



**KDIGO Implementation Strategies Conference on  
Understanding Needs in Low and Middle Income Countries  
: Involving Patients, Families and  
other Healthcare professionals**

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## Disclosure of Interests

No Disclosure

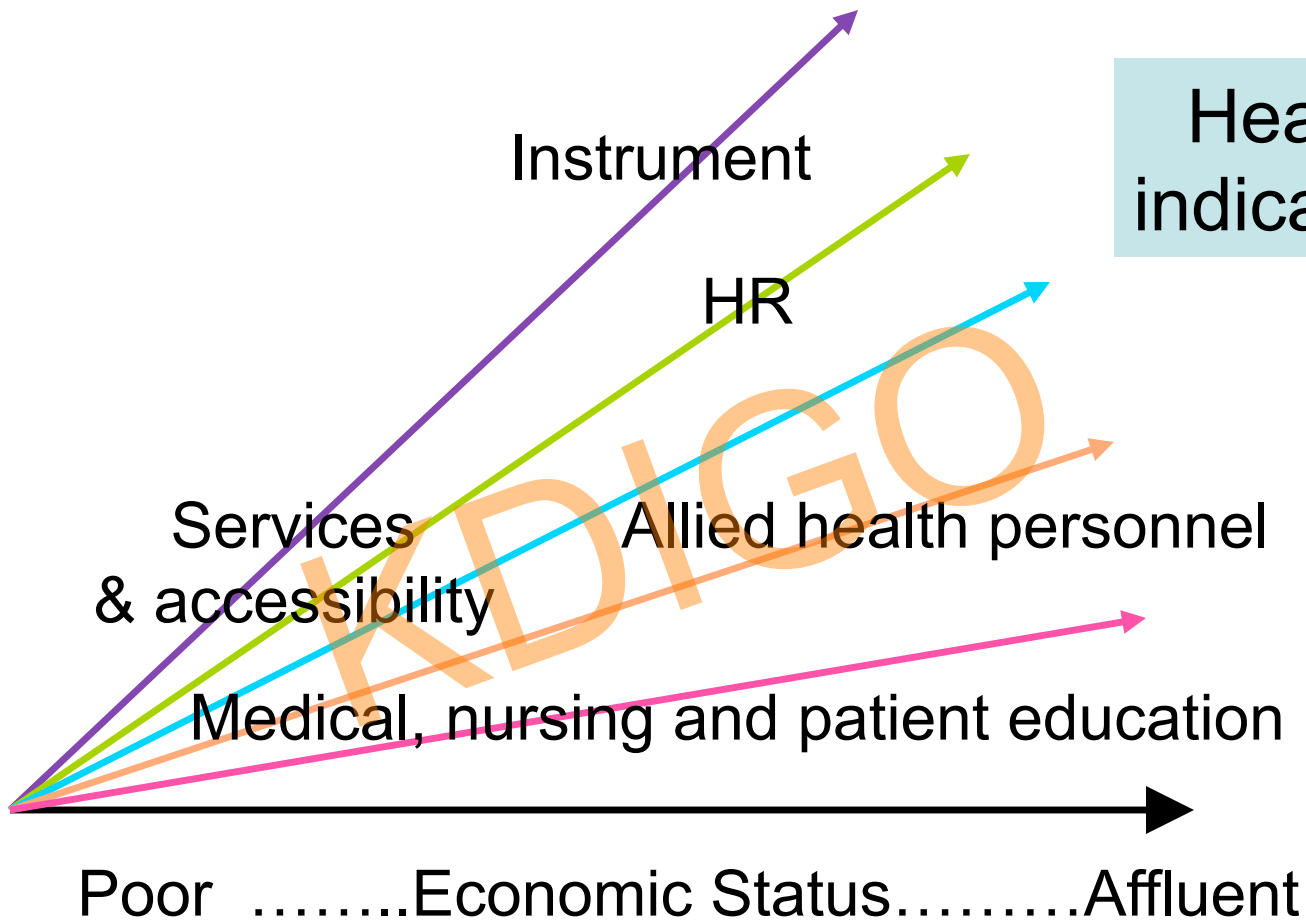
# Key barriers in Management of CCM in Low & MIC

## Ineffective Public Health care system

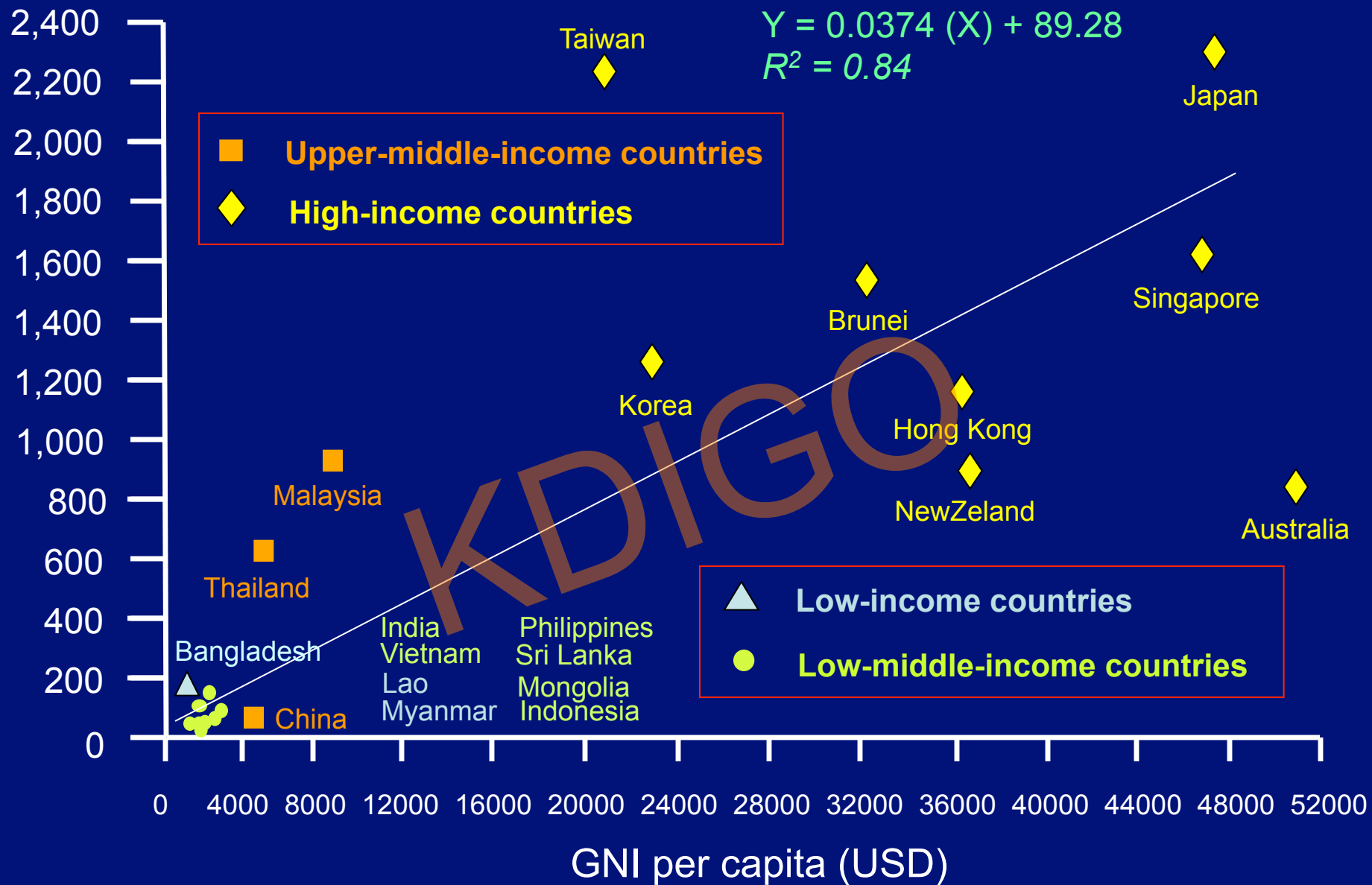
- Under financing
- Inadequate health workforce esp. at community level
- Geographic maldistribution of ..?? within country
- Shortage of health information
- Weak supply chain for medical products and technologies, quality, cost & cost-effectiveness
- Effective health-service delivery : accessibility, equity, safety and quality, referral system
- Low priority from Health Authorities and Politicians

*Adopted from Lancet 2010 ; 376 : 1785*





# Prevalence of RRT (PMP)



*http://data.worldbank.org, USRDS 2013 Annual Data Report., Cusumano AM, Kidney Int 2013; (Suppl.3):153-6., Naicker S, Clinical Nephrol 2010; 74 (Suppl.1): S13-S16., Zuo L, Clinical Nephrol 2010; 74 (Suppl.1): 20-2 and personal communication.*

	IND	CHN	JPN	KOR	MAL	SIN	THAI	TWN
UP vs. MA	UP	MA	UP	MA	MA	MA	MA	UP
GFR Eq.	MDRD	Chin.-MDRD	Jap.-MDRD	MDRD	CKD-EPI	MDRD	MDRD	MDRD
(%) Stage 1	7	5.7	0.6	2.0	4.2	4.3	3.3	1.0
Stage 2	4.3	3.4	1.7	6.7	2.1	5.7	5.6	3.8
Stage 3	4.3	1.6	10.4	4.8	2.3	5.3	7.5	6.8

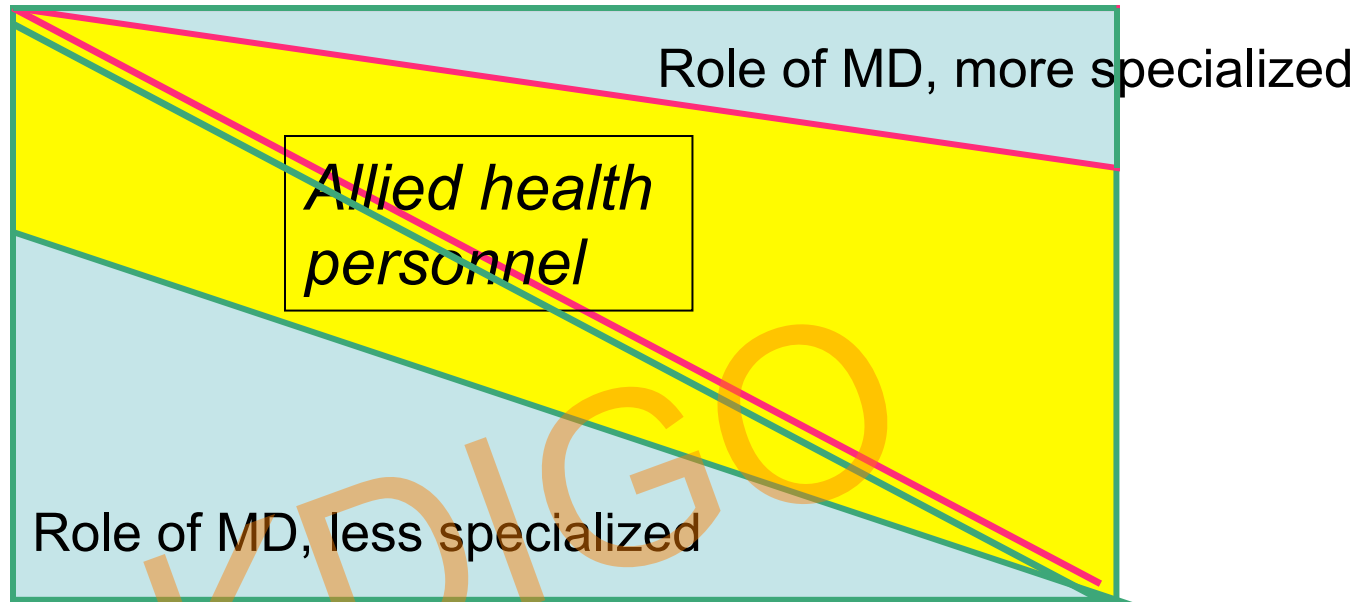
MA = microalbuminuria, MS = multistage, NHS = National Health Survey, SCS = Stratified classified sampling, UP = urine protein by dip-stick

