Prevalence of CKD
and Causes of ESRD in Asia

Chih-Wei Yang
Taiwan
Representing
AfCKDi Work Group 3
3.6 billion people, 60% of the world’s population.

**Aging societies**: Life expectancy in Asia has been increasing but birth rate decreasing in Japan, China, South Korea, and Taiwan.

**Change in lifestyle** similar to western countries has changed disease epidemiology.

**Chronic diseases**, such as diabetes, hypertension, and metabolic syndrome, have become common.

*Enyu Imai, Seiichi Matsuo
The Lancet, Vol 371, 2008*
Chronic Kidney Disease in Asia

• Glomerulonephritis was the most common chronic kidney disease in Asia.
• Glomerulonephritis: the leading cause of ESRD in China (47.3%) and the second leading cause in Japan (25.6%) in 2004.
• Hematuria: 3.5% of the population in China and 9.0% of that in Okinawa, Japan.
• Proteinuria: 4.1% of the population in Japan, 7.9% in Taiwan, and 0.5% in China.

Enyu Imai, Seiichi Matsuo
Background

• CKD is a major health burden in Asia with high heterogeneity in epidemiology and in socioeconomic status.

• A consensus was made in the AfCKDi workgroup to gathering current causes of ESRD and prevalence of CKD from the Asian countries or regions.

• These data were mainly from registries or from local hospital data if registry is not available in that country.

• These data served as a basis for future population target of CKD prevention/treatment and for the foundation of Asian Best Practice Guidelines initiatives.
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- Enyu Imai, Japan
- Rowan WALKER, Australia
- Haiyan WANG, China
- Chih Wei YANG, Taiwan
- Seong Lai Hooi, Malaysia
Outline

• Status of ESRD and CKD in Asia
• ESRD registry data from Asia – AfCKDi WG3
• Diabetes as a primary cause of CKD and ESRD
• Publications related to CKD in Asia
• Future direction
Unraveling the racial disparities associated with kidney disease.
The incidence of reported type 2 diabetes-related ESRD in the United States by race combined data for 1998–2001 Rates adjusted for gender
Data from the USRDS 2003.

Norris KC, Agodoa LY.

Unraveling the racial disparities associated with kidney disease.
Norris KC, Agodoa LY.
Age- and sex-standardized incidence rates for all diabetic and all non-diabetic ESRD among various ethnic groups

![Bar chart showing incidence rates for non-diabetic (Non-DM) and diabetic (DM) ESRD among different ethnic groups. The bars for Asian are highlighted.]
Incidence and prevalence of renal replacement therapy (RRT) among various countries in the Asia-Pacific region

![RRT Treatment Incidence, 1999-2005](chart1)

![RRT Prevalence, 1999-2005](chart2)

TECK-ONN LIM  NEPHROLOGY 2008; 13, 745–752
Incidence and Prevalence of ESRD within Asia

USRDS International Comparison
Incidence Cases of ESRD in Asia

[Line graph showing the incidence cases of ESRD in different countries in Asia from 2003 to 2009. Each country is represented by a different line color.

Countries included are:
- Japan
- Taiwan
- Philippines
- Shanghai
- Malaysia
- Beijing
- Bangladesh
- Hong Kong
- New Zealand

Legend:
- Blue line: Japan
- Red line: Taiwan
- Green line: Philippines
- Purple line: Shanghai
- Teal line: Malaysia
- Orange line: Australia
- Gray line: Beijing
- Pink line: Bangladesh
- Green line: Hong Kong
- Purple line: New Zealand

Graph indicates a gradual increase in cases over the years.]
Prevalent Cases of ESRD in Asia
ESRD Burden in Asia
2006

- Total No. of new cases
- Total No. of dialysis patients

Countries: Singapore, Bangladesh, Shanghai, Taiwan, Malaysia, Beijing, Japan, Hong Kong, New Zealand, Australia.
Singapore

Incidence Trend of Diabetic nephropathy and Glomerulonephritis as a cause of ESRD

