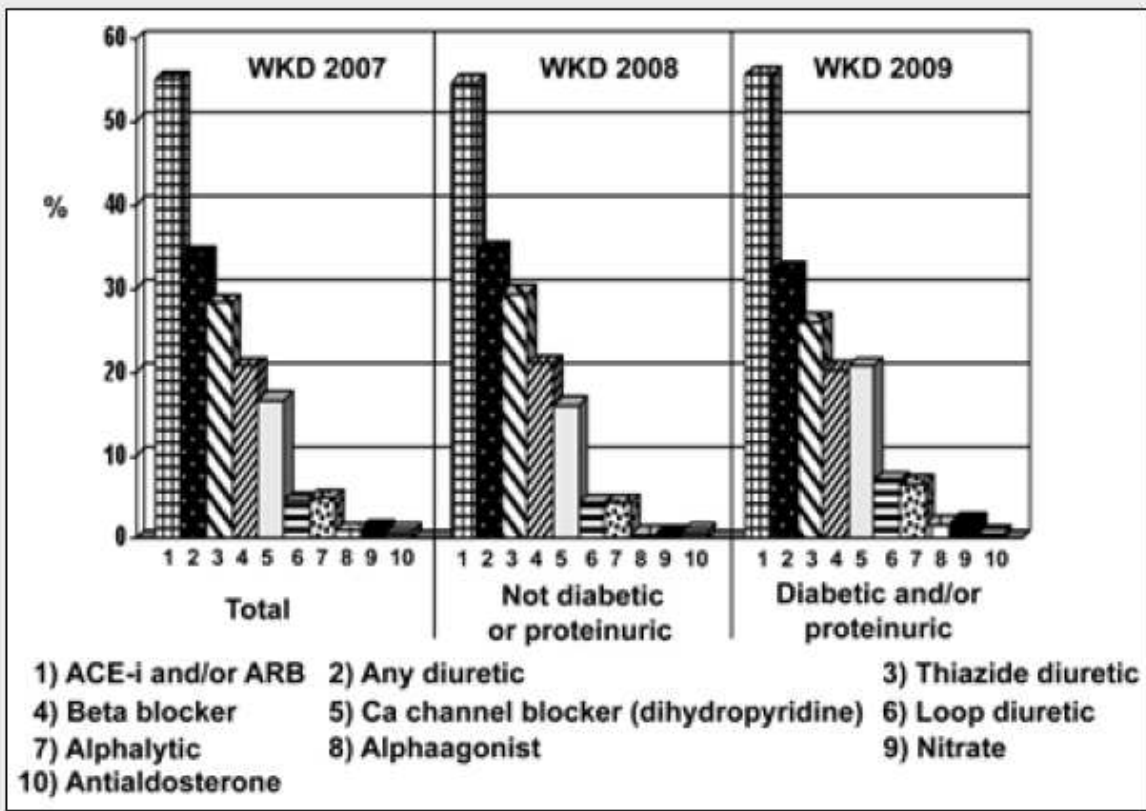


Fig. 2 - Distribution of antihypertensive medications. ACE-i = angiotensin-converting enzyme inhibitor; ARB = angiotensin II receptor blocker; WKD = World Kidney Day.

I Farmaci

- Farmaci long-acting per consentire la monosomministrazione
- Una dose serale ? (non-dipper)
- Diuretici (↑ ANP e BNP in CKD)
 - clortalidone (azione più potente e maggiore emivita)
 - diuretici dell'ansa(se GFR < 30 ml/min)
 - spironolattone(i livelli di aldosterone sono spesso elevati in CKD: relativo iperaldosteronismo col fenomeno dello *escape*)

KEY POINTS

- Serum aldosterone levels are increased in a subset of patients treated with angiotensin-converting-enzyme inhibitors and/or angiotensin-receptor blockers, a phenomenon known as 'aldosterone breakthrough'
- A small number of studies indicate that the incidence of aldosterone breakthrough is between 10% and 53%
- The wide range in the reported incidence of breakthrough is probably attributable to the use of different definitions, and to comorbidity status
- Aldosterone breakthrough could be associated with left ventricular hypertrophy, decreased exercise capacity, and higher rates of urinary albumin excretion
- Clinicians should consider testing for aldosterone breakthrough in patients with refractory heart or kidney disease despite maximal therapeutic blockade of the renin-angiotensin-aldosterone system
- Breakthrough detected in the setting of stable potassium and salt balance could warrant the addition of aldosterone antagonists or renin inhibitors to conventional heart and kidney failure regimens

(Bomback, NCP Nephrology, 2007, 3, 9, pag. 486)

