2025 APCN x TSN
Advancing CKD Care and Combating Infectious Diseases
20251206 9AM30-10:45
Taipei Nangang Exhibition Center, Hall 2
Taipei, Taiwan

Advancing CKD Care and Combating Infectious Diseases:

Taiwan Experiences in Kidney Health Policy – The CKD Program

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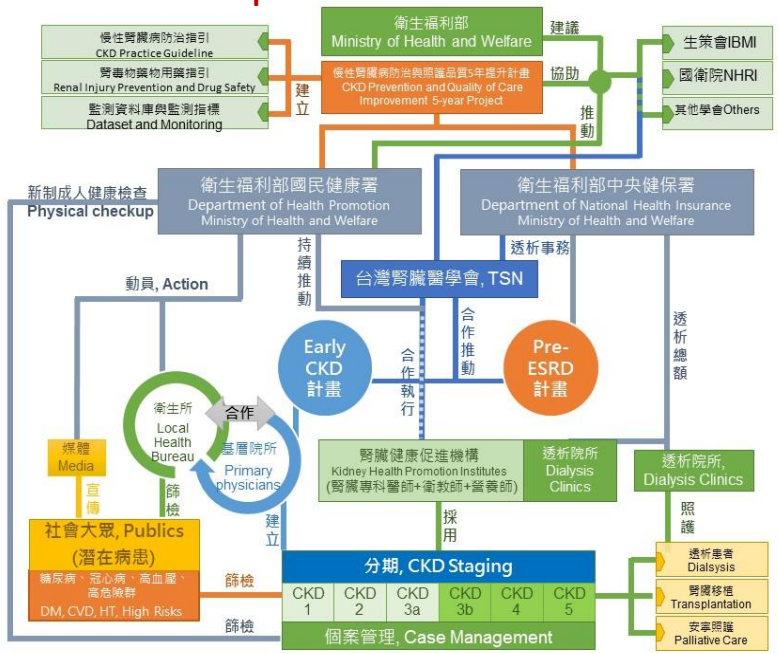
National Health Research Institutes

Milestones we have achieved in CKD care, and the journey continues

- Prevention of CKD Progression
- Mortality reduction
- Cost-effectiveness

- **2003** Set up “Kidney Health Promotion Institutes“ provide CKD care
- **2007** Pre-ESRD P4P program launch
- **2011** Early CKD P4P program launch
- **2015** Taiwan CKD Clinical Guidelines
- **2021** Acute kidney disease (AKD) P4P Program
- **2022** Revised Taiwan CKD Clinical Guidelines
- **2024** Total 274 institutes join the CKD care networ
- **2025** Taiwan CKD Consensus

Taiwan CKD prevention works from 2003 ~



THE DAYS WE WERE

1963 年 8 月　日本建信式血液透析者

1963 The First HD case

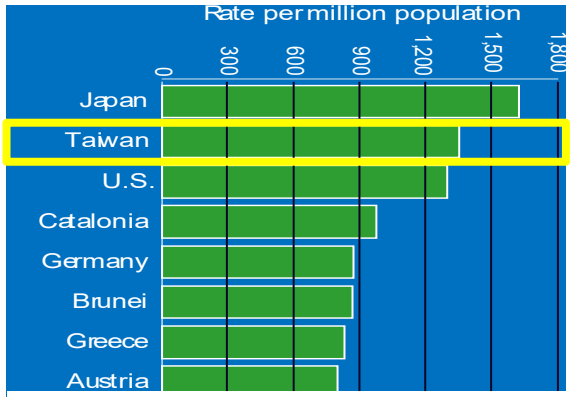
1964

The First PD case

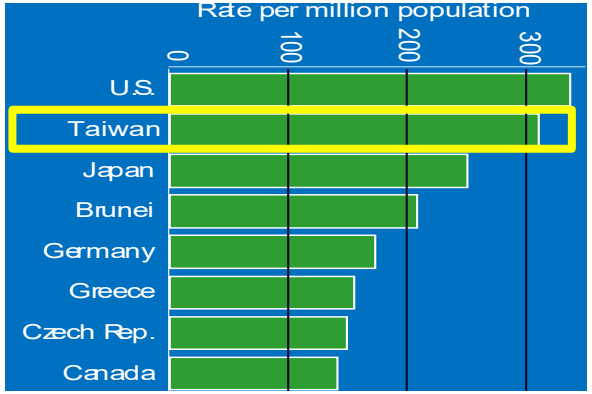
1968 The first renal transplantation case

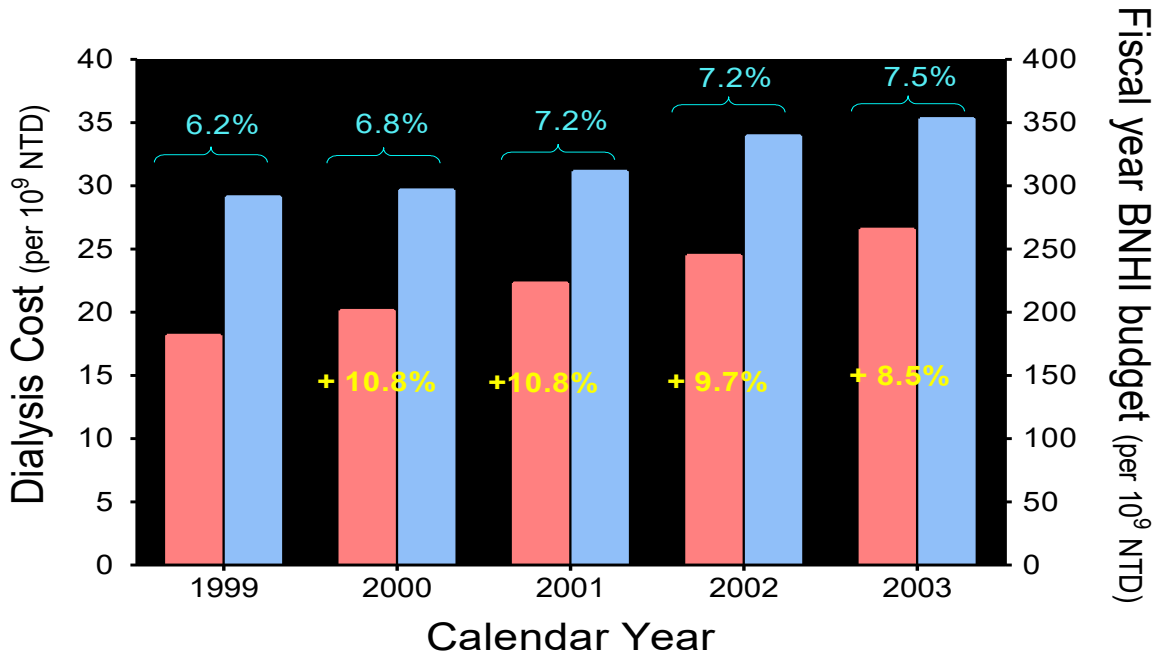
National Health Insurance in 1995, RRT as Major Catastrophic Illness, No co-payment for RRT, Bundle payment for HD

Incidence of ESRD, 2000



Prevalence of ESRD, 2000





USRD, 2002 annual report

- 2002 USRDS ADR Taiwan: 2nd highest in ESRD incidence & prevalence
  - Dialysis patients was around 0.25% of total population, but spent 6-10% of total health budge.
  - No copayment for dialysis treatment
  - Government cannot afford to the growth of dialysis expenses.