Singapore Renal Registry 2005/2006
Malaysia

Incidence Causes of ESRD

<table>
<thead>
<tr>
<th>Year</th>
<th>DM</th>
<th>Glomerulonephritis</th>
<th>Hypertension</th>
<th>Tubulointerstitial Nephritis</th>
<th>Infection</th>
<th>Inherited</th>
<th>Others (Can specify)</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>53</td>
<td></td>
<td></td>
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<td>2004</td>
<td>54</td>
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<tr>
<td>2005</td>
<td>56</td>
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<td>2006</td>
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<tr>
<td>2007</td>
<td>58</td>
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<td></td>
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<tr>
<td>2008</td>
<td>55</td>
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<td>2009</td>
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</tr>
</tbody>
</table>
Primary Renal Diseases in Malaysia

Increasing Diabetes 1980-2006

Lim YN, Med J Malaysia Vol 63 Supplement C
September 2008
Diabetes is the Leading Cause of ESRD in Japan since 1997
Taiwan
Incidence Causes of ESRD

DM
Glomerulonephritis
Hypertension
Tubulointerstitial Nephritis
Infection
Inherited
Obstructive
Others (Can specify)
Unknown
Diabetes, the Leading Cause of ESRD in Taiwan since 2000

- Chronc GN
- TIN
- HTN
- DM Nephropathy

TSN Renal Registry
1990~2001

Yang WC & Hwang SJ, NDT, 2008
Hong Kong
Incidence Causes of ESRD

%  

2003 2004 2005 2006 2007 2008 2009

DM
Glomerulonephritis
Hypertension
Tubulointerstitial Nephritis
Infection
Inherited
Obstructive
Others (Can specify)
Unknown

AfCKDi WG3
New Zealand
Incidence Causes of ESRD

- DM
- Glomerulonephritis
- Hypertension
- Tubulointerstitial Nephritis
- Analgesic Nephropathy
- Infection
- Reflux Nephropathy
- Inherited

AfCKDi WG3
Bangladesh Incidence Causes of ESRD

- DM
- Glomerulonephritis
- Hypertension
- Tubulointerstitial Nephritis
- Infection
- Inherited
- Obstructive
- Others (Can specify)
- Unknown

AfCKDi WG3
Shanghai
Incidence Causes of ESRD

%  70
60
50
40
30
20
10
0

2003  2004  2005  2006  2007  2008  2009

DM
Glomerulonephritis
Hypertension
Tubulointerstitial Nephritis
Infection
Inherited
Obstructive
Others (Can specify)
Unknown

AfCKDi WG3
Beijing
Incidence Causes of ESRD

2003 2004 2005 2006 2007 2008 2009

% 70 60 50 40 30 20 10 0

DM
Glomerulonephritis
Hypertension
Tubulointerstitial Nephritis
Infection
Inherited
Obstructive
Unknown

AfCKDi WG3
Diabetes Incidence as a Cause of ESRD in Asia

AfCKDi WG3
Diabetes as the leading Cause of ESRD 2006

AfCKDi WG3
Asian countries have high incidence of DM.
CGN as the Cause of ESRD 2006

- Bangladesh: 44.0%
- Shanghai: 38.8%
- Taiwan: 27.1%
- Japan: 25.6%
- Philippines: 25.1%
- Australia: 23.0%
- Hong Kong: 21.1%
- New Zealand: 21.0%
- Singapore: 18.9%
- Malaysia: 4.0%
Hypertension Incidence as a Cause of ESRD in Asia

AfCKDi WG3
Hypertension as the Cause of ESRD 2006

- Malaysia: 25.0%
- Australia: 16.0%
- Shanghai: 14.5%
- Beijing: 13.2%
- New Zealand: 11.0%
- Japan: 10.0%
- Bangladesh: 9.5%
- Taiwan: 8.3%
- Hong Kong: 7.8%
Prevalence of CKD in Asia

Data from AfCKDi WG3
The Malaysian dialysis registry has demonstrated the rapid growth of dialysis provision in this country. This has been particularly dramatic in the older age groups. It has also shown that diabetic nephropathy leading to ESRD is on the rise and accounts for more than 50% of all incident dialysis patients. Hence prevention of ESRD is eminently achievable with better management of diabetes mellitus.