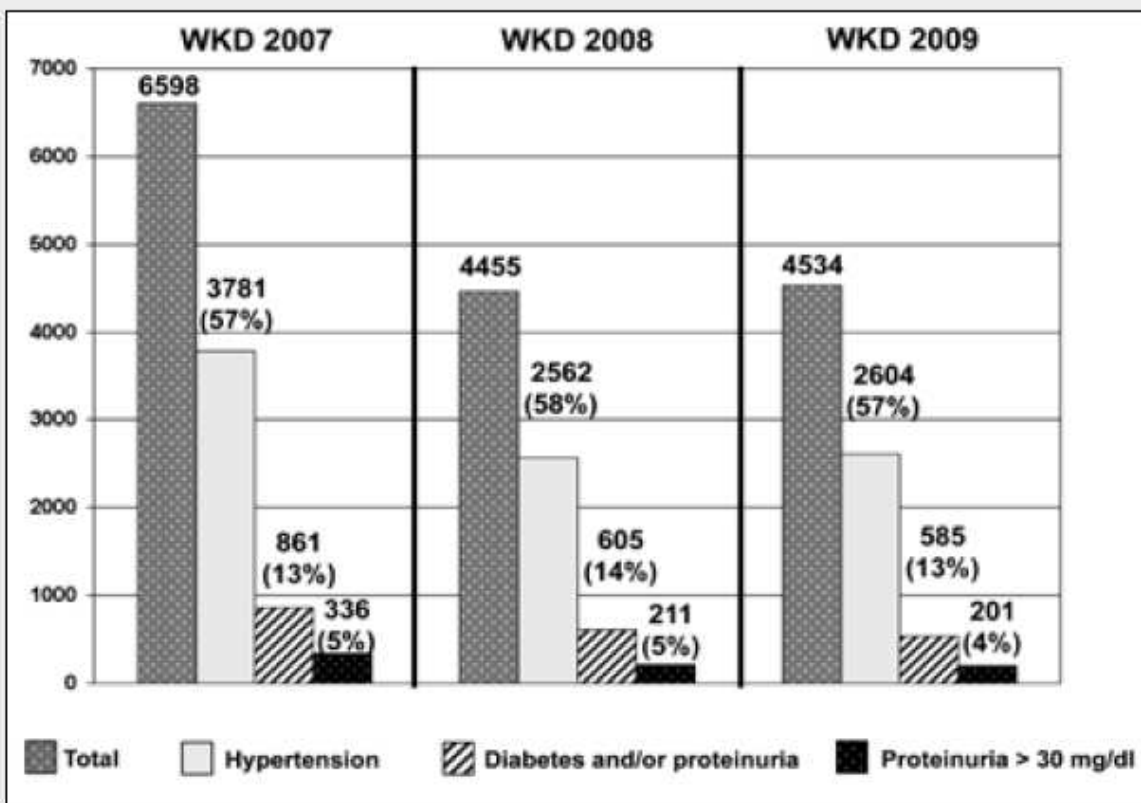


Fig. 3 - Individuals at risk for chronic kidney disease (CKD).

JNEPHROL 2011; 24(02): 250-253

DOI:10.5301/JN.2011.6370

Risk for chronic kidney disease in high school students: Italian report for World Kidney Day 2008-2009

Russo D., Del Prete M., Battaglia Y., Russo L.; and Local Coordinators*

TABLE I
CLINICAL CHARACTERISTICS AND HABITS OF STUDENTS

	Entire cohort (n=3,239)	Females (n=1,901)	Males (n=2,038)
Age, years	17.9 (1.2)	17.9 (1.1)	17.8 (1.3)
Weight, kg	65.0 (13.1)	57.6 (9.2)	71.9 (12.4)
Height, meters	1.70 (0.90)	1.63 (0.06)	1.75 (0.07)
Body mass index	22.3 (3.5)	21.5 (3.1)	23.1 (3.5)
Systolic blood pressure, mm Hg	117.2 (13.9)	112.7 (12.9)	121.3 (13.4)
Diastolic blood pressure, mm Hg	70.5 (9.2)	68.9 (9.0)	71.9 (9.2)
Cups of coffee per day	1.54 (1.1)	1.57 (1.1)	1.51 (1.1)

Values are means (SD).

TABLE II - RESPONSES TO QUESTIONNAIRE

	Entire cohort (n=3,239), %	Females (n=1,901), %	Males (n=2,038), %
Awareness of the importance of blood pressure measurement	83.0	84.5	82.3
Previous measurement of blood pressure	57.0	56.0	58.1
Previous urine analysis performed	74.0	76.5	71.6
Awareness of the meaning of term <i>proteinuria</i>	2.3	2.7	2.0
Awareness of kidney's role in body regulation	86.7	87.4	86.2
Awareness of chronic kidney disease	59.0	64.2	55.3
Awareness of dialysis	54.0	60.7	47.7
Awareness of kidney transplantation	62.0	59.1	64.7
Importance of body weight reduction for good health	12.2	11.0	13.4
Usefulness of World Kidney Day	84.8	84.6	84.6

Numbers are percentages.

