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Measuring Quality of Care in Patient-centered Integrated Care – Chronic Kidney Disease Integrated Care in Taiwan

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What is Quality?

Fit the

requirements & specifications

- Fit for using
- User Satisfaction
- Value at an affordable price

Dimensions of Care

- Donabedian model
 - Structure
 - Process
 - Outcome

William Edwards Deming (1900-1993) (Avedis Donabedian 1919~2000)

Patient-centered of Quality ?

Structure

Manpower

Facility

Process

Examination

Medication

Procedure

Operation

<u>Outcome</u>

Length of Stay

Unplanned Return

Infection

Fall

Mortality





Measure systems in Taiwan

- Taiwan Clinical Performance Indicator, TCPI
- Hospital Performance & Improvement, P4P
- Hospital Accreditation Monitor System , HA
- Health Insurance Monitor System , HI

		TCPI	P4P	HA	HI
Types	Structure			V	
	Process	\checkmark	\checkmark		
	Outcome	V	V	V	V
Data Source		Patient Records	Patient Records	Hospital Records	Application Data
Quantity (All/KMUH)		472(164)	58(58)	58(58)	
Frequency		Monthly	Monthly	Annually	Quarterly
Fee		Yes	No	No	No

Quality of Care Measured at Patient Level





CKD integrated care in Taiwan Outlines

- I. Brief on the Taiwan CKD prevention
- II. The 5-year CKD Prevention and Quality of Care Improvement Project
- III. The New Cardiac-Kidney-Diabetes-Neuro Project
- IV. Prospective

Incidence of ESRD



Prevalence of ESRD



CKD Prevention Project in Taiwan

Why did we need?

- High incidence & high prevalence of dialysis
 ESRD
- High prevalence of CKD
- High medical costs for ESRD and CKD

We must do something to improve the condition.

How did we do?

- Structure & Policy
 - Government, TSN, Medical Facilities, Private organization, Publics
- Process
 - Kidney health promotion program
 - Pre-ESRD program
 - Early CKD program
 - Physical checkup for adults and elderly

Projects from different institutes for CKD prevention in Taiwan, 2001-2011

- 2001, TSN collaborated with USRDS to publish ESRD data of Taiwan
- 2002, TSN urged to prevent kidney disease in the Committee of Prevention of Diseases of Middle Age, DOH Taiwan
- 2002-3, Pilot projects from Bureau of Health Promotion, DOH
- 2003, TSN organized the CKD Prevention Committee
- 2003, Bureau of Health Promotion and TSN launched the Kidney Health Promotion Program
- **2005,** Taiwan Kidney Day (TSN,BHP).
- 2006, World Kidney Day (ISN, IFKF)
- 2007, Bureau of National Health Insurance launched the Pre-ESRD Integrated Care Program
- 2009, BHP launched the CKD Prevention Research Project
- 2011, BNHI launched the Early CKD Care Program

Projects and actions for CKD prevention in Taiwan, 2011-2016

- (2001 Diabetes integrated care program)
- 2011 Kidney Health Forum (NHRI)
- 2012 CKD Prevention and Quality of Care Improvement
 5-year Project (慢性腎臟病防治 與照護品質五年提升計畫 2012-2016) (Ministry of Health and Welfare)
- 2014 First Annual Report on Kidney Disease in Taiwan (NHRI)
- 2015 CKD Practice Guideline (NHRI)
- 2016 Renal Injury Prevention and Drug Safety



Taiwan CKD prevention works from 2003 to 2016



Summary on the CKD prevention Project

- Set up a well-organized infrastructure
- Deployed many projects for community screening, education, and clinical care plan to cover all stages CKD patients
- Established the patient-centered integrated care program
- A unique pay-for-performance reimbursement system from National Health Insurance
- Designed effective policies to drive the intention of hospitals and clinicians to join the programs
- Evaluating the performance in Early CKD and PreESRD programs

I. Kidney Health Promotion Project, Bureau of Health Promotion, Department of Health CKD Prevention Clinics/Hospitals, 2003~



Multidisciplinary Care Team for CKD Patients



Fundamental and essential process for establishment of CKD prevention and care system nation-wide