Singapore

Ethnic disparities in prevalence and impact of risk factors of chronic kidney disease

• Aimed to assess the prevalence and risk factors of CKD in a multi-ethnic Asian population in Singapore.
• 4499 participants, aged 24-95 years.
• The age, sex-standardized prevalence of CKD was 12.8% (11.4%, 18.6% and 17.6% in Chinese, Malays and Indians).
• Older age and the presence of diabetes, hypertension and dyslipidemia were significantly associated with CKD in all ethnic groups.
• Diabetes (45%) and dyslipidemia (16%) among Malays and hypertension among Indians (23%) had greater population-attributable risk of CKD.
Prevalence of eGFR, albuminuria and chronic kidney disease (CKD) by ethnicity

The age, sex-standardized prevalence of CKD was 12.8% (11.4%, 18.6% and 17.6% in Chinese, Malays and Indians).
Population-attributable risk for major risk factors of CKD by ethnic groups

Diabetes (45%) and dyslipidaemia (16%) among Malays and hypertension among Indians (23%) had greater population-attributable risk of CKD.
Prevalence of CKD by age group and gender
Association between body mass index and chronic kidney disease in men
predicted odds of CKD from nonparametric logistic regression
Malay adults in Singapore

Male

Female

Shankar A Department of Community, Occupational, and Family Medicine, Singapore General Hospital, Singapore
Japan
Prevalence of chronic kidney disease in the Japanese general population

574,024 (male 240,594, female 333,430) participants over 20 years old in 2005.

• The prevalence of CKD stages 1, 2, 3, and 4 + 5 were 0.6, 1.7, 10.4 and 0.2% in the study population.

• The prevalence of low GFR was significantly higher in the hypertensive and proteinuric populations.

• The prevalence rate of CKD in Japan was similar to that in the USA when the Japanese general population was age adjusted to the US 2005 population estimate.

• About 13% of the Japanese adult population—approximately 13.3 million people—were predicted to have CKD in 2005

<table>
<thead>
<tr>
<th>CKD Stage</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKD Stage 1</td>
<td>1.03</td>
<td>0.97</td>
<td>1.00</td>
</tr>
<tr>
<td>CKD Stage 2</td>
<td>3.02</td>
<td>2.07</td>
<td>2.53</td>
</tr>
<tr>
<td>CKD Stage 3</td>
<td>8.61</td>
<td>7.96</td>
<td>8.27</td>
</tr>
<tr>
<td>CKD Stage 3a</td>
<td>7.48</td>
<td>6.62</td>
<td>7.03</td>
</tr>
<tr>
<td>CKD Stage 3b</td>
<td>1.13</td>
<td>1.34</td>
<td>1.24</td>
</tr>
<tr>
<td>CKD Stage 4</td>
<td>0.13</td>
<td>0.26</td>
<td>0.20</td>
</tr>
<tr>
<td>CKD Stage 5</td>
<td>0.11</td>
<td>0.04</td>
<td>0.08</td>
</tr>
<tr>
<td>excluding pts with dialysis or Tx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CKD Stage 3-5 (60&gt;GFR)</td>
<td>8.85</td>
<td>8.26</td>
<td>8.55</td>
</tr>
<tr>
<td>Total</td>
<td>12.90</td>
<td>11.29</td>
<td>12.07</td>
</tr>
</tbody>
</table>
Japan
BMI and CKD

• 1978 local residents of the Kiyotake area of Japan.
• Body mass index (BMI) and prevalence of obesity in the residents with CKD were found to be higher than in those without CKD in both genders.
• Multivariate logistic method using age, BMI, antihypertensive and antidyslipidemic medicines, blood pressure, serum lipid and glucose as independent covariates, and found that BMI was a significant parameter independently correlated with CKD in both genders.