We (TSN) must do something to change situation and improve the condition.
Kidney D's Prevention Campaign and Project

Kidney Disease Prevention Campaign and Project (History, 2000~)

Step I – Study and understand the important issue of ESRD/CKD well

- What is the situation of ESRD (Dialysis & Transplantation) in our country? What is the situation of CKD in our country? 6.9%, 11.9%
- ***Move the focus from ESRD to CKD.***

Step II – Exposure issues/problems to publics, Media/Press

Step III – Make it to be the national policy,

Step IV – Organize the strength of nephrology societies to support the policy -- Role of TSN

Step V– Get the payment from Health Care

NO MONEY NO TALK

- **Pre-ESRD Integrated care program** for CKD stage 3B, 4, 5 patients, and patient of proteinuria (Upcr > 1000 mg/g creatinine) since 2007
- **Early CKD program** for CKD stage 1, 2, 3A patients since 2011
- Payment from National Health Insurance
  - Reimburse for nursing education and dietary education
  - Payment for management fee for care of CKD patients

  Bonus for patients with good care results

Step VI – Show the outcomes and effectiveness of the CKD prevention project to public and government

Summary of the results of Taiwan Pre-ESRD Pay-for-performance program

Chronic kidney disease care program improves quality of pre-end-stage renal disease care and reduces medical costs

SHU-YI WEI,[1] YONG-YUAN CHANG,[2] LIH-WEN MAU,[3] MING-YEN LIN,[4] HERNG-CHIA CHIU,[3] JER-CHIA TSAI,[4,5] CHIH-JEN HUANG,[6,7] HUNG-CHUN CHEN[4,5] and SHANG-JYH HWANG[4,5]

- 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

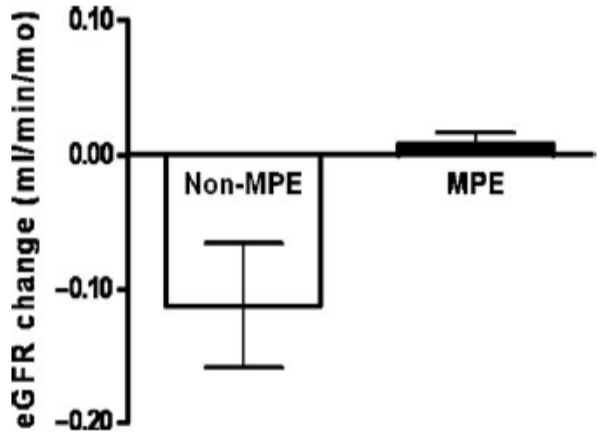
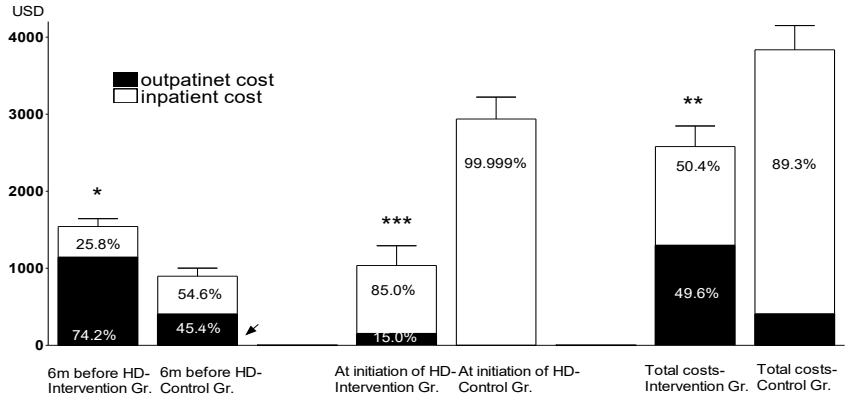


Fig. 3. Change of eGFR between the multidisciplinary predialysis education (MPE) recipients and the non-recipients (non-MPE; $P = 0.011$).



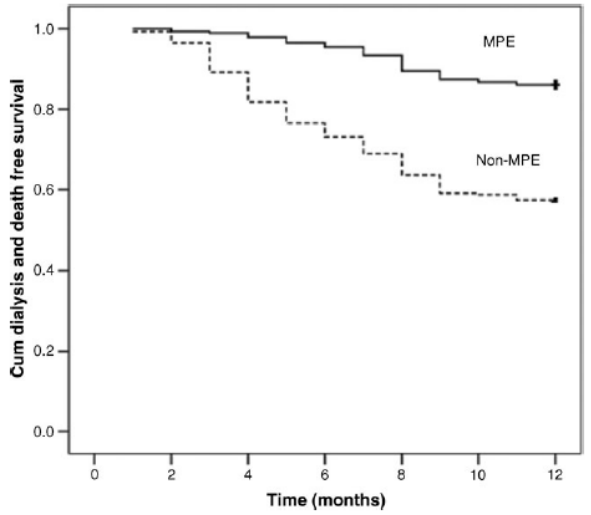


Fig. 6. Cumulative proportion of patients reaching composite end-points (Cox–Mantel log rank test, $P < 0.001$).