**Among 80 % ( adult pop.) of 4.3 billion Asians,  
9 – 18 % ( 300-600 millions) have CKD stages 1 - 5.**



## Chronic care Model

Acute care  
Model



- Socio-Economy Development
- Aging Population
- Medical Technology Advancement

	China 2008	India 2013	Lao 2013	Malaysi a 2014	Thai 2014	Japan 2012
No. of population	<b>1,300 M</b>	<b>1,252 M</b>	<b>7 M</b>	<b>30 M</b>	<b>65 M</b>	<b>127 M</b>
No. of MD	2,210, 000	840,1 30	3,800	47,000	47,600	303,30 0
Ratio MD / - population	<b>1 : 15,000</b>	<b>1 : 1800</b>	<b>1 : 1840</b>	<b>1 : 640</b>	<b>1 : 1360</b>	<b>1 : 420</b>
No. of Nephro	8,000	1,100	3	138	450	4,100

Courtesy of: Yusuke Tsukamoto, Ghazali Ahmad & Malay. Med. Council

Nature Rev Nephrol 2013; 9: 523.  
Chanmaly Keomany



# Implementation in LIC & MIC

## Who

- to conduct GL practice ?
- MD : Specialist – nephrologist ?  
Internist or GP
  - Role of Allied H/C personnel :  
Nurse & others
  - Peers : Family memb, friends or volunteers

## Where

Hospital based vs. home-based

## How

High tech instrumentation vs. local ingredients available

## Role of Allied H/C personnel [ 1 ]

- Nurse/ nurse assistant, Pharmacist, Nutritionist / Dietician (X) , Rehab.
- \* Exclude passive role “...just take the order only”
- \* Current role ( at present ) vs. potential role ( in the future )
- \* professional limitation, legal aspect, societal recognition

# Role of Allied H/C personnel [ 2 ]


## Major domain

1. as a Physician Assistant (PA)  
(varies by country regulations)
  - Decision making (drug dosage adj.)
  - Invest<sup>n</sup> or Rx by protocol
2. as a part of PCT,
  - Integration or collaboration of care team approach
3. as a Counselor / Educator  
case manager
  - Counseling, education, training, empowerment  
( CKD edu, PD training )
4. as a facilitator
  - Home health care
5. as a comforter
  - EOL care




**ACUTE KIDNEY INJURY (AKI)**

2012

 CLINICAL PRACTICE GUIDELINE


**ANEMIA IN CKD**

2012

 CLINICAL PRACTICE GUIDELINE

**BLOOD PRESSURE IN CKD**

2012

 CLINICAL PRACTICE GUIDELINE


**CARE OF KIDNEY TRANSPLANT RECIPIENTS**

2009

 CLINICAL PRACTICE GUIDELINE


**CKD EVALUATION AND MANAGEMENT**

2013

 CLINICAL PRACTICE GUIDELINE

**CKD MINERAL AND BONE DISORDER (CKD-MBD)**

2009

 CLINICAL PRACTICE GUIDELINE


**GLOMERULONEPHRITIS (GN)**

2012

 CLINICAL PRACTICE GUIDELINE


**HEPATITIS C IN CKD**

2008

 CLINICAL PRACTICE GUIDELINE

**LIPIDS IN CKD**

2013

 CLINICAL PRACTICE GUIDELINE

<p>2008 GL-HCV (38)</p>	<p><u>Definite role</u> as PA : X as PCT : Infection Control in HD unit</p>
<p>2008 CKD-MBD (39)</p>	<p><u>Definite role</u> as PA : X as Counselor &amp; Education : Diet. P Control <u>Potential role</u> -</p>

<p>2012 Anemia (56)</p>	<p><u>Definite role</u> as PCT : watch for Dextran A/E</p> <p><u>Potential role</u> as PA : Diagnosis of anemia Monitoring of iron status, Hb</p>
<p>2012 GN &amp; NS (174)</p>	<p><u>Definite role</u> as Counselor : SLE &amp; pregnancy</p> <p><u>Potential role</u> as PA : CNI monitoring Immunization</p>
<p>2012 AKI (76)</p>	<p><u>Definite role</u> as PCT : dialysis therapy</p> <p><u>Potential role</u> as PA : protocol – based Rx of hemodynamic &amp; oxygen parameters</p>

<p>2012 BP &amp; CKD (21)</p>	<p><u>Definite role</u> as PA : A/E inquiry as Counselor : Life style modification</p> <p><u>Potential role</u> as PA : BP target and use of ACEi/ARB in DM and non-DM</p>
<p>2013 Lipid &amp; CKD (13)</p>	<p><u>Definite role</u> as PA : X as Counselor : Life style modification</p> <p><u>Potential role</u> as PA : Lipid evaluation in adult &amp; children</p>

2009  
KT  
(186)

## Definite role

as PA : X

as PCT (4) : HIV screening , Skin cancer

Monitoring of urine output, BP, BP target

as Counselor (9) : Counseling for KT Drug

compliance, healthy life style,

Obesity, Tobacco, Sun exposure

## Potential role

as PA (53) : Use of generic drugs, Drug Monitoring (CNI, MMF, mTOR)

Monitoring of U.prot., CBC, S.cr, eGFR, FPG,

HbA<sub>1c</sub>, Lipid CKD, AFP, Liver U/S, Ca, P,

Vit D, Vaccination & Revaccination,

Screening for new DM, CA liver, skin cancer

Prophylaxis : UTI, PCP, TB, Candida

Developing screening plan, Counseling for sex dysf.,

birth control, infertility child growth, depression



2013  
CKD  
(107)

## Definite role

as PA : X

as PCT (2) : for progressive CKD

(4) : for conservative Rx

as Counselor / Educator (16) : Prot. & Salt intake,  
glycemic control, life style, Diet Counseling,  
Avoidance of nephrotoxins, herbs, OTC  
drugs, RRT Initiation

## Potential role

as PA (40) : Diag. & staging of CKD, Identify prog. factor,  
Evaluation of eGFR, albuminuria, anemia,  
CVD risk, BP target, Use of ACEi & ARB  
Monitoring of eGFR, S.P, BMD, Vit.D, S.HCO<sub>3</sub>  
PAD, Vaccination

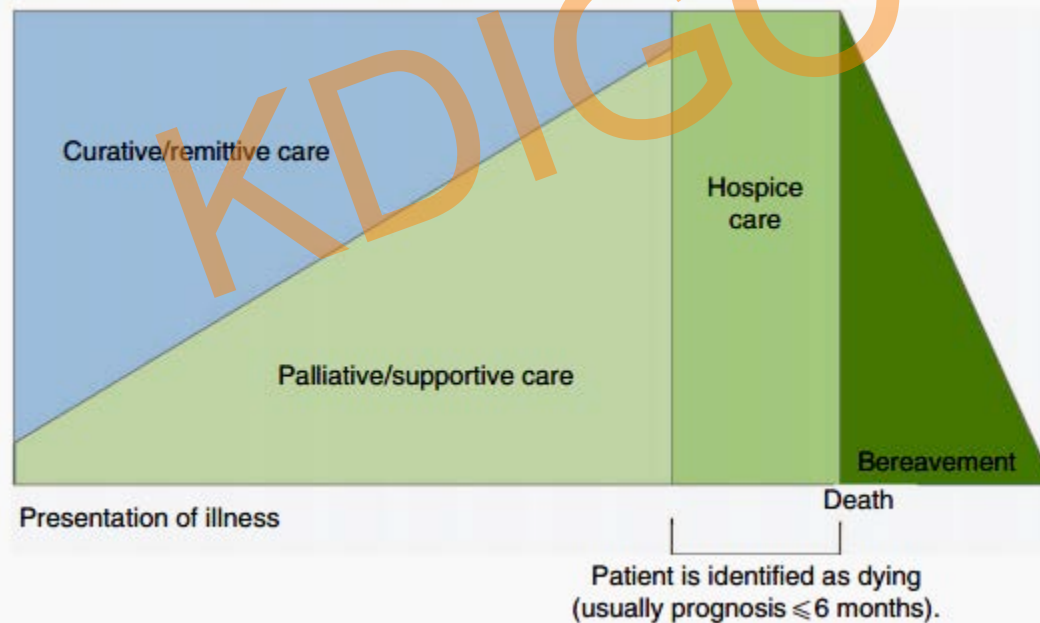
as Counselor / Educator : Use of Radiocontrasts,  
Bowel cathartics, Avoid use of metfomin, Li, CNI

in LMIC : No. of CKD pts. > KT

# Executive summary of the KDIGO Controversies Conference on Supportive Care in Chronic Kidney Disease: developing a roadmap to improving quality care

KI 2015; Apr 29. [Epub ahead of print]

Sara N. Davison<sup>1</sup>, Adeera Levin<sup>2</sup>, Alvin H. Moss<sup>3</sup>, Vivekanand Jha<sup>4,5</sup>, Edwina A. Brown<sup>6</sup>, Frank Brennan<sup>7</sup>, Fliss E.M. Murtagh<sup>8</sup>, Saraladevi Naicker<sup>9</sup>, Michael J. Germain<sup>10</sup>, Donal J. O'Donoghue<sup>11</sup>, Rachael L. Morton<sup>12,13</sup> and Gregorio T. Obrador<sup>14</sup>



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This photo is not allow to reproduced  
<http://guitaraloha.multiply.com>



# Hierarchy of Govt. Healthcare system in Thailand

Country(513000 km<sup>2</sup>)  
(65M, 77 Provinces)

Min. of Public Health



12+1 Service Bundles

Referral 3<sup>o</sup>-care Hosp.



Provinces (77)

Provincial Hospitals



Districts (10-15/Prov.)

District hospitals



Sub-Districts (10-15/D)

Sub-District Health Offices



Villages (10-15/SD)  
50-100 households/V.

1 Village Health Volunteer per  
10 – 12 households  
Now = >1 million VHVs\*\*\*



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Sub-Districts (10-15/D)

Villages (10-15/SD)  
50-100 households/V.

Min. of Public Health

Central 3<sup>o</sup>-care Hosp.