Japan
Obesity and Proteinuria

• 16,031 men and 5,746 women aged from 20 to 39 years.
• No significant differences in eGFR between obese and nonobese groups.
• Hypertension, hyperglycemia, dyslipidemia, and hyperuricemia were independently associated with obesity.
• Body mass index (BMI) in both men and women increased with increase in number of risk factors (P < 0.001).
• Obesity and the risk factors were independently associated with proteinuria.

CKD in Japan
Kidney Early Evaluation Program (KEEP) define a high-risk population

• Japanese version of the US National Kidney Foundation's Kidney Early Evaluation Program (KEEP).
• High risk group: **1065** participants
• **26.9%** had diabetes, **59.2%** had hypertension, **16.9%** had history of diabetes and hypertension together, and **30.6%** had neither, but had family history of diabetes, hypertension, or kidney disease.
• CKD (stages 1-4) prevalence was **26.7%**, CKD prevalence was **35.0%** among diabetic participants, **34.8%** among hypertensive participants, and **37.1%** among participants with cardiovascular disease (CVD).
• CKD prevalence was high compared with the general Japanese population.

Chronic kidney disease has a more powerful impact on peripheral arterial disease than metabolic syndrome in Japanese type 2 diabetic patients.

- Studied the prevalence of CKD and metabolic syndrome and impact on peripheral arterial disease (PAD) in type 2 diabetic patients.
- Japanese type 2 diabetic patients without hemodialysis (n = 1014). PAD was defined as ankle-brachial blood pressure index less than 0.9.
- The prevalence of CKD and metabolic syndrome was 47.1% and 39.6%, respectively. The prevalence of PAD was significantly higher in groups with CKD alone than those with metabolic syndrome alone.
- This study indicates that CKD has more powerful impact on PAD than metabolic syndrome in type 2 diabetic patients.

Metab Syndr Relat Disord. 7(4):323-6. 2009
Tsunoda K. et al.
Department of Clinical Laboratory Medicine, Wakayama Medical University, Japan.
All-cause mortality attributable to chronic kidney disease: A prospective cohort study based on 462,293 adults in Taiwan

Wen CP et al. Lancet 2008

Taiwan CKD epidemiology

CKD prevalence 11.9% in Taiwan

Figure 3: National prevalence of chronic kidney disease by 5-year age groups in adults in Taiwan
Summary of the High ESRD Burden in Taiwan

Causes of high prevalence and high incidence

– Increase of longevity and aged population
– Improvement in care of chronic diseases, but also increase of the chance of renal injury

⇒ Diabetes and Aged are two major disease and group of dialysis patients
– National Health Insurance decreases the barrier for entering dialysis therapy

⇒ Increasing dialysis patients after launching NHI
⇒ Increasing medical expenses and burdens

- A community-based medical screening program in Chiayi County with 18,422 subjects
- The CKD was prevalent in **24.2%** of the middle-aged and elderly population. Old age and elevated levels of body mass index, systolic blood pressure, fasting plasma glucose, and cholesterol were associated with CKD.
- The adjusted odds ratios of CKD in participants with serum TG $$\geq 200 \text{ mg/dL}$$ was **1.901** and in participants with serum TG $$> 500 \text{ mg/dL}$$ it increased to **2.205**.
- **CONCLUSION:** Hypertriglyceridemia is an independent risk factor for CKD in Taiwanese adults.

Lee PH, Chang HY, Tung CW, Hsu YC, Lei CC, Chang HH, Yang HF, Lu LC, Jong MC, Chen CY, Fang KY, Chao YS, Shih YH, Lin CL.
Department of Nephrology, Chang Gung Memorial Hospital, Pu-tzu City, Chiayi, Taiwan.
Taiwan

Determinants of peripheral arterial stiffness in patients with chronic kidney disease in southern Taiwan.

- To investigate the determinants of peripheral artery occlusive disease (PAOD) and arterial stiffness in patients with CKD in southern Taiwan.
- 169 patients with stage 3-5 CKD. Ankle-brachial index (ABI) and brachial-ankle pulse wave velocity were measured.
- Increased brachial-ankle pulse wave velocity was correlated with increased age, diabetes mellitus, increased systolic blood pressure, decreased pulse pressure and decreased eGFR.
- In addition to the traditional atherosclerotic risk factors, decreased eGFR was also correlated with PAOD and increased arterial stiffness in these patients.