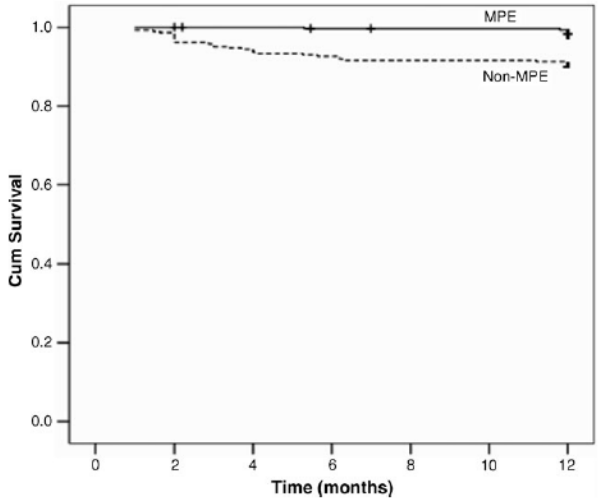


Fig. 5. Cumulative survival curves of multidisciplinary predialysis education (MPE) recipients and non-recipients (non-MPE). Patients with MPE had significantly better survival (Cox–Mantel log rank test, $P < 0.001$).

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. NDT 2017;32(7):1184-1194.
PLoS One. 2018 Jun ;13(6):e0198387

CKD programs translate into profound benefits for CKD patients

Taiwan P4P program reduce dialysis need and mortality with lower medical costs.
Provide better outcomes and long-term cost saving for patients.

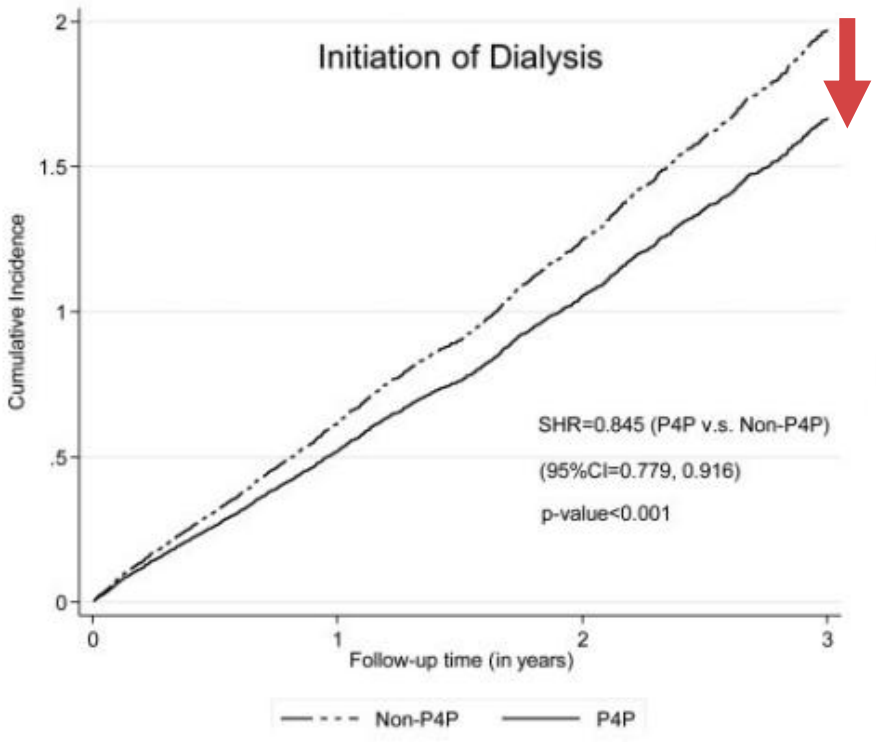
Chronic kidney disease care program improves quality of pre-end-stage renal disease care and reduces medical costs

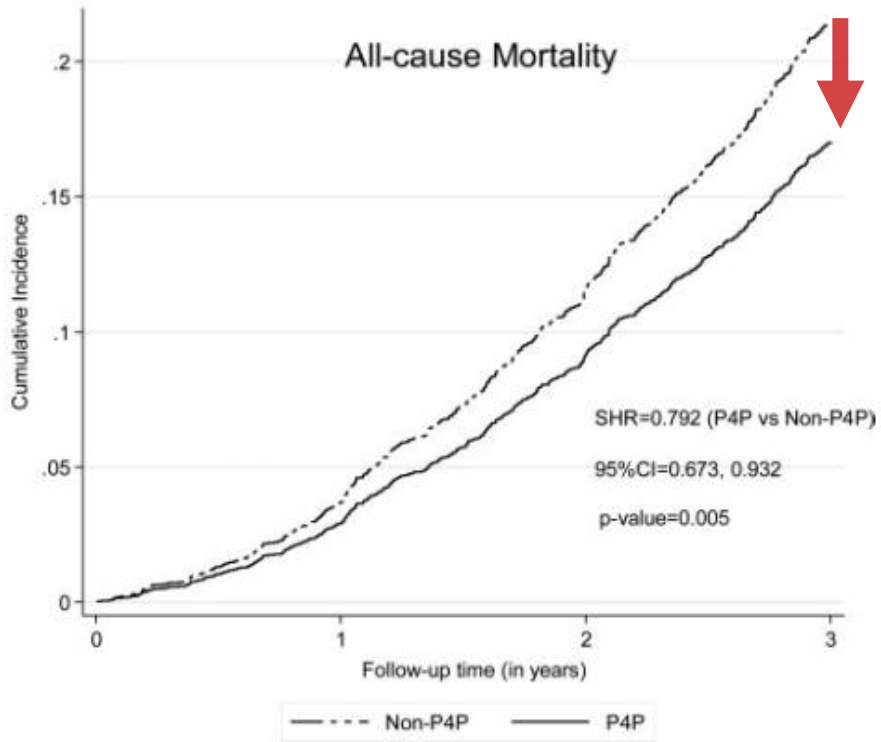
SHU-YI WEI,[1] YONG-YUAN CHANG,[2] LIH-WEN MAU,[3] MING-YEN LIN,[4] HERNG-CHIA CHIU,[3] JER-CHIA TSAI,[4,5] CHIH-JEN HUANG,[6,7] HUNG-CHUN CHEN[4,5] and SHANG-JYH HWANG[4,5]

- Initiation of dialysis
- Mortality rate
- Medical costs

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
NDT 2017;32(7):1184-1194

Adjusted cumulative incidence curve for risks of events in pre-ESRD patient cohort





Lin MT, Hsu CN, Lee CT, Cheng SH. Int J Health Policy Manag. 2021 Apr 13. doi: 10.34172/ijhpm.2021.27.
Hsieh, HM, et al. Nephrol Dial Transplant. 2017 Jul 1;32(7):1184-1194.

Can a universal CKD care program decrease kidney failure incidence and prevalence?