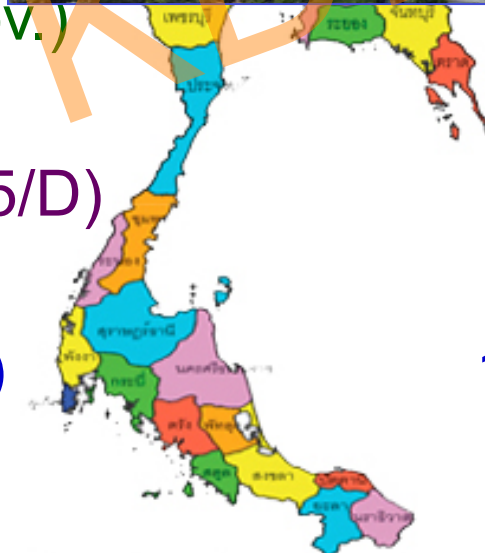
Provincial Hospitals

District hospitals

Sub-District Health Offices

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Country (513000 km<sup>2</sup>)  
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Min. of Public Health

12+1 Service Bundle

Referral 3<sup>o</sup>-care Hosp.  
*each for 5 M pop.*

Provinces (77)

Provincial Hospitals

Districts (10-15/Prov.)

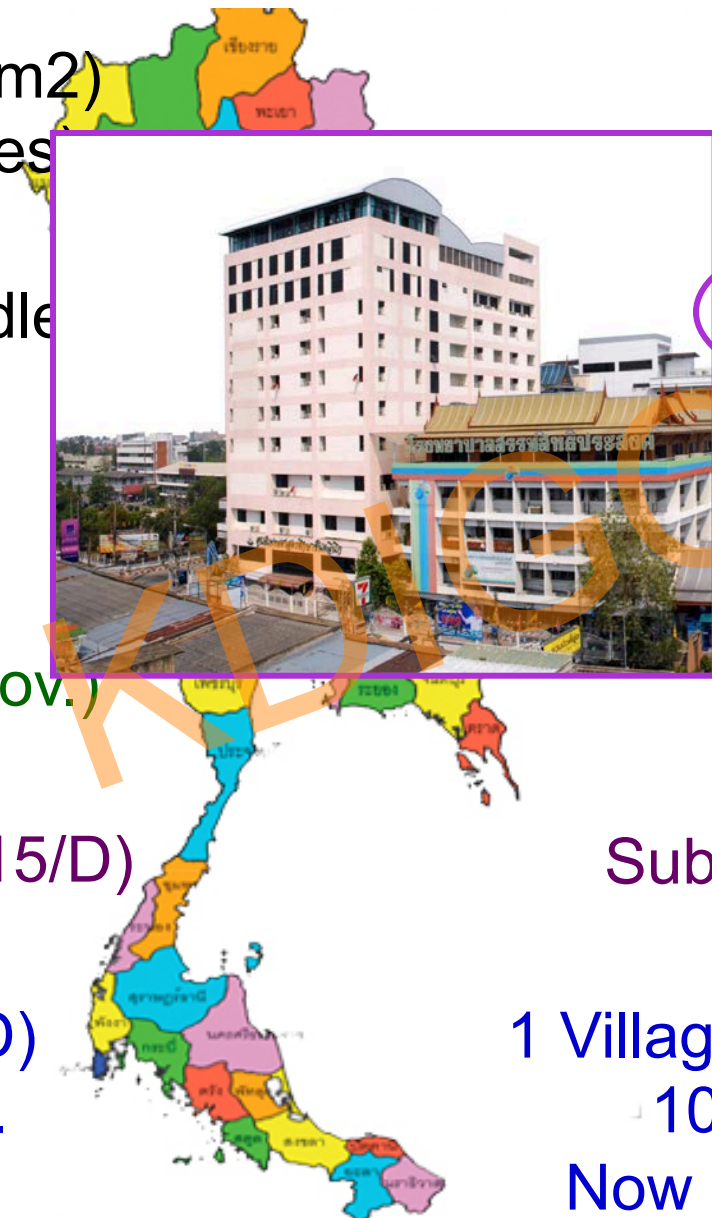
District hospitals

Sub-Districts (10-15/D)

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Referral 3<sup>o</sup>-care Hosp.



Provinces



Districts (10-



Sub-Districts



Villages (10-15/SD)

50-100 households/V.



Provincial Hospitals  
*each for 0.5-2 M pop*

District hospitals

District Health Offices

1 Village Health Volunteer per

10 – 12 households

Now = >1 million VHVs\*\*\*



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Provinces (77)

Provincial Hospitals



Districts (10-15/Prov.)

District hospitals



Sub-Districts (10-15/D)

Sub-District Health Offices



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12 Service Bundles

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Provinces (77)

Provincial Hospitals



Districts (10-15/Prov.)

District hospitals



Sub-Districts (10-15/D)

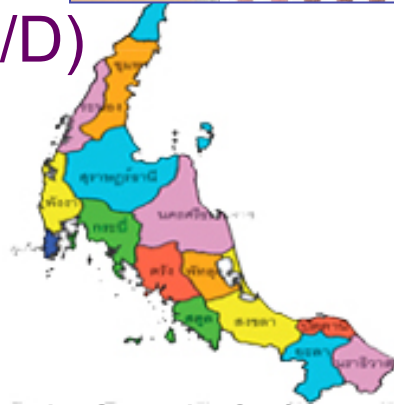
Sub-District Health Offices



Villages (10-15/SD)  
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Now => 1 million VHVs\*\*\*



# Hierarchy of Govt. Healthcare system in Thailand

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12+1 Service Bundles

Referral 3<sup>o</sup>-care Hosp.



Provinces (77)

Provincial Hospitals



Districts (10-15/Prov.)

District hospitals



Sub-Districts (10-15/D)

Sub-District Health Offices

*Nurses & Public hlth admin*



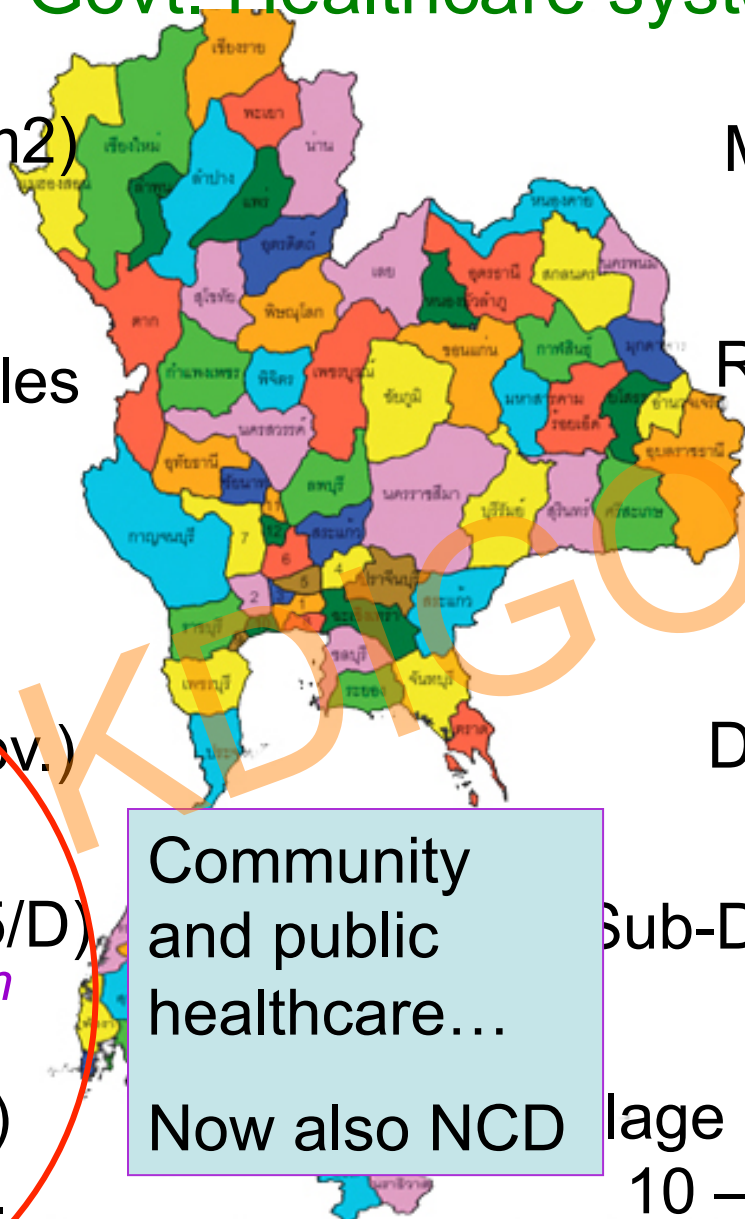
Villages (10-15/SD)

50-100 households/V.

Village Health Volunteer per 10 – 12 households

Community and public healthcare...  
Now also NCD

Now = >1 million VHVs



# Unique Primary Health Care System at Sub-district Level of Thailand



## Sub-district Health Officers:

- ✓ 3 Healthcare Officers/Nurses
- ✓ 20 Village Health Volunteers



## Village Health Volunteers (VHVs)

- ✓ 1 VHV : 10-15 households
- ✓ More than 1 million

# Remarkable Roles of 1° HC team ( District Hospital, Sub-district H. offices & VHV ) in Public Health Activities

2003 – 05

Bird Flu

: Awareness among Personnel & Public

SARS

: Proper prevention practices

Dengue HF

: Case Notification, Mosquito control

2007 – 08

Hypertension

: Screening for HT & BC in villages

Breast cancer

2008 – 09

Influenza

: - Public awareness  
- Identify high-risk pt. for free immunization

2010 – 11

DM, HT, CVD

: Joint Community ( District ) Health plan

Stroke, Cancer



# Remarkable Roles of i° HC team ( District Hospital, Sub-district H. offices & VHV ) in Public Health movement

2014 – 15  
**Ebola Virus**

Awareness  
: prevention practice, Case notification

DM, HT, CVD  
Stroke, Cancer

Awareness  
Education, Risk reduction  
Disease treatment  
Life style modification  
esp. DM, HT

**Anti-Smoking**  
**Against Illicit drugs**



# Min. of Public Health Strategies on DM & its complication ( 2007 + ) : National Agenda

- **Accessibility** to and **Equity** in healthcare service.
- **National screening** for DM and periodic screening for its complications.
- **Good control** of BP, BS, lipids ( **set targets** ).
- **Life-style** : diet, exercise, smoking, wt. control.
- Set **integrated Chronic-Care-Model team** .  
Emphasis on prevention-RX-Rehab, and self-support
- Transform from **Hospital - based** to **Community - based** approach.

# A Survey Study on Diabetes Management and Complication Status in Primary Care Setting in Thailand

Health  
service  
res.