Awareness of kidney diseases in general population and in high school students. Italian report for World Kidney Days 2010-2011

Y. Battaglia ¹, L. Russo ¹, R. Spadola ¹, D. Russo ¹; and Local Coordinators*

Blood pressure in "Square project" 2010-2011

6995 observed subjects

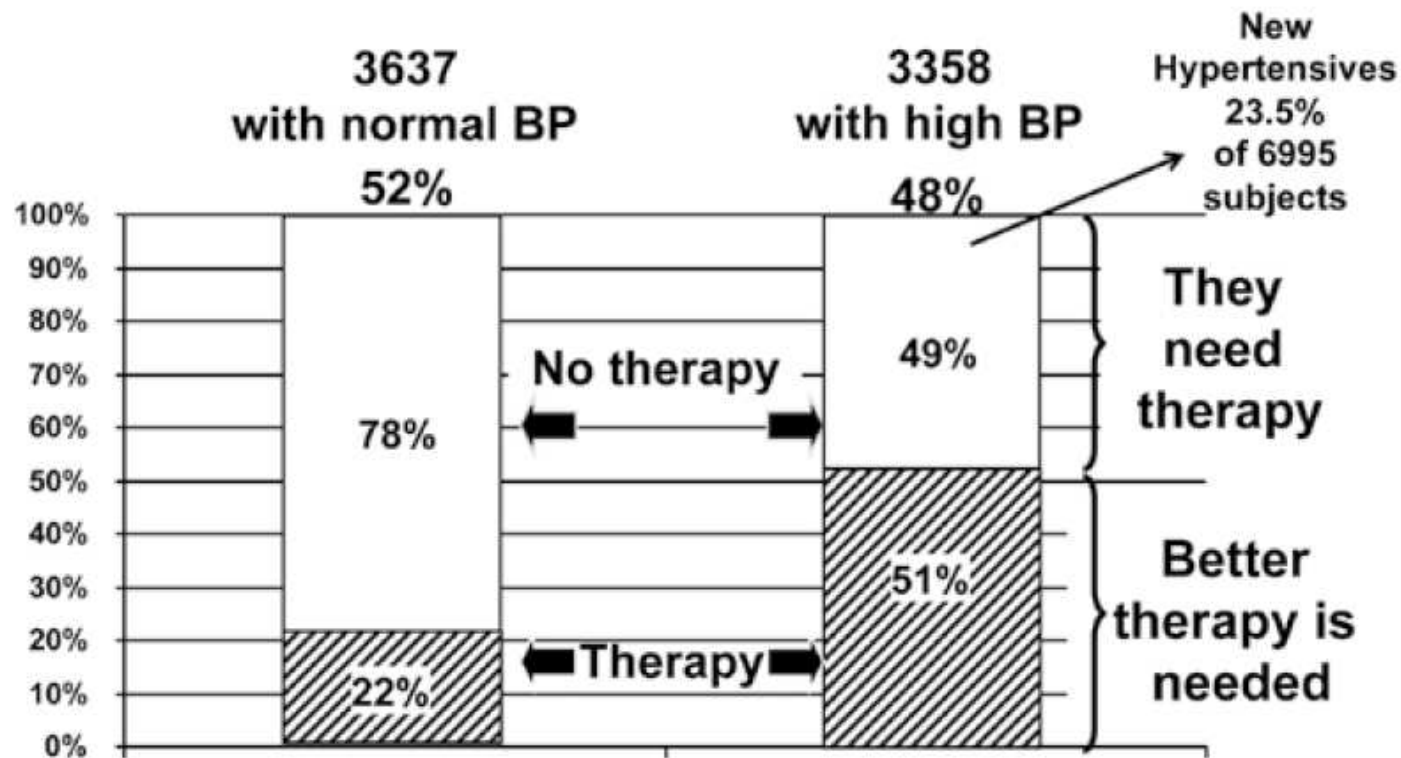


Fig. 1 - The 6995 subjects of the "Square project" 2010-2011. The 3637 subjects found with normal BP (left column) include 800 hypertensive subjects under therapy (22%). The 3358 subjects found with high BP (right column) include 1712 hypertensive subjects under treatment (51%), who need, therefore, a better therapy. The subjects found for the first time with high blood pressure were 1646, i.e. 23.5% of the 6995 observed subjects.

TABLE I**CLINICAL CHARACTERISTICS OF PARTICIPANTS TO THE
“SQUARE PROJECT” (NO. 6995)**

Age, years	54±16
Males, %	53
Weight, kg	73 ± 14
Abdominal circumference	96.58 ± 13.39
Body Mass Index	26.38 ± 4.51

Values are means ± SD.