Kidney Medicine

Methods and Cohort

- Follow-up study
- Taiwan Renal Disease System Database
- Dialysis > 90 days
  N = 144,258
- 2002 – 2016

Intervention

Pay-for-performance scheme

Implemented in 2006

Incentive program "Early-CKD Care"

Implemented in 2011

Trends in ESKD

	Incidence*	Prevalence*	Death**
2002 - 2006	366	2,031	11.1
2007 - 2011	417	2,691	10.8
2012 - 2016	465	3,216	11.6
APC	-0.41 (-1.02 , 0.24)	4.61 (4.37, 4.83)	1.8 (-1.8 , 5.6)

Incidence was significantly reduced over time, an with overall net drift of: **−1.09%** per year (95% CI, −1.65 to −0.52)

CKD, chronic kidney disease; ESKD, end stage kidney Disease; APC, annual percent change. *Expressed per 1 000 000 population. ** Expressed per 100 person-years.

Conclusion: Implementation of universal CKD care programs in Taiwan has significantly reduced the long-term trends in ESKD incidence; hence, devoting governmental resources to CKD care and prevention is advocated.

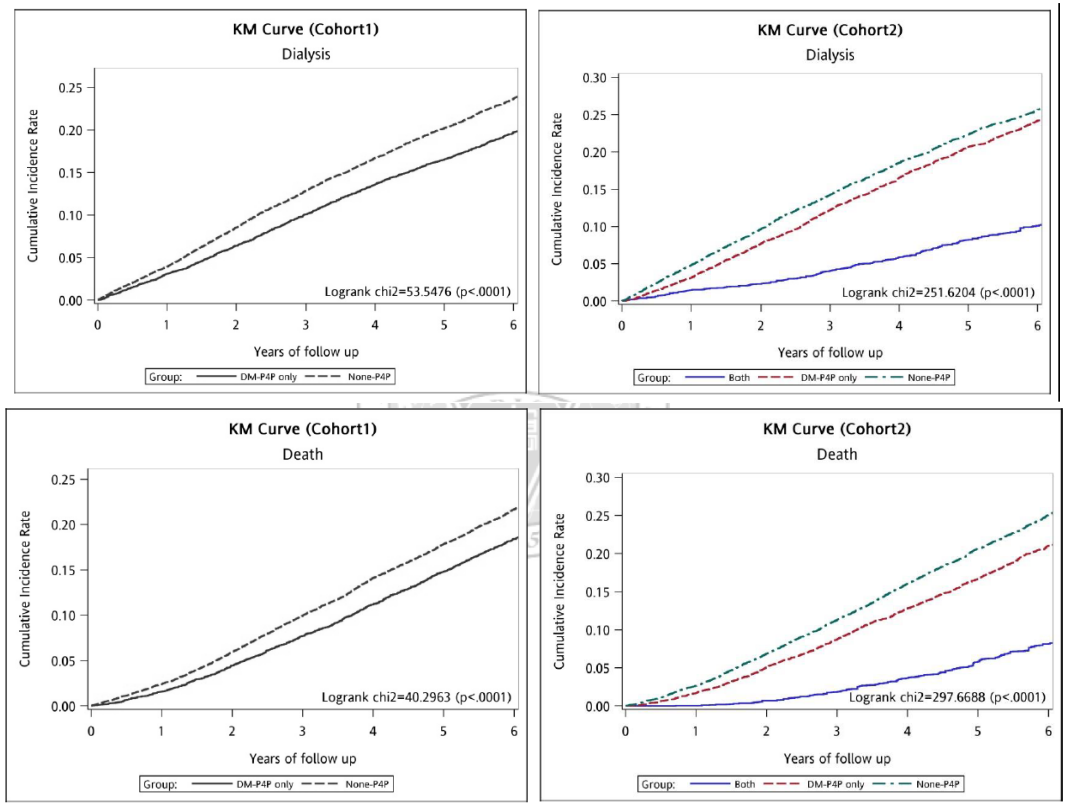
Reference: Lin MY, Chiu YW, Hsu YH et al. CKD care programs and incident kidney failure: a study of a national disease management program in Taiwan. *Kidney Medicine*, 2022

Visual Abstract by Denisse Arellano, MD

@deniise_am

Summary of the results of Taiwan Early CKD / Diabetes Program

- Early CKD Program (National Dataset Analysis) – Hsieh HM, Chen LC, Hwang SJ in submission
  - Lower dialysis, Better survival
  - Good laboratory examination rate
  - Stage down



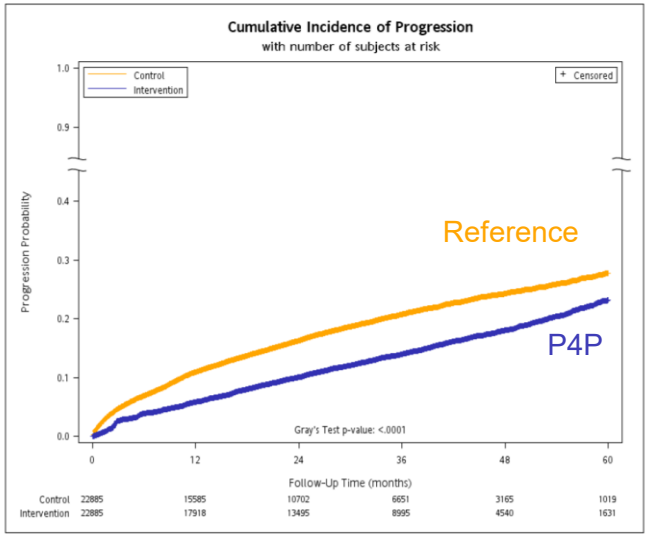
IJHPM International Journal of Health Policy and Management

Original Article

Effect of a Pay-for-Performance Program on Renal Outcomes Among Patients With Early-Stage Chronic Kidney Disease in Taiwan

Min-Ting Lin[1], Chien-Ning Hsu[2,3], Chien-Te Lee[4,5], Shou-Hsia Cheng[1,6*]

5-year CKD Progression Incidence



Join both Early-CKD + DM P4P reduced CKD progression risk by 40%

Table 4. Factors Associated with CKD Progression in CKD Patients Comorbid with Diabetes

Parameters	CS-HR (95% CI)[a]	*P* Value
(Reference: none of both P4Ps)	-	-
Diabetes P4P only	0.79 (0.68–0.92)	.0024
Early-CKD P4P only	0.65 (0.60–0.70)	<.0001
Diabetes and Early-CKD P4P	0.60 (0.54–0.67)	<.0001