Clinical Flow Chart for CKD Out-Patient





What is the effectiveness of the CKD prevention project? Measuring Quality of Care

- Final goal :
 - Decrease ESRD incident rate in Taiwan
 - Decrease the CKD cases number
 - Slow the CKD progression
- Goals at initial development stages :
 - Promoting the concept and establishment of CKD prevention organizations
 - Follow the preset goals of care at different CKD stages
 - Immediate effect of cost saving for Pre-ESRD care
 - Care quality for CKD stage 5 entering ESRD RRT
 - Medical utilization for CKD stage 5 entering ESRD RRT

Taiwan CKD Prevention Project

Effects and Accomplishments

- Kidney health promotion program
- 2 Pre-ESRD program
 - 1) Local hospitals
 - 2) National Dataset Analysis A (NHRI)
 - 3) National Dataset Analysis P4P program (KMUH)
- ③ Early CKD program (KMU)
- ④ Adult Prevention Health Exam Service
- ⑤ 2014 ~ 2016 ESRD annual data report
- [©] DM integrated care program
- ⑦ Taiwan CKD cohort

Quality of CKD care in patients entering ESRD, 2005-2012



② Pre-ESRD program: 1) Local hospitals

Summary on effectiveness of the Pre-ESRD program (results from the before mentioned local studies)

- Multidisciplinary CKD care can
 - Reduce mortality for advanced CKD patients
 - Increase vascular access rate for dialysis
 - Decrease hospitalization during dialysis initiation
 - Reduce medical costs during dialysis initiation
 - Slow GFR declining rate for advanced CKD patients
 - Reduce dialysis rate?
 - No Changhua Christian Hospital
 - Yes NTU, Chang Gung Memorial Hospital

Nephrology 2010;15:108-115 NDT 2009;24:3426-3433 Nephrology. 2014;19:699-707 NDT 2013.28:671-682 Am J Medicine. 2015;128:68-76 Pre-ESRD program: 3) National Dataset Analysis (KMUH)

Summary of the results of Early CKD and Pre-ESRD Program

- Early CKD Program (National Dataset Analysis)
 - Lower medical costs
 - Better survival
 - Good laboratory examination rate
- Pre-ESRD P4P program (National Dataset Analysis)
 - Improvement of clinical care quality
 - Better lab. data and less complications
 - Less mortality
 - Delay the time to dialysis
 - Well preparation at time of dialysis initiation
 - Low medical costs

Lower 1-5 years mortality after enrollment



P4P patients has lower cumulative crude morality rate, and the average days from enrollment to death is also longer than the controls.

Increasing cover rates of different integrated care programs: DM, Early CKD, and Pre-ESRD program



II. 2012~2016 CKD Prevention and Quality of Care Improvement 5-year Project : By Ministry of Health and Welfare Aim, Goal, Indicators Monitoring, Evaluation (2013-2016)

- 1. Decrease dialysis Incidence Rate (Annual growth of age- standardized dialysis incidence rate -2%)
- Increase the numbers of renal transplantation (annual growth rate 3%)
- 3. Improve dialysis 5-year survival rate (3% higher than EDTA Registry)
- Increase peritoneal dialysis penetration rate (annual growth rate 1% for age less than 55 years and non-diabetes group)

2000~2016 Dialysis Incidence Rate in Taiwan





2016, Tw RDS ADR

2000~2015 Domestic Kidney Transplantation Rate



Aim 2. Increase the numbers of renal transplantation (annual growth rate 3%) Not achieved: 2016, 2015: Numbers and rates fluctuated not constant

Aim 3. Improve dialysis 5-year survival rate (3% higher than EDTA Registry)