Awareness of the word proteinuria in the "Square project" 2010-2011

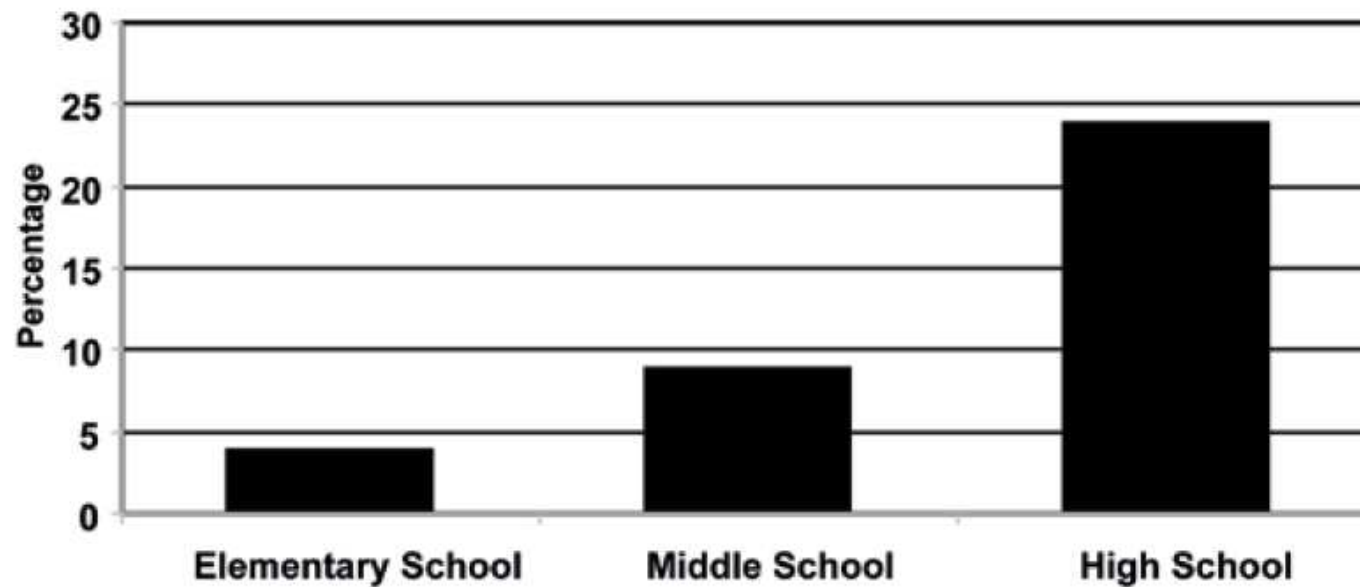


Fig. 2 - Awareness of the word "proteinuria" in relation with school education among participants to the "Square project" 2010-2011.

TABLE II**CLINICAL CHARACTERISTICS OF PARTICIPANTS TO THE
"SCHOOL PROJECT" (NO. 5187)**

Age, years	18±1
Males, %	47
Weight, kg	67.5 ± 13.2
Abdominal circumference	83.2 ± 11.9
Body Mass Index	22.89 ± 3.75

Values are means ± SD.

Dipstick test in the "School project"

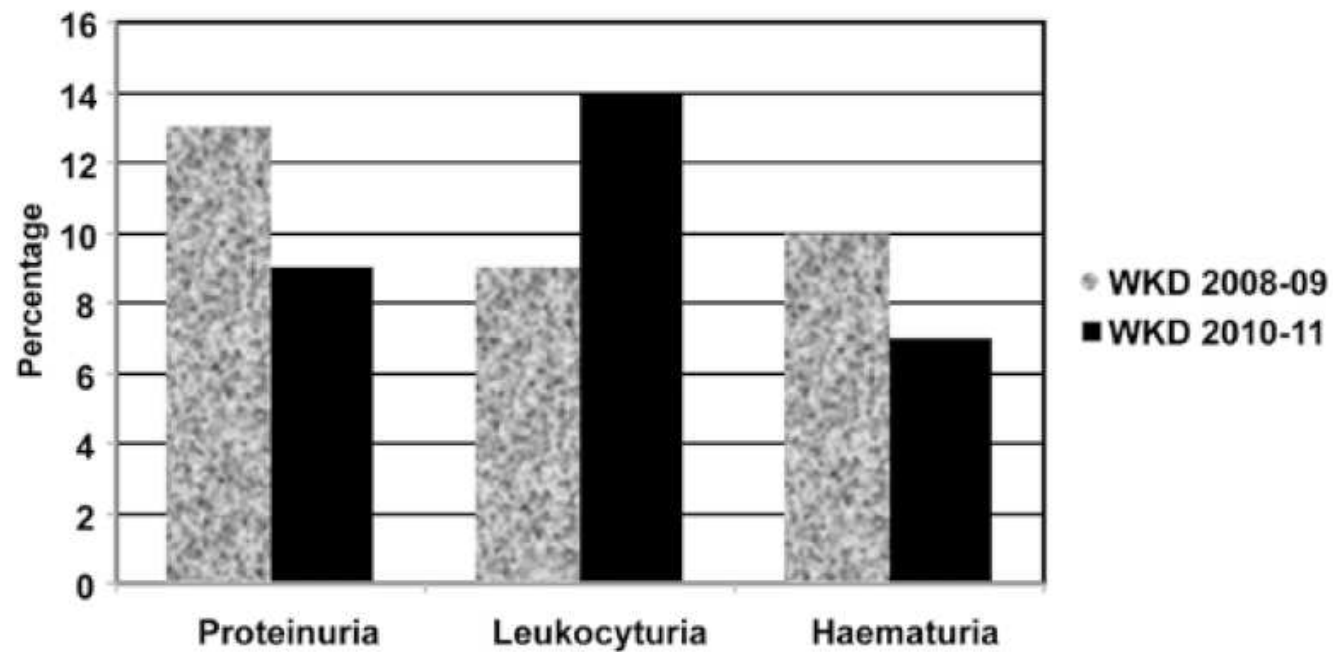


Fig. 3 - Comparison of the results of dipstick test in the "School project" between 2008-2009 and 2010-2011.