Chen JH, Chen SC, Liu WC, Su HM, Chen CY, Mai HC, Chou MC, Chang JM. Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University, Faculty of Renal Care, College of Medicine, Kaohsiung, Taiwan.
Taiwan

Management of chronic kidney disease in Taiwan: room for quality improvement

- 200,000 individuals, 7,740 patients with CKD
- Only 54.8% had follow-up of renal function.
- Tests for anemia 34.5%, calcium/phosphorus 5.2% and lipid profile 40.9%.
- Most hypertensive CKD patients have used antihypertensive agents, but only 58.1% of them received ACEIs or ARBs.
- Of CKD patients with diabetes, less than half had HbA1c measured, and only 49.7% received ACEIs/ARBs.
- CONCLUSIONS: Management of CKD patients is suboptimal, and lack of awareness is common.

Kuo HW, Tsai SS, Tiao MM, Liu YC, Yang CY.
Division of Nephrology, Department of Internal Medicine, Yuan's General Hospital, Kaohsiung, Taiwan.
China

Prevalence of chronic kidney disease in a middle and old-aged population of Beijing

Li ZY, Xu GB, Xia TA, Wang HY.
Department of Clinical Laboratory, Peking University First Hospital, Beijing, China.
China

Comparison of the prevalence of chronic kidney disease among different ethnicities: Beijing CKD survey and American NHANES

• Screening for CKD in Beijing in 2006 was compared with data from the National Health and Nutrition Examination Survey (NHANES) between 1999-2006 (participants aged ≥20 years, 13,626 Chinese, 9,006 whites, 3,447 African Americans, 4,626 Hispanics).

• The re-expressed abbreviated MDRD equation for Americans and its modified form for Chinese were used for eGFR.

CONCLUSIONS:

• Native Chinese have a lower prevalence of albuminuria, CRI and CKD than American whites, African Americans and Hispanics.

• Chinese were more likely to have CRI when exposed to diabetes or hypertension.

Chinese population
lower prevalence of albuminuria, CRI and CKD

13,626 Chinese, 9,006 whites, 3,447 African Americans, 4,626 Hispanics

China

CKD in Shanghai 11.8%

- 2596 residents in Shanghai, China. 2554 were entered into this study. The First prevalence of CKD in the community population
- Simplified MDRD equation
- Albuminuria 6.3% and haematuria 1.2%, decreased kidney function 5.8%. 11.8% of subjects had CKD. The rate of awareness of CKD was 8.2%.
- Age, obesity, hypertension, diabetes, anaemia, hyperuricaemia and nephrolithiasis each contributed to the development of CKD.

Community-based study on CKD subjects and the associated risk factors.
Department of Nephrology, Ruijin Hospital, Shanghai Jiao Tong University, School of Medicine, Shanghai People’s Republic of China.
China

CKD in Shanghai 11.8%

Shanghai

Shanghai Diabetic Complications Study (SHDCS)

- 3714 adults in Shanghai.
- Microalbumininuris 22.8%, macroalbumininuris 3.4% and CKD 29.6%, in subjects with diabetes.
- Diabetes and cardiovascular disease (CVD) both increased the risk for albuminuris. Although the worsening trends of eGFR are similar in diabetes and IGR subjects, IGR was not a significant risk factor for albuminuris and renal insufficiency.
- CONCLUSION: Screening for albuminuris and eGFR is highly recommended for older patients with diabetes, hypertension and CVD to prevent end-stage kidney disease.

Department of Endocrinology and Metabolism, Shanghai Clinical Center of Diabetes, Shanghai Jiaotong University Affiliated Sixth People's Hospital, Shanghai Diabetes Institute, Shanghai Key Laboratory of Diabetes Mellitus,
China

Improvement of awareness, treatment and control of hypertension among chronic kidney disease patients in China from 1999 to 2005.