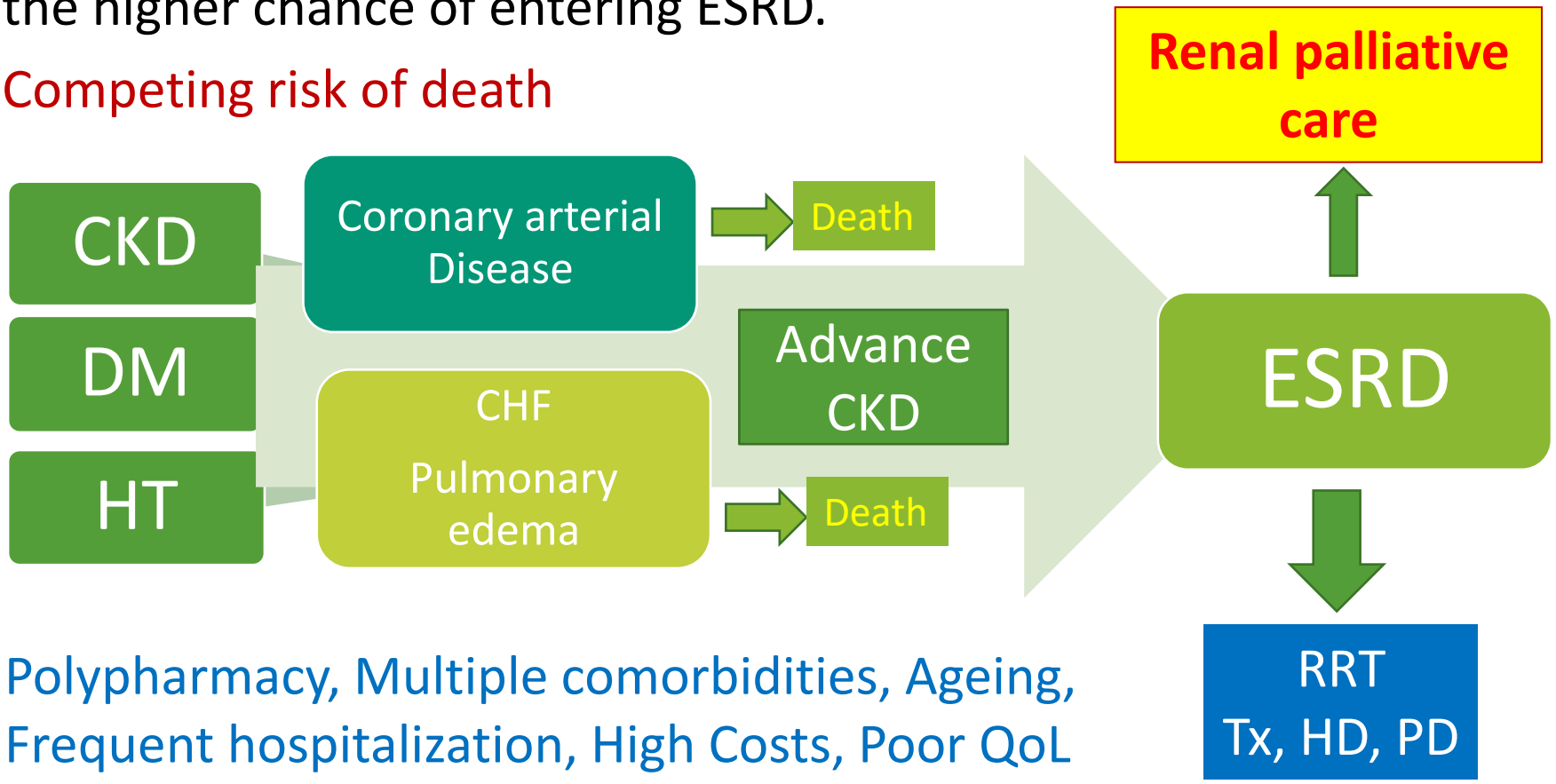
Abbreviations: CKD, chronic kidney disease; CS-HR, cause-specific hazard ratio; P4P, pay-for-performance.

[a] The HRs were adjusted for age, sex, CKD stage, and CCI score.

Lin MT, Hsu CN, Lee CT, Cheng SH. Int J Health Policy Manag. 2021 Apr 13. doi: 10.34172/ijhpm.2021.27.

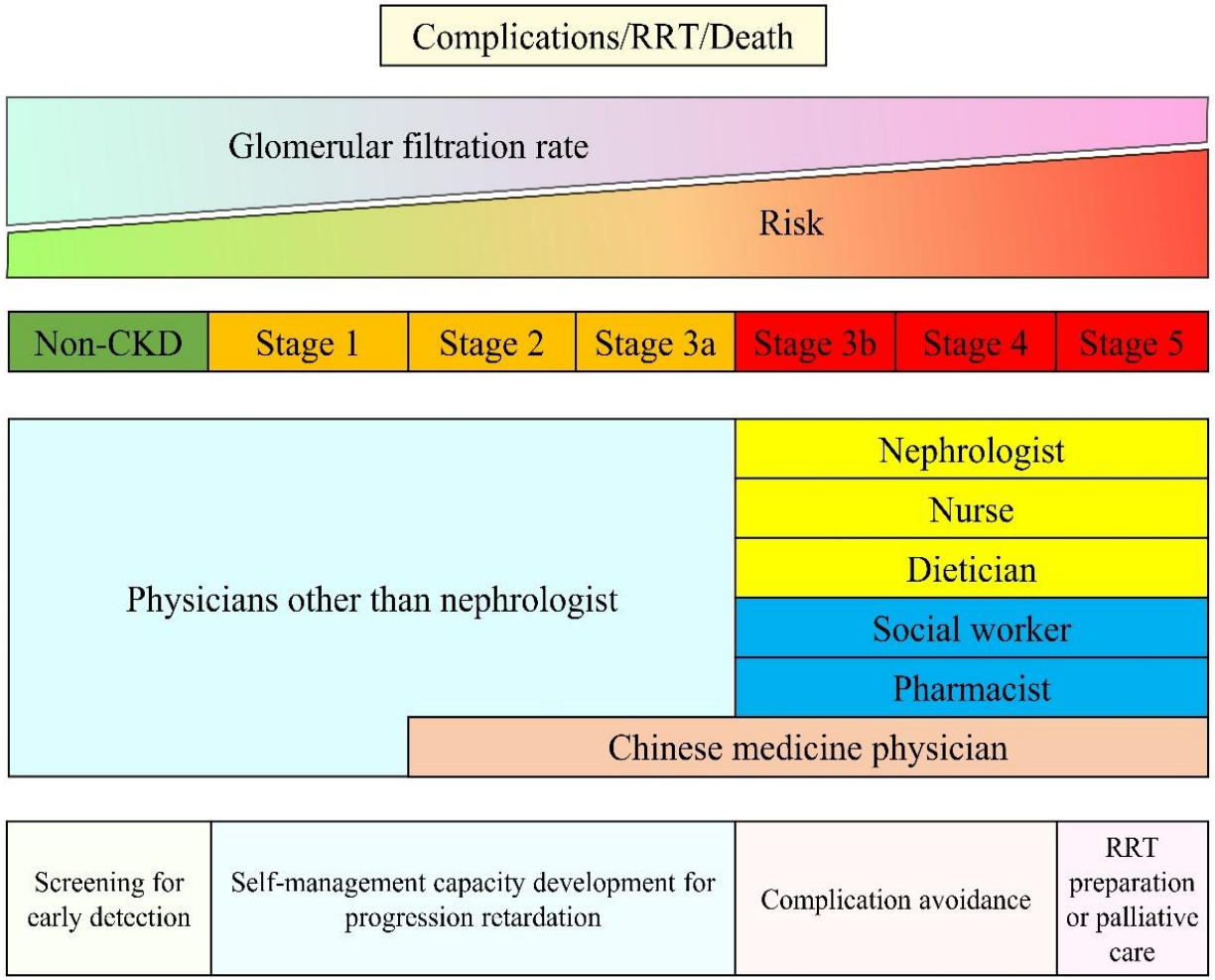
A new concept for integrated care of CKD patients in new era