Risk factors for kidney diseases and awareness of blood pressure and proteinuria in general population and in high school students: Italian report for World Kidney Days 2012-2013

Pasquale Esposito¹, Alessandro Balducci², Vittorio E. Andreucci²; and Local Coordinators*

TABLE I

CLINICAL CHARACTERISTICS OF PARTICIPANTS IN THE SQUARE PROJECT FOR 2012-2013 (N=6,242)

Age, years	52.8 ± 8.5
Males, no. (%)	3,064 (49)
Hypertensive subjects, no. (%)	2,604 (41.7)
Body mass index, kg/m ²	25.9 ± 6.8
Abdominal circumference, cm	100 ± 13.7
Smokers, no. (%)	1,162 (18.6)
Diabetes, no. (%)	500 (8)
Hypercholesterolemia, no. (%)	1,588 (25)
Proteinuria on urine dipstick, no. (%)	249 (4)

For definition of hypertension and proteinuria see the text.
Data are expressed as means ± SD, or numbers (%).

TABLE I**CLINICAL CHARACTERISTICS OF PARTICIPANTS TO THE
“SQUARE PROJECT” (NO. 6995)**

Age, years	54±16
Males, %	53
Weight, kg	73 ± 14
Abdominal circumference	96.58 ± 13.39
Body Mass Index	26.38 ± 4.51

Values are means ± SD.

TABLE II**CLINICAL CHARACTERISTICS OF PARTICIPANTS IN THE SCHOOL PROJECT FOR 2012-2013 (N=2,798)**

Age, years	18.1 ± 3.5
Males, no. (%)	1,317 (47)
Body mass index, kg/m ²	22.1 ± 3.6
Abdominal circumference, cm	81.8 ± 3.5
Smokers, no. (%)	661 (23.6)

Data are expressed as means ± SD, or numbers (%).

RESULTS

From the Square Project, data for 6,242 participants (3,424 in 2012 and 2,818 in 2013) were collected in many Italian cities. Of these, 18% (1,115) had participated in previous WKDs, a percentage that was higher than that of past WKDs (5%). The clinical characteristics of the whole cohort are reported in Table I.

The main risk factors for renal diseases – hypertension, diabetes, smoking, obesity and dyslipidemia – were differently represented in the subjects evaluated. In particular, the prevalence of hypertension, which included subjects receiving hypertensive therapy and subjects found with high BP, was significantly lower than that previously recorded ($n=2,604$, 42% vs. 53%-57% for the past WKDs). Simultaneously, we observed a decrease in the percentage of individuals found to be hypertensive for the first time (12% vs. 23.5% of all subjects). This encouraging finding was accompanied by evidence of an improved awareness of BP control both in the whole cohort (75% vs. 60% recorded in the past WKDs) and in patients on antihypertensive therapy (91% vs. 80%).

With regard to the factors potentially correlated with BP levels, a significant association was observed between body mass index (BMI) and both systolic and diastolic BP (Fig. 1). Proteinuria was found in 249 subjects (4%) and was associated with the presence of diabetes, hypertension, urinary infections and other kidney diseases. Unlike hypertension,

awareness of proteinuria was still low among the population evaluated (about 20%).

During WKD 2012 and 2013, 900 and 1,898 participants, respectively, took part in the School Project. The characteristics of the participants are reported in Table II.

Almost all students were conscious of the importance of hypertension control, and 56% of them had had a previous BP measurement, while 71 participants (2.5%) presented elevated BP levels. Knowledge of the role and the function of the kidneys (93%), as well as awareness of the meaning of terms such chronic kidney disease (77%), dialysis (70%) and transplantation (89%) was greatly increased compared with past WKDs. In contrast, such as in the general population, awareness of the term proteinuria was low (9.8%). The main sources of information were parents (36%), teachers (27%) and physicians (10%). A urine dipstick exam was performed in 96% of the cohort, and 393 students (14.5%) presented proteinuria, 417 (15%) leukocyturia and 329

(12%) hematuria, percentages that were slightly higher than those for past WKDs. The whole spectrum of urinary results found in proteinuric subjects is shown in Figure 2.

The effect of the World Kidney Day campaign on the awareness of chronic kidney disease and the status of risk factors for cardiovascular disease and renal progression