Wanee Nitiyanant MD\*, Thanya Chetthakul MD\*\*,  
Pensiriwan Sang-A-kad MD\*\*\*, Chaiyaporn Therakiatkumjorn MD\*\*\*\*,  
Kemarasami Kunsuikmengrai MD\*\*\*\*\*, Jing Ping Yeo\*\*\*\*\*

*J Med Assoc Thai 2007; 90: 65.*

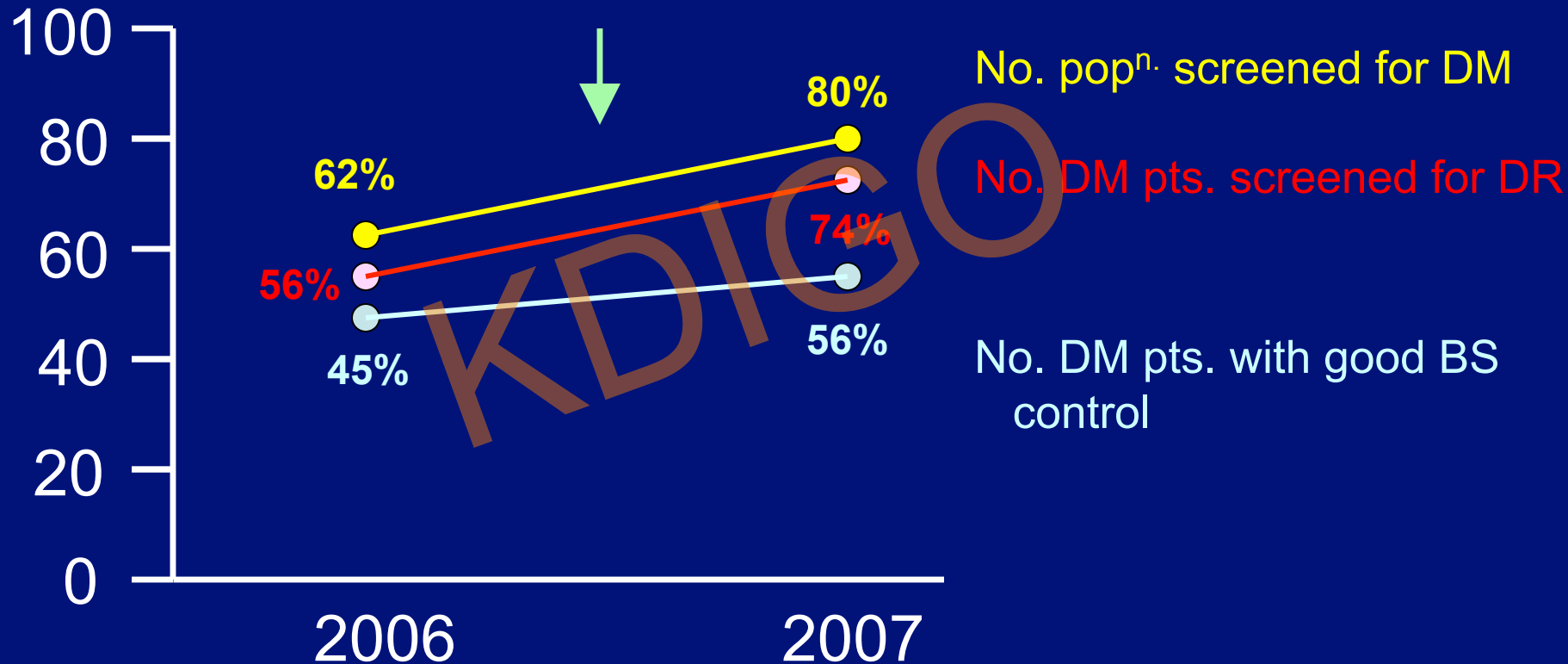
## Quality of DM care at district hospitals

Poor control by HbA <sub>1</sub> C level	>	60 % of cases
Serum Cr. measurement	<	40 % of cases
U. protein by dipstick		33 % of cases
U. microalbumin	<	1 % of cases
Use of ACEi / ARB	<	40 % of cases
HbA <sub>1</sub> C measurement	<	1 % of cases



# Pilot Project

## Setting up DM care Team at a District Hospital





# Community survey among 29,000 T2DM pts. in 550 public hospitals (2011 – 2012)

No. of pts. screened for DR	60%
for microalbuminuria	70%
for S. creatinine	80%
for HbA <sub>1</sub> C	80%
with - HbA <sub>1</sub> C < 7.0 %	34%
with - ACEi	60%
No. of DN with BP <120/80	30%

*Thai National Health Security Office  
& MedResNet- 2012 Registry Survey*

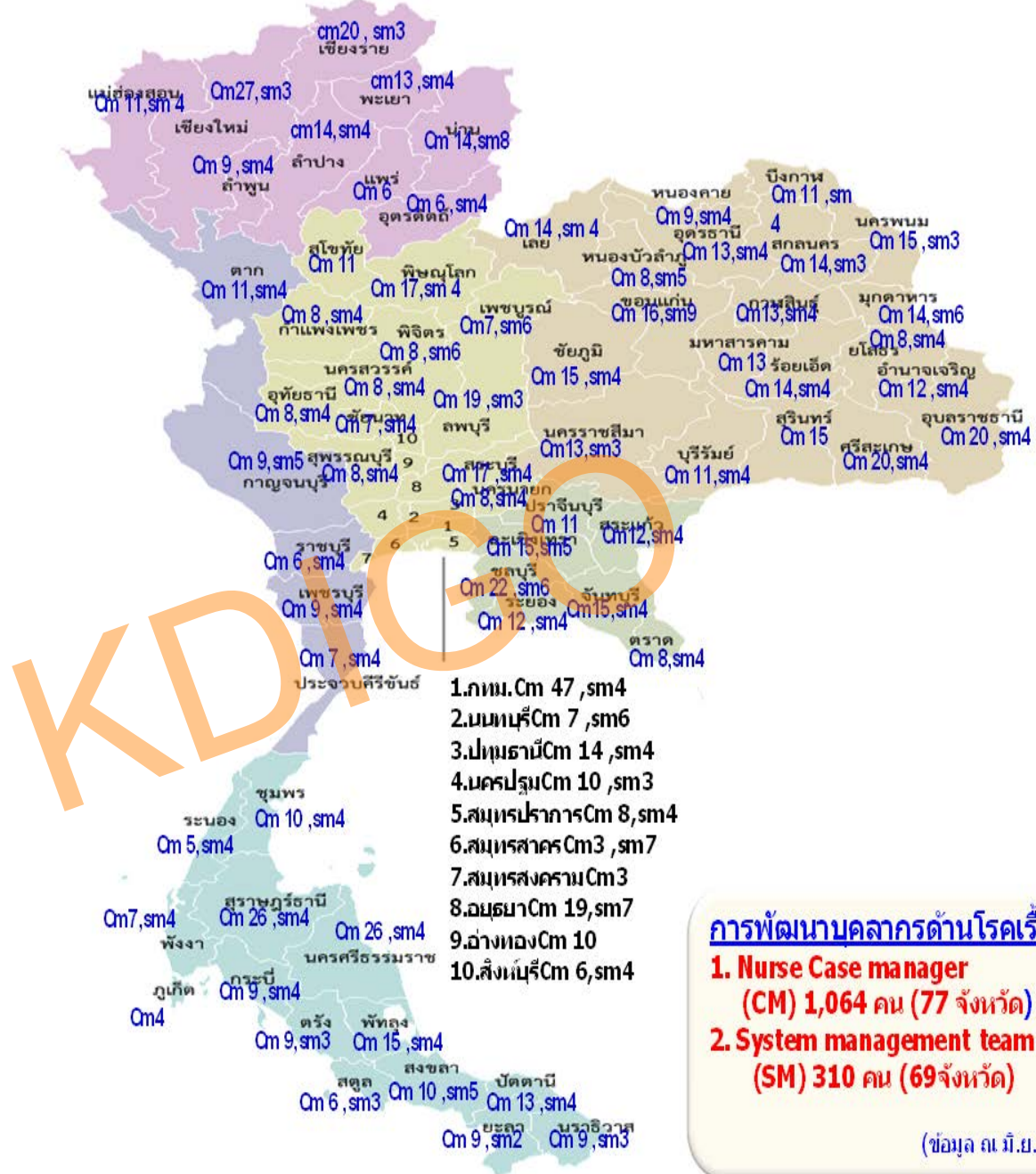
# Ministry of Public Health (MOPH): Healthy Thailand (2011-2020)

## From 1<sup>o</sup> to 3<sup>o</sup> care Prevention Policy - An ambitious goal

1. Set-up **12 + 1 Service bundles**
2. Place **DM / HT/ CHD & CKD** as national health priority  
Set target on improvement of care and reduction in M & M as **MOPH's Key Success Factors**.
3. Set-up **DM / CKD clinic** at provincial & district hospitals
  - **Training** nurses to be **DM/HT case managers ( >1000 now)**,
  - **Screening** for DM & HT, DR ( by **CM** ), DN by U. dipstick
4. **Health education** on DM / CKD at all health service levels
5. Train nurse practioners at subdistrict hospitals ( > 10 K now )
6. Train **Village Health Volunteers** for DM ,HT & CKD  
*exercise , diet & healthy life style – Buddhism- meditation*
7. Create **Household health records** on NCD for all households in the community

Cm = Case manager  
 Sm = system  
 Management team

DM/HT Case Managers > 1000



**การพัฒนาบุคลากรด้านโรคเรื้อรัง**

**1. Nurse Case manager (CM) 1,064 คน (77 จังหวัด)**

**2. System management team (SM) 310 คน (69จังหวัด)**

(ข้อมูล ณ.ม.ย.2557)



## Laboratory enhancement ( 2015 )

1. Report of **eGFR** on hospital lab sheet
2. Introduce **Enzymatic** creatinine method  
– *to be completed in 2016*

## Data registry ( 2015 )

1. Define **KPI of MOPH** on DM/HT/CKD service  
– online data registry



## No. of nephrologists

- To fill vacancy at **all provincial Hospitals in 2018**
- To increase the number to
  - 1 – 3** for each **provincial** hospital
  - 3 – 6** for each referral hospital

## No. of PD nurses

- To decrease Pt. / PD nurse ratio from 200 : 1 to **50 : 1**
- To enhance career path of PD & HD nurses



# KPI of MOPH-1 - CKD service

## Establishment of CKD-clinic : Must have...

- Multi-Disciplinary Care Team
- Health education Program
- Monitoring of KPI indicators

		2013	2014	2015
No. of CKD Clinic	District Hospitals (>90 beds)	20%	30%	50 %
	3° care & provincial hospitals	80%	100%	-
No. of Thai citizens Screened for DM			70 %	90 %

# KPI of MOPH-2 CKD services

## CKD Screening at each level of hospital categories

Screening	2013	2014	2015 - 16
% of DM / HT patients to be screened for CKD  - S.cr & eGFR) - U.protein/ alb by dipstick	50%	60%	> 70%
	(3° care referral hospitals)	All 3° care & provincial hospitals	All ..... Down to district hospitals
No. of CKD stage 1 – 4 receiving health education	30%	40%	> 60%

## Other KPI – Quality Indicators

No. of DM – CKD pts. achieving HbA <sub>1</sub> C < 7%	50%
No. of DLP – CKD pts. achieving LDL-C < 100 mg/dl	40%
No. of CKD pts. - with BP < 140/80 - receiving ACEi or ARB	50% 60%
eGFR decline < 4 ml / min / year	50%
No. of CKD pts. Stage 1 – 4 tested by dipstick U.protein x 1 / year	80%



## Other Quality indicators

- U.protein / U.creatinine ratio
- U.protein < 500 mg / g Cr
- S.HCO<sub>3</sub> > 22 mEq / L
- S.P < 4.5 mg / dl
- S. iPTH

