

The path to safe, equitable and sustainable dialysis provision for people with chronic kidney disease

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An abrupt policy change in 2022 – allowing patients to choose between peritoneal dialysis or hemodialysis – created severe unintended consequences for the Thai health system. A multidisciplinary commission found that interacting factors in the system were overlooked and that future dialysis policies must integrate more-diverse evidence and stakeholder views, prioritizing care quality and ethics while balancing equity and sustainability.

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The policy problem

Chronic kidney disease represents a growing global health challenge, and people progressing to kidney failure rely on dialysis to sustain life. Hemodialysis (HD) and peritoneal dialysis (PD) are resource intensive, and in settings with limited public funding, patients often face catastrophic expenditures. Thailand's 2008 'PD-First' policy, developed through rigorous evidence-informed deliberation, provided free PD under the universal health coverage (UHC) scheme, with free HD reserved for those medically ineligible for PD – which led some patients to choose HD at enormous personal cost. An abrupt policy reform in 2022 allowed patients to choose between HD or PD, but this change increased the number of new patients initiating HD and increased government expenditures beyond projections (Fig. 1), which strained the system and contributed to rising complications and mortality rates in patients initiating HD. The Nature Medicine Commission on Dialysis Policy in Low- and Middle-Income Countries was formed to resolve the current dialysis policy challenges in Thailand and, in doing so, offer lessons for other countries working to expand equitable access to dialysis within UHC frameworks.

The findings

Evidence suggests that the 2022 policy decision was driven by political pressures, informed by limited evidence and lacking a participatory process. Analyses revealed systemic issues that led to subsequent policy problems. Inappropriate financial incentives coupled with limited oversight shaped limited or biased clinical advice by nephrologists, while longstanding misinformation about PD further distorted patient decisions. These interactions promoted inappropriate initiation of dialysis, increased the workload for nurses providing HD, decreased capacity for PD and allowed some private HD centers to relax quality standards. To ensure safe, equitable and sustainable dialysis provision under UHC, the commission set a goal to achieve 50% uptake in PD by new patients initiating dialysis – alongside other policy goals related to dialysis expenditure and patient education. The commission recommended interventions to achieve these goals, including banning unethical incentives, implementing global budgets, establishing pre-authorization, strengthening the regulation of private providers,

Messages for policy

- Define clear policy goals grounded in robust evidence and system capacity, to ensure that dialysis provision is aligned with estimated demand and fiscal realities.
- Foster inclusive participation and institutionalized policy processes for effective dialysis policy reform.
- Prioritize care quality and uphold sustainability, ethics and professional conduct in designing dialysis policies.
- Anticipate system-level implications of dialysis policies, considering the complex relationships and interactions within the health system, to minimize the implementation gap and unintended consequences.
- Strengthen governance with robust data systems for monitoring, evaluation and adaptive implementation.