- Two nationwide surveys were conducted in China in 1999-2000 and 2004-2005 among, respectively.
- 1328 and 1244 adult, non-dialysis, hypertensive CKD patients, to assess the status of hypertension awareness, treatment and control.
- Compared with the data from 1999-2000, the data from 2004-2005 showed increased awareness (87.2 vs. 75.7%, P<0.001), treatment (85.9 vs. 80.4%, P=0.001) and control (30.0 vs. 21.1%, P<0.001, by the general threshold of BP<140/90 mm Hg; 7.7 vs. 5.9%, P=0.075, by an optimal threshold of BP<130/80 mm Hg) of hypertension.

The prevalence of chronic kidney disease (CKD) and the associated factors to CKD in urban Korea: a population-based cross-sectional epidemiologic study

- The 2,356 subjects 35 yr of age or older.
- MDRD Study equation.
- The overall prevalence of CKD was 13.7%.
- The prevalences of CKD according to stage were 2.0% stage 1, 6.7% stage 2, 4.8% stage 3, 0.2% stage 4, and 0.0% stage 5.
- The prevalences of microalbuminuria and macroalbuminuria were 8.6% and 1.6%, respectively. The prevalence of eGFR less than 60 mL/min/1.73 m(2) was 5.0%.
- Age, body mass index (BMI), hypertension, diabetes mellitus, systolic blood pressure (SBP), diastolic blood pressure (DBP), and fasting blood glucose were independent factors related to the presence of CKD.

The prevalence of CKD was 6.8%.

The age-adjusted prevalence of CKD among those with metabolic syndrome was 9.0% whereas those without metabolic syndrome was 5.6%.

After adjusting for age and confounders, people with metabolic syndrome had a 1.77 times greater risk of CKD than those without metabolic syndrome.

Metabolic syndrome showed significant association with CKD.

Korea

Obesity and metabolic syndrome-related CKD in nondiabetic, nonhypertensive adults.

- Korea National Health and Nutrition Examination Survey III data from 3771 nondiabetic, nonhypertensive Koreans were analyzed.
- The prevalence of metabolic syndrome (MS) and CKD was 13.4% and 3.2%, respectively.
- The association between MS and CKD was significant in obese (OR, 2.91), but not nonobese (OR, 1.38), subjects.
- In obese subjects, impaired fasting glucose (OR, 2.47) and high triglyceride levels (OR, 2.42) were risk factors for CKD.
- Findings suggest that even in nondiabetic, nonhypertensive Korean adults, MS is associated with chronic kidney disease CKD.

Yoon YS, Park HS, Yun KE, Kim SB. Metabolism. 58(12):1737-42. 2009
Korea

Time-dependent association between metabolic syndrome and risk of CKD without hypertension or diabetes

- 10,685 healthy men. During 40,616.8 person-years of follow-up, 291 incident cases of CKD developed; 787 patients (7.4%) had metabolic syndrome at baseline and 1,444 (14.4%) developed incident metabolic syndrome during follow-up.

- Metabolic syndrome at baseline was associated with a significantly increased risk of CKD (HR, 1.99) and metabolic syndrome over time as a time-dependent variable also predicted the development of CKD (HR, 1.83).

- Metabolic syndrome is an independent risk factor for the development of CKD in Korean men without hypertension or diabetes.

- Both increased triglyceride and low HDL levels among metabolic syndrome traits were associated with significantly increased risk of CKD.

Thailand

Thai Screening and Early Evaluation of Kidney Disease (SEEK) study

Atiporn Ingsathit
Nephrol Dial Transplant (2009)
Vietnam
Impact and Perspective on Chronic Kidney Disease in an Asian Developing Country: A Large-Scale Survey in North Vietnam

• 3.1% of subjects as CKD (stages 3–5) with positive findings in urine test.
• Hypertension and malnutrition were independent risk factors for CKD in this population

Abnormal urinary findings-> proteinuria, hematuria, glycosuria
-> kidney ultrasound, sCr for eCr

Jun Ito
International Center for Medical Research and Treatment, Kobe University School of Medicine
India

• The burden of chronic kidney disease (CKD) in India cannot be assessed accurately.