KDIGO

<b>Screening</b>	<b>2013</b>	<b>2014</b>	<b>2015 - 16</b>
No. of deceased KT donor	6 – 7 per region	18 – 20 per region	20 – 25 per region

KDIGO



# Multidisciplinary Care Program for Advanced Chronic Kidney Disease: Reduces Renal Replacement and Medical Costs<sup>☆</sup>



Ping Min Chen, MD,<sup>a</sup> Tai Shuan Lai, MD,<sup>b</sup> Ping Yu Chen, MD,<sup>c</sup> Chun Fu Lai, MD,<sup>a</sup> Shao Yu Yang, MD,<sup>a</sup> VinCent Wu, MD, PhD,<sup>a</sup> Chih Kang Chiang, MD, PhD,<sup>a</sup> Tze Wah Kao, MD, PhD,<sup>a</sup> Jenq Wen Huang, MD, PhD,<sup>a</sup> Wen Chih Chiang, MD, PhD,<sup>a</sup> Shuei Liong Lin, MD, PhD,<sup>a</sup> Kuan Yu Hung, MD, PhD,<sup>a</sup> Yung Ming Chen, MD,<sup>a</sup> Tzong Shinn Chu, MD, PhD,<sup>a</sup>

Nephrol Dial Transplant (2012) 0: 1–9  
doi: 10.1093/ndt/gfs469



*Original Article*

## Effectiveness of multidisciplinary care for chronic kidney disease in Taiwan: a 3-year prospective cohort study<sup>☆</sup>

Yue-Ren Chen<sup>1</sup>, Yu Yang<sup>2,3</sup>, Shu-Chuan Wang<sup>2,4</sup>, Ping-Fang Chiu<sup>2</sup>, Wen-Yu Chou<sup>2</sup>, Ching-Yuang Lin<sup>5</sup>, Jer-Ming Chang<sup>6</sup>, Tzen-Wen Chen<sup>7</sup>, Shyang-Hwa Ferng<sup>8</sup> and Chun-Liang Lin<sup>9</sup>

## Does community-wide chronic kidney disease management improve patient outcomes?

Hugh C. Rayner, Jyoti Baharani, Indranil Dasgupta, Vijayan Suresh, F and Steve A. Smith

May not fit in with LMIC  
Too advanced CKD stages  
Differrent Health system structure  
Hospital-based = overloaded



STUDY PROTOCOL

Open Access

## Design of the INTEGRATE study: effectiveness and cost-effectiveness of a cardiometabolic risk assessment and treatment program integrated in primary care

Ilse F Badenbroek<sup>1,2\*</sup>, Daphne M Stol<sup>2,11</sup>, Marcus MJ Nielen<sup>1</sup>, Monika Hollander<sup>2</sup>, Roderik A Kraaijenhagen<sup>3</sup>, G Ardine de Wit<sup>2,4</sup>, François G Schellevis<sup>1,5</sup> and Niek J de Wit<sup>2</sup>

## Improving Integrated Care in Chronic Kidney Failure Patients with a Standard-Based Interoperability Framework

Francisco NÚÑEZ-BENJUMEA<sup>a</sup>, Alberto MORENO-CONDE<sup>a,b,1</sup>, Francisco

Special Feature

Blood Purif 2013;36:152-159  
DOI: [10.1159/000356095](https://doi.org/10.1159/000356095)

Published online: December 20, 2013



## Toward Population Management in an Integrated Care Model

Franklin W. Maddux<sup>a</sup> Stephen McMurray<sup>b</sup> Allen R. Nissenson<sup>b</sup>

<sup>a</sup>Fresenius Medical Care, Waltham, Mass., and <sup>b</sup>DaVita, Inc., El Segundo, Calif., USA

## Nuevos modelos de gestión de asistencia integral en nefrología

Rosa Ramos<sup>1</sup>, Manolo Molina<sup>2</sup>

<sup>1</sup> Fresenius Medical Care. Nephrocare España. Madrid

<sup>2</sup> Servicio de Nefrología. Hospital Universitario Santa Lucía. Cartagena, Murcia

Nefrología 2013;33(3):301-7

Ramli et al. BMC Family Practice 2014, 15:151  
http://www.biomedcentral.com/1471-2296/15/151

STUDY PROTOCOL

Open Access

## Study protocol of EMPOWER Participatory Action Research (EMPOWER-PAR): a pragmatic cluster randomised controlled trial of multifaceted chronic disease management strategies to improve diabetes and hypertension outcomes in primary care

Anis S Ramli<sup>1\*</sup>, Sharmila Lakshmanan<sup>2</sup>, Jamaiyah Haniff<sup>2</sup>, Sharmini Selvarajah<sup>3</sup>, Seng F Tong<sup>4</sup>, Mohamad-Adam Bujang<sup>2</sup>, Suraya Abdul-Razak<sup>1</sup>, Asrul A Shafie<sup>5</sup>, Verna KM Lee<sup>6</sup>, Thuhairah H Abdul-Rahman<sup>7</sup>, Maryam H Daud<sup>1</sup>, Kien K Ng<sup>1</sup>, Famaza Ariffin<sup>1</sup>, Hasidah Abdul-Hamid<sup>1</sup>, Md-Yasin Mazapuspavina<sup>1</sup>, Nafiza Mat-Nasir<sup>1</sup>, Maizatullifah Miskan<sup>1</sup>, Jaya P Stanley-Ponniah<sup>2</sup>, Mastura Ismail<sup>2</sup>, Chun W Chan<sup>6</sup>, Yong R Abdul-Rahman<sup>9</sup>, Boon-How Chew<sup>10</sup> and Wilson HH Low<sup>11</sup>

Clinical Nephrology, Vol. 74 – Suppl. 1/2010 (S99-S104)

## Management of chronic kidney disease: primary health-care setting, self-care and multidisciplinary approach

A.M. Cueto-Manzano, H.R. Martínez-Ramírez and L. Cortés-Sanabria



**STUDY PROTOCOL**

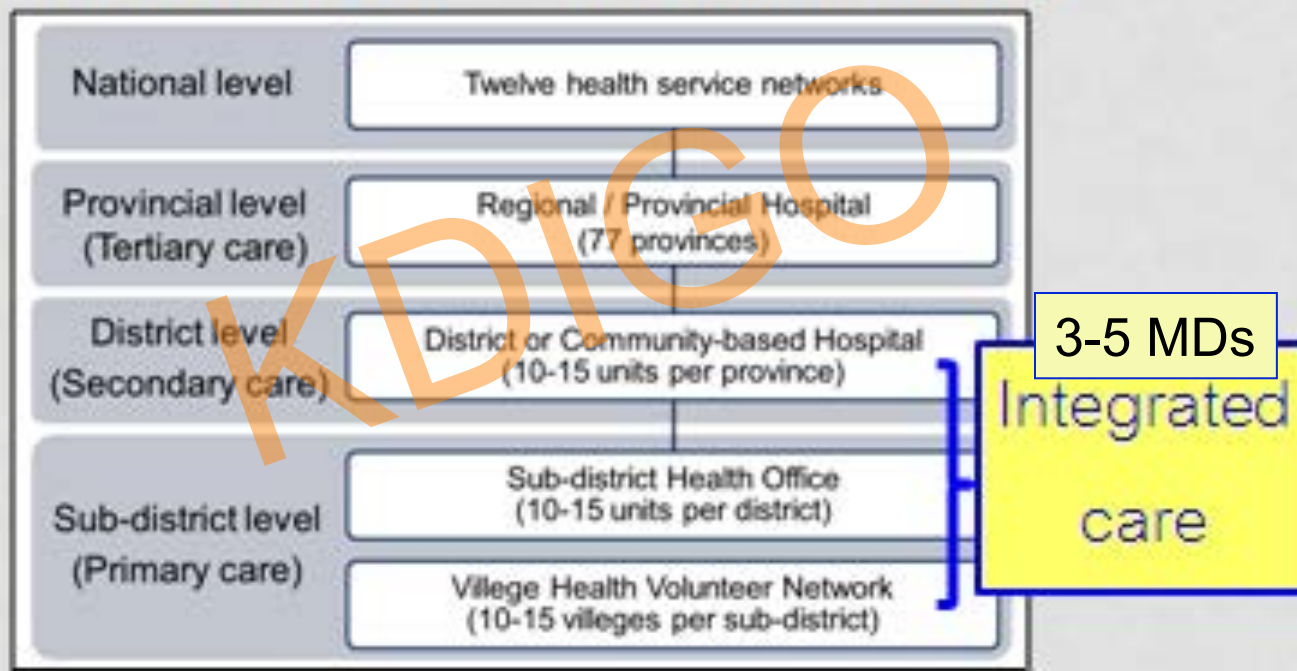
**Open Access**

# Effectiveness of integrated care on delaying chronic kidney disease progression in rural communities of Thailand (ESCORT study): rationale and design of the study [NCT01978951]

Teerayuth Jiamjariyaporn<sup>1\*</sup>, Atiporn Ingsathit<sup>2</sup>, Kriang Tungsanga<sup>3</sup>, Chatri Banchuin<sup>1</sup>, Kotcharat Vipattawat<sup>1</sup>, Suphattra Kanchanakorn<sup>1</sup>, Vinai Leesmidt<sup>4</sup>, Watcharapong Watcharasaksilp<sup>5</sup>, Akhathai Saetie<sup>1</sup>, Chanida Pachotikarn<sup>6</sup>, Sunard Taechangam<sup>6</sup>, Tanyarat Teerapornlertratt<sup>1</sup>, Teerachai Chantarojsiri<sup>1</sup> and Visith Sitprija<sup>7</sup>



# Effectiveness of Integrated Care on Delaying CKD Progression in Rural Communities of Thailand : ONE – YEAR RESULTS



Teerayuth, MD. Bhumirajanagarindra Kidney Institute, Thailand

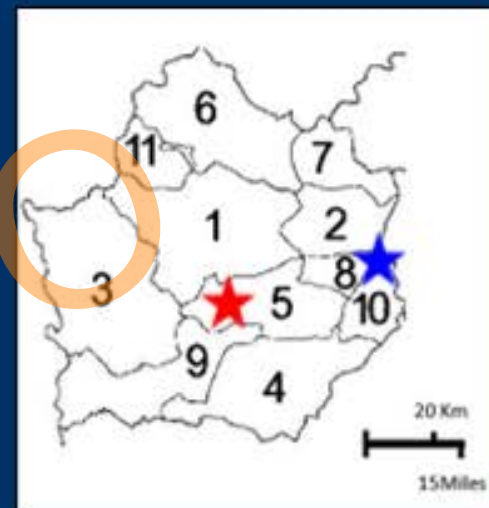
# A 2-Year Community-based, Clustered RCT