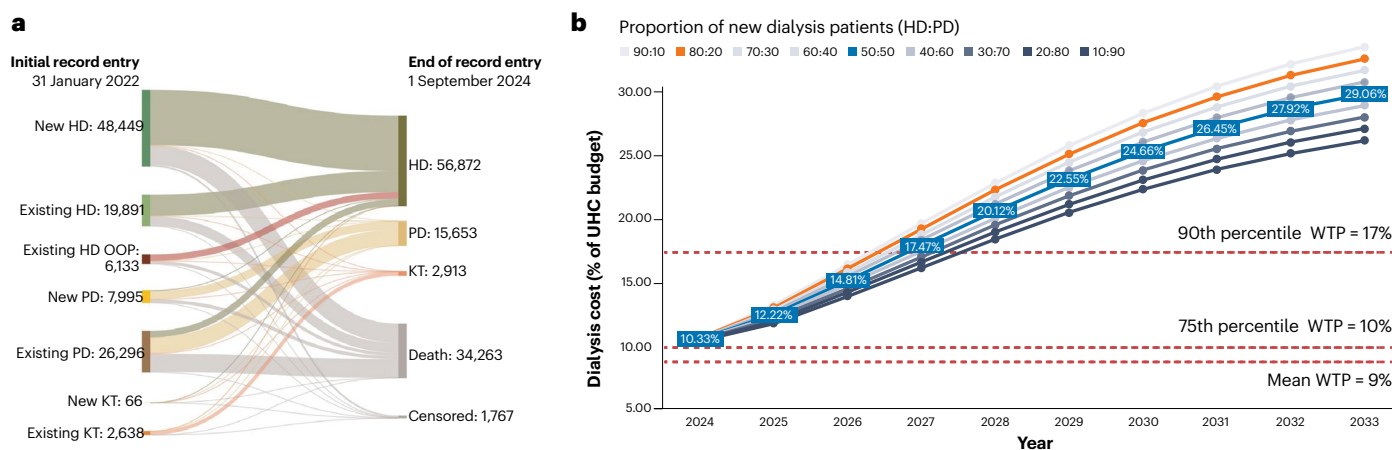


Fig. 1 | Constrained resources necessitate careful balancing of financial sustainability, quality of care and ethical considerations. **a**, The initial estimate of new patients initiating HD was approximately 6,000 patients (red node (middle left), representing those previously paying out of pocket (OOP) for HD); however, following the 2022 policy change, the number of new patients initiating dialysis reached 56,000, 86% of whom received HD (top left). KT, kidney transplant. **b**, If the proportion of new patients undergoing HD shown

in **a** persists, the projected cost of the 2022 dialysis policy could reach about 30% of the UHC budget while serving less than 1% of its beneficiaries. Dialysis costs were projected on the basis of the costs of PD and HD multiplied by the number of new patients initiating dialysis (modeled using Markov); the UHC budget is the total budget within the UHC scheme (which includes the budget for other diseases), and was projected using regression. WTP, willingness to pay.

investing in multidisciplinary education and conservative care, and establishing processes for transparent governance and continuous quality improvement.

The study

The commission used a structured, multidisciplinary approach with three subgroups: the Learning Committee, the Working Group, and the research team. The Learning Committee served in an advisory capacity, while the Working Group developed policy proposals for decision-makers. A four-step conceptual framework was utilized, as follows: (1) clarifying the problems and potential root causes using interviews, national databases analysis, and a causal loop diagram; (2) defining policy goals on the basis of system capacity; (3) identifying policy alternatives through reviews and system archetypes; and (4) estimating system-wide effects using systems dynamics modeling and scenario thinking. Multiple rounds of consultation and expert deliberation refined the policy proposals.

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Further reading

1. Tangcharoensathien, V. et al. Universal access to renal replacement therapy in Thailand: a policy analysis. *Health Systems Research Institute Knowledge Bank* <https://go.nature.com/4abGOKp> (2005).
This report summarizes the findings from a set of studies on kidney replacement therapy in Thailand that informed the ‘PD-First’ policy in 2008.
2. Botwright, S. et al. Understanding healthcare demand and supply through causal loop diagrams and system archetypes: policy implications for kidney replacement therapy in Thailand. *BMC Med.* **23**, 231 (2025).
This paper analyzed the dynamic interactions in the Thai dialysis system to understand systemic issues in the 2022 dialysis policy and identify policy solutions.
3. Yongphiphatwong, N. et al. The way home: a scoping review of public health interventions to increase the utilization of home dialysis in chronic kidney disease patients. *BMC Nephrol.* **26**, 169 (2025).
This review identified policy alternatives to increase the uptake and utilization of PD, which informed some policy options for this study.
4. Chawla, N. et al. Policy strategies to enhance uptake of conservative kidney management in advanced chronic kidney disease: a systematic review and meta-analysis. *BMC Nephrol.* **26**, 388 (2025).
This review identified policy alternatives to increase the uptake and utilization of conservative care, which informed some policy options for this study.

5. Botwright, S. et al. Balancing patient choice and health system capacity: a system dynamics model of dialysis in Thailand. *BMC Med.* **23**, 646 (2025).

This study projected the impact of the selected policy options on the Thai dialysis system over time.

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Competing interests

V.J. has received consulting fees or honoraria from Bayer, Astra Zeneca, Boehringer Ingelheim, Vera, Visterra, Otsuka, Novartis, Chinook, Biocryst and Alpine under a policy by which all payments go to the George Institute for Global Health. T.K. has received consultancy fees from Visterra, Otsuka and AstraZeneca as a country investigator and has also received speaking honoraria from AstraZeneca, Alexion, Fresenius Medical Care and Baxter Healthcare. S.C.W.T. has received consulting fees or honoraria from Astra Zeneca, Bayer, Boehringer Ingelheim, Everest Medicines, Novartis and Vantive. The other authors declare no competing interests.

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