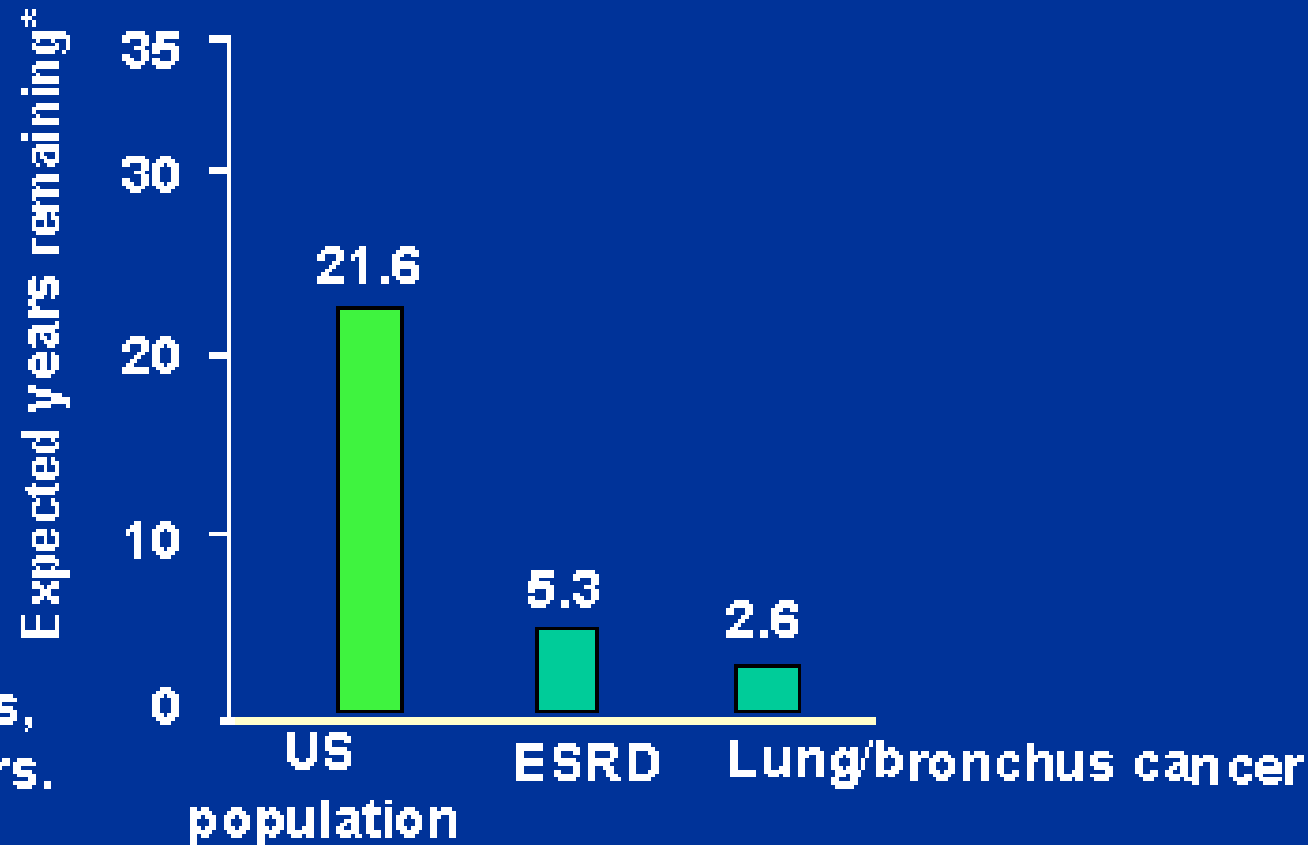
Ho Jun Chin^{1,2,3}, Jeong Myeong Ahn², Ki Young Na^{1,2}, Dong-wan Chae^{1,2,3}, Tae Woo Lee^{1,3}, Nam Joo Heo⁴ and Suhnggwon Kim^{1,3}

Methods. We selected 57 718 people who had undergone a routine health check-up.

Results. The average CKD awareness was 3.1% (95% CI: 2.6–3.7%) and was increased with progressing CKD stage. The awareness was increased from 1.1% before the WKD campaign to 5.8% after the campaign ($P < 0.001$). CKD awareness in the post-WKD period was increased in CKD stages 2 (OR 4.535: 95% CI: 2.044–10.062) and 3 (OR 6.614: 95% CI: 4.282–10.217) and profoundly increased in stage 4 (OR 13.800: 95% CI: 2.127–89.524), compared to the pre-WKD period. In the CKD-aware group compared to the CKD-unaware group, the awareness of diabetes mellitus (90.0% versus 54.2%, $P < 0.001$) and hypertension (87.2% versus 64.7%, $P < 0.001$) was higher and the levels of systolic blood pressure (116.9 ± 1.0 versus 120.1 ± 0.2 , $P < 0.01$) and serum cholesterol (198.3 ± 2.7 versus 205.0 ± 0.5 , $P < 0.05$) were lower by covariance analysis.

Survival in ESRD

ESRD patients lose approximately 75% of remaining years that the general population is expected to live.



* Based on adults, aged 55–64 years.

US Renal Data System. *USRDS 1995 Annual Data Report*. 1995. Available at: <http://www.usrds.org/download/1995/ch05.pdf>. Accessed May 14, 2002.

The data reported here have been supplied by the United States Renal Data System (USRDS). The interpretation and reporting of these data are the responsibility of the author(s) and in no way should be seen as an official policy or interpretation of the US government.