## Kamphaeng Phet Province

Randomly select  
2 out of 11 districts



400 kilometers  
north of Bangkok



**No.5: Khlong Khlung District  
(Intervention group)**

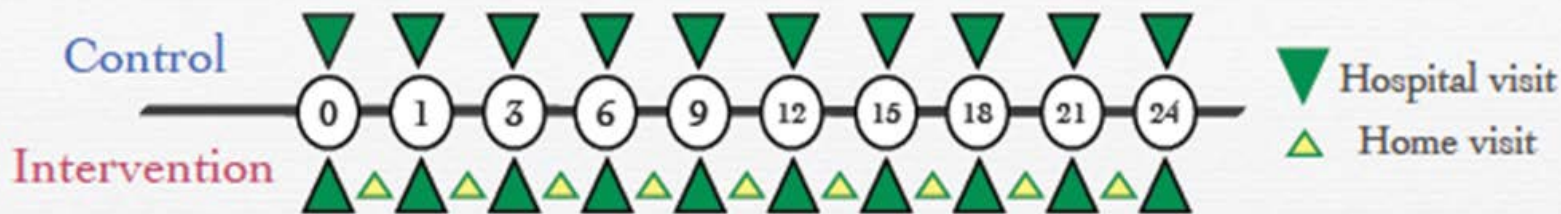
**No.8: Sai Thong Wattana District  
(Control group)**

# Intervention to the 2 Treatment Groups

Treatment	Control	Intervention
• Conventional CKD care according to standard guidelines	Yes	Yes
• Printed educational materials	Yes	Yes
• Hospital visit	Quarterly	Quarterly
○ Group counseling	Yes	Yes
○ Multidisciplinary team demonstrates optimal <u>diet</u> , <u>medication</u> and <u>exercise</u>	No	Yes
• Home visit	Yearly	Quarterly
○ Community CKD care network	No	Yes



# Schedule of follow-up



**Control ( Hosp. - based ) :**  
 Pts received conventional  
 Care from multidisciplinary  
 team during each hosp. visit

**Intervention ( Hosp.+ comm. - based ) :**  
 Pts received conventional care at Hosp.  
 plus Home visit by community care health  
 personnel



1<sup>ST</sup> Day: VHVs Training



2<sup>nd</sup> Day: CKD guidelines training



# Training for the Trainers

3<sup>rd</sup> Day: Dietary monitoring by EDA



4<sup>th</sup> Day: Examination



# Training for the Trainers



# Training for the Trainers

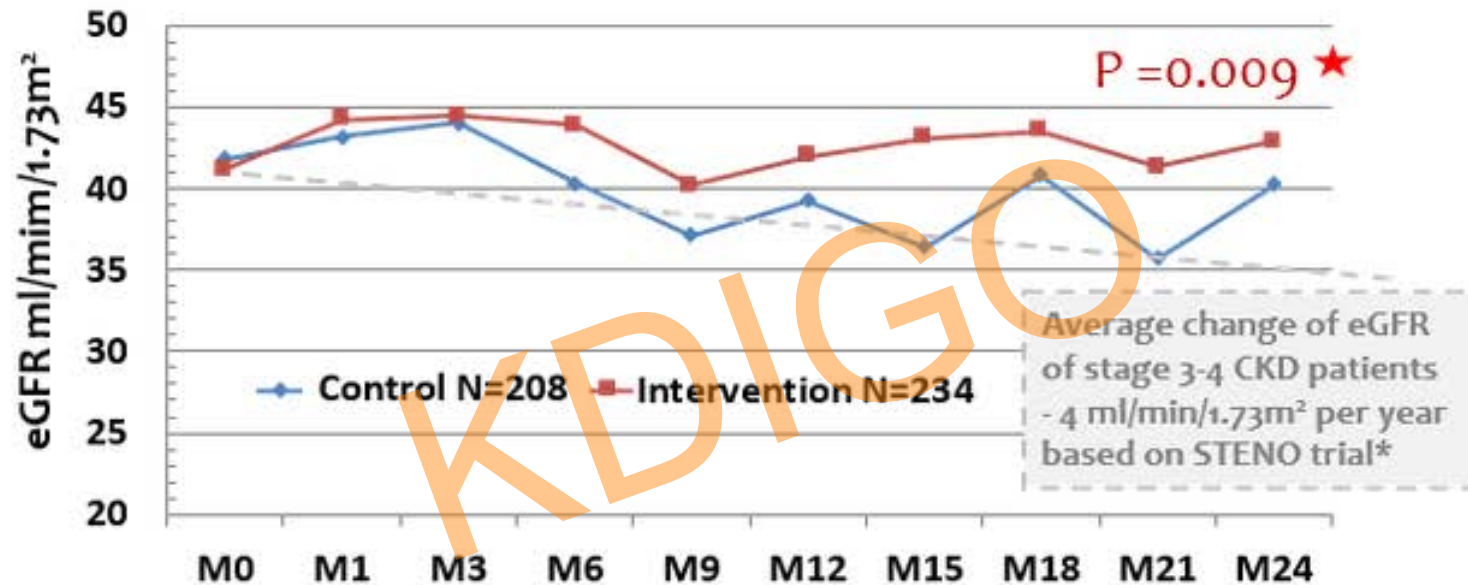


# Training for the Trainers



# Primary outcome:

The comparison of eGFR between control group and intervention group.

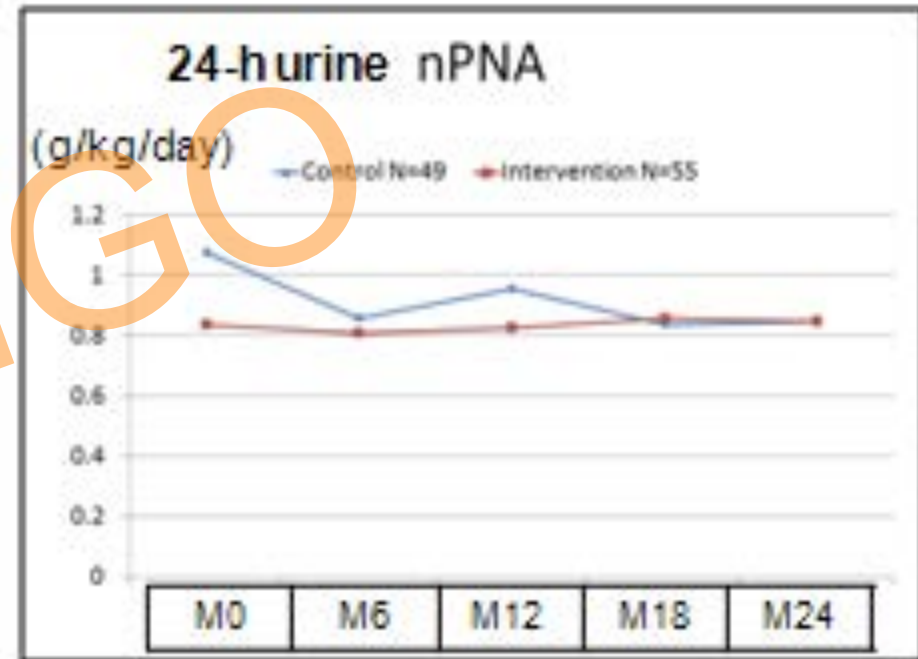
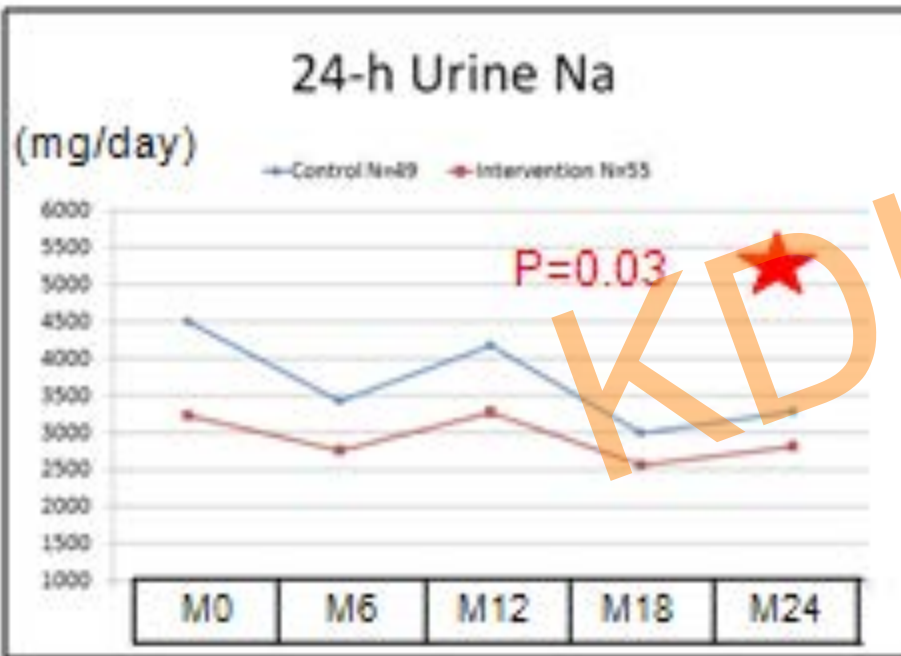


- ❑ Mean difference of eGFR over time is 2.74 ml/min/1.73m<sup>2</sup> per 2 years
- ❑ Rate of eGFR decline control gr. (-2.0) vs intervention gr. (0.09) ml/min/1.73m<sup>2</sup> per year (95% confidence interval (-2.8)-(-1.2), p=0.001).<sup>16</sup>

\* Diabetes Care 29(10):24-30, 2006. The data is shown by the mean (±SD) and was analyzed based on intention to treat basis using Generalized Estimating Equation (GEE)



## Secondary outcomes : The comparison of clinical and laboratory parameters between intervention and control group



## Best District Award (with lowest GFR decline )

### สุดยอดตำบลรักษไต : GFR ดีที่สุด

รพ.สต.	จำนวน	GFR ปี 15	GFR ปี 11	ผลต่างรวม
1. คลองขลุง	23	44.38	46.96	3.88
2. โคกโพธิ์	16	47.12	44.71	-1.79
3. พนมเปือย	24	30.21	38	0.98
4. ท่าอุเทน, อ.สุมปำ	13	39.63	35.2	-2.6
5. แม่ลาภ	18	44.68	40.04	-3.0
6. วิเชียร	11	43.94	44.4	-0.4
7. วิเศษ	22	44.54	40.82	-5.8
8. พืชผล	21	41.99	36.6	-3.8
9. วิไล	32	44.27	46.07	1.79
10. กงไถ่	18	43.66	35.21	-4.2
11. ชัยสิทธิ์	12	53.38	49.01	-5.58
12. วิถี	29	44	41.85	-1.04



# Knowledge sharing among VHVs



# Incidence of Clinical Endpoints (Cox regression analysis)

Clinical outcomes	Control (n=208)		Intervention (n=232)		P-value	Hazard ratio	95%CI
	No. of events	Person-years	No. of events	Person-years			
1. All-cause mortality	4	387.8	5	449.6	0.92	1.07	0.3-3.9
2. CV events: AMI, Stroke	4	384.0	2	448.6	0.33	0.43	0.1-2.3
3. ESRD*	14	370.5	8	439.6	0.11	0.49	0.2-1.2
4. 50% increase in sCr from baseline	31	359.5	23	426.8	0.10	0.64	0.4-1.1
<b>Composite Endpoints (1-4)</b>	<b>41</b>	<b>344.3</b>	<b>29</b>	<b>417.6</b>	<b>0.03*</b>	<b>0.59</b>	<b>0.4-0.9</b>

**41 % Reduction in Hazard Ratio**

\*ESRD: eGFR<15ml/min/1.73m<sup>2</sup>

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# Discussion

- Integrated CKD care can reduce composite clinical endpoints significantly.
- We wish the results of the study would be a new standard for further community-based CKD care implementation in Thailand.