Survival rate for chronic dialysis patients in Taiwan, 2000~2004

		一年 (95% 信頼區間)	二年 (95% 信頼區間)	三年 (95% 信頼區間)	五年 (95% 信頼區間)	十年 (95% 信頼區間)
	透析模式別	1y	2у	Зу	5у	10y
HD	血液透析	92.3 (92.0-92.6)	80.9 (80.5-81.4)	71.6 (71.1-72.1)	56.6 (56.0-57.1)	31.9 (31.4-32.4)
PD	腹膜透析	94.3 (93.4-95.1)	83.5 (82.1-84.8)	75.0 (73.3-76.5)	61.9 (60.0-63.6)	42.7 (40.9-44.6)
Тx	移植	97.2 (96.5-97.8)	95.5 (94.6-96.3)	93.8 (92.7-94.7)	90.0 (88.7-91.2)	80.0 (78.1-81.7)
All	平均	92.8 (92.5-93.0)	82.0 (81.6-82.4)	73.2 (72.7-73.7)	58.9 (58.4-59.4)	35.3 (34.8-35.7)



Chronic dialysis: undertaking dialysis for at least 3 months

2014 ESRD Annual Data Report

5-year survival rate, by age Taiwan vs. Europe





26 Chronic dialysis: undertaking dialysis for at least 3 months

5-year survival rate (International comparison)



Aim 4. Increase peritoneal dialysis penetration rate (annual growth rate 1% for age less than 55 years and non-diabetes group)

No. and % of Incident PD patients of age <55 and Non-DM



註: 2016年數據乃推估而來, 資料僅供參考

No. and % of Prevalent PD patients of age <55 and Non-DM



Aim 4. Increase peritoneal dialysis penetration rate (annual growth rate 1% for age less than 55 years and non-diabetes group) Not achieved,: 2016 vs. 2015 : 20.9%, vs. 20.8% (+0.1%))(2015 vs. 2014: 20.8%, vs. 21.0% (-0.2%)) 2016, Tw RDS ADR

What will be the new national goals for the next 5-year National Kidney Disease Prevention Project?



Outlines

- Brief on the Taiwan CKD prevention works from 2003 to 2016
- II. The 5-year CKD Prevention and Quality of Care Improvement Project of Ministry of H & W, Taiwan
- III. The New Cardiac-Kidney-Diabetes-Neuro ProjectIV. Prospective
- IV. Prospective

CKD, a complex, multi-cause disease

1997-2008 Taiwan incident dialysis population



Distribution of Taiwan patients with CKD, CHF, diabetes, & ESRD, 2004 Figure 12.26 USRDS 2007 Distribution of costs for Taiwan patients with CKD, CHF, diabetes, & ESRD, 2004Figure 12.27

CKD, CHF, DM in elderly not only costive but also a multiplier for costs



Populations estimated from the 1 percent National Health Insurance (NHI) sample in Taiwan. Patients age 65 & older & all-age ESRD patients who survive the entire cohort year (2003), & period prevalent ESRD patients, 2004.



A new concept for integrated care of CKD patients in new era

- The better care of renal function, the less CV mortality, and longer survival time, but the higher chance of entering ESRD.
- Competing risk of death
 CKD
 Coronary arterial Disease
 DM
 CHF
 Pulmonary edema
 Death
 ESRD
 Line

Renal palliative

RRT

Tx, HD, PD

Polypharmacy, Multiple comorbidities, Ageing, Frequent hospitalization, High Costs, Poor QoL

Percentage of incident dialysis patients under PreESRD care program before dialysis, by sex



A new C-K-D Cardiac-Kidney-Diabetes integrated care plan in new era





V. Perspective

2017~2021 2nd 5-year CKD Prevention and Quality of Care Improvement Project : (Proposed by TSN)

- Still under planning and Discussion
- The goals, strategy, KPI achievement will be provided for government to make the national policy.
- Needs collaborations from different parties
- Needs repeated evaluation, modification, and improvement

- TSN consensus and suggestions
- Generalized planning, from health promotion to disease prevention, treatment, and QoL improvement
- Indicators
 - Health promotion and prevention
 - Reduce Sugar, Salt, and Oil use in food manufacture
 - AKI prevention, CKD screening, treatment, and management
 - Based on Guidelines
 - Age-standardized ESRD incidence and prevalence
 - Optimal goal to be reached

What is Quality ?

The secret of quality is **love**. You have to love your patient, you have to love your profession, you have to love your God. If you have love, you can then work backward to monitor and improve the system.



(Avedis Donabedian,1919~2000)

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Thank you for listening