- 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

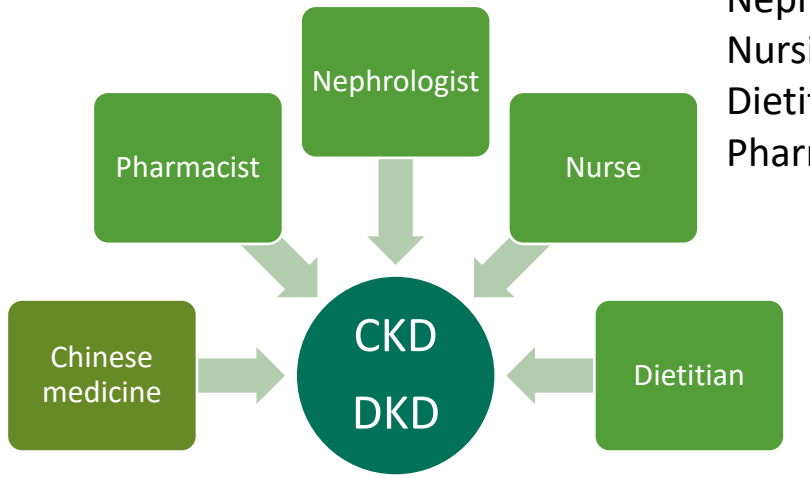


Polypharmacy, Multiple comorbidities, Ageing, Frequent hospitalization, High Costs, Poor QoL

Paradigm Shift : Taiwan multidisciplinary CKD care programs



Chih-Cheng Hsu, Yung-Ho Hsu, Mai-Szu Wu, Shang-Jyh Hwang. Achievements and challenges in chronic kidney disease care in Taiwan, JFMA, V121, S1, 2022, PS3-S4.



Nephrologist visit
Nursing Education
Dietitian Counseling
Pharmacist Counseling

Get the payment from Health Care system

- **Pre-ESRD Integrated care program** for CKD stage 3B, 4, 5 patients, and patient of proteinuria (Upcr > 1000 mg/g creatinine) since 2007
- **Early CKD program** for CKD stage 1, 2, 3A patients since 2011
- Payment from National Health Insurance
  - Reimburse for nursing education and dietary education
  - Payment for management fee for care of CKD patients
  - Bonus for patients with good care results

These perfect CKD care practices needs the perfect tools and technology

My Health Bank

Your own Health care assistant

Medical history is no longer unclear!