• The approximate prevalence of CKD is 800 per million population (pmp), and the incidence of end-stage renal disease (ESRD) is 150-200 pmp.

• The most common cause of CKD in population-based studies is diabetic nephropathy.

Chronic kidney disease in India: challenges and solutions.
Agarwal SK, Srivastava RK.
Department of Nephrology, All India Institute of Medical Sciences, New Delhi, India
Australia

Screening for chronic kidney disease in Australia: a pilot study in the community and workplace (1)

• The Kidney Evaluation for You (KEY) program was conducted in Australia to screen for CKD.

• Targeting people at high risk (diabetes, hypertension, a first-degree relative with kidney failure, or age >50 years), promoting changes in risk-factor management, and explore participant CKD awareness.

• KEY offered free cardiovascular and kidney checks (eGFR, HbA1C, cholesterol, hemoglobin, albuminuria), lifestyle assessment, and exit interviews.

• Participants were telephoned at 3 months to ascertain whether KEY advice had been followed.

Screen and Act

Mathew TH, Kidney Health Australia, Adelaide, South Australia, Australia
Australia

Screening for chronic kidney disease in Australia: a pilot study in the community and workplace (2)

• Of 402 high-risk individuals 20.4% had CKD. Of these, 69% had hypertension, 30% diabetes, and 40% elevated total cholesterol. All participants with CKD stage 3b or higher were aged >61 years.

• 58% of participants were referred to their primary care providers for further action; of these, 82% saw their doctors in the next 3 months and 94% discussed KEY results. Follow-up telephone contact was successful for 82% of participants. A change in management occurred for 67%.

• Early detection of CKD and selected referral of participants was largely successful.

Screen and Act

Mathew TH, Kidney Health Australia, Adelaide, South Australia, Australia
Summary

- ESRD and CKD incidence and prevalence indicating high heterogeneity in epidemiology.
- Glomerulonephritis is decreasing in major areas of Asia.
- Diabetes and metabolic syndrome have become important causes and targets for CKD prevention and treatment in Asia.
- CKD program with education, early detection and early referral for treatment should be important.
Diseases of specific Asian Pacific interest

**Industrial poisons**
- Lead
- Cadmium
- Melamine
- Insecticides

**Plant toxins**
- Aristolochic acid
- Djenkel beans (djenkolism)
- Animal toxins
- Snake bite
- Wasp sting
- Bee sting

**Tropical infections**
- Malaria
- Leptospirosis
- Typhus
- Dengue
- Hantavirus

**Regional diseases**
- Hypokalaemic periodic paralysis (Thailand)
- Renal tubular acidosis (Thailand, PNG)
- Tubulointerstitial nephritis (Sri Lanka)

**Increased disease of metabolic origin**
- Metabolic syndrome (all Asia)
- Renal stones (heat, dehydration)
- Diabetes (Nauru, Australia Aborigine)

By Gavin J Becker

*J Korean Med Sci 2009; 24 (Suppl 1): S3-6*
Asian Leadership in Chronic Kidney Disease

“Asian Pacific countries include those with the highest incidence of renal failure in the world, the richest and poorest economies and unparalleled diversity of economy, culture and geography. From this come many challenges, but also a strong basis for the introduction of strategies to combat renal diseases.”

Gavin J Becker

Asian Leadership in Chronic Kidney Disease

“Asian can lead nephrology in the 21st century. It is now up to all of us to contribute to this collaborative effect. With a rapidly developing scientific community, Asia needs to accept the challenge of becoming a global leader in nephrology in the near future”

Gavin J Becker

AfCKDi
Work Group 3

Chair
Philip K.T. LI, Hong Kong

- Togtokh ARIUNAA, Mongolia
- Jimmy Teo BOON, Singapore
- Nan CHEN, China
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- Sanjib KUMAR, Nepal
- Seiichi MATSUO, Japan
- Enyu Imai, Japan
- Rowan WALKER, Australia
- Haiyan WANG, China
- Chih Wei YANG, Taiwan
- Seong Lai Hooi, Malaysia