General U.S. population, 2003										ESRD patients, 2005						
Age	All races			White			Black			Dialysis			Transplant			
	All	M	F	All	M	F	All	M	F	Age	All	M	F	All	M	F
0-14	71.0	68.4	73.6	71.4	68.9	73.9	66.7	63.1	69.9	0-14	18.9	19.5	18.2	51.8	51.9	51.9
15-19	61.2	58.6	63.7	61.6	59.1	64.1	57.0	53.4	60.2	15-19	16.7	17.4	15.7	40.7	40.5	41.1
20-24	56.5	54.0	58.9	56.8	54.4	59.2	52.3	48.9	55.3	20-24	14.2	14.9	13.3	37.6	37.3	38.2
25-29	51.7	49.3	54.0	52.1	49.7	54.3	47.7	44.4	50.5	25-29	12.6	13.2	11.8	33.9	33.5	34.7
30-34	47.0	44.6	49.2	47.3	45.0	49.5	43.1	39.9	45.8	30-34	11.0	11.3	10.5	30.0	29.5	30.8
35-39	42.3	40.0	44.4	42.6	40.3	44.7	38.5	35.5	41.1	35-39	9.4	9.6	9.0	26.5	26.0	27.5
40-44	37.6	35.4	39.7	37.9	35.8	39.9	34.1	31.2	36.6	40-44	8.1	8.2	7.9	23.2	22.6	24.4
45-49	33.1	31.0	35.1	33.4	31.3	35.3	29.9	27.0	32.3	45-49	7.1	7.1	6.9	20.1	19.4	21.3
50-54	28.8	26.8	30.6	29.0	27.0	30.7	25.9	23.2	28.1	50-54	6.2	6.2	6.1	17.2	16.5	18.4
55-59	24.6	22.7	26.2	24.7	22.9	26.3	22.2	19.8	24.2	55-59	5.3	5.3	5.3	14.6	13.9	15.9
60-64	20.6	18.9	22.0	20.7	19.0	22.1	18.7	16.5	20.4	60-64	4.5	4.5	4.6	12.2	11.6	13.5
65-69	16.9	15.4	18.1	17.0	15.4	18.2	15.6	13.6	17.0	65-69	3.8	3.8	3.9	10.2	9.6	11.4
70-74	13.5	12.2	14.5	13.5	12.2	14.5	12.7	11.0	13.8	70-74	3.2	3.2	3.3	8.7	8.1	9.8
75-79	10.5	9.4	11.3	10.5	9.4	11.2	10.2	8.8	11.0	75-79	2.7	2.7	2.8	7.2	6.6	8.3
80-84	8.0	7.1	8.5	7.9	7.0	8.4	8.0	6.9	8.6	80-84	2.3	2.2	2.4			
85+	4.3	3.8	4.4	4.2	3.7	4.3	4.8	4.2	5.0	85+	1.9	1.8	1.9			
Overall	23.6	23.3	26.6	25.2	23.5	26.7	23.0	20.7	24.8	Overall*	5.7	5.8	5.6	15.8	15.2	16.9

Expected remaining lifetimes (yrs) of the U.S. population & of & dialysis & transplant patients, by age, gender, & race general population, 2003 & prevalent dialysis & transplant patients, 2005 (From USRDS)

L'insufficienza renale: si può prevenire?

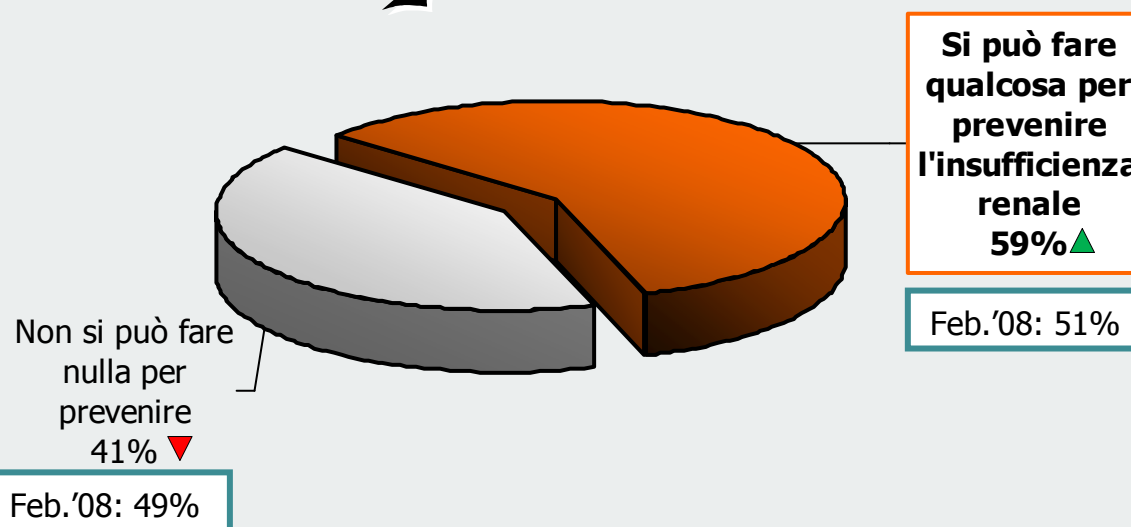
(Base: popolazione italiana dai 18 anni in poi, n=1400)

"Lei sa se si può fare qualcosa per prevenire l'insufficienza renale?"

42

Giugno 2010**Hanno sentito parlare di insufficienza renale**

(=100%)