Visualized blood glucose and lipid profile

Visualized CKD staging with KDIGO risk

Regularly remind renal function check

Kingdom of Health Kidney

Your CKD patient education partner

Online website

One-click to nearest CKD P4P

Comprehensive educational toolkits

From CKD high risks to kidney health literacy

E-education

Slide decks and videos

TSN-CKD Integrated Care Platform

Your clinic CKD care helper

eGFR annual slope
Help predict CKD progression

RRT shared decision-making

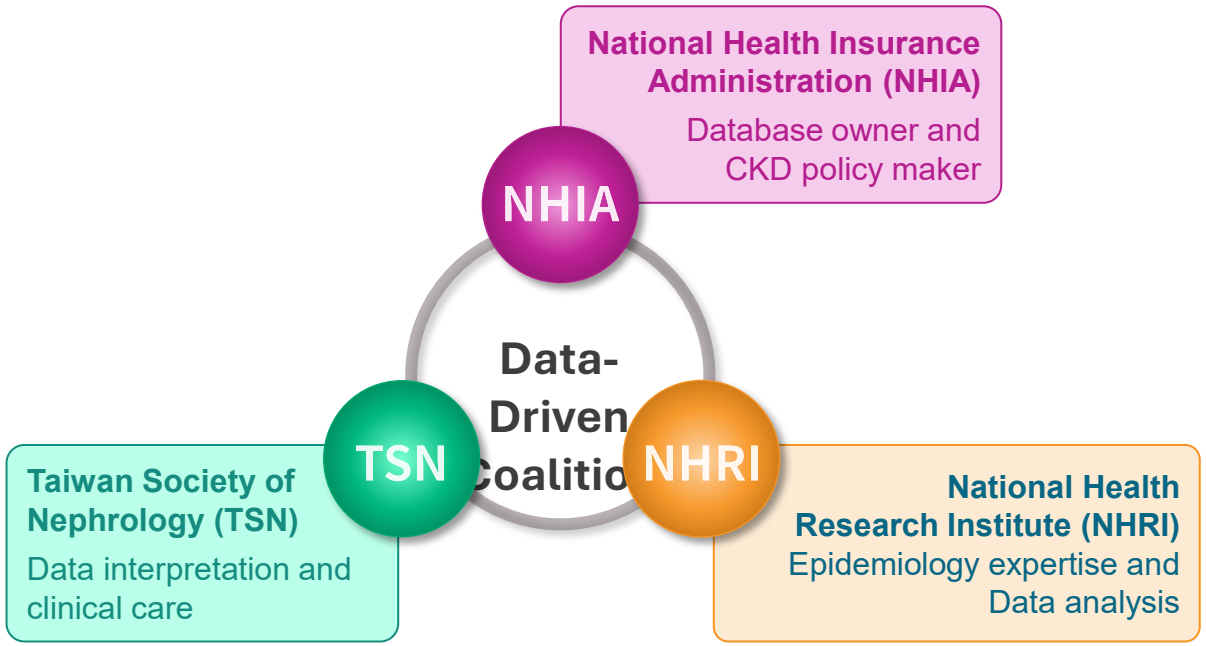
CKD P4P care indicators and quality

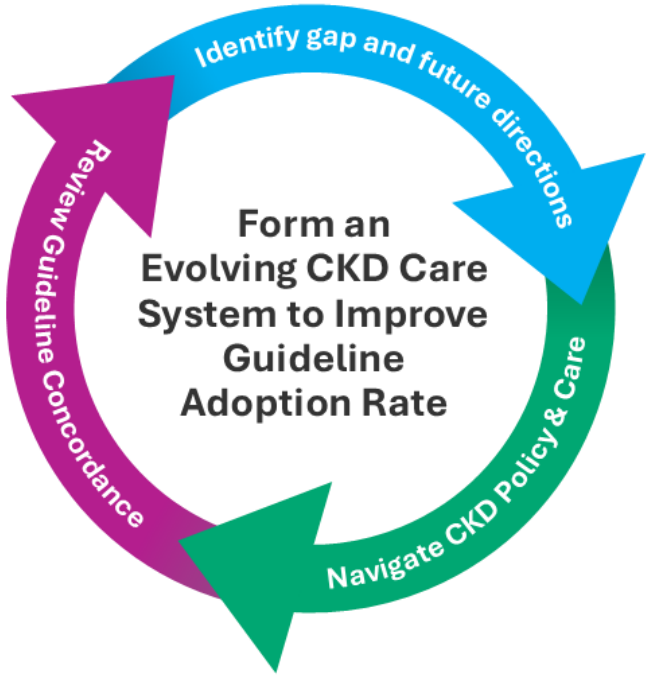
Together, we can form a sustainable, data-driven alliance and evolve CKD care through agile policy transformation

The Early CKD report is dedicated to driving sustainable, data-driven coalition that effectively navigates CKD policy and focus on transforming the approach to early detection and intervention.

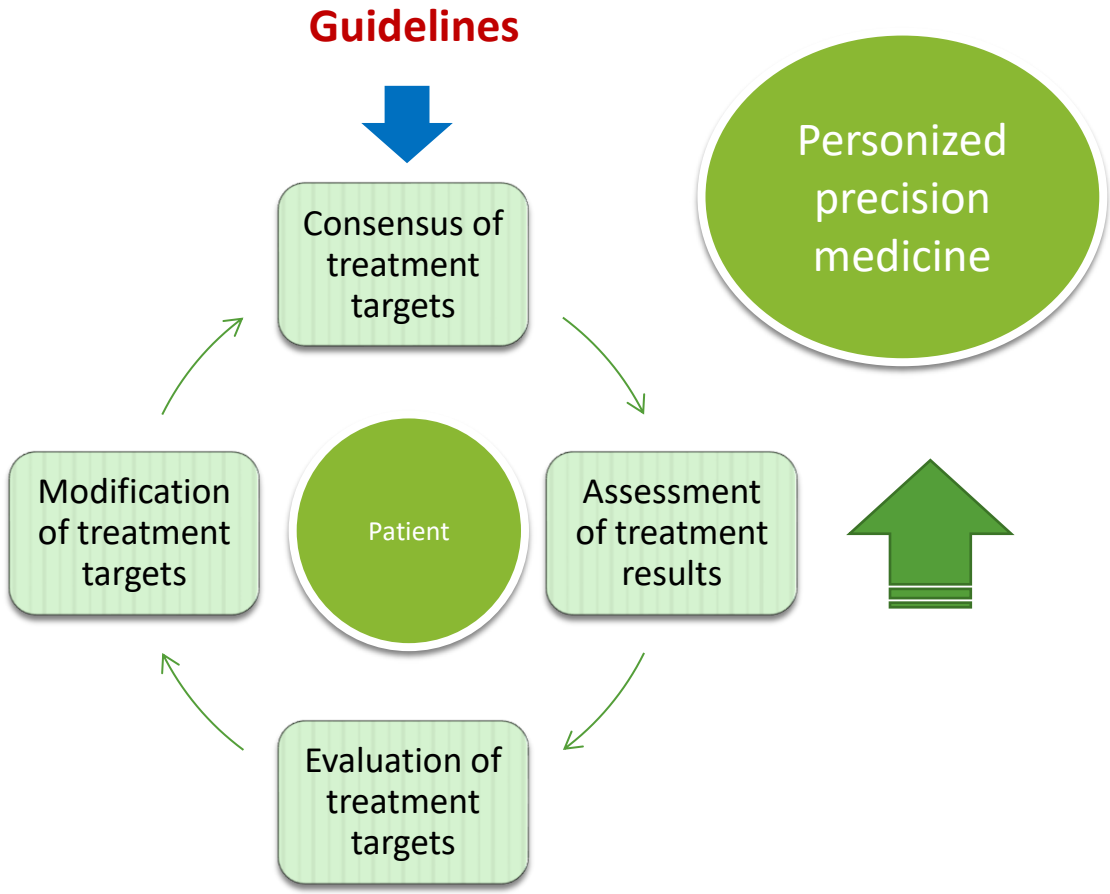
We hope this initiative can be one of the catalysts of sustainable healthcare ecosystem chan