To identify motivation factors , individual & group interview was conducted by social scientists.

Prelim. results : Patients.....

1. Were better informed.
2. with live demonstration of cooking, knew how to prepare proper foods ( low salt, low meat).
3. were scared of PD- pain, QOL
4. observed their own eGFR slope as bio feedback
5. had frequent contact with allied health personnel esp. home visit by sub-district NP and VHVs. – “ acquaintance factor “  
.....leads to behavioral change

# Partners in Prevention and Control of Diabetes and Other NCDs

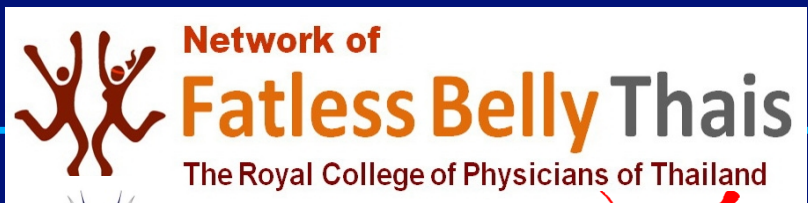


MOPH



Health Thailand  
2010 - 2020

National Policies,  
Plans and  
Infrastructures



and other Partners





Network of  
**Fatless Belly Thais**  
 The Royal College of Physicians of Thailand

Promote **3E** concept  
 for prevention

*Eating*



*Exercise Emotion*

Public showcase



Training personnel and  
 health-care volunteers



In-school activity



หน้าแรก ข่าวพระราชสำนัก การเมือง อาชญากรรม ข่าวทั่วไป ต่างประเทศ

## ลดเค็มครั้งหนึ่ง คนไทยห่างไกลโรค

วันพฤหัสบดีที่ 11 เมษายน 2556 เวลา 00:00 น.



# กรุงเทพธุรกิจ

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หน้าหลัก การเมือง ธุรกิจ การเงิน-การลงทุน อสังหาริมทรัพย์ ยานยนต์ ไอที-นวัตกรรม โลกกีฬา

ข่าวด่วนธุรกิจ : ดัชนี BSE SENSEX 30 หุ่นอินเดีย ปิดตลาด 18,629.15 บวก 88.26 จุด

## Life Style : สุขภาพ

วันที่ 31 ตุลาคม 2555 04:00

### ลดเค็มครั้งหนึ่ง คนไทยห่างไกลโรค

โดย : เครือข่ายลดบริโภคเค็ม

# Low-salt Thailand Project



# Acknowledgement

- Prof. Wannee Nitiyanunt. Fatless Belly Thais Project
- Assist. Prof. Surasak..... Low-salt Thailand Project
- Nephrology Society of Thailand
- Diabetes Association of Thailand
- The Royal College of Physicians of Thailand
- Ministry of Public Health
- National Health Security Office
- Medical Research Network Consortium
- Many oversea colleagues.





KDIGO

# อธิบายแนวคิดคนเอเชีย

## Western Concept

“Individualistic”  
Society



## Eastern Concept

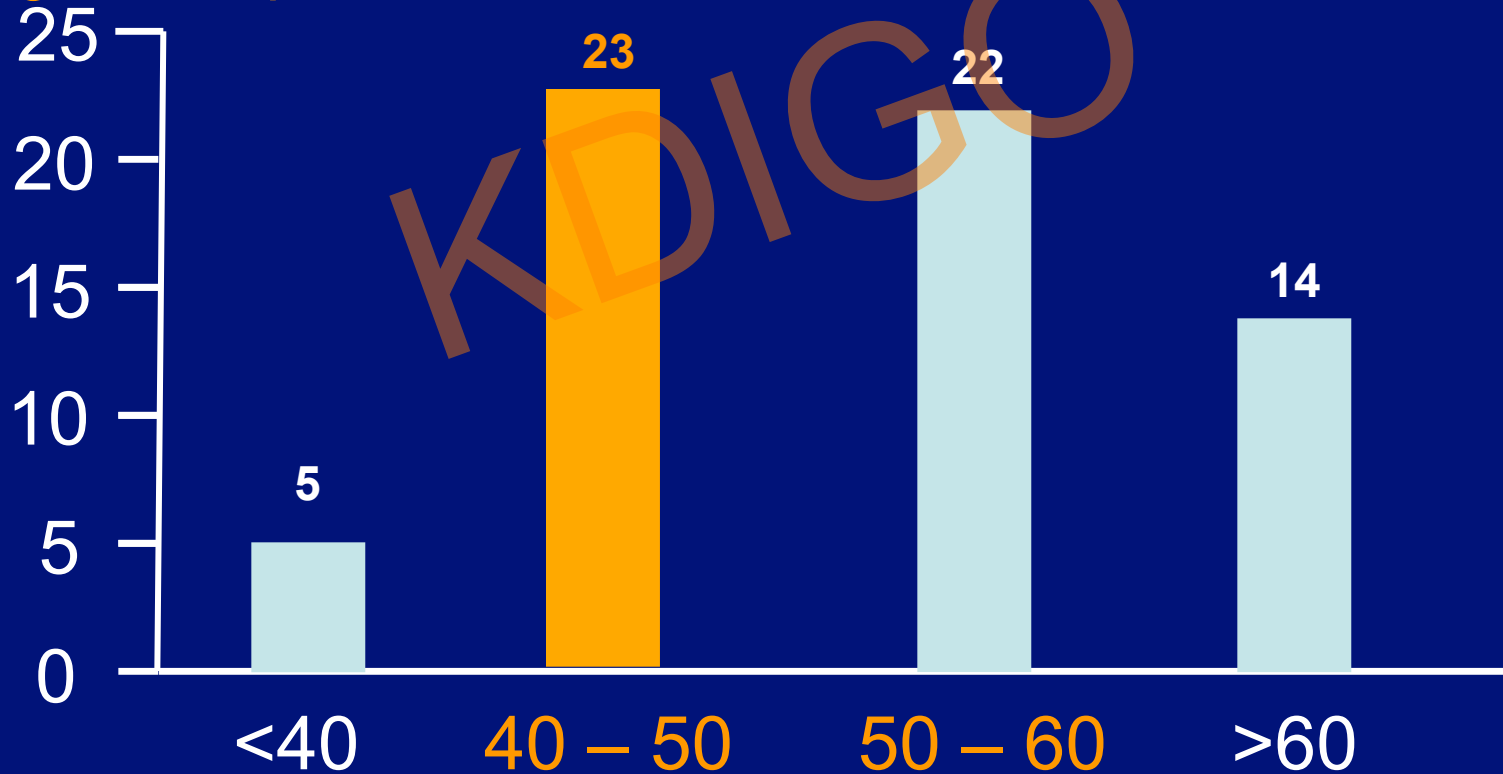
“Collectivistic”  
Society



# Survey on Asian initiation of RRT and Palliative Care

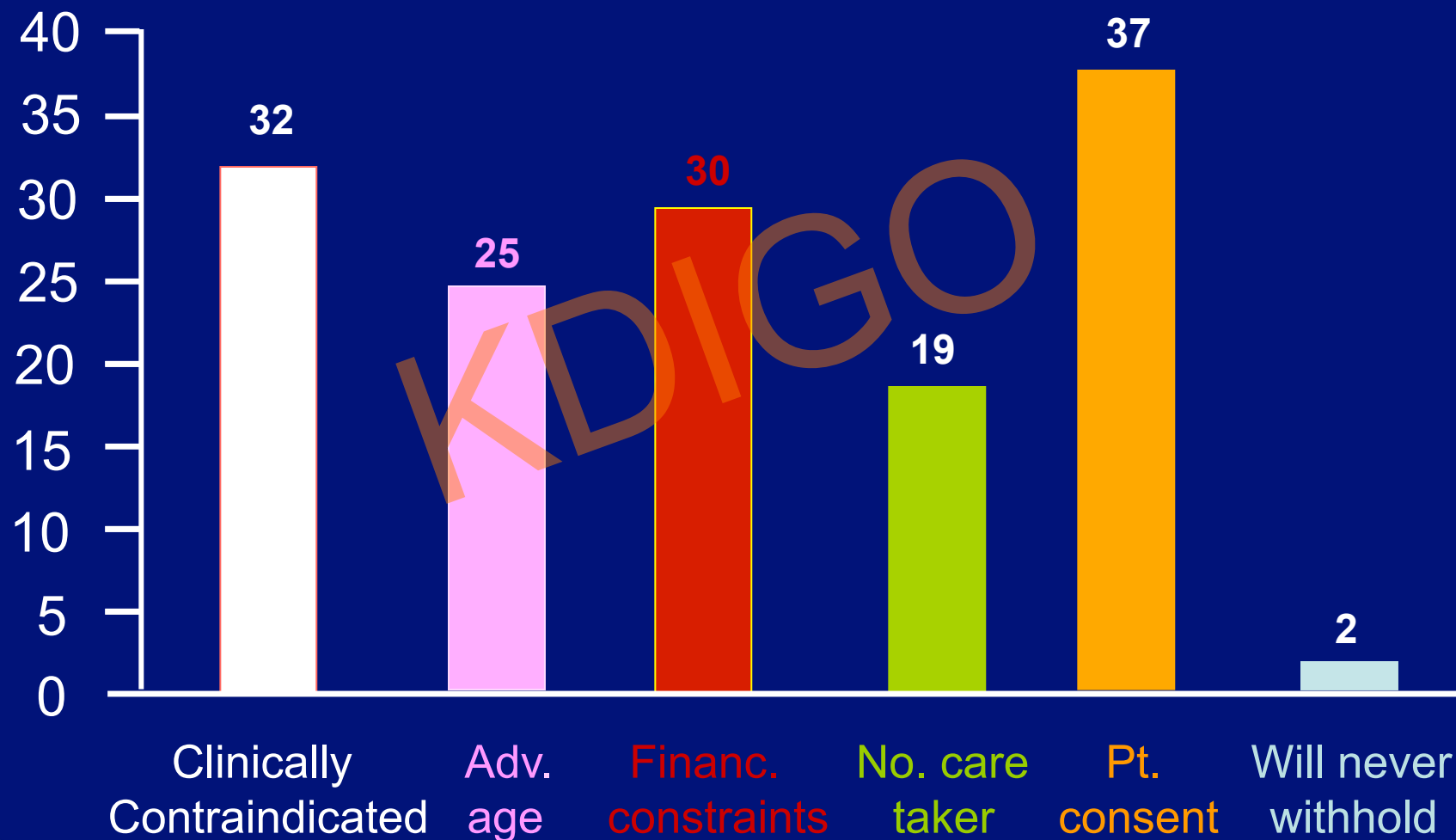
64 nephrologists from 15 countries : *Bangladesh, China, HK-SAR, India, Indonesia, Iran, Korea, Malaysia, Myanmar, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand and Vietnam*