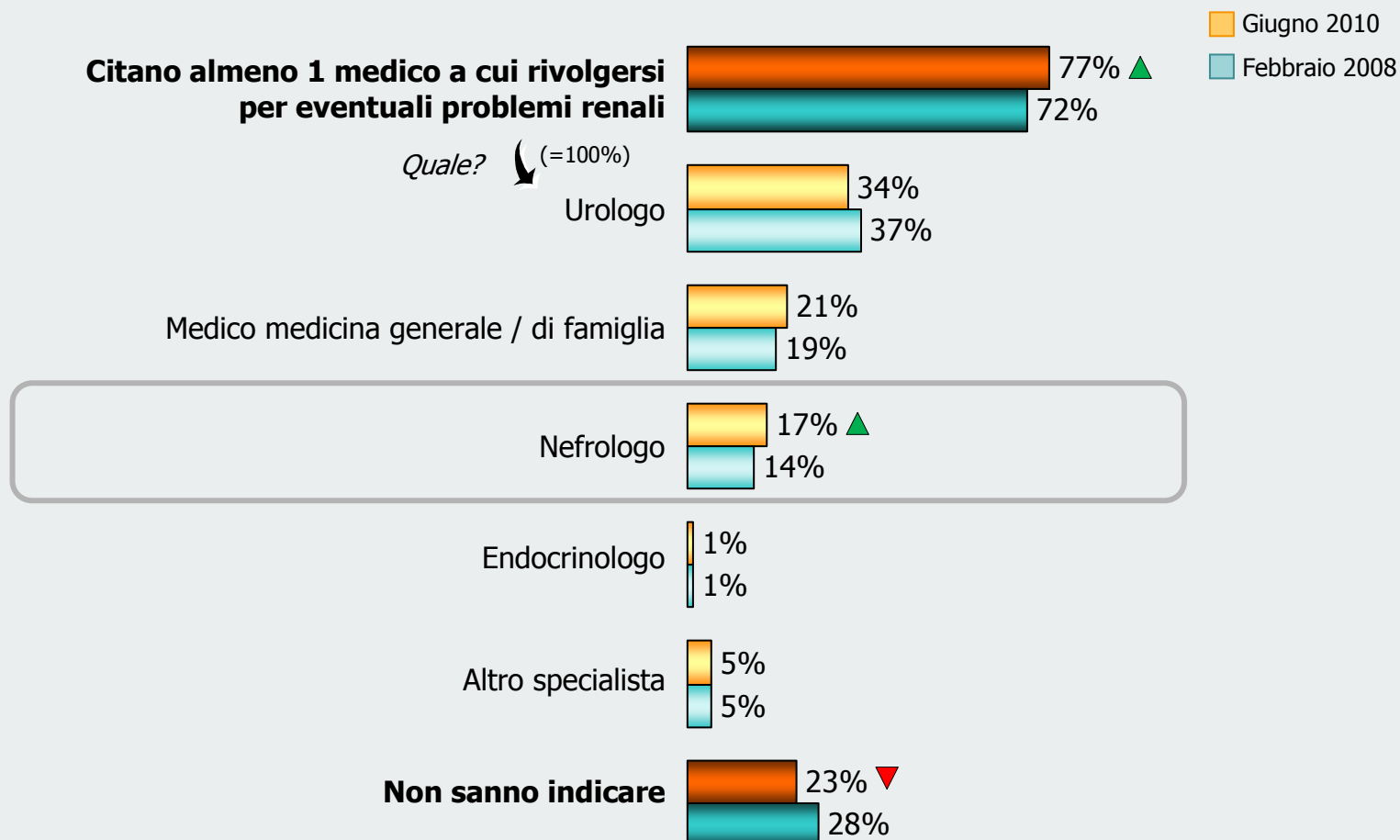


Le patologie renali: a quale medico rivolgersi? (risposte spontanee)

(Base: popolazione italiana dai 18 anni in poi, n=1400)

"Se un parente/amico/conoscente Le chiedesse un consiglio sul tipo di medico al quale rivolgersi per prevenire problemi/malattie ai reni, Lei che tipo di medico gli consiglierebbe?"

43



Le patologie renali: a quale medico rivolgersi? (risposte spontanee)

(Base: chi non cita il nefrologo fra i tipi di medico a cui rivolgersi per prevenire malattie renali, n= 1166)

"Lei sa se esiste un tipo di medico specializzato nella cura dei problemi/malattie renali? Potrebbe indicarmi di quale specialista si tratta?"

44

Esiste un tipo di medico specializzato nella cura dei problemi/malattie renali 56%

Quale specialista?

(=100%)

Urologo 30%

Nefrologo 8%

Endocrinologo 1%

Altro 2%

Non indica 59%

	NORD OVEST %	NORD EST %	CENTRO %	SUD E ISOLE %	MASCHI %	FEMMINE %	OVER 64 ANNI %
Esiste un tipo di medico specializzato nella cura dei problemi/malattie renali	58	50	54	58	55	57	53
Urologo	35	26	26	31	31	30	32
Nefrologo	11	8	11	5	8	8	12
Endocrinologo	-	1	4	-	2	-	-
Altro	-	2	5	2	3	1	-
Non indica	54	63	54	62	56	61	56



○ / ○ : differenze statisticamente significative (+/-) al 95% rispetto al totale campione

Insufficienza renale cronica: un terreno clinico in comune



**Medico di Famiglia
Internista**



Diabetologo



Nefrologo



Cardiologo



**LA MALATTIA
RENALE CRONICA**

Scenari del III millennio

Presentazione
del Rapporto SIN
sulla Prevenzione Renale

L'insufficienza renale è un problema di dimensioni epidemiche

**Le implicazioni del fenomeno vanno ben al di là delle
malattie renali in quanto gradi anche lievi di insufficienza
renale moltiplicano il rischio cardiovascolare**

il problema ha costi sociali alti

**E' urgente varare un piano di informazione sul fenomeno
che è ancora misconosciuto dai medici e ignoto al
pubblico.**

Il messaggio:

**“La malattia renale cronica é frequente, é pericolosa ma
trattabile”**