Sustainable, data-driven coalition through government-academic collaboratio



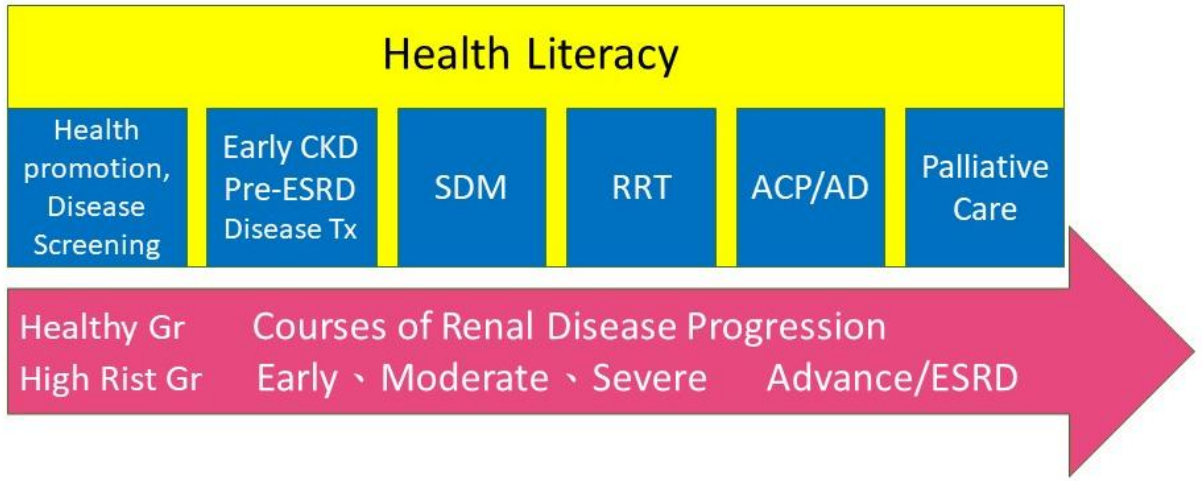


Integrated care for multimorbidity as a new model for individualized medicine

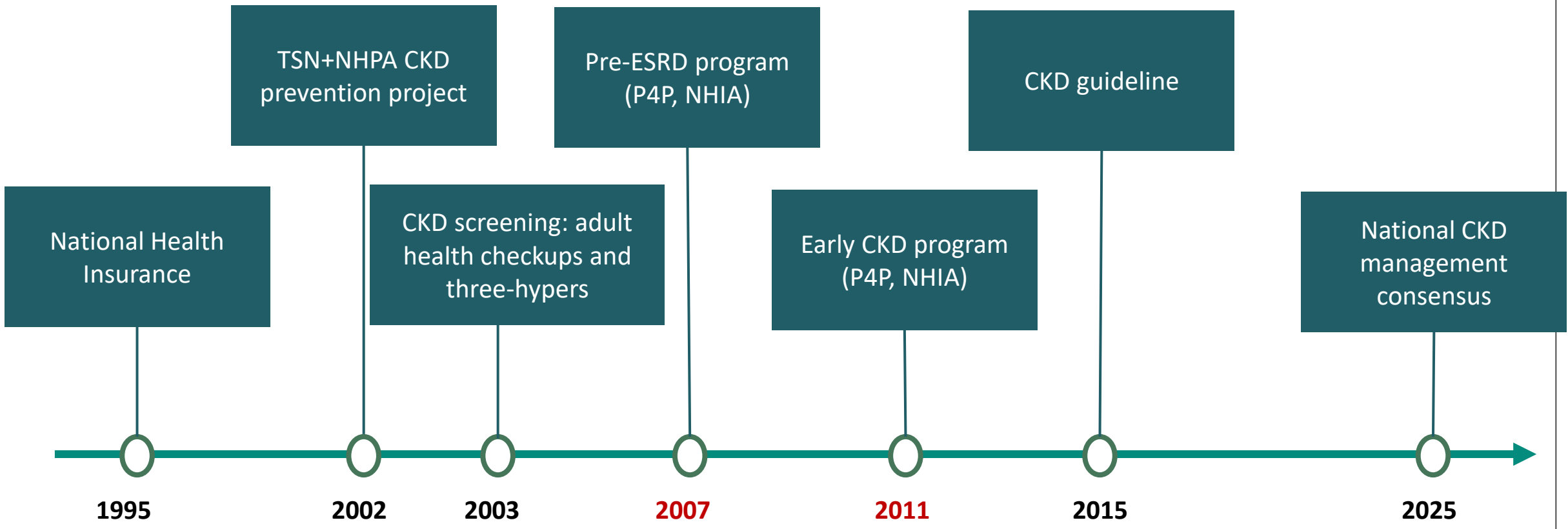


Remodeling on CKD prevention strategy

From Health Literacy, Kidney Disease Prevention to Renal Palliative Care



Milestones of CKD care in Taiwan



Launching Kidney Health Promotion Institution

Launching Kidney-Literacy Friendly Clinic

Taiwan Consensus on CKD Care
– Graphic Abstract of Risk Stratification and Care Pathways –

Evaluate CKD risk factors and conduct kidney function testing 1 2

CKD risk factors (e.g. H/T, DM, dyslipidemia) + **eGFR** + **Urine protein (UACR、UPCR、UA)**

From Screening to Care Enrollment 1,2,3

Patient Empowerment and Integrated Care 4,5,6,7

Clinical Management and Referral in CKD 8,9,10

Stratify CKD risk based on evaluation results 3

- Healthy adult population
- CKD high-risk population
- **CKD population**
  - (Stage 1-3a) Early CKD population
  - (Stage 3b-5) Pre-ESRD population

Different care strategies based on CKD risk stratification 4 5 6 7 8 9

Healthy adult population	CKD high-risk population	CKD population (Stage 1-3a) Early CKD population	CKD population (Stage 3b-5) Pre-ESRD population
Promote kidney health literacy	**Control risk factors to prevent CKD**	**Enroll in Early CKD or Pre-ESRD Programs**	
		Identify CKD risks and individualized treatment goals • Receive multidisciplinary team care • Receive lifestyle counseling and interventions • Receive ACEi/ARB and SGLT2i to achieve treatment goals	
Receive regular adult health examinations	Check kidney function at least annually	Check kidney function at least every 6 months	Check kidney function at least every 3 months

Key situations requiring nephrology consultation or referral 10

Rapidly progressive or advanced CKD

1. eGFR <45 mL/min/1.73m^2
2. Unexplained annual eGFR decline >5 mL/min/1.73 m^2 per year
3. Confirmed increase in proteinuria: UACR >300 mg/g or UPCR >500 mg/g
4. Persistent unexplained microscopic **hematuria**

Suspected concomitant extra-renal disease

5. Persistent unexplained electrolyte abnormalities (e.g., sustained abnormal serum potassium).
6. Resistant hypertension requiring ≥4 antihypertensive agents.
7. Unexplained clinical course inconsistent with expected disease trajectory

J Formos Med Assoc. 2025 Nov 24:S0929-6646(25)00623-0. doi: 10.1016/j.jfma.2025.11.016. Online ahead of print.

APCN x TSN 2025

23rd Asian Pacific Congress of Nephrology

WELCOME TO TAIWAN
THANK YOU FOR YOUR LISTENING!

TaiNEX 2, Taipei, Taiwan

Weiwuying National Kaohsiung Center for the Arts

Kaohsiung Main Railway Station

Thank You

Kaohsiung Harbor

Kaohsiung 85F Building and Light Rail Transit