Age of responders



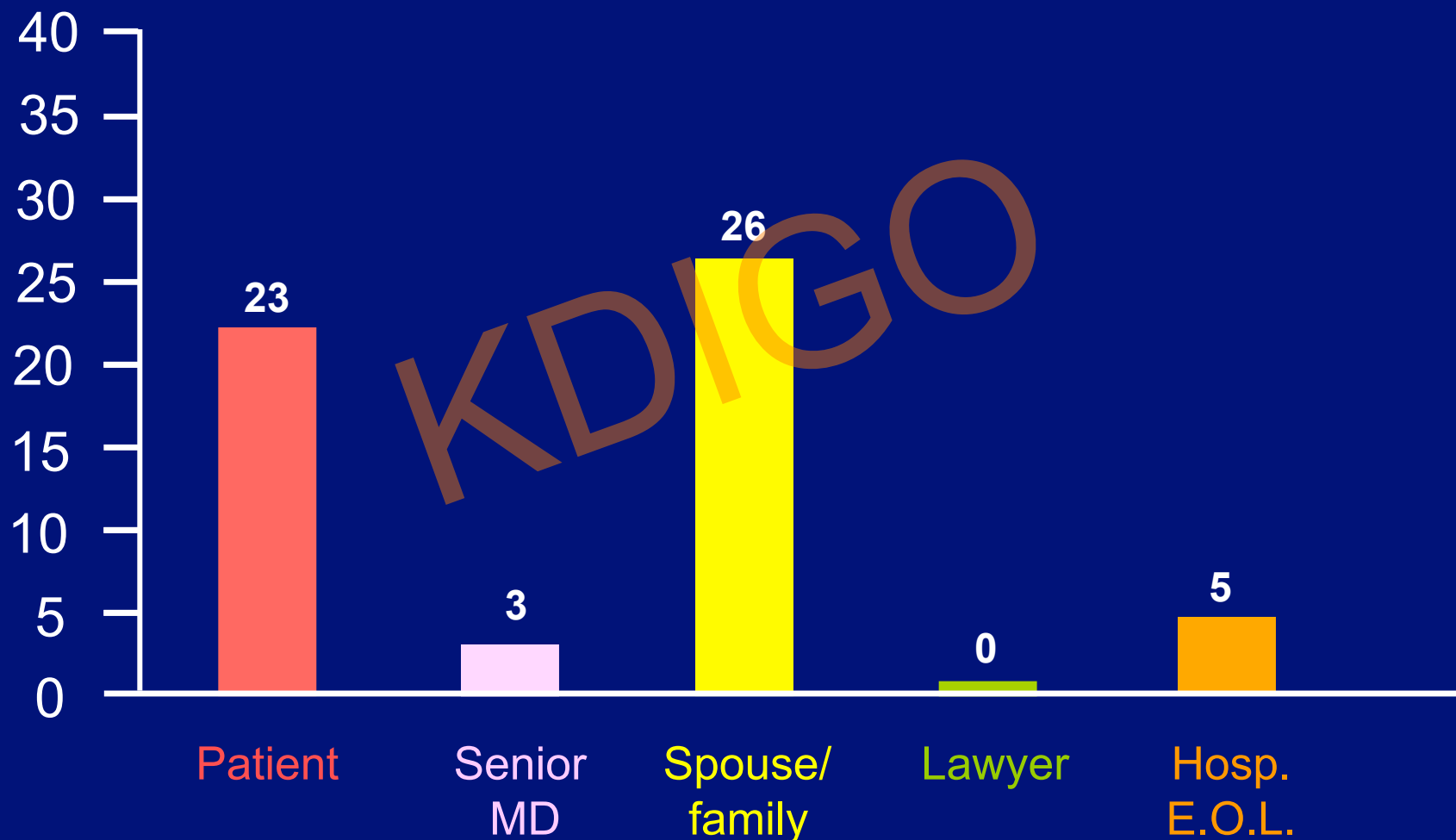
# Causes of withholding when pts. develop uremia

No. of responders



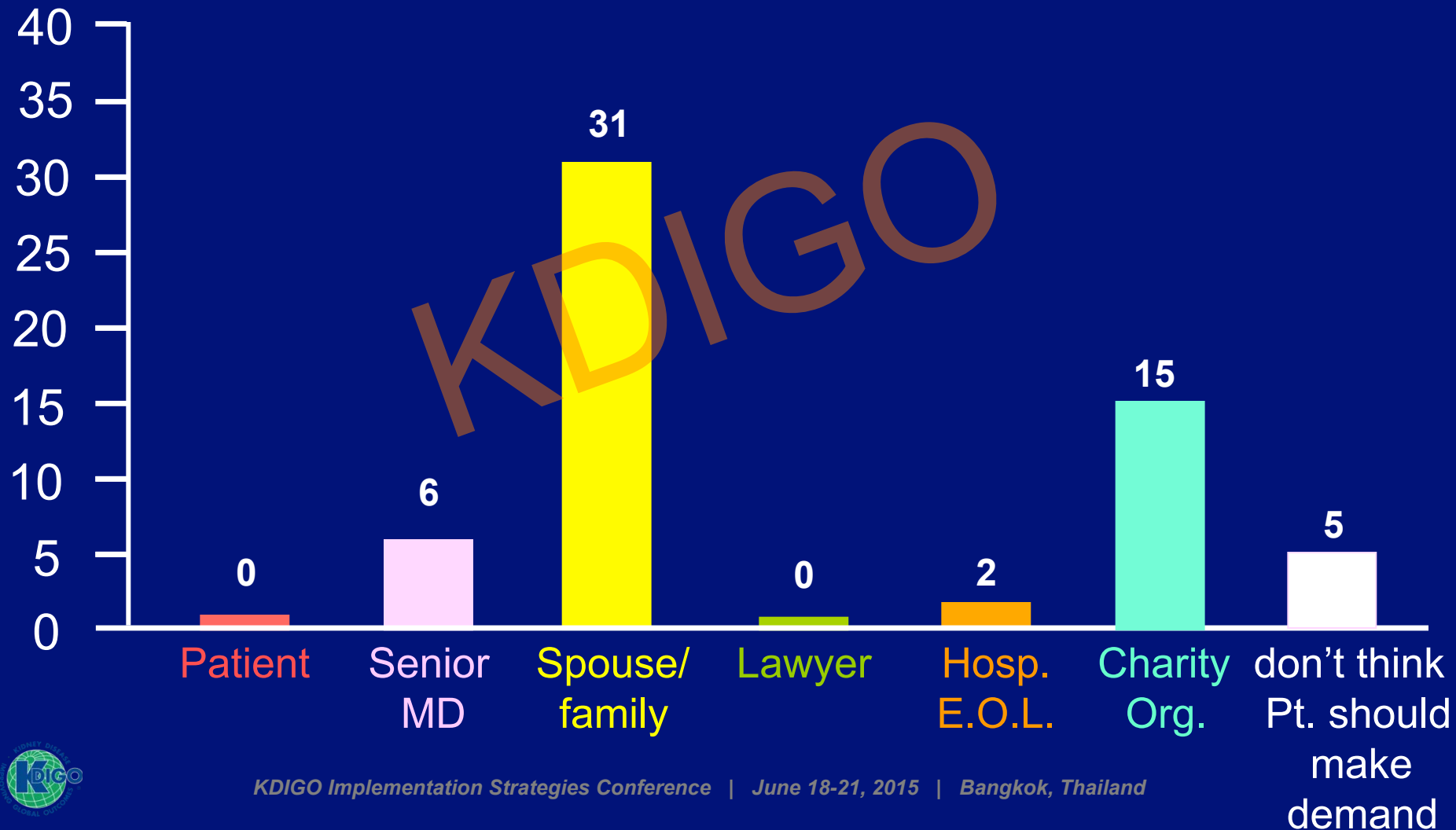
# If to withhold, whom you will consult first?

No. of responders

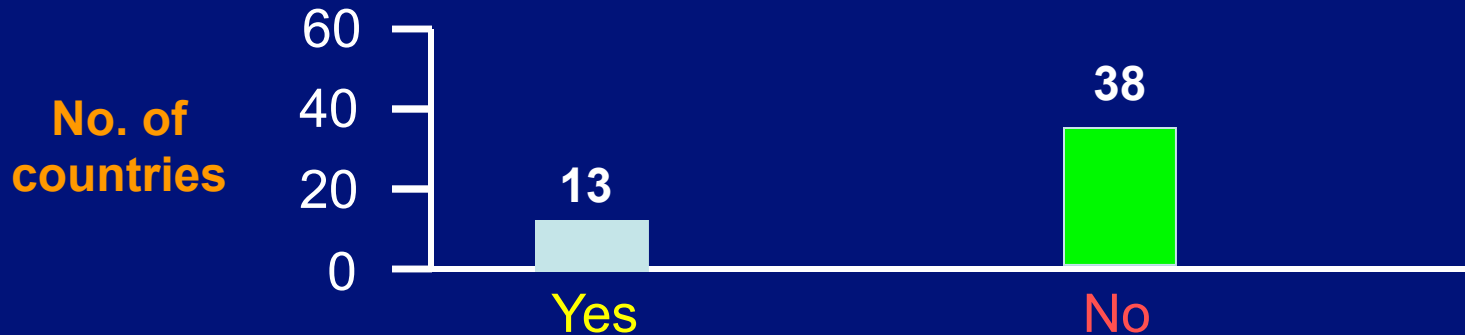


# If to withhold, but they insist to go on despite no funding, whom will you consult first?

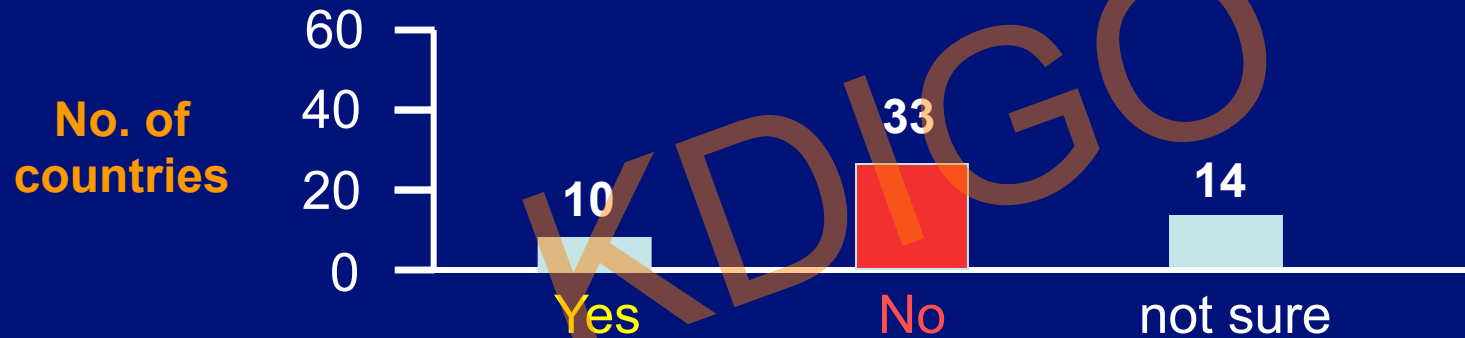
No. of responders



## Do you think that palliative care is a luxury among developing countries ?



## Does the govt. provide financial support for palliative care ?



## Does the insurance pay for palliative care ?

